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EDW. P. ALLIS & CO.

RELIANCE WORKS



HISTORICAL SOC.
1888
OF WISCONSIN.

ILLUSTRATED CATALOGUE OF
ROLLER MILLS
AND OTHER

SPECIAL MACHINERY.

MILWAUKEE, WIS.

U. S. A.

1888

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ILLUSTRATED CATALOGUE

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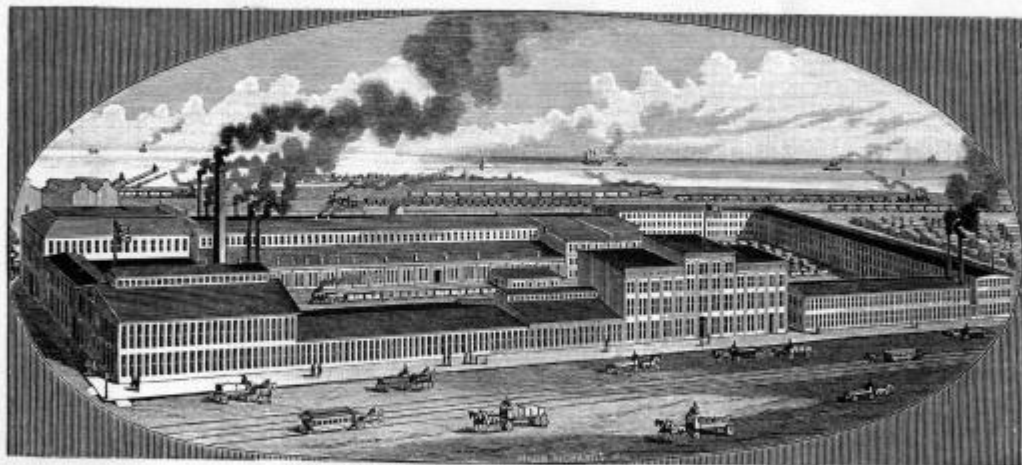
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EDW. P. ALLIS & CO.,

Reliance Works,

MILWAUKEE, WISCONSIN.

U. S. A.



RELIANCE WORKS OF EDW. P. ALLIS & CO.

PREFACE.

IN the following pages we present to the trade a brief description of the various machines for flour milling which are manufactured exclusively by us, accompanying each description with an engraving of the machine and a table giving the sizes, dimensions and prices. It would require too much space in a catalogue of this kind, to attempt to give a detailed description of all the working parts and claims for each of the many machines we make. Our Gray Patent Noiseless Roller Mills, as well as most of our special machines, are so well known that an extended description or argument as to their superiority in construction, efficiency and handsome finish and appearance is hardly necessary; we, therefore, mention merely the prominent features and call attention to a few of their strong points.

During the past season we have perfected and placed upon the market several new machines, which have attracted considerable attention, owing to the results accomplished by their use, and have proven without exception a perfect success. We have gone more extensively into this line of manufacture, owing to the demand that we have long felt in our extensive mill building business for better and more efficient machines than those heretofore on the market, to accomplish results that we desire to attain.

The first roller flouring mill in America (Washburn experimental mill at Minneapolis) was built by us, since which time we have planned and constructed more mills than any firm in the world. Our mills may be found in every section of this country, and we feel that the strongest argument we can use for our work, is to request persons, who contemplate the erection of a mill, to visit and inspect one that we have built, inquiring of the owners as to their measure of satisfaction. Our efforts, as evidenced by the record of the past, have been to constantly improve and raise the standard of mill building. We guarantee all results from our system and, in order to be directly responsible and sure of success, we prefer to build our own special machinery and furnish a complete line, which we know will do all that is claimed for it and produce the best results ever attained in milling.

We issue, in larger form than this, a very complete catalogue of flour mill machinery and supplies of every description, which we shall be pleased to furnish to all millers upon receipt of application for same.

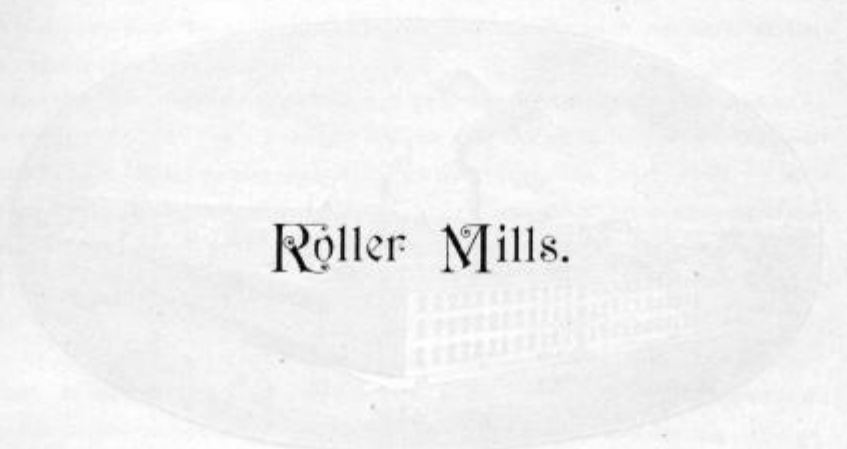
We respectfully solicit the patronage of the milling public.

EDW. P. ALLIS & CO.

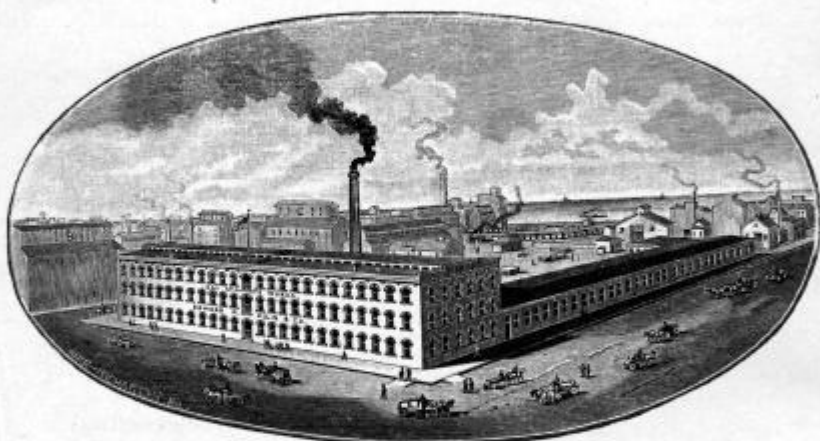
Milwaukee, March 1st, 1888.

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Roller Mills.



Bay State Works of Edw. P. Allis & Co., devoted exclusively to the manufacture of Gray's Patent Noiseless Roller Mills.

Gray's Patent Noiseless Belt Roller Mills.

These celebrated machines, of which we are the sole manufacturers, are so widely known and so popular among millers, that it is almost unnecessary for us to go into any detailed description of their various parts and superior points. We will, therefore, confine ourselves simply to a plain description of the different styles of machines made by us, with dimensions, prices, and such other information as is necessary to enable millers to order understandingly such machines as they may require for use in their mills.

The practical decision of the best millers in the country has been almost unanimously in favor of Gray's Patent Noiseless Belt Roller Mills, the large majority having adopted our machines. Indeed, we are within the truth when we state that more of the Gray Patent Roller Mills have been sold and are at present in use, than all other kinds together. As we were the pioneers in building roller mills in America, so we have all along been pioneers in improving them, the numerous other machines now in the market being one and all imitations of the machines built by us, and infringements of the Gray patents, of which we have exclusive control. In all the essential points of a good roller mill, our machines are so complete that rival builders have been forced to copy and follow the driving arrangement, roll adjustments, feeding devices, and nearly every other detail of the Gray machines.

Not only in building the best machine for the purpose do we surpass other manufacturers, but in capacity of our shops and mechanical facilities for turning out machines rapidly and accurately constructed in every minute detail, we have large advantages over all competitors. We are consequently enabled to fill all orders with promptness and dispatch, and though during the few years past our large and constantly increasing facilities have been taxed to the utmost to keep up with the demands of a rapidly growing trade, we are now in position to meet all reasonable calls upon us. While busily engaged in the manufacture of our well-known standard machines, to meet the demands of the large mills, we have not been unmindful of the necessities of the small mills, but have perfected the best and most durable machines for mills of this class. And in doing this, our aim has been, not to build machines which would sell on account of being cheap

in price, but rather to build machines which would be cheap because they were good, and to sell them as cheap as well-made machinery can be sold.

Our list of roller mills, as will be seen by the following pages, embraces sizes suitable for the smallest as well as the largest mills, and our machines are now in use in mills of from twenty-five to five thousand barrels daily capacity. Over 25,000 pairs of our rolls are in use and we confidently appeal to the users of our machines and to the opinions they express. We offer our machines on the merits which they intrinsically possess, merits which have been abundantly demonstrated and conclusively proved by years of use in the best mills in this country. As the machine stands today, we believe it is without a rival. We guarantee it to be the *best* in every particular. It will run for years without one cent of expense, excepting for oil, and requires less power to drive it than any roller machine on the market.

We own in Milwaukee, a completely equipped roller mill of 1,200 barrels daily capacity, where our machines and system can be examined by the visitor at his leisure and where the attendants will carefully explain the most minute details. We invite careful investigation, knowing that the result will justify the claims we make for our machines and system of milling.

Gray's Patent Noiseless Belt Roller Mills.

STANDARD, OR STYLE A.

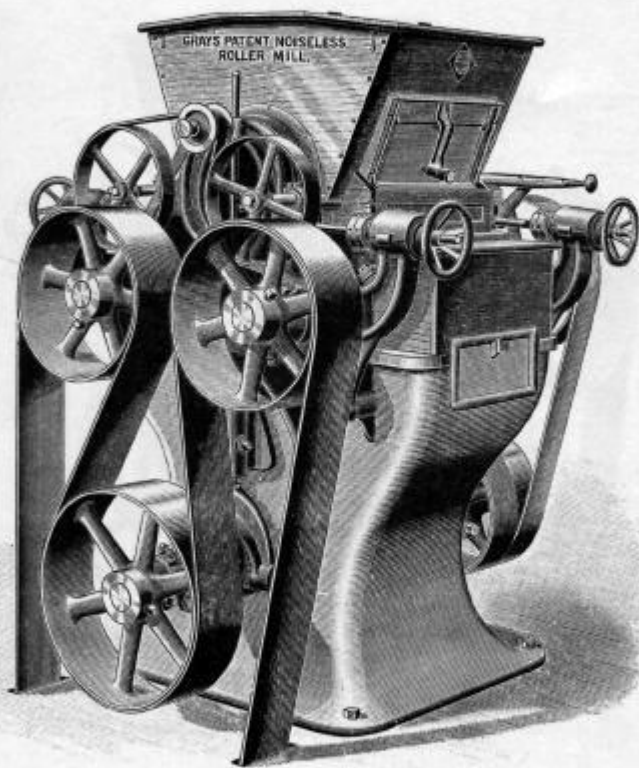
Our Standard Gray's Patent Noiseless Belt Roller Mills are in such general use, and the engravings show the construction of the machines so clearly, that we give no extended description of their mechanical details. We wish simply to call attention to a few of the many points of superiority they possess over machines of other manufacture.

1. *The Solid Iron Frame*, which not only makes the machine very substantial, but also keeps the main working parts rigidly in position and prevents any displacement of parts on account of unevenness of floors or settling of building, to which machines with skeleton frames are unavoidably liable.
2. *The Eccentric Swing Boxes* for leveling the rolls, by which the adjustment is easily affected, and securely held. There are no toggle joints or "clap trap" contrivances and no lost motion to take up. The boxes are securely pivoted on an eccentric pin, and are free to swing back when necessary, while the eccentric pivot permits very accurate adjustment in leveling the rolls.
3. *The Adjustable Countershaft*, which renders it possible to drive both pairs of rolls from one driving pulley and with one driving belt, and to obtain a positive differential motion between fast and slow rolls without the use of gears.
4. *The Adjustment of the Rolls*, so that they may be simultaneously thrown apart and returned to their original position when stopping or starting the mill, without disturbing the grinding adjustments. When desired, we can arrange the throwout arrangement so as to stop the feed rolls when rolls are thrown apart, thus shutting off the feed, without disturbing the adjustment of the feed gates.
5. *The Arrangement* of the tie rods and springs for adjusting the working pressure of the rolls, so as to permit the spreading apart of the rolls, should any foreign substance pass through them and to allow the instantaneous return of the rolls to working position, thus avoiding any injury or undue strain on the machine and allowing the working tension of the pressure spring to be at all times maintained at exactly the desired point.

6. *The Self Oiling Boxes*, which avoid any heating, or waste of oil and keep the journals at all times thoroughly lubricated and in the best running order. All end play of rolls is prevented by collars working in recesses in the self oiling boxes.
7. *The Patent Feed Devices* employed upon our machines are unexcelled by any devices for the purpose on the market. On first break rolls, the feed may be shut off without disturbing the adjustment, which can be maintained uniform and even the entire width of the working face of the rolls. On all other machines, we use either our Automatic Feed Gate or our new Shaker Feed, as may be preferred.
8. *The Automatic Scrapers* which are placed on all smooth iron and porcelain roller mills and on fine corrugated rolls when required.
9. *The Substitution of Belts* for gears throughout all the driving parts of the machine, thus rendering it, as its name implies, a perfect noiseless belt drive roller mill.
10. *The Perfection of Workmanship* and material which, with the superior excellence of design, combine to make the Gray Roller Mills the best and most popular machines in the market.

Gray's Patent Noiseless Belt Roller Mills.

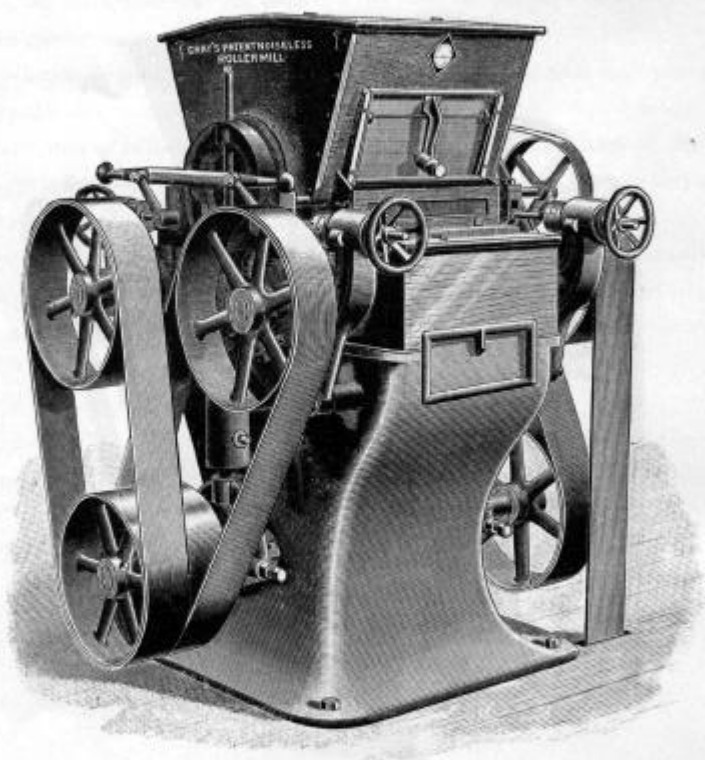
STANDARD, OR STYLE A.



Driving Side.

Gray's Patent Noiseless Belt Roller Mills.

STANDARD, OR STYLE A.



Side Opposite Driving Side.

GRAY'S PATENT NOISELESS BELT ROLLER MILLS.

STANDARD, OR STYLE A.

DIMENSIONS AND PRICES.

WITH SMOOTH CHILLED IRON ROLLS.

SIZE OF ROLLS.	Height.	Length.	Width.	Driving Pulley.	Revolutions per Minute.	Approximate Power Required.	Length of Driving Belt Above Floor.	Approximate Shipping Weight.	Price.
9" x 14" Double, or 4-Roll.....	5' 9"	4' 2"	4'	16" x 5½"	300 to 400	1½ to 2½ H. P.	16' 9"	2800 lbs.	\$580 00
9" x 18" " " "	6'	4' 4"	5'	16" x 6½"	300 " 400	2 " 3½ "	18' 3"	3500 "	625 00
9" x 24" " " "	6'	4' 4"	5' 6"	16" x 7½"	300 " 400	3 " 4 "	18' 3"	4150 "	700 00
9" x 30" " " "	6'	4' 4"	6' 1"	16" x 7½"	300 " 400	4 " 5 "	18' 3"	5850 "	785 00

WITH CORRUGATED CHILLED IRON ROLLS.

9" x 14" Double, or 4-Roll.....	5' 9"	4' 2"	4'	16" x 5½"	300 to 400	1½ to 2½ H. P.	16' 9"	2800 lbs.	\$600 00
9" x 18" " " "	6'	4' 4"	5'	16" x 6½"	300 " 400	2 " 3½ "	18' 3"	3500 "	650 00
9" x 24" " " "	6'	4' 4"	5' 6"	16" x 7½"	300 " 400	3 " 4 "	18' 3"	4150 "	735 00
9" x 30" " " "	6'	4' 4"	6' 1"	16" x 7½"	300 " 400	4 " 5 "	18' 3"	5850 "	830 00

WITH WEGMANN'S PATENT PORCELAIN ROLLS.

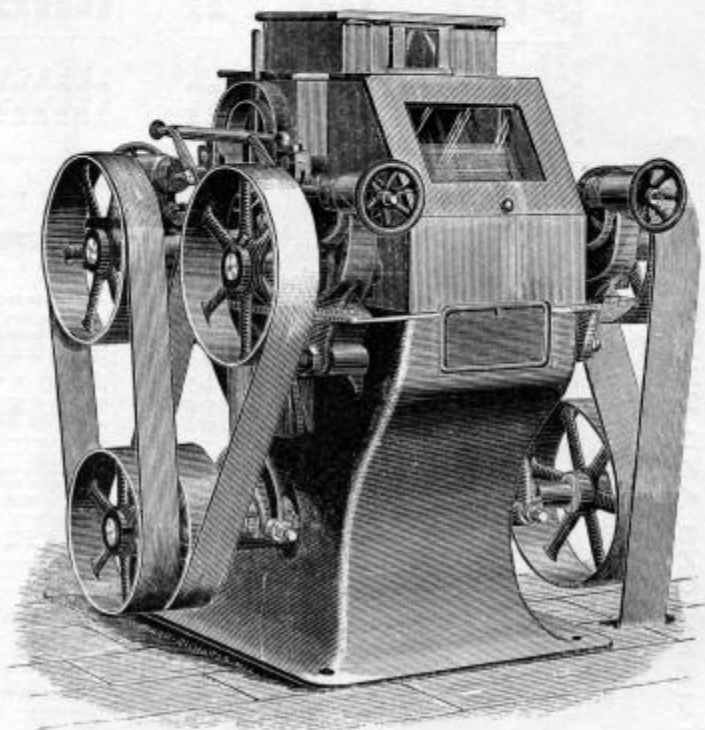
9" x 14" Double, or 4-Roll.....	5' 9"	4' 2"	4'	16" x 5½"	300 to 400	1 to 2 H. P.	16' 9"	3200 lbs.	\$650 00
9" x 18" " " "	6'	4' 4"	5'	16" x 6½"	300 " 400	2 " 3 "	18' 3"	3900 "	700 00

DIVIDED FOUR ROLLER MACHINES.

9" x 14" 1 pr. corrug., 1 pr. smooth ..	5' 9"	4' 2"	4'	16" x 5½"	300 to 400	1½ to 2½ H. P.	16' 9"	2800 lbs.	\$590 00
9" x 14" " " porcelain " smooth...	5' 9"	4' 2"	4'	16" x 5½"	300 " 400	1½ " 2½ "	16' 9"	2760 "	625 00
9" x 14" " " porcelain, " smooth...	5' 9"	4' 2"	4'	16" x 5½"	300 " 400	1½ " 2½ "	16' 9"	2760 "	615 00
9" x 18" " " corrug., " " ...	6'	4' 4"	5'	16" x 6½"	300 " 400	2 " 3½ "	18' 3"	3500 "	637 50
9" x 18" " " " " porcelain " smooth...	6'	4' 4"	5'	16" x 6½"	300 " 400	2 " 3½ "	18' 3"	3450 "	675 00
9" x 18" " " " " porcelain, " smooth...	6'	4' 4"	5'	16" x 6½"	300 " 400	2 " 3½ "	18' 3"	3450 "	662 50
9" x 24" " " " " corrug., " " ...	6'	4' 4"	5' 6"	16" x 7½"	300 " 400	3 " 4 "	18' 3"	4150 "	717 50
9" x 30" " " " " " " " " " " ...	6'	4' 4"	6' 1"	16" x 7½"	300 " 400	4 " 5 "	18' 3"	5850 "	807 50

Gray's Patent Noiseless Belt Roller Mills.

STANDARD MACHINE WITH SHAKER FEED.



In order to meet the occasional demand of Millers who may prefer to use the "Shaker Feed," and to enable them to use the Gray's Patent Noiseless Belt Roller Mills with such attachment, we have perfected and now furnish our "Standard," or Style A, Style E (six inch) and Style L Rolls, all sizes, with the most substantial and perfect shaker feed device in the market. The shaker shoe is made in two pieces, so arranged that the parts shake in opposite directions, the one counteracting the jarring action of the other, so that the machine stands perfectly steady upon the floor.

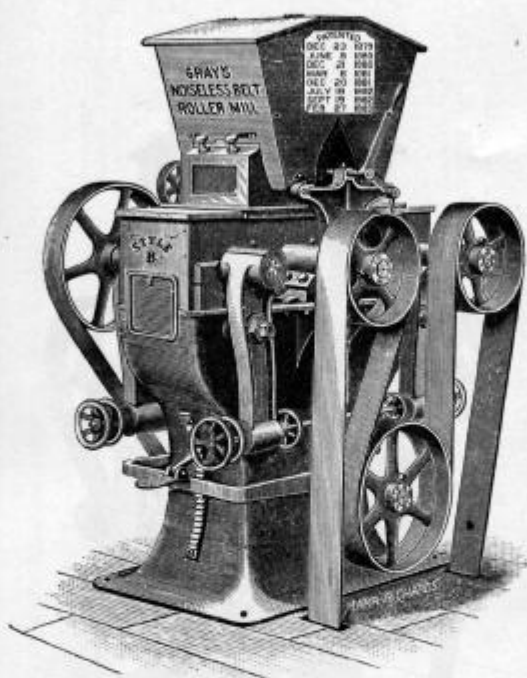
A single lever movement simultaneously throws apart the rolls and stops the feed.

We also make all sizes and styles of our machines with the best automatic feed gates in the market.

The price of our Roller Mills is the same with either feed device.

Gray's Patent Noiseless Belt Roller Mills.

STYLE B.



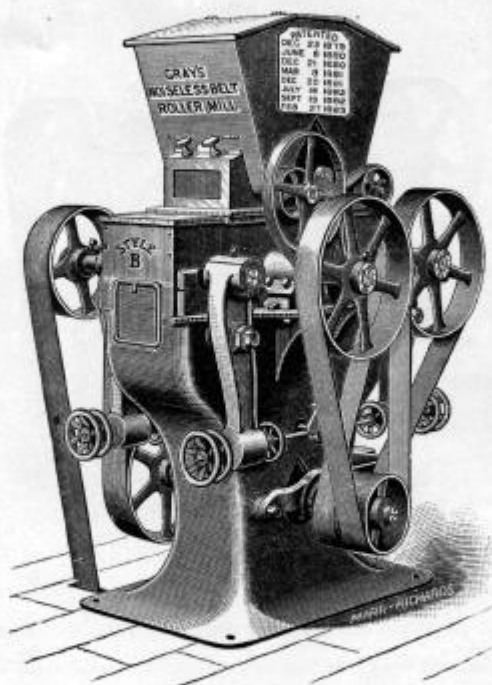
Driving Side.

These machines are built in small sizes and are especially designed to meet the requirements of mills under 100 barrels daily capacity. Each machine is provided with all the adjusting devices which have made our Standard Gray Patent Noiseless Belt Roller Mills famous and the acknowledged standard machines of their kind. They have the solid iron frame, simultaneous throwing apart of the rolls, eccentric swing boxes and leveling device, and arrangements for adjusting and regulating the rolls.

The style "B" machines are also constructed so that a single movement of the lever throws the rolls apart and shuts off the feed from both pairs of rolls.

Gray's Patent Noiseless Belt Roller Mills.

STYLE B.



Side Opposite Driving Side

GRAY'S PATENT NOISELESS BELT ROLLER MILLS.

STYLE B.

DIMENSIONS AND PRICES.

WITH SMOOTH CHILLED IRON ROLLS.

SIZE OF ROLLS.	Height.	Length.	Width.	Driving Pulley.	Revolutions per Minute.	Approximate Power Required.	Length of Driving Belt Above Floor.	Approximate Shipping Weight.	Price.
9" x 8".....	5' 3"	3' 9"	3' 1"	12" x 4 1/4"	300 to 400	3/4 to 1 1/2 H. P.	15' 9"	1980 lbs.	\$520 00
9" x 11".....	5' 3"	3' 9"	3' 4"	12" x 4 1/4"	300 " 400	1 " 2 " "	15' 9"	2200 "	545 00
9" x 14".....	5' 3"	3' 9"	3' 10"	16" x 5 1/4"	300 " 400	1 1/2 " 2 1/2 "	17'	2700 "	580 00

WITH CORRUGATED CHILLED IRON ROLLS.

9" x 8".....	5' 3"	3' 9"	3' 1"	12" x 4 1/4"	300 to 400	3/4 to 1 1/2 H. P.	15' 9"	1980 lbs.	530 00
9" x 11".....	5' 3"	3' 9"	3' 4"	12" x 4 1/4"	300 " 400	1 " 2 " "	15' 9"	2200 "	560 00
9" x 14".....	5' 3"	3' 9"	3' 10"	16" x 5 1/4"	300 " 400	1 1/2 " 2 1/2 "	17'	2700 "	600 00

WITH WEGMANN'S PATENT PORCELAIN ROLLS.

9" x 14".....	5' 3"	3' 9"	3' 10"	16" x 5 1/4"	300 to 400	1 1/2 to 2 1/2 H. P.	17'	2620 lbs.	650 00
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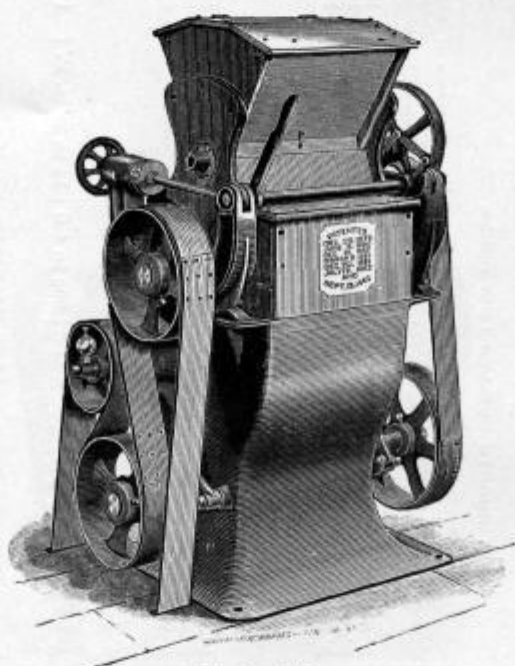
DIVIDED FOUR ROLLER MACHINES.

9" x 8" 1 pr. corrug. 1 pr. smooth	5' 3"	3' 9"	3' 1"	12" x 4 1/4"	300 to 400	3/4 to 1 1/2 H. P.	15' 9"	1980 lbs.	525 00
9" x 11" " " " "	5' 3"	3' 9"	3' 4"	12" x 4 1/4"	300 " 400	1 " 2 " "	15' 9"	2200 "	552 50
9" x 14" " " " "	5' 3"	3' 9"	3' 10"	16" x 5 1/4"	300 " 400	1 1/2 " 2 1/2 "	17'	2700 "	590 00
9" x 14" " " porcelain.....	5' 3"	3' 9"	3' 10"	16" x 5 1/4"	300 " 400	1 1/2 " 2 1/2 "	17'	2660 "	625 00
9" x 14" " smooth " "	5' 3"	3' 9"	3' 10"	16" x 5 1/4"	300 " 400	1 1/2 " 2 1/2 "	17'	2660 "	615 00

MILWAUKEE, WIS.

Gray's Patent Noiseless Belt Roller Mills.

STYLE C.



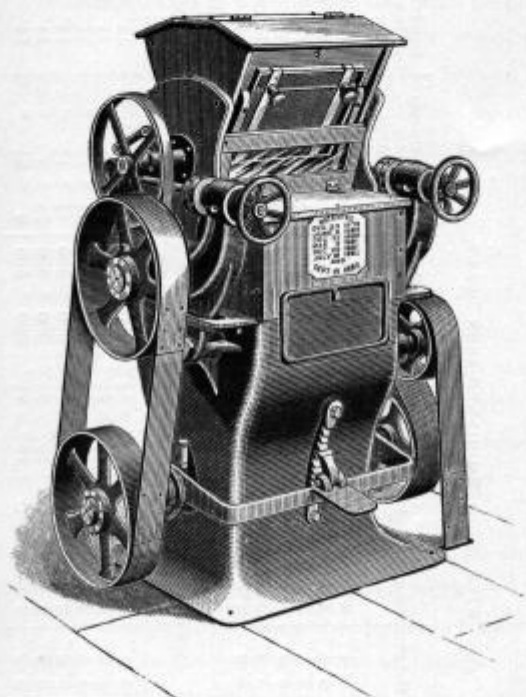
Driving Side.

Our object in presenting this machine to the trade is, that the miller sometimes wants just one pair of rolls, or has not room enough to put in a double machine.

The Style C roll has the same solid iron frame, drive and adjustments as our double machine, and we guarantee it to be just as good in every respect.

Gray's Patent Noiseless Belt Roller Mills.

STYLE C.



Side Opposite Driving Side.

These machines, when fitted with our first break rolls, are vastly superior to any other first-break machine in the market. They are also especially serviceable in mills where it is desired to add a single pair of rolls to aid in the finishing process, in order to obtain a closer yield and an improved grade of the product. For this purpose, they can be fitted with either smooth or scratch rolls as desired. The 9" x 14" and 9" x 18" machines can also be fitted with porcelain rolls.

GRAY'S PATENT NOISELESS BELT ROLLER MILLS.

STYLE C.

DIMENSIONS AND PRICES.

WITH SMOOTH CHILLED IRON ROLLS.

SIZES OF ROLLS.	Height.	Length.	Width.	Driving Pulley.	Revolutions per Minute.	Approximate Power Required.	Length of Driving Belt Above Floor.	Approximate Shipping Weight.	Price.
9" x 8" Single or 2-roll	4' 4"	2' 4"	2' 10"	12" x 4 1/4"	300 to 400	3/4 to 1 H. P.	11' 3"	1100 lbs.	\$280 00
9" x 11" " " "	4' 4"	2' 4"	3' 1"	12" x 4 3/4"	300 " 400	1 " 1 1/4 "	11' 3"	1450 "	295 00
9" x 14" " " "	4' 4"	2' 4"	3' 5"	12" x 5 1/4"	300 " 400	1 1/4 " 1 1/2 "	11' 3"	1800 "	310 00
9" x 18" " " "	5' 2"	2' 8"	4' 6"	16" x 6 3/4"	300 " 400	1 1/4 " 1 3/4 "	14'	2300 "	335 00
9" x 24" " " "	5' 2"	2' 8"	5' 2"	16" x 7 1/2"	300 " 400	1 1/2 " 2 "	14'	2760 "	375 00
9" x 30" " " "	5' 2"	2' 8"	5' 8"	16" x 7 1/2"	300 " 400	2 " 2 1/2 "	14'	3900 "	420 00

WITH CORRUGATED CHILLED IRON ROLLS.

9" x 8" Single, or 2-Roll	4' 4"	2' 4"	2' 10"	12" x 4 1/4"	300 to 400	3/4 to 1 H. P.	11' 3"	1100 lbs.	\$290 00
9" x 11" " " "	4' 4"	2' 4"	3' 1"	12" x 4 3/4"	300 " 400	1 " 1 1/4 "	11' 3"	1450 "	305 00
9" x 14" " " "	4' 4"	2' 4"	3' 5"	12" x 5 1/4"	300 " 400	1 1/4 " 1 1/2 "	11' 3"	1800 "	325 00
9" x 18" " " "	5' 2"	2' 8"	4' 6"	16" x 6 3/4"	300 " 400	1 1/4 " 1 3/4 "	14'	2300 "	350 00
9" x 24" " " "	5' 2"	2' 8"	5' 2"	16" x 7 1/2"	300 " 400	1 1/2 " 2 "	14'	2760 "	390 00
9" x 30" " " "	5' 2"	2' 8"	5' 8"	16" x 7 1/2"	300 " 400	2 " 2 1/2 "	14'	3900 "	440 00

WITH WEGMANN'S PATENT PORCELAIN ROLLS.

9" x 14" Single, or 2-Roll	4' 4"	2' 4"	3' 5"	12" x 5 1/4"	300 to 400	1 1/4 to 1 1/2 H. P.	11' 3"	1750 lbs.	\$375 00
9" x 18" " " "	5' 2"	2' 8"	4' 6"	16" x 6 3/4"	300 " 400	1 1/4 " 1 3/4 "	14'	2250 "	400 00

Gray's Patent Noiseless Belt Roller Mills.

WITH PORCELAIN ROLLS.

About the year 1873 we made for a wideawake miller in Minnesota, the first pair of rolls used for milling purposes in America. They were made of marble, twenty inches in diameter, and set in a wooden frame with sliding boxes and the necessary adjusting devices. These rolls were used to crush the wheat before grinding, and attracted considerable attention from the favored few who knew of their existence. The marble, however, proved too soft, and we subsequently made rolls of cast iron for the same purpose. These crude rolls were used for some time and quite a large number of millers in the Northwest tried the experiment of crushing the wheat, before grinding it on the mill stones; at one time a large number of rolls being in use for this purpose. The results were not, however, as satisfactory as were at first expected, and millers who had used them were anxiously looking for something better. In 1875 we succeeded in obtaining chilled iron rolls, so hard that the sharpest file would make no impression on their finely polished surfaces, and so true that, when placed together in the machine, they would shut out light their entire length. These rolls were introduced extensively for the purpose of sizing coarse middlings and purifier tailings, in order to flatten the germ and thus make possible its separation from the middlings.

The success of rolls for this purpose was complete and assured from the start, but it soon appeared that the smooth rolls, though working excellently on the coarse middlings for the elimination of the germ, would not answer the purpose of making the final reductions on the finer and softer middlings. We were thus led to investigate porcelain rolls, and, after trying them most thoroughly, we became convinced that they were superior in every respect to iron rolls, for the purpose for which they were designed to be used. In 1877 we made arrangements with the inventor, Mr. F. Wegmann, of Zurich, Switzerland, for the sole use of his invention in this country. It is owing to the fact of our exclusive control of the sale of porcelain rolls in this country, that other manufacturers have so bitterly opposed their use and have endeavored, so far fruitlessly, to devise some substitute for them.

We are constantly putting porcelain rolls into the best mills in the country and their good work is appreciated by millers who have used them the longest.

They perform a class of work that neither smooth iron rolls nor millstones can do, and have all the good and none of the bad qualities of both.

They will grind more than smooth rolls and flatten less, while they flatten more than millstones and grind less.

No matter how clean middlings may be, when they are reduced, you leave the fibrous matter. If reduced on smooth rolls, the result is to flatten, to a large extent, both impurities and good middlings, making the tail of the reels too rich and consequently giving a poor yield; if reduced on millstones, no discrimination is made between good, clean middlings and impurities, but the fluffy matter is ground into the flour, resulting in impure flour.

If porcelain rolls are used, you obtain the same smooth surface of the roll to flatten the impurities and still have the fine, sharp grit, necessary to produce clean, sharp flour. Millstones are unfit to grind middlings, no matter how clean they may seem to be. The only thing in their favor is their large capacity, but the time is at hand when quality is of first consideration, above quantity, and millers now understand better how to handle rolls than they formerly did, consequently porcelain roller mills are constantly increasing in favor.

We make three sizes of machines for porcelain rolls, 14"x16", 9"x18" and 9"x14". A special frame is made for the 14"x16", and the smaller sizes are placed in our regular frames for Standard, Style B, Style C, and Style L machines. The large machine will grind about as much as a four-foot millstone.

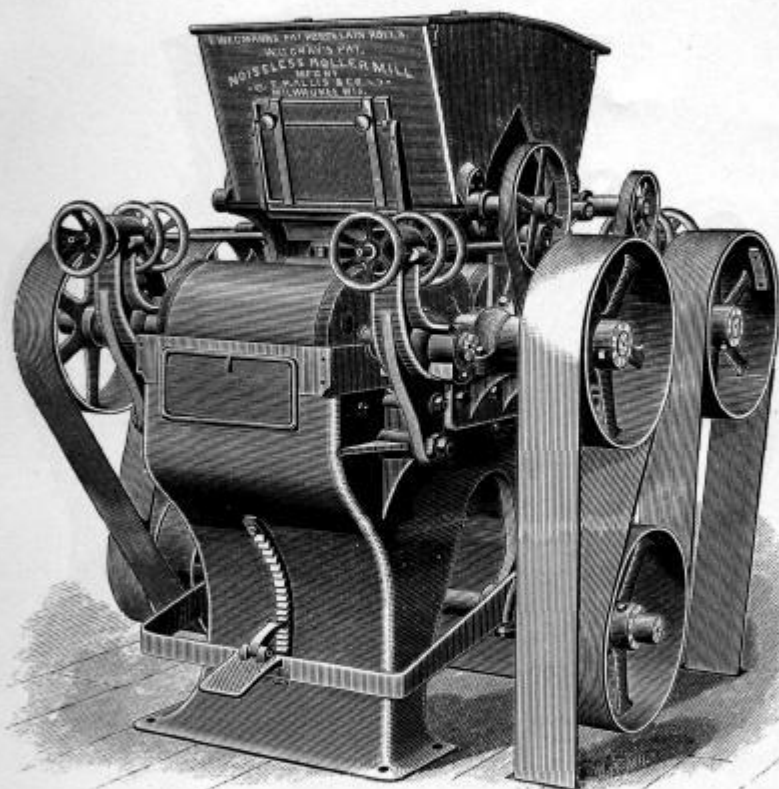
We recommend the use of these machines for grinding fine, clean middlings or middlings that have passed through smooth iron rolls, most of the germ having been extracted, and we guarantee that porcelain rolls will do this work better than either smooth iron rolls or millstones.

DIMENSIONS AND PRICES.

SIZE OF ROLLS.	Height.	Length.	Width.	Driving Pulley.	Revolutions per Minute.	Approximate Power Required.	Length of Driving Belt Above Floor.	Approximate Shipping Weight.	Price.
14" x 16" Single ..	5' 7"	3' 2"	4' 5"	20" x 6½"	200 to 300	1½ to 2½ H.P.	16' 3"	2,700 lbs.	\$600 00
14" x 16" Double...	5' 10"	5' 6"	4' 10"	20" x 6½"	200 " 300	3 " 4 H.P.	19' 3"	4,000 "	800 00

Gray's Patent Noiseless Belt Roller Mills.

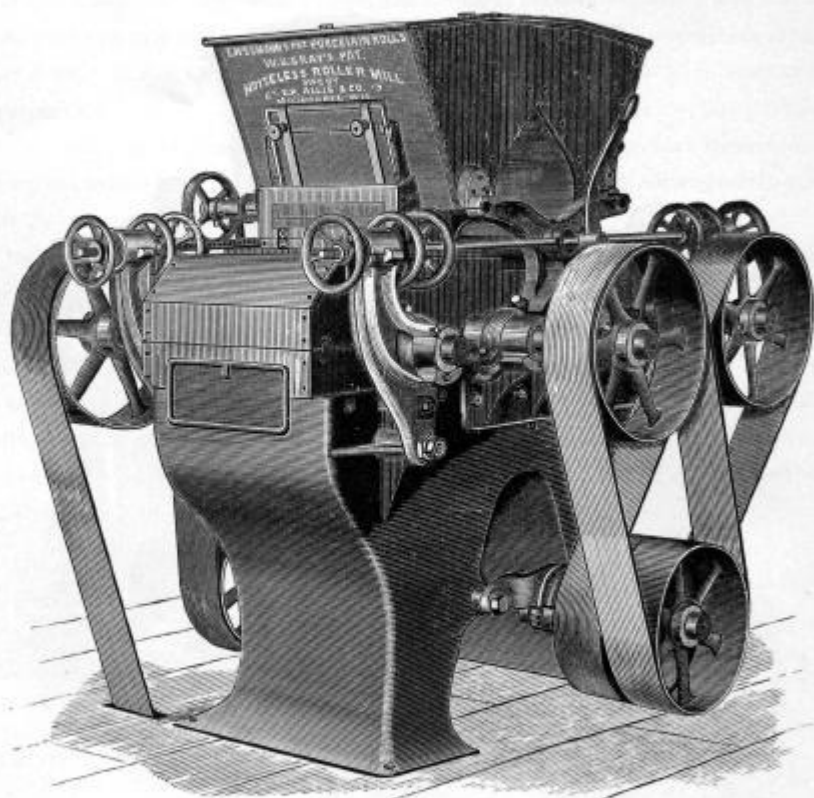
WITH WEGMANN'S PATENT PORCELAIN ROLLS.



Driving Side.

Gray's Patent Noiseless Belt Roller Mills.

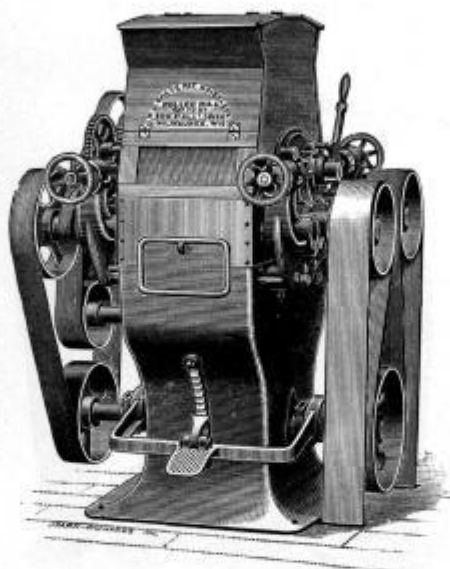
WITH WEGMANN'S PATENT PORCELAIN ROLLS.



Side Opposite Driving Side.

Gray's Patent Noiseless Belt Roller Mills.

SIX INCH ROLLS,—STYLE E.



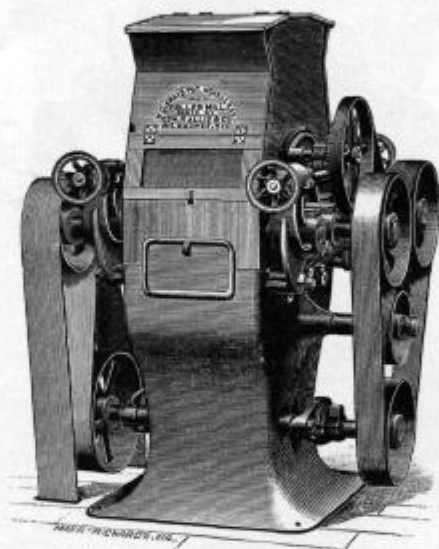
Driving Side.

Many millers believe that there is a great advantage to be derived from using rolls of small diameter, and there has been quite a large demand for six-inch rolls.

In order to meet this demand, we present our Style C roller mill to the trade. To millers who want a six-inch roll, we can freely recommend this machine, which is practically the same as our Standard roller mill, except that the drive on the back is accomplished by one belt, instead of two.

Gray's Patent Noiseless Belt Roller Mills.

SIX INCH ROLLS,—STYLE E.



Side Opposite Driving Side.

Another difference between our Style C and Standard machines is in the device for tightening the belts, which is similar to that employed on our Style B roll.

The adjustments are identical with the Standard. This machine is strong, durable and presents a very handsome appearance.

GRAY'S PATENT NOISELESS BELT ROLLER MILLS.

WITH SIX INCH ROLLS,—STYLE E.

DIMENSIONS AND PRICES.

WITH SMOOTH CHILLED IRON ROLLS.

SIZE OF ROLLS.	Height.	Length.	Width.	Driving Pulley.	Revolutions per Minute.	Approximate Power Required.	Length of Driving Belt Above Floor.	Approximate Shipping Weight.	Price.
6'' x 12'' Double or 4-Roll.....	4' 7''	2' 10''	3'	10'' x 4 $\frac{1}{2}$ ''	500	1 $\frac{1}{2}$ to 1 $\frac{3}{4}$ H. P.	13' 6''	1480 lbs.	\$465 00
6'' x 16'' " " "	4' 7''	2' 10''	3' 4''	10'' x 4 $\frac{3}{4}$ ''	500	1 $\frac{3}{4}$ " 2 $\frac{1}{4}$ "	13' 6''	1680 "	515 00
6'' x 20'' " " "	4' 7''	2' 10''	3' 9''	10'' x 5 $\frac{1}{2}$ ''	500	2 $\frac{1}{4}$ " 2 $\frac{3}{4}$ "	13' 6''	1860 "	565 00

WITH CORRUGATED CHILLED IRON ROLLS.

6'' x 12'' Double, or 4-Roll	4' 7''	2' 10''	3'	10'' x 4 $\frac{1}{2}$ ''	500	1 $\frac{1}{2}$ to 1 $\frac{3}{4}$ H. P.	13' 6''	1480 lbs.	\$480 00
6'' x 16'' " " "	4' 7''	2' 10''	3' 4''	10'' x 4 $\frac{3}{4}$ ''	500	1 $\frac{3}{4}$ " 2 $\frac{1}{4}$ "	13' 6''	1680 "	530 00
6'' x 20'' " " "	4' 7''	2' 10''	3' 9''	10'' x 5 $\frac{1}{2}$ ''	500	2 $\frac{1}{4}$ " 2 $\frac{3}{4}$ "	13' 6''	1860 "	580 00

DIVIDED, ONE PAIR CORRUGATED AND ONE PAIR SMOOTH.

6'' x 12'' Double, or 4-Roll.....	4' 7''	2' 10''	3'	10'' x 4 $\frac{1}{2}$ ''	500	1 $\frac{1}{2}$ to 1 $\frac{3}{4}$ H. P.	13' 6''	1480 lbs.	\$472 50
6'' x 16'' " " "	4' 7''	2' 10''	3' 4''	10'' x 4 $\frac{3}{4}$ ''	500	1 $\frac{3}{4}$ " 2 $\frac{1}{4}$ "	13' 6''	1680 "	522 50
6'' x 20'' " " "	4' 7''	2' 10''	3' 9''	10'' x 5 $\frac{1}{2}$ ''	500	2 $\frac{1}{4}$ " 2 $\frac{3}{4}$ "	13' 6''	1860 "	572 50

MILWAUKEE, WIS.

Gray's Patent Noiseless Belt Roller Mills.

STYLE L.

This style of our well known roller mills is similar in general appearance to our six-inch, or Style E machine. The rolls are nine inches in diameter. This machine can be fitted with either positive, automatic or shaker feed.

DIMENSIONS AND PRICES.

WITH SMOOTH CHILLED IRON ROLLS.

SIZE OF ROLL.	Height.	Length.	Width.	Driving Pulley.	Revolutions per Minute.	Approximate Power Required.	Length of Driving Belt Above Floor.	Approximate Shipping Weight.	Price.
9" x 14".....	5' 1½"	3' 10"	3' 10"	12" x 5¼"	300 to 400	1½ to 2½ H. P.	16' 6"	2700 lbs.	\$580 00

WITH CORRUGATED CHILLED IRON ROLLS.

9" x 14".....	5' 1½"	3' 10"	3' 10"	12" x 5¼"	300 to 400	1½ to 2½ H. P.	16' 6"	2700 lbs.	\$600 00
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WITH WEGMANN'S PATENT PORCELAIN ROLLS.

9" x 14".....	5' 1½"	3' 10"	3' 10"	12" x 5¼"	300 to 400	1½ to 2½ H. P.	16' 6"	2700 lbs.	\$650 00
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DIVIDED FOUR ROLLER MACHINES.

9" x 14".....	5' 1½"	3' 10"	3' 10"	12" x 5¼"	300 to 400	1½ to 2½ H. P.	16' 6"	2700 lbs.	\$590 00
1-pr. cor. 1-pr. sm.	5' 1½"	3' 10"	3' 10"	12" x 5¼"	300 " 400	1½ " 2½ "	16' 6"	2700 "	615 00
9" x 14".....	5' 1½"	3' 10"	3' 10"	12" x 5¼"	300 " 400	1½ " 2½ "	16' 6"	2700 "	625 00
1-pr. sm. 1-pr. por.	5' 1½"	3' 10"	3' 10"	12" x 5¼"	300 " 400	1½ " 2½ "	16' 6"	2700 "	625 00
9" x 14".....	5' 1½"	3' 10"	3' 10"	12" x 5¼"	300 " 400	1½ " 2½ "	16' 6"	2700 "	625 00
1-pr. cor. 1-pr. por.	5' 1½"	3' 10"	3' 10"	12" x 5¼"	300 " 400	1½ " 2½ "	16' 6"	2700 "	625 00

Height of machine with Shaker Feed, 5' 8½".

Gray's Patent Noiseless Belt Gradual Reduction Machine.

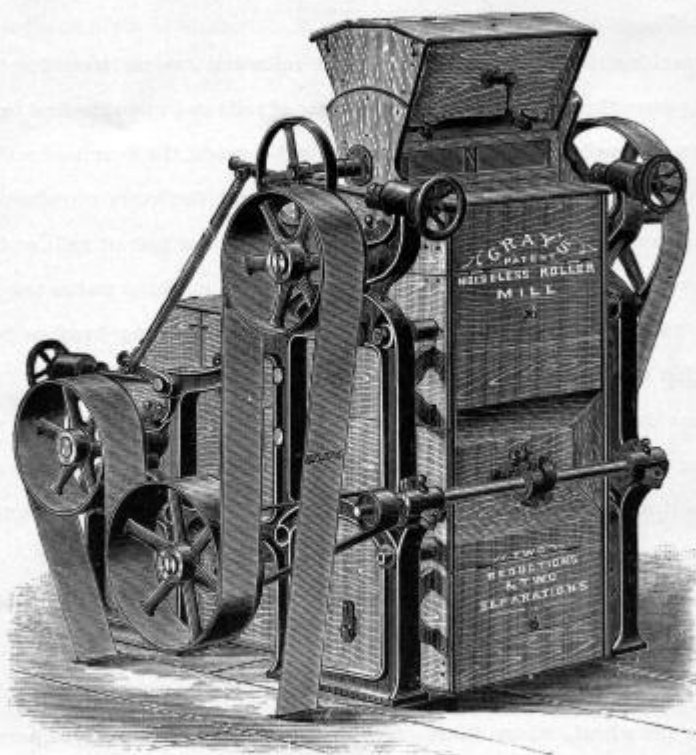
This machine has two pairs of corrugated rolls and two reciprocating sieves. The grain passes through the first or upper pair of rolls and upon the first or upper sieve, where a complete separation of the product is made, the flour and middlings passing through the sieve and out of the machine, and the large un-reduced portion passes over the tail of the sieve to the second or lower pair of rolls and to the second sieve, where a second separation is made. The machine makes two reductions and two separations. Both of the sieves have traveling brushes beneath them, so that their meshes are kept perfectly clean.

The machine is perfectly adjustable, the same devices being used as on the plain roller machines. The same feed gate and roll is used, and the same adjustable and self-oiling boxes. The machine is driven by a single belt. Both rolls can be spread simultaneously. The machine is dustless and noiseless.

These machines are designed for use where economy of space is desirable, as they save the room required by two scalping reels and an elevator. They are especially serviceable for reducing screenings, and may be used in small mills for reductions on wheat, where there are no convenient places for scalpers. By using this machine, the scalping is brought under the eye of the grinder, where it is easily managed.

Gray's Patent Noiseless Belt Gradual Reduction Machines.

FOR MILLS OF 75 TO 150 BARRELS CAPACITY.



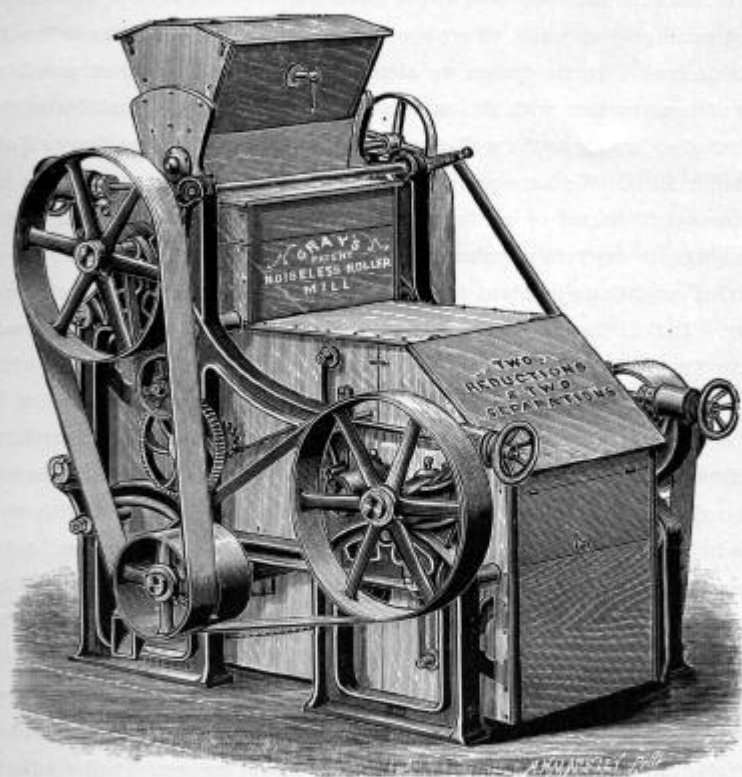
Driving Side.

DIMENSIONS

SIZE OF ROLLS.	Height.	Length.	Width.
9" x 14"	6' 5"	5' 10"	4' 7"
9" x 18"	6' 5"	5' 10"	5' 0"
9" x 24"	6' 5"	5' 10"	5' 8"
9" x 30"	6' 5"	5' 10"	6' 2"

Gray's Patent Noiseless Belt Gradual Reduction Machines.

TWO REDUCTIONS AND TWO SEPARATIONS IN ONE MACHINE.



Side Opposite Driving Side.

AND PRICES.

Driving Pulley.	Revolutions per Minute.	Approximate Power Required.	Length of Driving Belt Above Floor.	Approximate Shipping Weight.	Price.
16" x 5½"	275 to 350	3½ H. P.	17' 6"	3460 lbs.	\$ 750 00
16" x 6½"	275 " 350	4 " "	17' 6"	4020 " "	800 00
16" x 7½"	275 " 350	5 " "	17' 6"	4360 " "	900 00
16" x 7½"	275 " 350	6 " "	17' 6"	7800 " "	1,000 00

Gray's Patent Noiseless Belt Four-Break Reduction Machine.

This machine has been designed to meet the requirements of that numerous class of small custom mills, where economy of room and power, as well as in first cost, is desired. In its design we aimed to combine the greatest possible simplicity of construction with the same perfection of working qualities which has contributed so largely to the well-earned success of our Standard Gray's Noiseless Belt Roller Mills. We have not attempted to force this machine upon the market by extravagant claims or puffing advertisements, preferring rather to let the machine win its way into popular favor, by proving its merits by actual use under the varied conditions incident to its operation in mills in different sections of the country. That it has proved to be all that we have claimed for it as a valuable machine for small mills, is amply shown by the numerous testimonials which we have received. It is the result of long experience in building roller mills, and we are confident that in solidity of construction and simplicity and durability in operation it cannot be excelled. It is not claimed that it is all that is required to make a roller mill, or that it will give the best results, without intelligence in operating it. What we do claim is, that it will save room, take less power and require less millwright work and expense to place it in position to work in connection with the other machinery in the mill, than any other machinery capable of doing the same work.

In the machine illustrated, we have not tried to devise some cheap substitute for roller mills, nor to abridge our system of roller milling, which we have put in operation in by far the greater portion of the most successful roller mills in the country. The reductions are made on rolls in every respect, except length, the same as those used in our Standard roller mills. They are the best Ansonia rolls, and corrugated the same as the longer rolls, and not, as in the cheap affairs which have been palmed off on unsuspecting millers as roller mills, with corrugations cast in, which soon wear out and cannot be replaced. The adjustments are the same as in the Standard Gray's Patent Roller Mills; the only respect in which the roller mills in this machine differ from our Standard machines, is in being placed on the frame which contains the scalping reels; the rolls, reels and elevators being combined in one machine, all parts of which are readily accessible,

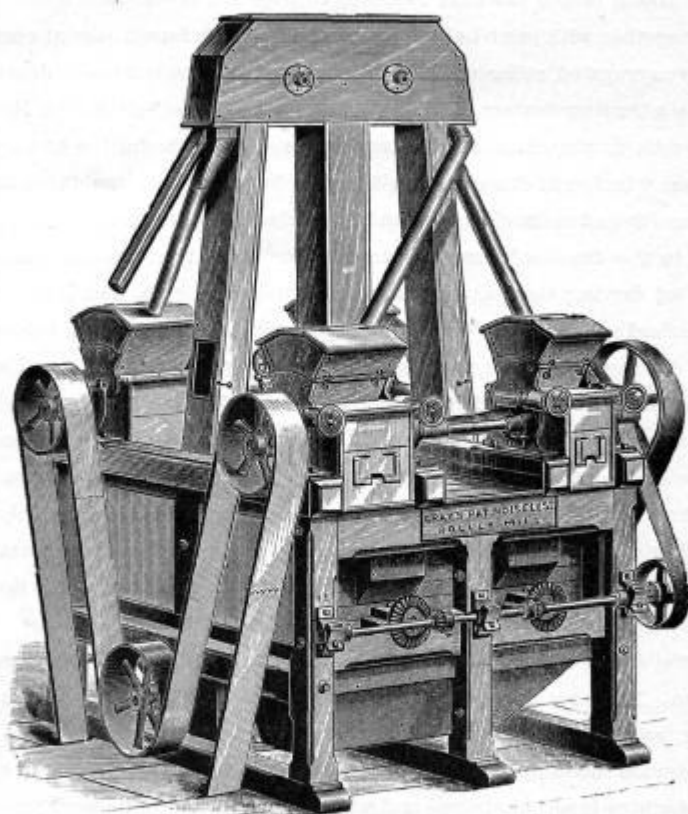
which can be placed on the grinding floor, *without extending into the floor above*, and which requires only one driving belt. The machine is cheap,—not that it is slighted in any way, or that it lacks any single essential part of our Standard roller mills, but because it is compact, simple durable, and requires very little millwright work or machinery to place it in the mill. This will be readily seen from the following description :

The frame of the machine is solidly constructed of seasoned timber, strongly framed together with joint bolts. On the top of this frame, one at each corner, are four corrugated roller mills, each with one pair of rolls and provided with the same adjusting devices, as Gray's Patent Noiseless Belt Roller Mills. Each pair of rolls is placed in a solid iron frame. The rolls for the first and second breaks are 9 inches in diameter and 8 inches long, and for the third and fourth breaks are 9 inches in diameter and 12 inches long. The corrugations are the same as in the Standard Gray's Patent Roller Mills for the same breaks. The manner of driving the rolls is plainly shown by the cuts, and is the same as in our Standard roller mills. The main driving shaft and pulley are below the floor and the driving belt passes over the driving pulleys on fast rolls and under the pulley on counter shaft, which extends through the machine, from the opposite end of which the slow rolls are driven. The rolls are coupled to the corresponding ones on the opposite side of the machine by short shafts, forming a universal joint, thus permitting the adjustment of each pair of rolls separately, without interfering with the others. The rolls are at just the right height from the floor to be easily adjusted and to permit the miller, while standing on the floor, to feel of the chop and examine the work.

In the body of the machine, there are four scalping reels of improved construction. These reels are placed two on each shaft and driven by a cross shaft and gearing, as shown in the cut. The reels discharge at the center into elevators, which elevate the tailings from each reel to the next succeeding pair of rolls. The whole machine is self-contained and when once adjusted to its work, requires very little attention. Under each scalping reel is a hopper, from which the flour and middlings from the different breaks can be spouted separately or together, as desired. When required, the machines are fitted with conveyors under the scalping reels. The machine contains all necessary elevators and is complete, ready to attach driving belt.

Gray's Patent Noiseless Belt Four Break Reduction Machine.

FOR SMALL MILLS.



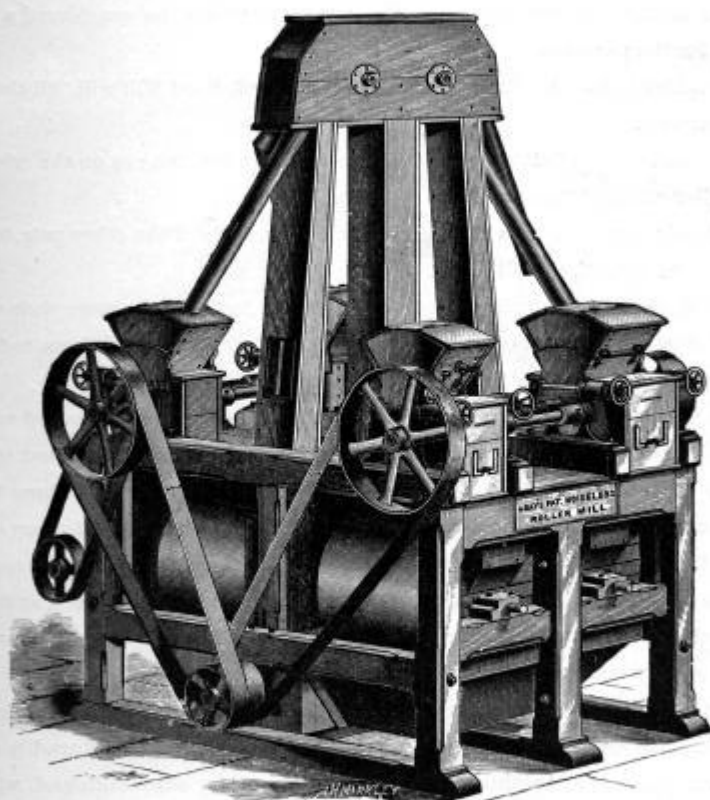
Driving Side.

DIMENSIONS

No.	SIZE OF ROLLS.	Height to top of Elevator Heads.	Length.	Width.
1	1st and 2d break, 6"x6" } 3d " 4th " 6"x8" }	9' 6"	6' 5"	5' 8"
2	1st and 2d break, 9"x8" } 3d " 4th " 9"x12" }	10' 6"	8'	7'

Gray's Patent Noiseless Belt Four Break Reduction Machine.

FOUR REDUCTIONS AND FOUR SEPARATIONS IN ONE MACHINE.



Side Opposite Driving Side.

AND PRICES.

Driving Pulley.	Revolutions per Minute.	Approximate Power Required.	Length of Driving Belt Above Floor.	Approximate Shipping Weight.	Price.
12''x5½''	500	3 to 4 H. P.	24' 6''	3100 lbs.	\$1,100 00
16''x7½''	300	4 " 5 "	17' 6''	4630 "	1,350 00

Gray's Patent Noiseless Belt Roller Mills for Grinding Corn, Feed, Rye, etc.

STYLE M.

Many attempts have been made to produce a successful machine to grind feed and corn by one operation, or without elevating the stock from one pair of rolls to another and passing it through a second time, but, as far as we know, there has been no machine heretofore upon the market that can be considered a perfect success for the purpose.

We believe that the Gray Patent Noiseless Belt Feed Mill will "fill the bill in every particular."

The plan of the belt drive and adjustments are the same as on the celebrated Gray roller mills, with some slight modifications.

One pair of rolls is set a little higher and to one side of the other pair, to admit of the use of our patent belt drive.

The upper pair of rolls is fed with a shaker feed and the same shoe extends below the upper pair and is made to carry the stock from beneath them, to feed the lower pair of rolls, so that the one shaker shoe feeds both pair of rolls.

The vertical and lateral adjustments are the same as on our Standard rolls.

The boxes for the roll journals are ball and socket, permitting the box to adjust itself to its bearing, so that a high rate of speed can be attained without heating and requiring, of course, the minimum power. An especially good feature of these rolls is, that the boxes may be removed and new ones substituted in a few moments.

Millers will find this to be a great convenience and saving of time, as they will not be obliged to stop the machine to re-babbitt the boxes, but can have an extra set and readily make a change when necessary.

Our machine with four rollers has many decided advantages over the three-roll machines, that are now being put upon the market, as millers will readily see. It is almost impossible to obtain a good adjustment for three rolls and, without a good adjustment, good and economical work cannot be done.

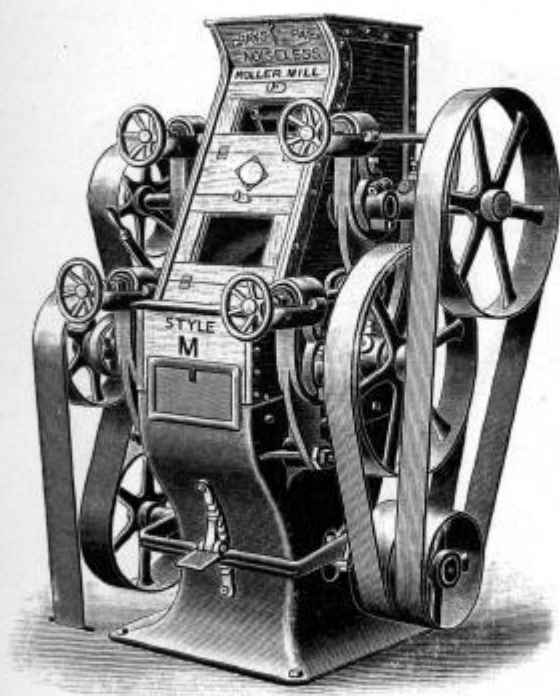
Also the middle roll cannot be corrugated to properly suit both the upper and lower rolls. At the best, such an arrangement is but a "make shift." With our machine, both pairs of rolls being entirely independent, they may be corrugated as desired, to adapt them perfectly to the class of work to be done.

It will pay anyone, who is in need of a machine of this kind, to investigate our roll thoroughly before placing their order elsewhere.

The rolls used are identically the same in size and quality as those in our Standard roller mill.

Gray's Patent Noiseless Belt Roller Mills for Grinding Corn,
Feed, Rye, etc.

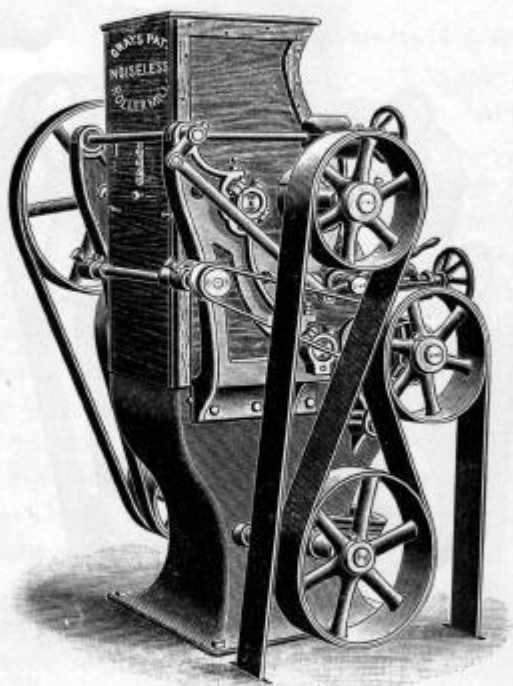
STYLE M.



Front View.

Gray's Patent Noiseless Belt Roller Mills for Grinding Corn,
Feed, Rye, &c.

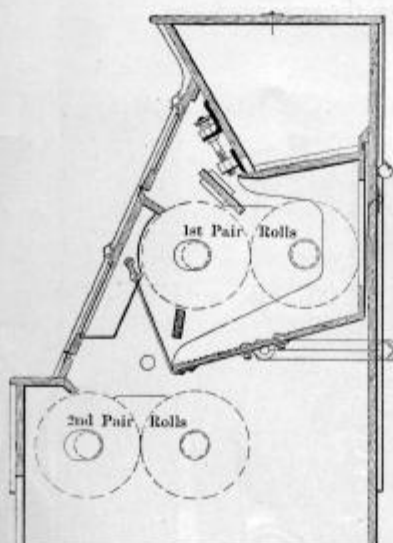
STYLE M.



Back View.

Gray's Patent Noiseless Belt Roller Mills for Grinding Corn, Feed, Rye, etc.

STYLE M.



Sectional View.

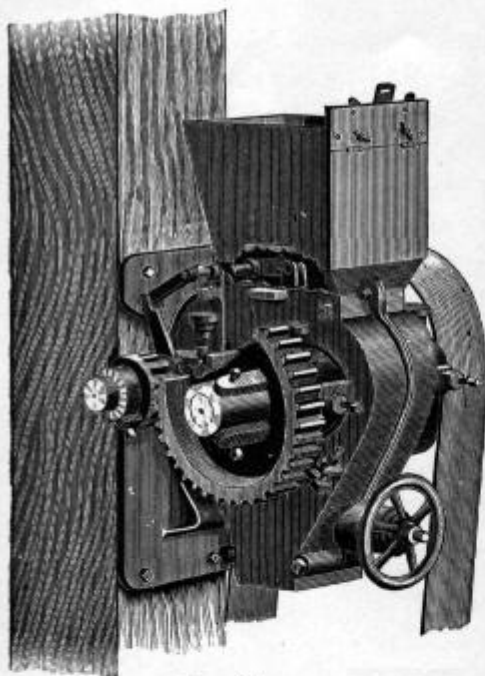
DIMENSIONS AND PRICES.

Size.	Height.	Width.	Length.	Driving Pulley.	Revolutions per Minute.	Length of Belt above Floor.	Approximate shipping weight.	Price.
9"x14"	5' 8"	3' 10"	3' 5"	14"x6 $\frac{1}{4}$ "	350 to 450	18 ft.	2600 lb.	\$600 00
9"x18"	5' 8"	4' 9"	3' 5"	14"x7 $\frac{1}{4}$ "	350 to 450	18 ft.	3050 lb.	650 00
9"x24"	5' 8"	5' 6"	3' 5"	14"x8 $\frac{1}{4}$ "	350 to 450	18 ft.	3350 lb.	735 00

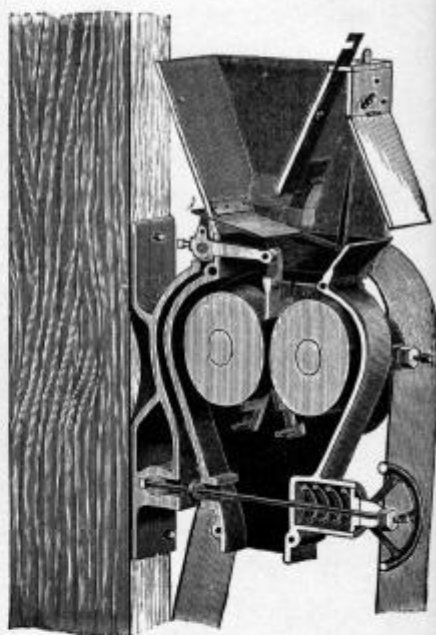
The Milwaukee Granulator.

This machine is a complete and perfect roller mill, with all necessary and adjusting devices, yet so simple in operation and management, that any one can run it, though they never saw a roller mill before. A sure proof of its success is the rapidly increasing demand for them from all parts of the country.

The rolls used in this machine are of CHILLED IRON, suitably corrugated for the work to be performed and are identical with those used in our Standard roller mills, being corrugated on the same machines.



Gear Drive.

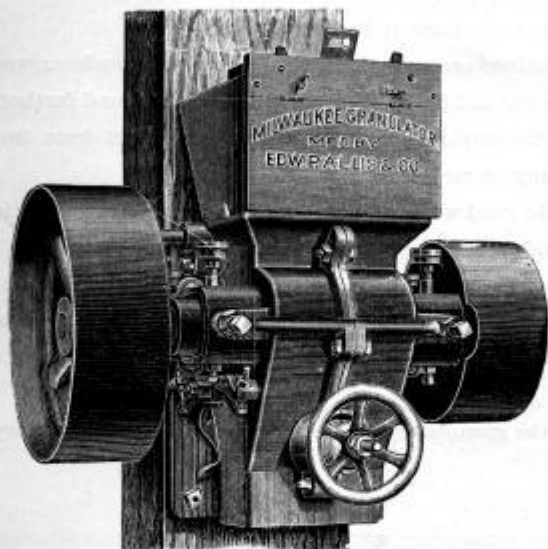


Sectional View.

The construction of the machine makes it very *durable, easily managed and capable of doing superior work*, with fully fifty per cent. less power than any other mode of grinding, while the cost of repairs is so low as to hardly be considered.

By means of the hand-wheel in front of the machine, the rolls can be quickly and easily set together or apart and *kept in the same position given them, whether grain is passing through or not.*

As there are always more or less foreign substances finding their way into the grain, such as nails, screws, nuts, bits of wire, stones, etc., which would be liable to cause damage to the rolls, we have provided a spring to permit the rolls to yield momentarily and allow the foreign substance to pass through, with the minimum amount of injury to the rolls, the spring returning the rolls to their former position. We have known of instances where one or two 20d nails have passed through the machine without any perceptible injury to the rolls, and in one case, an eight-inch three-cornered file was run through two granulators, without causing any damage, except a slight V-shaped cut in the rolls.



THE MILWAUKEE GRANULATOR, BELT DRIVE.

The rolls of the Milwaukee Granulator are corrugated spirally, one roll running about three times as fast as the other, the teeth of the slow roll pointing up, while the teeth of the fast roll point down.

For grinding corn and meal this machine is very efficient. It produces a nicely cut, sharp and even product, with but little flour, and no matter how finely ground, the meal will always be sharp and granular.

It has proven itself to be just the thing for elevators and mills, to grind screenings and feed, whether mixed with corn or not.

It can be left running and grind the screenings as they come, for the machine requires scarcely any attention, and the rolls retain their proper position, whether feed is passing through or not.

As a general thing each reduction calls for a separate machine, the rolls of each succeeding reduction being corrugated finer than those in the machine preceding.

For general feed purposes, we would advise two reductions, especially on corn.

For farmers' use, and where very small capacity is wanted, one reduction is sufficient.

For corn meal, three or four reductions are necessary, with three or four separations.

For screenings, one or two reductions are sufficient.

Corn for distilling purposes, should have two reductions, as also rice.

Rye requires two to three reductions.

Where separations are wanted, we furnish scalpels, made expressly to go with these machines; cut and description of which will be found further on.

The rolls in the machines, with proper usage, will last from two to five years without regrinding or replacing.

In order to do good work with any machine, it is very essential that proper care should be taken and that it should be looked after occasionally, to see that the adjustments are as they should be, to insure the best work. We issue a special pamphlet, giving full instruction in regard to setting up the granulator and directions for its operation, which we shall be pleased to furnish to all who may write for it.

We furnish the granulator with either gear or belt drive, as may be preferred.

DIMENSIONS AND PRICES.

Size of Rolls.....	{ 6'' Diameter.	Driving Pulley.....	16'' x 5½''
	{ by 8'' Face.	Weight.....	600 lbs.
Height.....	30''	Capacity per hour.....	10 to 20 Bush.
Depth.....	21''	Price of Geared Mill.....	\$100.
Width over all.....	35''	Price of Belt Mill.....	\$110.

Special Machinery.

The Reliance Purifier.

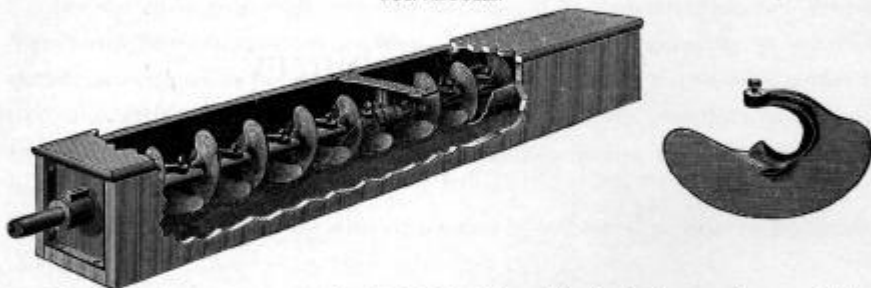
The Reliance Purifier is new, but not untried. It has been in use in several of the best mills of the country for a long time, and we believe it to be the best machine for purifying middlings that we have ever seen.

In our extensive mill building business, we have used all of the different makes of purifiers that have been presented to the trade, and, in placing this machine before the milling public, we give our assurance that it will only have to be tried to be pronounced, as we say, "THE BEST, AND A MODEL OF PERFECTION."

The machine is very carefully constructed throughout, the frame being of selected hardwood, finely finished and presenting the same handsome appearance as all of our special machines.

An engraving on the opposite page shows the side and head end of the purifier. The amount of air can be regulated by opening or closing the blinds at the side and ends and, if necessary, the air may all be shut off the head of the sieve and taken through the tail end. This is very important, especially where fine or dusty middlings are to be purified.

CONVEYORS.

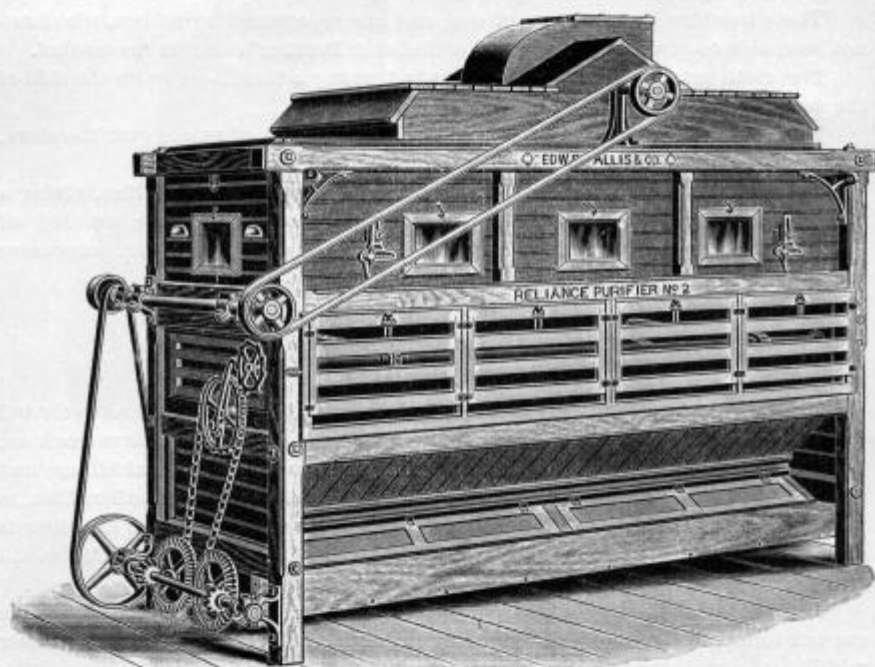


There are two conveyors, placed side by side. Their shafts are iron and the flights are malleable iron. The flights may be easily reversed, without removing them from the shafts or taking the shafts out of the conveyor boxes, simply by turning a set screw. The shaft, being iron, insures strength and a perfectly true running conveyor, which is almost an impossibility with wooden shafts, having gudgeons in the end. The ends of the boxes are of cast iron, the whole making a very strong conveyor.

CLOTH CLEANING DEVICE.

Our cloth cleaning device is the most effective ever invented for the purpose. It is a brush the entire length of the cloth, but the action is NOT TO BRUSH the cloth. By a simple mechanism, the brush is made to rise and touch the cloth of the reciprocating sieve and then drop away. The brush moves laterally its own width, coming up again and touching the cloth. This movement is repeated, until the whole under surface of the cloth has been touched. The brush then turns and travels to the opposite side of the machine, cleaning itself on the way, where it commences to operate across the cloth again. The brush may be adjusted to touch the cloth lightly or hard, by turning a screw at each corner of the machine; this adjustment can be readily made while the machine is in motion.

The Reliance Purifier.



A Model of Perfection.

The advantages of our cloth cleaning device, over the common way, of a traveling, wiping brush from head to tail of the sieve, will be readily seen by all practical millers. The action of the brush in other machines is as much to wipe as to brush and this tends to paste and fill up the meshes of the cloth, as much as to clean them. In fact, the brush, traveling one way, gets set and is nothing more than a wiper, the result being, that the cloth will not be clean and the miller must go over it with a hand brush, this being especially the case when milling on soft wheat or in damp weather. Another objection to the ordinary brush or wiper, traveling lengthwise of the cloth is, that the brush gets loaded with middlings at the head of the machine and drops them with the poorer middlings at the tail, thus, while intending to separate the middlings by different grades of cloth, they are mixed to a greater or less degree by the wiper.

These troubles have always existed and are recognized by millers, who have not been able to obviate them until the "Reliance Purifier" came on the market.

The cloth may be tightened by simply turning a thumb-screw on the side of the machine, while in motion.

We have a very convenient and effective arrangement of valves over the sieve, which can be regulated from the tail end of the machine.

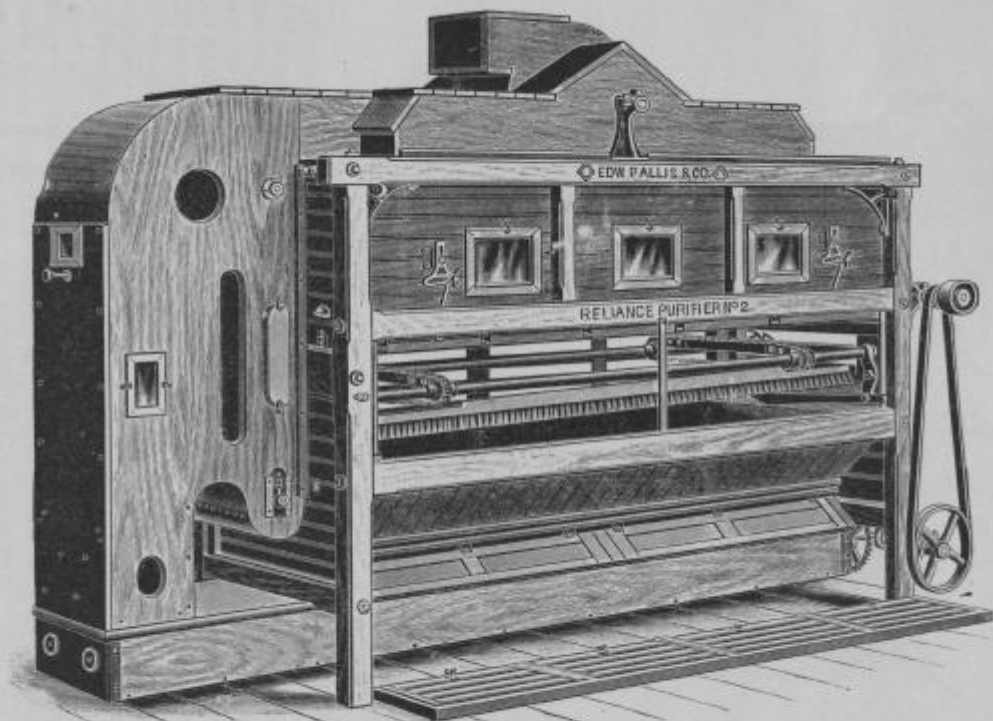
The fan is placed further from the cloth than in the ordinary purifier, giving a better chance for even suction on all parts of the cloth. We have avoided all shelves, drawers and partitions, which in use, have proven an expensive incumbrance.

THE RELIANCE PURIFIER WITH ASPIRATOR ATTACHED.

The cut opposite shows the Reliance Purifier with Aspirator attached to the tail end of the machine. This is not merely a suction on the tail end of a sieve machine, but the aspirator purifies and makes perfect separations on coarse middlings and tailings, that go over the end of the sieve. It is well known to millers that, to purify coarse or medium middlings, which contain branny particles, if the sieve is clothed coarse enough to let all the middlings through, the branny particles will also pass through and the result is that the middlings are not clean.

The object of the aspirator is, to enable the miller to clothe the sieve fine enough to insure clean middlings passing through the cloth and permit the coarser middlings, containing the impurities, to pass over the tail of the sieve. The aspirator will separate the impurities from the middlings, making one product poor enough for feed and the other in excellent condition to go to the rolls.

In the ordinary method of purifying, when the good middlings pass over with tailings, which go to the rolls, the result is, that the impurities are reduced, making, of course, subsequent separations harder. Millers will find our purifier with aspirator a great improvement for some classes of stock.



RELIANCE PURIFIER, WITH ASPIRATOR.

THE RELIANCE PURIFIER.

DIMENSIONS AND PRICES.

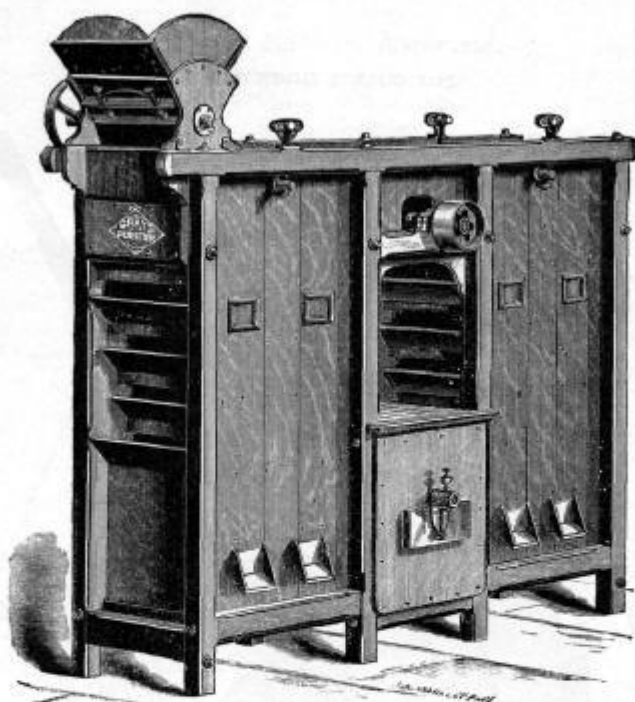
No.	Height of Frame.	Extreme Height.	Length of Frame.	Length with Aspirator.	Width of Frame.	Driving Pulley.	Revolutions per Minute.	Price.
0	6'	7' 9"	7'	9' 4"	3' 3"	8" x 4 $\frac{1}{4}$ "	500	\$250 00
1	6'	7' 9"	9'	11' 4"	3' 3"	8" x 4 $\frac{1}{4}$ "	500	275 00
2	6'	7' 9"	11'	13' 4"	3' 3"	8" x 4 $\frac{1}{4}$ "	500	325 00

Price with Aspirator will be quoted upon application.

We shall be pleased to furnish any further information that may be desired regarding this machine.

Gray's Patent Sectional Purifier.

FOR COARSE MIDLINGS.



This machine is especially designed for purifying coarse middlings, before going to the sizing roll, or corn meal gritz.

The sieve separates the middlings into four grades, and for each grade that passes through the sieve, there is a series of valves and shelving work, which subject the middlings to an air current, effecting a perfect purifying.

The air current of each section is regulated independently of all others and very clean and distinct separations are made. The clean middlings is discharged from one side of the machine and the offal from the other.

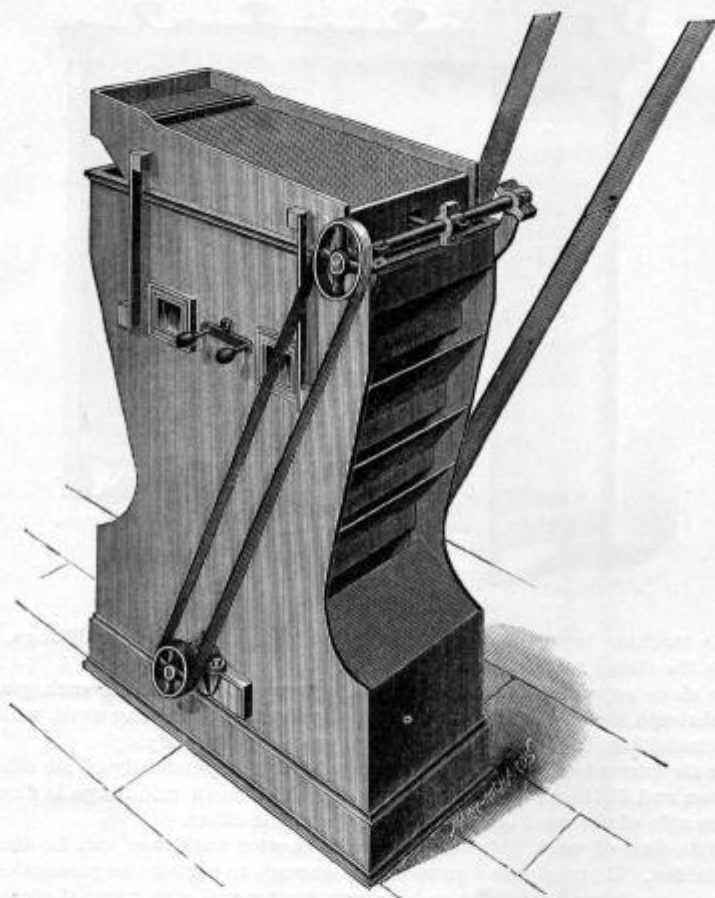
For its class of work, this machine will do better work than can be done by a sieve purifier. If you clothe a sieve coarse enough to permit the passage of coarse middlings, the branny particles and impure matter will also pass; if clothed fine enough to make clean middlings, good stock will tail over. The best and most economical way is to purify coarse stock with this machine.

DIMENSIONS AND PRICES.

No.	Height.	Length.	Width.	Height to Center of D. Pulley.	Driving Pulley.		Rev. per Min.	Approx. Power Required.	Approx. Shipping Weight.	Price.
					Dia. & Face.	Bore.				
1	6' 3"	8' 6"	3' 6"	4' 9"	8" x 4½"	1⅞"	500	1 H. P.	1200 lbs.	\$350 00
2	6' 3"	8' 6"	4' 0"	4' 9"	8" x 4½"	1⅞"	500	1½ "	1500 "	425 00

Gray's Patent Purifier (No 0).

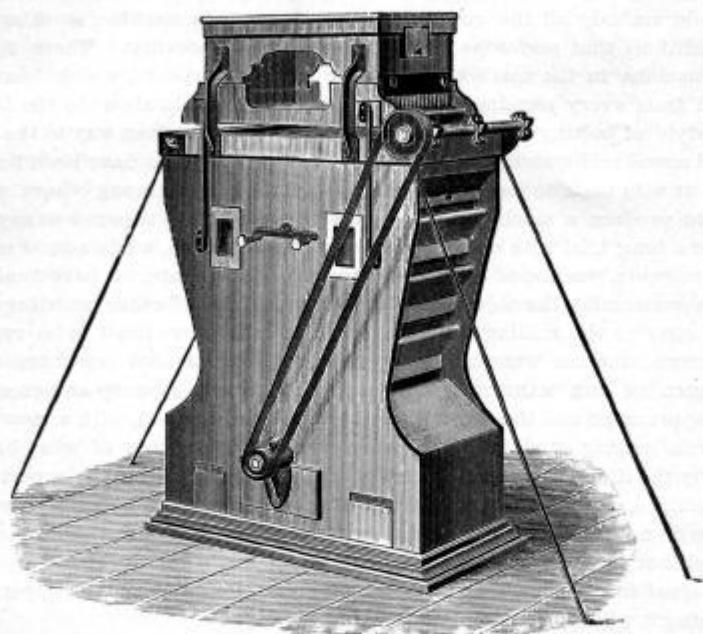
FOR COARSE MIDDLEINGS.



DIMENSIONS AND PRICE.

Height.	Length.	Width.	Height to center of D. Pulley.	Driving Pulley.		Revolutions per Minute.	Approx. Power Required	Approx. Shipping Weight.	Price.
				Dia. & Face.	Bore.				
5'	4'	2' 10"	1' 1"	4" x 3½"	1 7/16"	1000	¾ H. P.	450 lbs.	\$175 00

Gray's Suction Aspirator.



Gray's Suction Aspirator is designed to aspirate the broken wheat from the first and second breaks, or to aspirate the breaks in a corn meal mill, where nice corn grits is desired, or where a grade of meal better than common corn meal is required. It is fitted with shaker feed and contains the necessary fan (not shown in cut). It is a most economical, as well as a cheap and durable machine.

DIMENSIONS AND PRICE.

No.	Height.	Length.	Width.	Driving Pulley.		Revolutions per Minute.	Approximate Power Required.	Approximate Shipping Weight.	Price.
				Dia. & Face.	Bore.				
1	5' 9"	4'	2' 10"	4" x 3½"	1 7/8"	1000	½ H. P.	350 lbs.	\$175 00

Gray's Improved Centrifugal Reel.

For several years the different mill furnishers throughout the country have been struggling to gain ascendancy in bringing to public notice a centrifugal reel that should embody all the good points necessary to a machine, working under such conditions that *perfection* in construction is a necessity. There is probably no machine in the market to-day, for milling purposes, which is so much criticised from every standpoint. This has been brought about by the fact that the old style of bolting with hexagon reels has partially given way to the centrifugal and round reel system, and all progressive mill builders have been forced to experiment with them to meet the demands of the trade. Among others, we have essayed to produce a machine that should be equal, if not superior to any other, and, after a long trial with our Standard centrifugal, which, while a good machine in many respects, was found to be defective in some points, we have finally succeeded in overcoming the objectionable features to this and other centrifugals, and can now offer to the milling public a reel that will prove itself to be THE BEST CONSTRUCTED, EASIEST WORKING, MOST DURABLE, SIMPLE AND COMPLETE CENTRIFUGAL REEL IN THE MARKET, equal to any other as to *capacity* and excelled by none in appearance and the manner in which it is constructed, with a view to convenience in getting at all its parts when working. In view of what has been claimed by the different manufacturers of centrifugal reels, as to the superiority of their machines, and the fact that many of these claims have never been substantiated, we do not intend to burden readers with a lengthy description of the merits of our reel, but will simply give a few of its good points and say that we *guarantee* it to be *equal in every respect to any machine in the market*; if it is superior, the miller using it will soon find out the truth.

The machine is thoroughly made of the best material, with frame of selected hardwood and body of clear white pine, properly shellaced and varnished, to produce a handsome and lasting appearance.

The MAIN BEARINGS of the machine consist of brass thimbles, containing graphite and are so constructed as to require *no oil whatever*, no matter how rapidly the shaft may revolve, thus keeping the machine perfectly clean inside and out, and overcoming the great objection to reels where oil is used, with the consequent accumulation of grease and dirt. The boxes are so arranged, however, that oil may be used if desired. Within the main bearings, the trunions of the silk reel revolve and within these trunions, are placed smaller thimbles, also containing graphite. These thimbles form the bearings for the beater shaft, are adjustable and so arranged that they may be readily removed and replaced by new ones when necessary. The main shaft rotates at such a speed that the centrifugal force imparted to the material increases its weight about seventeen times at the point of contact with the cloth, thus the particles will bear upon the silk at the top of the reel with but one-eighteenth less pressure than at the bottom, and consequently the reel bolts at all points of its circumference. The beater shaft (projecting at both ends of the machine, so that pulley may be placed upon either end, as de-

sired) has spiders, to which the beater wings are attached, inside the silk reel. These wings are so placed as to throw the material against the silk at a suitable angle (not squarely against the meshes), thus bolting only the flour particles and not forcing through specks and other impurities. The beaters are set as closely as possible to the cloth, in order to keep the stock thoroughly alive, preventing accumulation and thereby giving full action to the reel. They are also pitched spirally, to a degree sufficient to hold the material in the machine long enough to effect its proper bolting.

Careful experiments have shown us that to do good work, the beaters should rotate in the same direction as the silk cylinder, that the silk reel should rotate rapidly, but not so rapidly as to hold the material too firmly on the silk by its centrifugal force, and our machine is so constructed as to meet these points. The reel, when driven with sufficient rapidity, proves a perfect carrier for the material and we find no necessity for using inside, trappy, tipping buckets. The ribs of the silk reel are flat and set off from the cloth, thus allowing the material to circulate freely on the silk and making the cloth behind the ribs available.

The brush applied to our machine, is so constructed that it will not fill up and hold the material before it upon the silk. It is adjustable, and when working, merely touches the cloth. When bolting greasy, soft flour, the cloth is ventilated sufficiently to keep its meshes open and the brush need not be used.

At the head of reel, we attach a basket to catch all foreign material which may enter and this is so arranged that it can be opened and cleaned, without stopping the machine.

The cut-offs are tipping valves and so arranged as to be easily handled from either side of the machine. They are fitted closely and so constructed that the material passing through cannot crowd nor clog.

The conveyors are of small diameter, giving as little grinding action as possible; they are of iron and fitted with patent malleable iron, reversible flights, which can be placed on the shaft without removing it from its bearings.

The driving arrangement of the machine is very simple and so constructed that any slack in either belt or chain can be taken up by means of a device for lowering the conveyors at either end.

The cloth is made up with one inch ticking lengthwise, and two inch ticking at either end. In putting on, it is first firmly tacked upon the wood band at head of reel, sewed lengthwise, so that it is loose on the rings, and then stretched lengthwise and tacked to the band at tail of reel. This effectually prevents all inward bagging of the cloth between rings.

Our machine is entirely free from all gears and other devices, which cause great trouble and expense when out of order, and any ordinary disarrangement or accident to any of its parts can be repaired at the mill. In case of trouble with gears and the complicated parts on other reels, it is often necessary to shut down and send the machine to the shops.

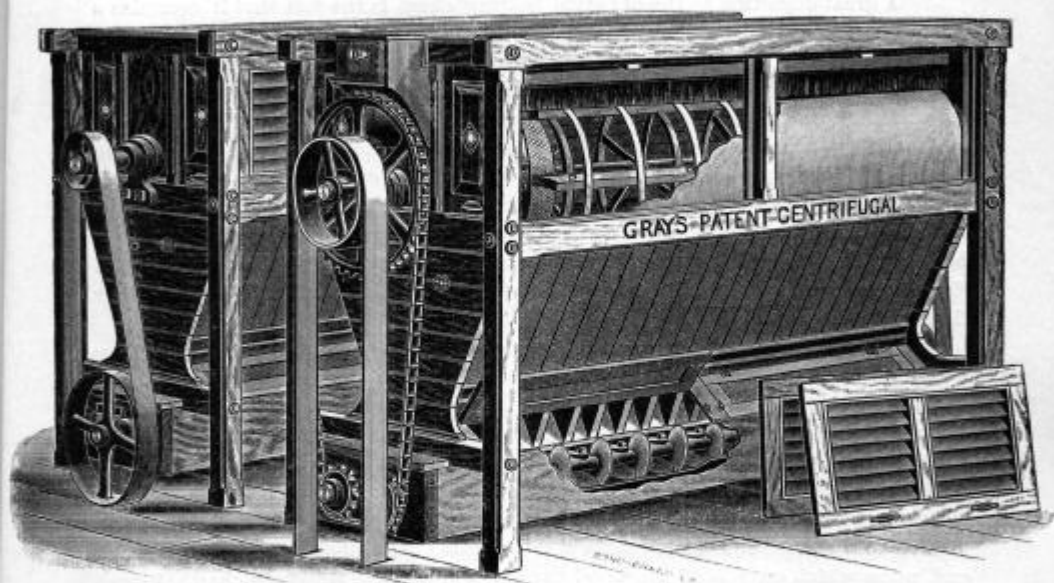
Gray's Improved Centrifugal Reel.

DIMENSIONS AND PRICES.

No.	REEL.		Height.	Length.	Width.	PULLEY.		Revolutions per Minute.	Height to Center of Driving Pulley.	Height to Top of Feed Spout.	Approximate Power Required.	Approximate Shipping Weight.	Price.
	Diameter.	Length of Cloth.				Diameter and Face.	Bore.						
00	21"	4' 4"	4' 3"	6' 10"	2' 7"	8" x 3½"	1½"	275	3'	3' 10"	½ H. P.	650	\$200 00
0	21"	6' 4"	4' 3"	8' 10"	2' 7"	8" x 4½"	1½"	275	3'	3' 10"	¾ "	800	225 00
1	27"	6' 4"	4' 10"	9' 1"	3'	12" x 4 "	1½"	225	3' 3"	4' 1"	1 "	950	240 00
2	27"	8' 4"	4' 10"	11' 1"	3'	12" x 4½"	1½"	225	3' 3"	4' 1"	1¼ "	1200	255 00
3	32"	6' 4"	5' 3"	9' 8"	3' 6"	16" x 3¾"	2¾"	200	3' 8"	5'	1¾ "	1400	270 00
4	32"	8' 4"	5' 3"	11' 8"	3' 6"	16" x 4½"	2¾"	200	3' 8"	5'	1½ "	1600	290 00

The frames of Nos. 1, 2, 3 and 4 of our centrifugal reels are made to correspond in dimensions with the frames of Nos. 1, 2, 3 and 4 of the GRAY PATENT FLOUR DRESSERS, in order that the latter may be placed on top of the centrifugal reels, when it is desired that the machines shall work together.

Gray's Improved Centrifugal Reel.



Gray's Patent Flour Dresser.

The use of flour dressers or round reels has for some time been a subject of much attention with mill furnishers and millers. The prime objects in view being to secure economy in space and in the power required to drive the machinery; to reduce the expense in building mills and to have a machine for bolting, that would handle the stock much more gently than the hexagon reels, and at the same time have greater capacity.

A great objection to the old style bolting chest is the fact that it occupies a large space in the mill and renders it difficult at times to locate the machinery conveniently in small buildings. A further objection exists in the excessive cost of bolting chests, especially when purchased at factories, where they must be knocked down for shipment and then put together again at the mill. In addition to these points, it has been demonstrated beyond question that the old six-sided reel is too severe in its action upon the stock, and in bolting, forces through the silk coarse particles and specks, that would not pass through the meshes if the action was less severe. As a result, perfectly even bolting cannot be obtained. The extreme length of the reel and the severe handling combined, make a certain percentage of flour in the reel, which, as *flour dust*, is inferior and this passing into the other flour reduces its grade.

All of the above objections are overcome by the round reel. The machine occupies but little space, is easily handled, cheaper and requires less power than the old style reel; can be shipped from the factory ready for use and bolts the stock freely and evenly. The success of the round reel system of bolting is assured, after careful experimenting, and we now offer to the trade a reel that is as nearly perfect as it is possible to make a machine. One that we can guarantee to be superior to any other machine for the purpose, taking all points into consideration.

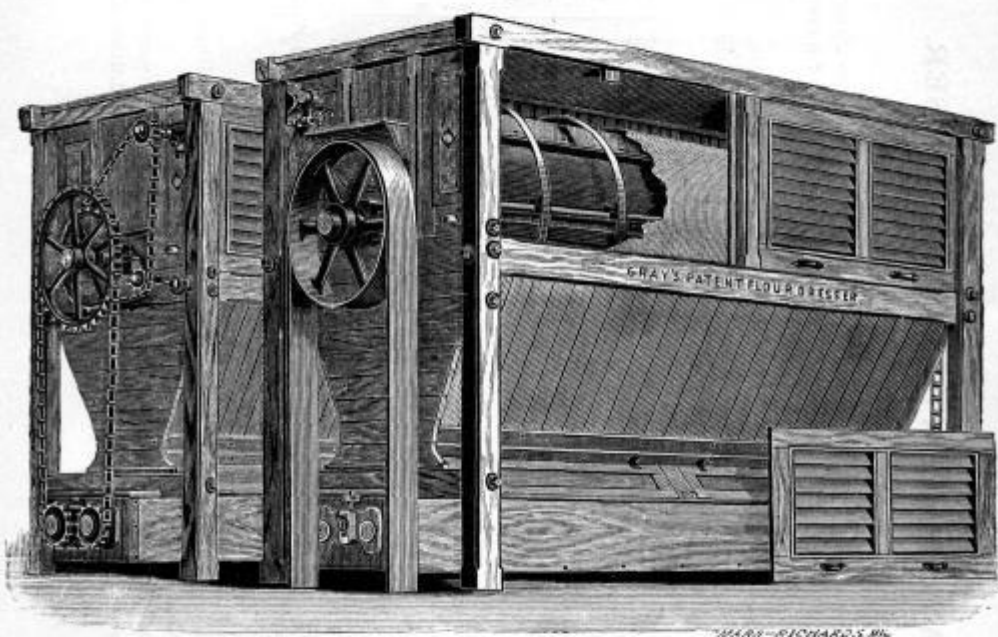
The reel, mounted on the main shaft, consists of a substantial casting at each end, upon which are placed the wood rings to which the cloth is attached. Round rods connect the head and tail castings, to which are attached rib rings for the cloth and carriers, preventing contact of the cloth with the rods. Within these rods is placed a light sheet-iron drum, fastened firmly to the shaft. The carriers are pitched spirally toward the tail, leading the stock continually in that direction. Sufficient space is left between the outer edge of the carriers and the cloth, also between the inner edge of the carriers and the drum, to enable the stock to bolt properly without any beating or rough handling.

The space between the outer edge of the carriers and the silk, is just large enough to allow the stock, with an ordinary load, to pass. If the machine should be overloaded, the space between cylinder and the inside edge of the carriers, will allow the stock to fall back upon the cylinder and thus clogging or choking the machine is absolutely prevented. This is a very important feature in our machine and should receive careful consideration.

The reel shaft is of sufficient length to be either single or double geared at either end and drives the brush at the head and the conveyor at the tail of the

machine, by chains of suitable strength. Chain tighteners are provided for each of these drives.

The machine can be made double geared, so as to drive with an open belt from the line-shaft, when it is placed at right angles with the driving-shaft. The double gear device consists of a short counter-shaft across the front of the machine, with a pair of bevel wheels to connect it with the reel-shaft. If the machine stands in line with the line-shaft, and the line-shaft runs at a high speed, it is not advisable to belt directly to the reel. In such cases, we employ a pair of spur gears and counter-shaft, in order that a large driving pulley may be used on the machine.



GRAY'S PATENT FLOUR DRESSER.

A revolving brush is used in our machine, which is so constructed as to produce a whipping action, proving very effective. The brush can be adjusted at the head or tail, either together or independently.

The conveyors are of iron, with our patent malleable iron adjustable flights, the same as are used in the centrifugals.

In placing our round reel before the public, we claim that it is superior to any other flour dresser upon the market. While we have spared no expense to make it perfect in construction, we offer it to millers at a price that will compare favorably with other similar machines.

GRAY'S PATENT FLOUR DRESSER.

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We often find it very convenient in planning mills, to place the flour dresser on top of a centrifugal and to drive both machines with a quarter twist belt directly from the line shaft. In such cases, the double gear consists of a spur wheel and pinion, as shown in the engraving opposite.

This arrangement is very convenient and we have used it repeatedly and with perfect success.

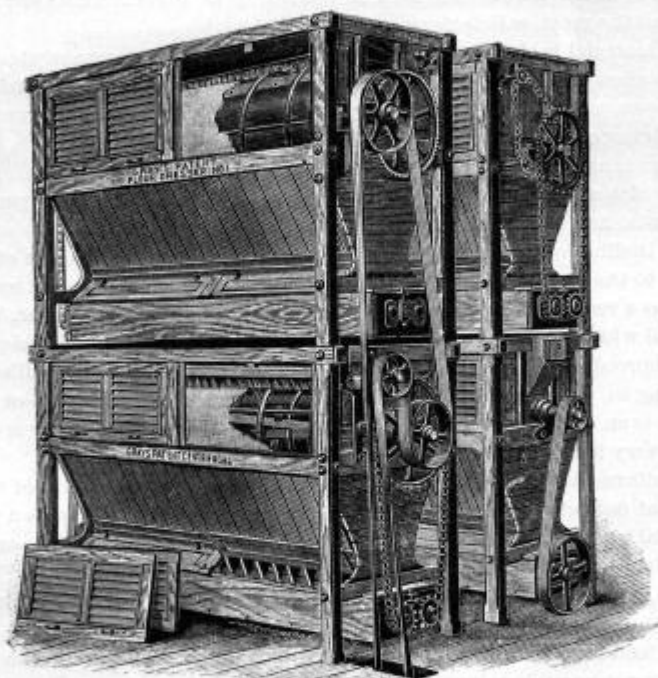
DIMENSIONS AND PRICES.

No.	REEL.		Height.	LENGTH.		WIDTH.		DRIVING PULLEY.						Height to Center of Driving Pulley.	Height to Top of Feed Spout.	Approximate power Required.	Approximate Shipping Weight.	PRICE.			
	Diameter.	Length of Cloth.		Single Geared.	Double Geared.	Single Geared.	Double Geared.	Single Geared.		Double Geared.		Rev. p. Min.						Single Geared.	Double Geared.	Single Geared.	Double Geared.
								Diameter and Face.	Bore.	Diameter and Face.	Bore.	Single Geared.	Double Geared.								
1	27"	6' 4"	4' 10"	8' 9"	9'	3'	3' 6"	20" x 4½"	1½"	12" x 3½"	1½"	35	110	3' 3"	4' 10"	0.3	800	\$240 00	\$260 00		
2	27"	8' 4"	4' 10"	10' 9"	11'	3'	3' 6"	20" x 5½"	1½"	12" x 4 "	1½"	35	110	3' 3"	4' 10"	0.4	900	255 00	275 00		
3	32"	6' 4"	5' 3"	8' 11"	9' 4"	3' 6"	4'	24" x 4½"	1½"	16" x 4 "	1½"	32	135	3' 6"	5' 3"	0.5	1350	270 00	290 00		
4	32"	8' 4"	5' 3"	10' 11"	11' 4"	3' 6"	4'	24" x 5½"	1½"	16" x 4½"	1½"	32	135	3' 6"	5' 3"	0.6	1500	290 00	310 00		
5	36"	8' 4"	5' 5"	1' 11"	11' 4"	4'	4' 8"	24" x 5½"	1½"	16" x 5 "	1½"	30	125	3' 10"	5'	0.7	1650	305 00	325 00		

Machines may be driven from either end.

The flour dressers are built to be placed either on top of each other or on top of our centrifugals. In either case, the machines will fit upon the tops of their corresponding numbers.

When two machines are placed one on top of the other, we furnish a double geared flour dresser and a belt tightener on the centrifugal, which is applied so that both machines are driven by a quarter twist belt. An additional charge of \$10.00 is made for the tightener.



GRAY'S FLOUR DRESSER PLACED ON TOP OF CENTRIFUGAL.

The Improved Morse Elevator Bolt.

In its construction and action the Morse Bolt is radically different from any other bolting device manufactured, and the results attained from its use have been pronounced the most satisfactory.

The material is elevated to the top of the machine by means of steel buckets, moving at a low rate of speed and dropped upon a curved metallic surface, from which it flows, smoothly distributed upon an inclined sieve, thus preventing dashing or wedging of the material upon the silk.

There is an active vibratory motion imparted to the sieves, causing the impurities, which are lightest, to rise to the top and permitting the purer parts, which may be fine enough, to pass freely through the silk.

The inclination of the silk is never changed; therefore the size of the mesh presented to the material is always the same, producing the most even results possible and as a result, a more equal absorption of moisture in the flour, making a lighter and whiter loaf and one that will not dry out as quickly. The sieve frames may be removed and others readily substituted, thus enabling the miller to adapt the clothing to varying stock. Two yards is the maximum amount of cloth required for even the largest size of this machine. Its great capacity is due to the fact that every inch of the silk is constantly at work.

A uniform depth of load is maintained upon the entire length of the sieves by means of deflecting boards, arranged in sections, so that as fast as a portion of the material bolts through, the remainder can be retarded and held on the silk until finished.

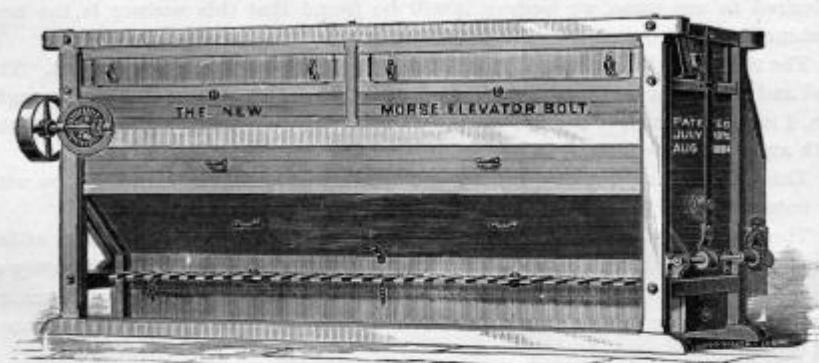
This machine is so constructed that the miller has perfect control of the material, and may easily examine it at any point of the process.

The feed may be introduced at any point in the length of the machine, thus making it possible to put two or more classes of stock through at the same time; stock containing some clear flour and the rest low grade or offal, can be fed at the head and a stream containing nothing but low grade and offal introduced farther down, and the results kept separate.

The principle upon which the Morse Bolt operates prevents forced bolting; the material is handled gently, sliding smoothly over the silk, and the results accomplished are very thorough and perfect.

The machine is built in the very best manner. It is simple, durable and easy to operate, and the results are guaranteed.

The Improved Morse Elevator Bolt.



DIMENSIONS AND PRICES.

No.	DIMENSIONS OVER ALL.			SIEVE.		DRIVING PULLEY.		Revolutions per Minute.	Price.
	Length.	Width.	Height.	Length.	Width.	Diam.	Face.		
1	10' 8"	4' 5"	5' 9"	8'	2' 10"	16"	4"	100	\$300 00
2	10' 8"	3' 9"	5'	8'	1' 11"	16"	3½"	100	280 00
3	8' 8"	3' 9"	5'	6'	1' 11"	16"	3½"	100	260 00

Gray's Improved Single Scalper.

In some cases millers still find it necessary to use hexagon reels. Wherever it is desired to use same, we believe it will be found that this scalper is the best machine for the purpose ever invented.

The reel is made entirely of iron, there is nothing about it to wear out. The head and tail are of cast iron, as well as the center spiders. The ribs are of wrought iron, $\frac{5}{8}$ inch in diameter, and are wrapped with cotton flannel, in order to keep the cloth away from the iron, thus preventing cutting or chafing.

This scalper has but one conveyor, the shaft of which is wrought iron with our patent reversible malleable iron flights.

The machine can be driven from either head or tail and we make them either single or double geared. They are also made so that they may be placed on top of either our flour dresser or centrifugal reel and in such cases both machines are driven by the same belt, in the manner shown with description of our flour dresser and centrifugal.

DIMENSIONS AND PRICES.

SINGLE GEARED.

No.	REEL.		Height.	Length.	Width.	Driving Pulley.		Revolutions per Minute.	Height to Center Driving Pulley.	Height to Top Feed Spout.	Approximate Shipping Weight.	Price.
	Diameter.	Length.				Diameter and Face.	Bore.					
00	1' 11"	4' 2"	3' 11"	6' 4"	2' 7"	18" x 3 $\frac{1}{2}$ "	1 $\frac{1}{8}$ "	40	2' 8"	3' 11"	400 lbs.	\$100 00
0	1' 11"	6' 2"	3' 11"	8' 4"	2' 7"	18" x 4 $\frac{1}{2}$ "	1 $\frac{1}{8}$ "	40	2' 9"	3' 11"	625 "	110 00
1	2' 4"	6' 4"	4' 1"	8' 5"	2' 11"	20" x 4 $\frac{1}{2}$ "	1 $\frac{3}{8}$ "	35	2' 9"	4' 1"	800 "	120 00
2	2' 4"	8' 4"	4' 1"	10' 6"	2' 11"	20" x 5 $\frac{1}{2}$ "	1 $\frac{3}{8}$ "	35	2' 10"	4' 1"	950 "	140 00

DOUBLE GEARED.

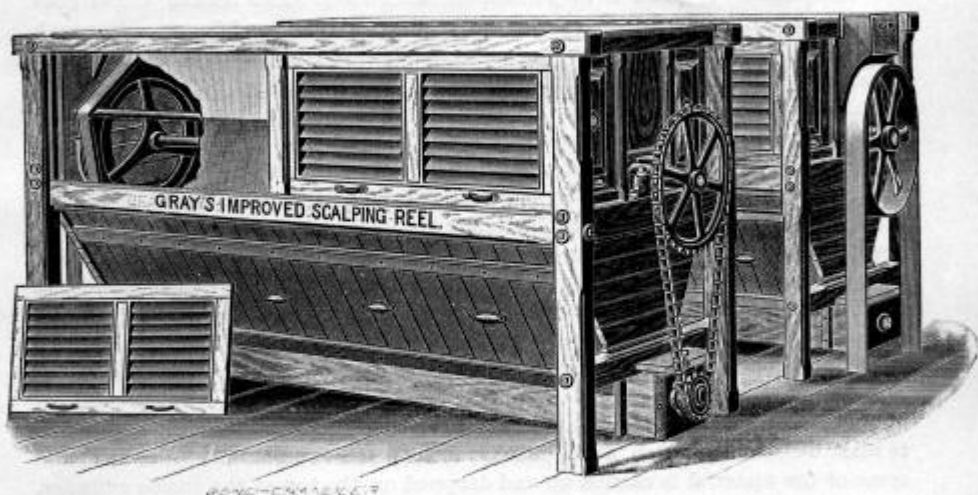
00	1' 11"	4' 2"	3' 10"	6' 1"	3' 2"	8" x 3 $\frac{1}{2}$ "	1 $\frac{7}{16}$ "	98	2' 7"	3' 4"	400 lbs.	\$110 00
0	1' 11"	6' 2"	3' 10"	8' 1"	3' 2"	8" x 4 $\frac{1}{2}$ "	1 $\frac{7}{16}$ "	98	2' 7"	3' 4"	625 "	120 00
1	2' 4"	6' 4"	4' 1"	8' 5"	3' 6"	8" x 4 $\frac{1}{2}$ "	1 $\frac{7}{16}$ "	113	2' 9"	3' 6"	800 "	130 00
2	2' 4"	8' 4"	4' 1"	10' 6"	3' 7"	8" x 5 $\frac{1}{2}$ "	1 $\frac{7}{16}$ "	113	2' 9"	3' 6"	950 "	150 00

Prices include cloth.

Cloth should be tight on reels.

Machines may be driven from either end.

Gray's Improved Single Scalper.

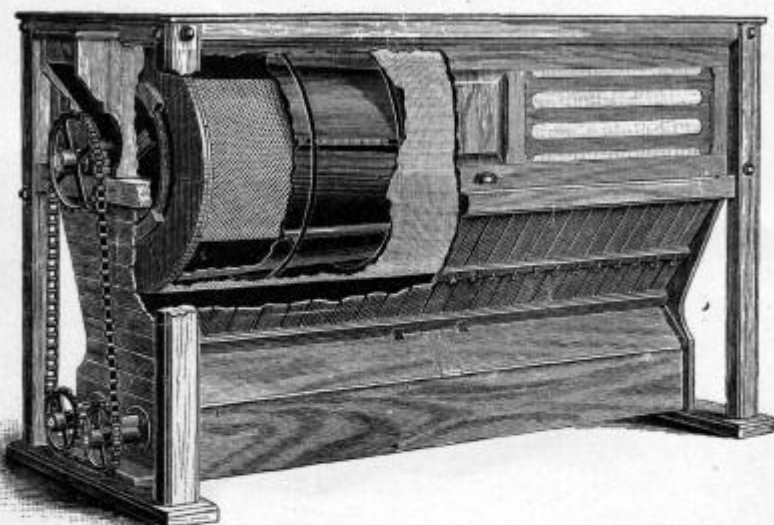


Gray's Patent Double Scalping Machine.

The object of this machine is to scalp the middlings and flour from the broken wheat, preparatory to going from one break to the next for reduction, also to grade the middlings preparatory for the purifiers. This is the only machine made that will enable the miller to take the middlings directly from the scalping reels to the purifiers, thus avoiding wearing out the middlings by handling and the necessity of carrying them through conveyors, elevators or other reels to be dusted and graded, before going to the purifiers. By the use of this machine, mills will make a considerably larger percentage of patent flour.

The inside cylinder is of perforated sheet steel. The broken wheat goes into this cylinder and passes over the tail, all the middlings and flour pass through this inside cylinder, dropping upon an imperforated cone or deflector, carrying the stock to the head of the machine and dropping it through holes upon a silk cloth, the outside reel, which is so constructed as to give an unusually large capacity, making it very easy to dust the middlings. The coarse middlings may be taken over the tail of this silk reel direct to the purifier, and also the next grade of middlings through the tail of the cloth; the flour and finest middlings going through the head of this cloth are ready for the centrifugal or other bolting device, to be re-bolted. The finest middlings will then go directly from the centrifugal to the purifier. By using perforated sheet steel, the inside scalping cylinder does not clog and fill up nor scour the stock, as does a wire cloth covered scalper. By having the cone between the outer and inner cylinders, none of the stock that goes through the inside scalping cylinder, can drop through into it again, when it is carried up in the outside reel, as is usually the case in common double scalpers where there is no intervening cone and in which it is impossible to make a clean separation, as the inside reel bolts through on the lower side, and some of the material is carried up and dropped on the top of the inside cylinder, a part passing through into the inside reel again. This new device obviates all that trouble and the separations are clean and distinct. On the inside of the inner scalper are iron carriers about the same as those on our Flour Dresser, for taking the stock further up on the side of the smooth cylinder without dropping any, thus materially increasing its capacity. The stock is treated very much more gently by the smooth, round scalping cylinder than it is in the ordinary six-sided reels. We believe that there is about as much flour made in the common scalping reel from each break as there is by the rolls. The continued lifting up of the ribs and pounding from one side of the reel to the other makes considerable flour, which is an inferior dust flour and the cloth is not used to its fullest extent. This machine is strong and substantially built, and will last for a long time. The motion is slow, requiring very little power to drive it.

Gray's Patent Double Scalping Machine.



DIMENSIONS AND PRICES.

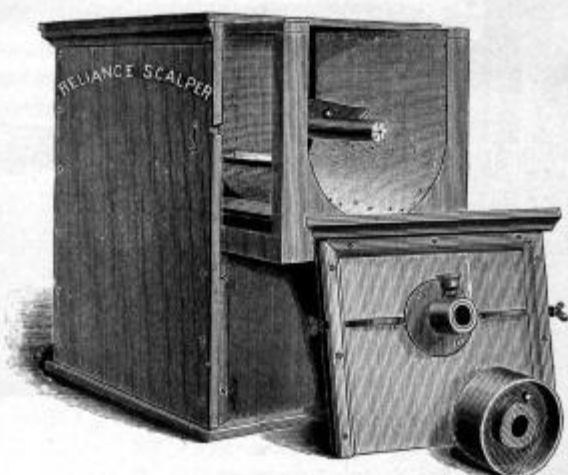
SINGLE GEARED.

No.	Height.	Length.	Width.	DRIVING PULLEY.			Height to Center of Driving Pulley.	Height to Top Feed Spout.	Approximate Shipping Weight.	Price.
				Diameter and Face.	Bore.	Rev. per Minute				
0	4'	6' 1"	2' 9"	18" x 3 1/2"	1 1/8"	40	2' 9"	4'	500 lbs.	\$175 00
1	4' 9"	6' 2"	3' 3"	20" x 4 1/2"	1 1/8"	35	3' 3"	4' 9"	700 "	200 00
2	4' 9"	8' 2"	3' 3"	24" x 4 1/2"	1 1/8"	35	3' 2"	4' 9"	950 "	250 00
3	4' 9"	10' 5"	3' 5"	24" x 5 1/2"	1 1/8"	35	3' 4"	5' 2"	1300 "	300 00
4	5' 10"	11'	4' 3"	30" x 5 1/2"	2 1/8"	28	3' 10"	5' 10"	1800 "	350 00
5	5' 10"	13'	4' 3"	30" x 6 1/2"	2 1/8"	28	3' 10"	5' 10"	2100 "	400 00

DOUBLE GEARED.

0	4'	6' 4"	3' 3"	12" x 3 1/2"	1 1/8"	80	2' 9"	4'	700 lbs.	\$195 00
1	4' 9"	6' 6"	3' 10"	12" x 4 "	1 1/8"	77	3' 3"	4' 9"	900 "	220 00
2	4' 9"	8' 8"	3' 10"	16" x 4 "	1 1/8"	77	3' 2"	4' 9"	1150 "	270 00
3	4' 9"	11'	4' 2"	16" x 4 "	1 1/8"	70	3' 4"	5' 2"	1500 "	320 00
4	5' 10"	11' 7"	4' 10"	16" x 4 1/2"	1 1/8"	84	3' 10"	5' 10"	2000 "	370 00
5	5' 10"	13' 7"	4' 11"	16" x 5 "	1 1/8"	84	3' 10"	5' 10"	2300 "	420 00

The Reliance Scalper.



The Reliance Scalper is used for corn meal and general bolting purposes, for separating the bran from the finished meal, and in making the separations between the breaks. It should run about 180 revolutions per minute.

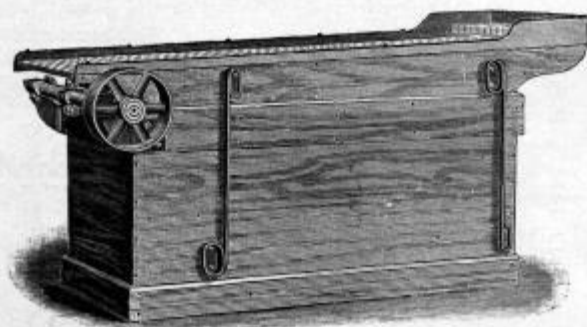
This bolt also makes an excellent detacher, for use in flour mills. It is so constructed that, by loosening two thumb-screws and unhooking two hooks, the entire frame to which the wire cloth is attached can be removed from the machine and new cloth substituted when desired. When running, the cloth is stationary, the iron beaters inside revolving and doing the work. It has large capacity and is a very compact and complete machine, while the price at which we have placed it is very low.

DIMENSIONS AND PRICE.

Height.....	2' 4''	Length.....	3' 5''
Width.....	1' 7''	Driving Pulley.....	6'' x 3''
Price, \$40 00.			

Gray's Improved Shaker Screen.

FOR CLEANING AND SIZING GRAIN.



This screen can be used for a variety of purposes. It is often used for corn meal. The corn may be passed over the screen before going to the stone or rolls, and all broken cobs, etc., taken out. The perforations in the sieve are made coarse or fine, to suit the work that is to be done. The machine is well built and requires but little space and power.

DIMENSIONS AND PRICE.

Height.	Length.	Width.	Driving Pulley.		Revolutions per Minute.	Approx. Power Required.	Approx. Shipping Weight.	Price.
			Diam. & Face.	Bore.				
2' 6"	5' 0"	2' 5"	8" x 3½"	1"	500 to 750	½ H. P.	150 lbs.	\$50 00

GRAY'S IMPROVED ROLLING SCREEN.

DIMENSIONS AND PRICES.

SINGLE GEARED ROLLING SCREEN, WITHOUT FAN.

No.	REEL.		Height.	Length.	Width.	Height to Center Driving Pulley.	DRIVING PULLEY.		Revolutions per Minute.	Approximate Power Required.	Approximate Shipping Weight.	Price.
	Length.	Diam.					Diam. and Face.	Bore.				
1	4'	2'	3' 7½"	6' 11"	2' 10"	2' 5½"	16" x 4½"	1½"	40	½ H. P.	500 lbs.	\$120 00
2	6'	2'	3' 7½"	9'	2' 10"	2' 5½"	20" x 4½"	1½"	40	¾ "	700 "	135 00
3	8'	2'	3' 7½"	11'	2' 10"	2' 5½"	20" x 5½"	1½"	40	1 "	900 "	150 00

DOUBLE GEARED ROLLING SCREEN, WITHOUT FAN.

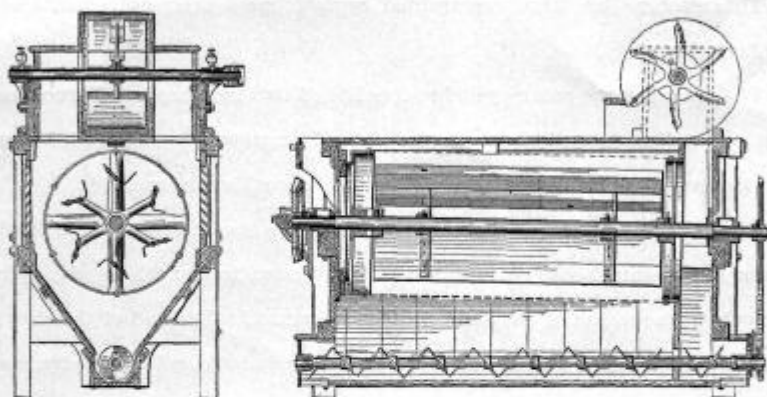
1	4'	2'	3' 7½"	7' 1"	3' 3"	2' 5½"	12" x 3½"	1½"	130	½ H. P.	575 lbs.	\$135 00
2	6'	2'	3' 7½"	9' 1"	3' 3"	2' 5½"	12" x 3½"	1½"	130	¾ "	775 "	150 00
3	8'	2'	3' 7½"	11' 1"	3' 3"	2' 5½"	12" x 3½"	1½"	130	1 "	975 "	165 00

DOUBLE GEARED ROLLING SCREEN, WITH FAN.

1	4'	2'	5' 4"	7' 5"	3' 9"	4' 6"	20" x 5½"	1¾"	750	1 H. P.	650 lbs.	\$200 00
2	6'	2'	5' 4"	9' 5"	3' 9"	4' 6"	20" x 5½"	1¾"	750	1½ "	850 "	225 00
3	8'	2'	5' 4"	11' 5"	3' 9"	4' 6"	20" x 5½"	1¾"	750	2 "	1050 "	250 00

Capacity per hour :—No. 1, 100 to 150 bushels ; No. 2, 200 to 300 bushels ; No. 3, 400 to 600 bushels.

Gray's Improved Rolling Screen.



FOR CLEANING, SIZING AND ASPIRATING GRAIN WHEN RECEIVED IN MILLS.

These machines are built in three sizes, single or double geared. But little power is required to operate them, and they have great capacity. The screen is a perforated steel cylinder, the bolting surface being increased to a maximum by means of carrying buckets.

Gray's Improved Bran Duster.

This machine has been constructed by us to meet the requirements of our present system of milling.

The frame of the outer cylinder consists of two iron heads. Three wooden frames or cradles, formed of wood ribs, extend lengthwise and the wire cloth is tacked to these ribs, forming a perfectly round, smooth cylinder inside.

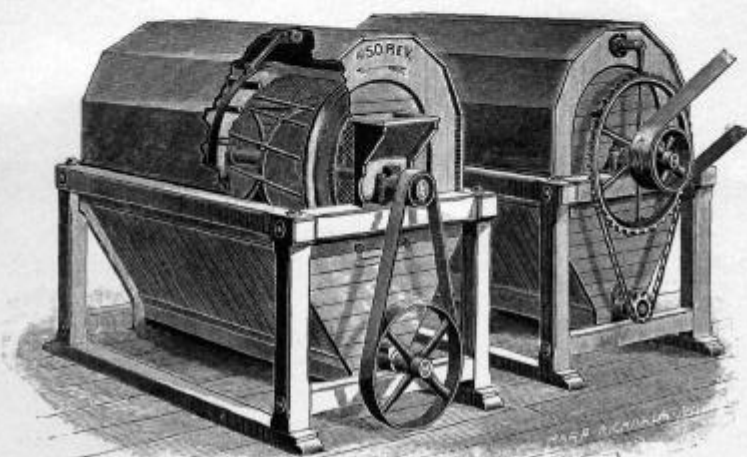
Around the outside of the center of the ribs, we fasten an iron hook; a knocker strikes this hook, causing a vibration the entire length of the cylinder and keeping the meshes of the cloth perfectly clean. At the head of the slow running cylinder, we fasten a wire basket, to catch dough-balls and all foreign matter. This basket can be cleaned readily while the machine is in motion.

We have no brushes in our machine, but use, instead, steel beaters. We do not believe that it is desirable or proper to scour the bran, but aim to simply dust off the flour and loose particles through coarse cloth, to be re-bolted on machines more suitable for making flour than a bran duster.

This machine has one conveyor. The main journals run in graphite and require no oil.

Our bran duster is well constructed in every detail and presents a handsome appearance. It is very durable, having nothing about it which can get out of order with proper use.

Gray's Improved Bran Duster.



DIMENSIONS AND PRICES.

No.	Height.	Length	Width.	Height to Center Driving Pulley.	Height to Top of Feed Spout.	DRIVING PULLEY.		Revolutions per Minute.	Approximate Power Required.	Approximate Shipping Weight.	Price.
						Diam. and Face.	Bore.				
0	3' 10"	4' 6"	2' 7 $\frac{1}{2}$ "	2' 4"	3' 1"	8" x 4"	1 $\frac{1}{8}$ "	450	$\frac{1}{2}$ H. P.	325 lbs.	\$180 00
1	3' 10"	5' 6"	2' 7 $\frac{1}{2}$ "	2' 4"	3' 1"	8" x 4 $\frac{1}{2}$ "	1 $\frac{1}{8}$ "	450	"	450 "	200 00
2	3' 10"	6' 7"	2' 7 $\frac{1}{2}$ "	2' 4"	3' 1"	8" x 5"	1 $\frac{1}{8}$ "	450	1 "	600 "	230 00

Machine is furnished with cloth on reel.

CAPACITY.

	Diameter of Reel.	Length of Cloth.	Capacity bbls. per day.
Number 0	1' 8"	2'	25 to 80
Number 1	1' 8"	3'	80 " 120
Number 2	1' 8"	4'	120 " 160



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—OF—

ROLLER MILLS

AND OTHER

Special Machinery.

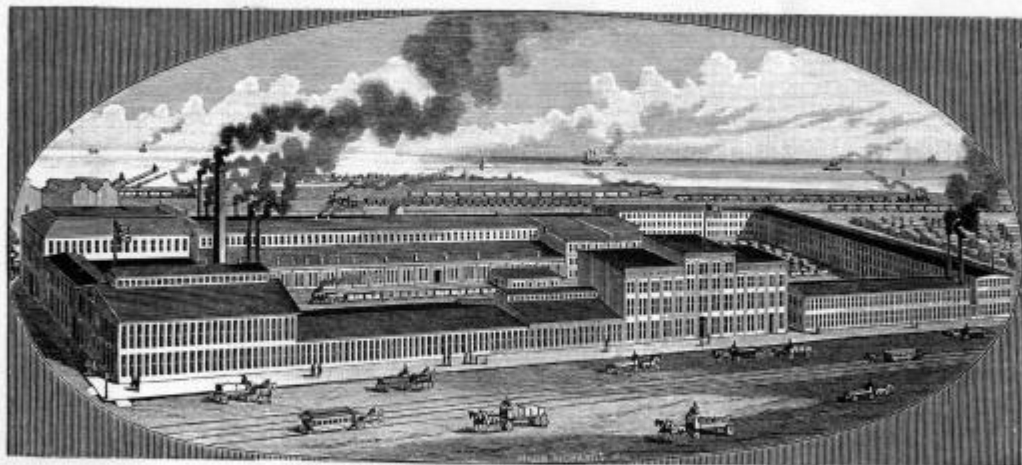
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RELIANCE WORKS OF EDW. P. ALLIS & CO.

PREFACE.

IN the following pages we present to the trade a brief description of the various machines for flour milling which are manufactured exclusively by us, accompanying each description with an engraving of the machine and a table giving the sizes, dimensions and prices. It would require too much space in a catalogue of this kind, to attempt to give a detailed description of all the working parts and claims for each of the many machines we make. Our Gray Patent Noiseless Roller Mills, as well as most of our special machines, are so well known that an extended description or argument as to their superiority in construction, efficiency and handsome finish and appearance is hardly necessary; we, therefore, mention merely the prominent features and call attention to a few of their strong points.

During the past season we have perfected and placed upon the market several new machines, which have attracted considerable attention, owing to the results accomplished by their use, and have proven without exception a perfect success. We have gone more extensively into this line of manufacture, owing to the demand that we have long felt in our extensive mill building business for better and more efficient machines than those heretofore on the market, to accomplish results that we desire to attain.

The first roller flouring mill in America (Washburn experimental mill at Minneapolis) was built by us, since which time we have planned and constructed more mills than any firm in the world. Our mills may be found in every section of this country, and we feel that the strongest argument we can use for our work, is to request persons, who contemplate the erection of a mill, to visit and inspect one that we have built, inquiring of the owners as to their measure of satisfaction. Our efforts, as evidenced by the record of the past, have been to constantly improve and raise the standard of mill building. We guarantee all results from our system and, in order to be directly responsible and sure of success, we prefer to build our own special machinery and furnish a complete line, which we know will do all that is claimed for it and produce the best results ever attained in milling.

We issue, in larger form than this, a very complete catalogue of flour mill machinery and supplies of every description, which we shall be pleased to furnish to all millers upon receipt of application for same.

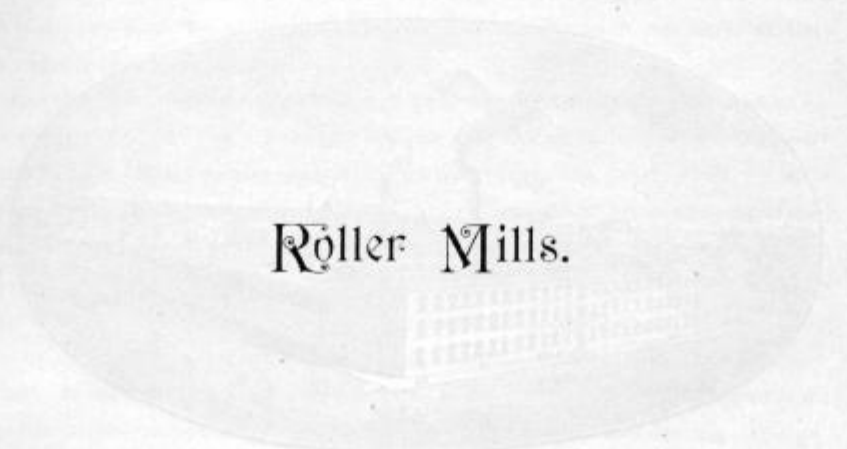
We respectfully solicit the patronage of the milling public.

EDW. P. ALLIS & CO.

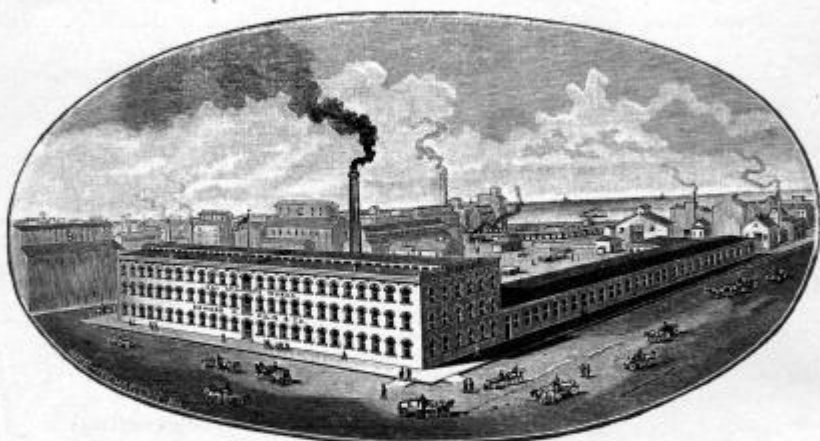
Milwaukee, March 1st, 1888.

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Roller Mills.



Bay State Works of Edw. P. Allis & Co., devoted exclusively to the manufacture of Gray's Patent Noiseless Roller Mills.

Gray's Patent Noiseless Belt Roller Mills.

These celebrated machines, of which we are the sole manufacturers, are so widely known and so popular among millers, that it is almost unnecessary for us to go into any detailed description of their various parts and superior points. We will, therefore, confine ourselves simply to a plain description of the different styles of machines made by us, with dimensions, prices, and such other information as is necessary to enable millers to order understandingly such machines as they may require for use in their mills.

The practical decision of the best millers in the country has been almost unanimously in favor of Gray's Patent Noiseless Belt Roller Mills, the large majority having adopted our machines. Indeed, we are within the truth when we state that more of the Gray Patent Roller Mills have been sold and are at present in use, than all other kinds together. As we were the pioneers in building roller mills in America, so we have all along been pioneers in improving them, the numerous other machines now in the market being one and all imitations of the machines built by us, and infringements of the Gray patents, of which we have exclusive control. In all the essential points of a good roller mill, our machines are so complete that rival builders have been forced to copy and follow the driving arrangement, roll adjustments, feeding devices, and nearly every other detail of the Gray machines.

Not only in building the best machine for the purpose do we surpass other manufacturers, but in capacity of our shops and mechanical facilities for turning out machines rapidly and accurately constructed in every minute detail, we have large advantages over all competitors. We are consequently enabled to fill all orders with promptness and dispatch, and though during the few years past our large and constantly increasing facilities have been taxed to the utmost to keep up with the demands of a rapidly growing trade, we are now in position to meet all reasonable calls upon us. While busily engaged in the manufacture of our well-known standard machines, to meet the demands of the large mills, we have not been unmindful of the necessities of the small mills, but have perfected the best and most durable machines for mills of this class. And in doing this, our aim has been, not to build machines which would sell on account of being cheap

in price, but rather to build machines which would be cheap because they were good, and to sell them as cheap as well-made machinery can be sold.

Our list of roller mills, as will be seen by the following pages, embraces sizes suitable for the smallest as well as the largest mills, and our machines are now in use in mills of from twenty-five to five thousand barrels daily capacity. Over 25,000 pairs of our rolls are in use and we confidently appeal to the users of our machines and to the opinions they express. We offer our machines on the merits which they intrinsically possess, merits which have been abundantly demonstrated and conclusively proved by years of use in the best mills in this country. As the machine stands today, we believe it is without a rival. We guarantee it to be the *best* in every particular. It will run for years without one cent of expense, excepting for oil, and requires less power to drive it than any roller machine on the market.

We own in Milwaukee, a completely equipped roller mill of 1,200 barrels daily capacity, where our machines and system can be examined by the visitor at his leisure and where the attendants will carefully explain the most minute details. We invite careful investigation, knowing that the result will justify the claims we make for our machines and system of milling.

Gray's Patent Noiseless Belt Roller Mills.

STANDARD, OR STYLE A.

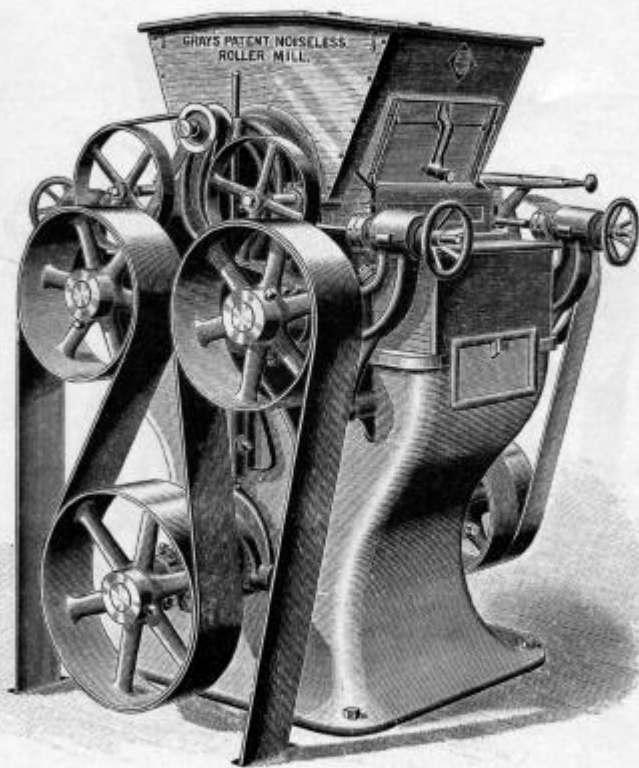
Our Standard Gray's Patent Noiseless Belt Roller Mills are in such general use, and the engravings show the construction of the machines so clearly, that we give no extended description of their mechanical details. We wish simply to call attention to a few of the many points of superiority they possess over machines of other manufacture.

1. *The Solid Iron Frame*, which not only makes the machine very substantial, but also keeps the main working parts rigidly in position and prevents any displacement of parts on account of unevenness of floors or settling of building, to which machines with skeleton frames are unavoidably liable.
2. *The Eccentric Swing Boxes* for leveling the rolls, by which the adjustment is easily affected, and securely held. There are no toggle joints or "clap trap" contrivances and no lost motion to take up. The boxes are securely pivoted on an eccentric pin, and are free to swing back when necessary, while the eccentric pivot permits very accurate adjustment in leveling the rolls.
3. *The Adjustable Countershaft*, which renders it possible to drive both pairs of rolls from one driving pulley and with one driving belt, and to obtain a positive differential motion between fast and slow rolls without the use of gears.
4. *The Adjustment of the Rolls*, so that they may be simultaneously thrown apart and returned to their original position when stopping or starting the mill, without disturbing the grinding adjustments. When desired, we can arrange the throwout arrangement so as to stop the feed rolls when rolls are thrown apart, thus shutting off the feed, without disturbing the adjustment of the feed gates.
5. *The Arrangement of the tie rods and springs* for adjusting the working pressure of the rolls, so as to permit the spreading apart of the rolls, should any foreign substance pass through them and to allow the instantaneous return of the rolls to working position, thus avoiding any injury or undue strain on the machine and allowing the working tension of the pressure spring to be at all times maintained at exactly the desired point.

6. *The Self Oiling Boxes*, which avoid any heating, or waste of oil and keep the journals at all times thoroughly lubricated and in the best running order. All end play of rolls is prevented by collars working in recesses in the self oiling boxes.
7. *The Patent Feed Devices* employed upon our machines are unexcelled by any devices for the purpose on the market. On first break rolls, the feed may be shut off without disturbing the adjustment, which can be maintained uniform and even the entire width of the working face of the rolls. On all other machines, we use either our Automatic Feed Gate or our new Shaker Feed, as may be preferred.
8. *The Automatic Scrapers* which are placed on all smooth iron and porcelain roller mills and on fine corrugated rolls when required.
9. *The Substitution of Belts* for gears throughout all the driving parts of the machine, thus rendering it, as its name implies, a perfect noiseless belt drive roller mill.
10. *The Perfection of Workmanship* and material which, with the superior excellence of design, combine to make the Gray Roller Mills the best and most popular machines in the market.

Gray's Patent Noiseless Belt Roller Mills.

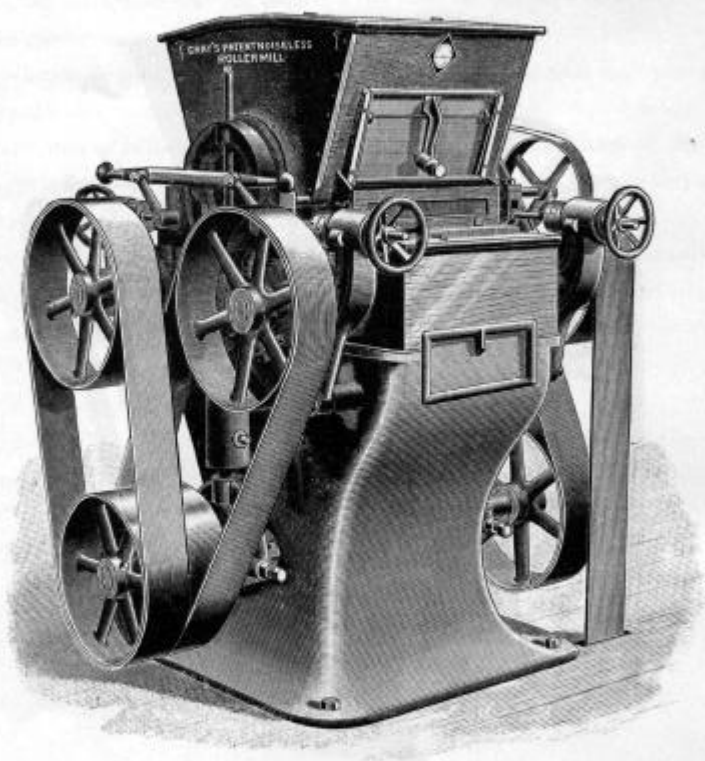
STANDARD, OR STYLE A.



Driving Side.

Gray's Patent Noiseless Belt Roller Mills.

STANDARD, OR STYLE A.



Side Opposite Driving Side.

GRAY'S PATENT NOISELESS BELT ROLLER MILLS.

STANDARD, OR STYLE A.

DIMENSIONS AND PRICES.

WITH SMOOTH CHILLED IRON ROLLS.

SIZE OF ROLLS.	Height.	Length.	Width.	Driving Pulley.	Revolutions per Minute.	Approximate Power Required.	Length of Driving Belt Above Floor.	Approximate Shipping Weight.	Price.
9" x 14" Double, or 4-Roll.....	5' 9"	4' 2"	4'	16" x 5½"	300 to 400	1½ to 2½ H. P.	16' 9"	2800 lbs.	\$580 00
9" x 18" " " "	6'	4' 4"	5'	16" x 6½"	300 " 400	2 " 3½ "	18' 3"	3500 "	625 00
9" x 24" " " "	6'	4' 4"	5' 6"	16" x 7½"	300 " 400	3 " 4 "	18' 3"	4150 "	700 00
9" x 30" " " "	6'	4' 4"	6' 1"	16" x 7½"	300 " 400	4 " 5 "	18' 3"	5850 "	785 00

WITH CORRUGATED CHILLED IRON ROLLS.

9" x 14" Double, or 4-Roll.....	5' 9"	4' 2"	4'	16" x 5½"	300 to 400	1½ to 2½ H. P.	16' 9"	2800 lbs.	\$600 00
9" x 18" " " "	6'	4' 4"	5'	16" x 6½"	300 " 400	2 " 3½ "	18' 3"	3500 "	650 00
9" x 24" " " "	6'	4' 4"	5' 6"	16" x 7½"	300 " 400	3 " 4 "	18' 3"	4150 "	735 00
9" x 30" " " "	6'	4' 4"	6' 1"	16" x 7½"	300 " 400	4 " 5 "	18' 3"	5850 "	830 00

WITH WEGMANN'S PATENT PORCELAIN ROLLS.

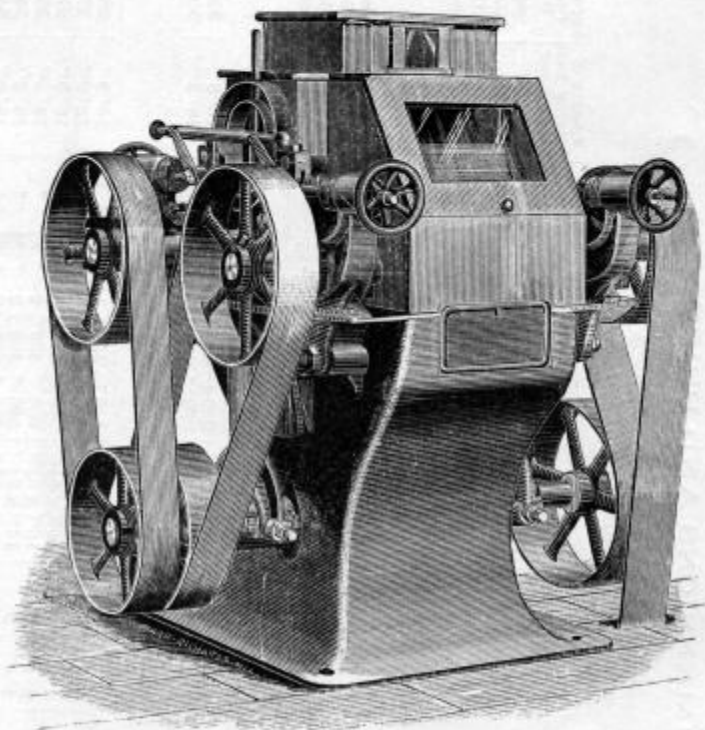
9" x 14" Double, or 4-Roll.....	5' 9"	4' 2"	4'	16" x 5½"	300 to 400	1 to 2 H. P.	16' 9"	3200 lbs.	\$650 00
9" x 18" " " "	6'	4' 4"	5'	16" x 6½"	300 " 400	2 " 3 "	18' 3"	3900 "	700 00

DIVIDED FOUR ROLLER MACHINES.

9" x 14" 1 pr. corrug., 1 pr. smooth ..	5' 9"	4' 2"	4'	16" x 5½"	300 to 400	1½ to 2½ H. P.	16' 9"	2800 lbs.	\$590 00
9" x 14" " " porcelain " smooth...	5' 9"	4' 2"	4'	16" x 5½"	300 " 400	1½ " 2½ "	16' 9"	2760 "	625 00
9" x 14" " " porcelain, " smooth...	5' 9"	4' 2"	4'	16" x 5½"	300 " 400	1½ " 2½ "	16' 9"	2760 "	615 00
9" x 18" " " corrug., " " ...	6'	4' 4"	5'	16" x 6½"	300 " 400	2 " 3½ "	18' 3"	3500 "	637 50
9" x 18" " " " " porcelain " smooth...	6'	4' 4"	5'	16" x 6½"	300 " 400	2 " 3½ "	18' 3"	3450 "	675 00
9" x 18" " " " " porcelain, " smooth...	6'	4' 4"	5'	16" x 6½"	300 " 400	2 " 3½ "	18' 3"	3450 "	662 50
9" x 24" " " " " corrug., " " ...	6'	4' 4"	5' 6"	16" x 7½"	300 " 400	3 " 4 "	18' 3"	4150 "	717 50
9" x 30" " " " " " " " " " " ...	6'	4' 4"	6' 1"	16" x 7½"	300 " 400	4 " 5 "	18' 3"	5850 "	807 50

Gray's Patent Noiseless Belt Roller Mills.

STANDARD MACHINE WITH SHAKER FEED.



In order to meet the occasional demand of Millers who may prefer to use the "Shaker Feed," and to enable them to use the Gray's Patent Noiseless Belt Roller Mills with such attachment, we have perfected and now furnish our "Standard," or Style A, Style E (six inch) and Style L Rolls, all sizes, with the most substantial and perfect shaker feed device in the market. The shaker shoe is made in two pieces, so arranged that the parts shake in opposite directions, the one counteracting the jarring action of the other, so that the machine stands perfectly steady upon the floor.

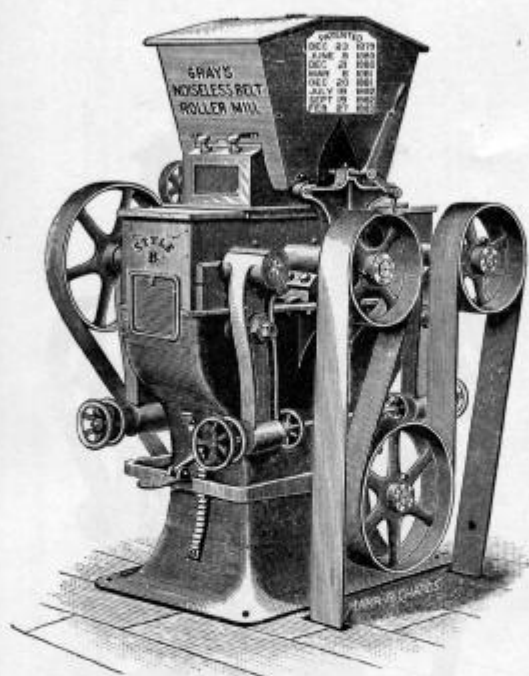
A single lever movement simultaneously throws apart the rolls and stops the feed.

We also make all sizes and styles of our machines with the best automatic feed gates in the market.

The price of our Roller Mills is the same with either feed device.

Gray's Patent Noiseless Belt Roller Mills.

STYLE B.



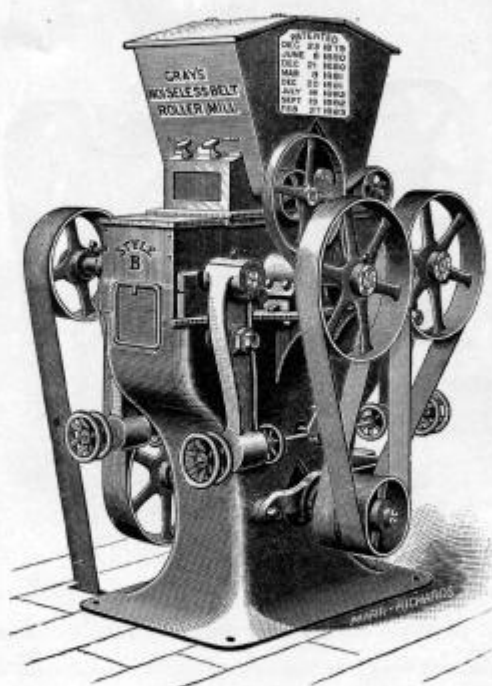
Driving Side.

These machines are built in small sizes and are especially designed to meet the requirements of mills under 100 barrels daily capacity. Each machine is provided with all the adjusting devices which have made our Standard Gray Patent Noiseless Belt Roller Mills famous and the acknowledged standard machines of their kind. They have the solid iron frame, simultaneous throwing apart of the rolls, eccentric swing boxes and leveling device, and arrangements for adjusting and regulating the rolls.

The style "B" machines are also constructed so that a single movement of the lever throws the rolls apart and shuts off the feed from both pairs of rolls.

Gray's Patent Noiseless Belt Roller Mills.

STYLE B.



Side Opposite Driving Side

GRAY'S PATENT NOISELESS BELT ROLLER MILLS.

STYLE B.

DIMENSIONS AND PRICES.

WITH SMOOTH CHILLED IRON ROLLS.

SIZE OF ROLLS.	Height.	Length.	Width.	Driving Pulley.	Revolutions per Minute.	Approximate Power Required.	Length of Driving Belt Above Floor.	Approximate Shipping Weight.	Price.
9" x 8".....	5' 3"	3' 9"	3' 1"	12" x 4 1/4"	300 to 400	3/4 to 1 1/2 H. P.	15' 9"	1980 lbs.	\$520 00
9" x 11".....	5' 3"	3' 9"	3' 4"	12" x 4 1/4"	300 " 400	1 " 2 " "	15' 9"	2200 "	545 00
9" x 14".....	5' 3"	3' 9"	3' 10"	16" x 5 1/4"	300 " 400	1 1/2 " 2 1/2 "	17'	2700 "	580 00

WITH CORRUGATED CHILLED IRON ROLLS.

9" x 8".....	5' 3"	3' 9"	3' 1"	12" x 4 1/4"	300 to 400	3/4 to 1 1/2 H. P.	15' 9"	1980 lbs.	530 00
9" x 11".....	5' 3"	3' 9"	3' 4"	12" x 4 1/4"	300 " 400	1 " 2 " "	15' 9"	2200 "	560 00
9" x 14".....	5' 3"	3' 9"	3' 10"	16" x 5 1/4"	300 " 400	1 1/2 " 2 1/2 "	17'	2700 "	600 00

WITH WEGMANN'S PATENT PORCELAIN ROLLS.

9" x 14".....	5' 3"	3' 9"	3' 10"	16" x 5 1/4"	300 to 400	1 1/2 to 2 1/2 H. P.	17'	2620 lbs.	650 00
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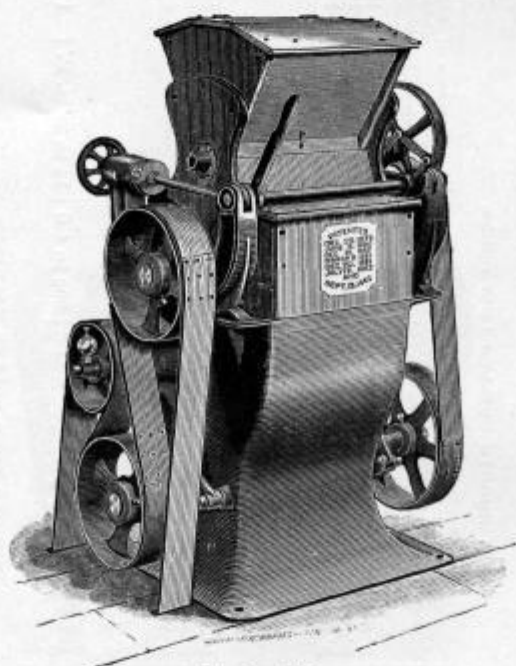
DIVIDED FOUR ROLLER MACHINES.

9" x 8" 1 pr. corrug. 1 pr. smooth	5' 3"	3' 9"	3' 1"	12" x 4 1/4"	300 to 400	3/4 to 1 1/2 H. P.	15' 9"	1980 lbs.	525 00
9" x 11" " " " "	5' 3"	3' 9"	3' 4"	12" x 4 1/4"	300 " 400	1 " 2 " "	15' 9"	2200 "	552 50
9" x 14" " " " "	5' 3"	3' 9"	3' 10"	16" x 5 1/4"	300 " 400	1 1/2 " 2 1/2 "	17'	2700 "	590 00
9" x 14" " " porcelain.....	5' 3"	3' 9"	3' 10"	16" x 5 1/4"	300 " 400	1 1/2 " 2 1/2 "	17'	2660 "	625 00
9" x 14" " smooth " "	5' 3"	3' 9"	3' 10"	16" x 5 1/4"	300 " 400	1 1/2 " 2 1/2 "	17'	2660 "	615 00

MILWAUKEE, WIS.

Gray's Patent Noiseless Belt Roller Mills.

STYLE C.



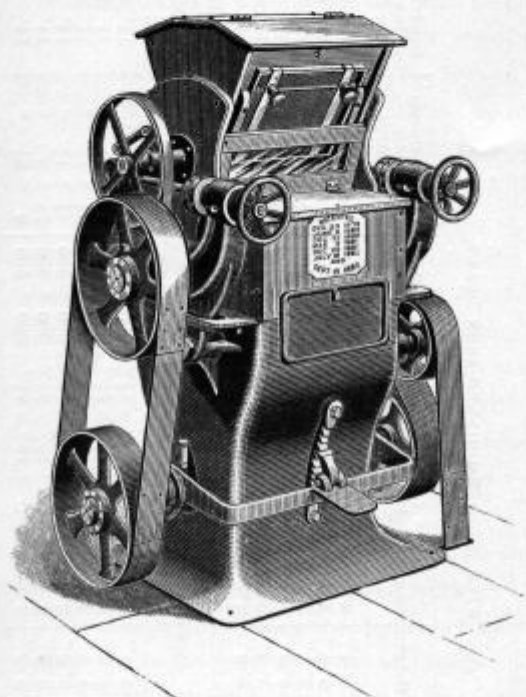
Driving Side.

Our object in presenting this machine to the trade is, that the miller sometimes wants just one pair of rolls, or has not room enough to put in a double machine.

The Style C roll has the same solid iron frame, drive and adjustments as our double machine, and we guarantee it to be just as good in every respect.

Gray's Patent Noiseless Belt Roller Mills.

STYLE C.



Side Opposite Driving Side.

These machines, when fitted with our first break rolls, are vastly superior to any other first-break machine in the market. They are also especially serviceable in mills where it is desired to add a single pair of rolls to aid in the finishing process, in order to obtain a closer yield and an improved grade of the product. For this purpose, they can be fitted with either smooth or scratch rolls as desired. The 9" x 14" and 9" x 18" machines can also be fitted with porcelain rolls.

GRAY'S PATENT NOISELESS BELT ROLLER MILLS.

STYLE C.

DIMENSIONS AND PRICES.

WITH SMOOTH CHILLED IRON ROLLS.

SIZES OF ROLLS.	Height.	Length.	Width.	Driving Pulley.	Revolutions per Minute.	Approximate Power Required.	Length of Driving Belt Above Floor.	Approximate Shipping Weight.	Price.
9" x 8" Single or 2-roll	4' 4"	2' 4"	2' 10"	12" x 4 1/4"	300 to 400	3/4 to 1 H. P.	11' 3"	1100 lbs.	\$280 00
9" x 11" " " "	4' 4"	2' 4"	3' 1"	12" x 4 3/4"	300 " 400	1 " 1 1/4 "	11' 3"	1450 "	295 00
9" x 14" " " "	4' 4"	2' 4"	3' 5"	12" x 5 1/4"	300 " 400	1 1/4 " 1 1/2 "	11' 3"	1800 "	310 00
9" x 18" " " "	5' 2"	2' 8"	4' 6"	16" x 6 3/4"	300 " 400	1 1/4 " 1 3/4 "	14'	2300 "	335 00
9" x 24" " " "	5' 2"	2' 8"	5' 2"	16" x 7 1/2"	300 " 400	1 1/2 " 2 "	14'	2760 "	375 00
9" x 30" " " "	5' 2"	2' 8"	5' 8"	16" x 7 1/2"	300 " 400	2 " 2 1/2 "	14'	3900 "	420 00

WITH CORRUGATED CHILLED IRON ROLLS.

9" x 8" Single, or 2-Roll	4' 4"	2' 4"	2' 10"	12" x 4 1/4"	300 to 400	3/4 to 1 H. P.	11' 3"	1100 lbs.	\$290 00
9" x 11" " " "	4' 4"	2' 4"	3' 1"	12" x 4 3/4"	300 " 400	1 " 1 1/4 "	11' 3"	1450 "	305 00
9" x 14" " " "	4' 4"	2' 4"	3' 5"	12" x 5 1/4"	300 " 400	1 1/4 " 1 1/2 "	11' 3"	1800 "	325 00
9" x 18" " " "	5' 2"	2' 8"	4' 6"	16" x 6 3/4"	300 " 400	1 1/4 " 1 3/4 "	14'	2300 "	350 00
9" x 24" " " "	5' 2"	2' 8"	5' 2"	16" x 7 1/2"	300 " 400	1 1/2 " 2 "	14'	2760 "	390 00
9" x 30" " " "	5' 2"	2' 8"	5' 8"	16" x 7 1/2"	300 " 400	2 " 2 1/2 "	14'	3900 "	440 00

WITH WEGMANN'S PATENT PORCELAIN ROLLS.

9" x 14" Single, or 2-Roll	4' 4"	2' 4"	3' 5"	12" x 5 1/4"	300 to 400	1 1/4 to 1 1/2 H. P.	11' 3"	1750 lbs.	\$375 00
9" x 18" " " "	5' 2"	2' 8"	4' 6"	16" x 6 3/4"	300 " 400	1 1/4 " 1 3/4 "	14'	2250 "	400 00

Gray's Patent Noiseless Belt Roller Mills.

WITH PORCELAIN ROLLS.

About the year 1873 we made for a wideawake miller in Minnesota, the first pair of rolls used for milling purposes in America. They were made of marble, twenty inches in diameter, and set in a wooden frame with sliding boxes and the necessary adjusting devices. These rolls were used to crush the wheat before grinding, and attracted considerable attention from the favored few who knew of their existence. The marble, however, proved too soft, and we subsequently made rolls of cast iron for the same purpose. These crude rolls were used for some time and quite a large number of millers in the Northwest tried the experiment of crushing the wheat, before grinding it on the mill stones; at one time a large number of rolls being in use for this purpose. The results were not, however, as satisfactory as were at first expected, and millers who had used them were anxiously looking for something better. In 1875 we succeeded in obtaining chilled iron rolls, so hard that the sharpest file would make no impression on their finely polished surfaces, and so true that, when placed together in the machine, they would shut out light their entire length. These rolls were introduced extensively for the purpose of sizing coarse middlings and purifier tailings, in order to flatten the germ and thus make possible its separation from the middlings.

The success of rolls for this purpose was complete and assured from the start, but it soon appeared that the smooth rolls, though working excellently on the coarse middlings for the elimination of the germ, would not answer the purpose of making the final reductions on the finer and softer middlings. We were thus led to investigate porcelain rolls, and, after trying them most thoroughly, we became convinced that they were superior in every respect to iron rolls, for the purpose for which they were designed to be used. In 1877 we made arrangements with the inventor, Mr. F. Wegmann, of Zurich, Switzerland, for the sole use of his invention in this country. It is owing to the fact of our exclusive control of the sale of porcelain rolls in this country, that other manufacturers have so bitterly opposed their use and have endeavored, so far fruitlessly, to devise some substitute for them.

We are constantly putting porcelain rolls into the best mills in the country and their good work is appreciated by millers who have used them the longest.

They perform a class of work that neither smooth iron rolls nor millstones can do, and have all the good and none of the bad qualities of both.

They will grind more than smooth rolls and flatten less, while they flatten more than millstones and grind less.

No matter how clean middlings may be, when they are reduced, you leave the fibrous matter. If reduced on smooth rolls, the result is to flatten, to a large extent, both impurities and good middlings, making the tail of the reels too rich and consequently giving a poor yield; if reduced on millstones, no discrimination is made between good, clean middlings and impurities, but the fluffy matter is ground into the flour, resulting in impure flour.

If porcelain rolls are used, you obtain the same smooth surface of the roll to flatten the impurities and still have the fine, sharp grit, necessary to produce clean, sharp flour. Millstones are unfit to grind middlings, no matter how clean they may seem to be. The only thing in their favor is their large capacity, but the time is at hand when quality is of first consideration, above quantity, and millers now understand better how to handle rolls than they formerly did, consequently porcelain roller mills are constantly increasing in favor.

We make three sizes of machines for porcelain rolls, 14"x16", 9"x18" and 9"x14". A special frame is made for the 14"x16", and the smaller sizes are placed in our regular frames for Standard, Style B, Style C, and Style L machines. The large machine will grind about as much as a four-foot millstone.

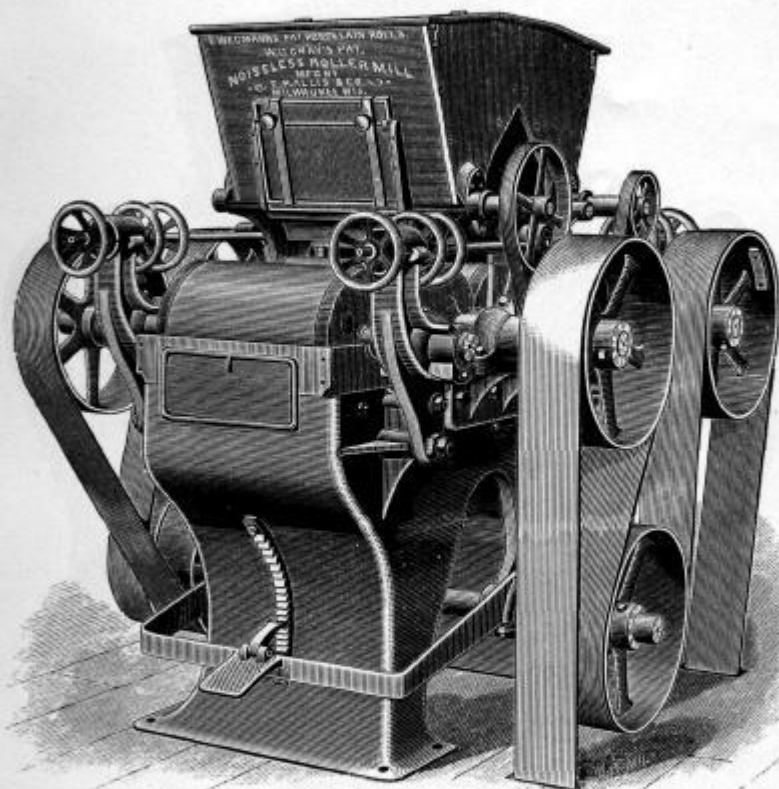
We recommend the use of these machines for grinding fine, clean middlings or middlings that have passed through smooth iron rolls, most of the germ having been extracted, and we guarantee that porcelain rolls will do this work better than either smooth iron rolls or millstones.

DIMENSIONS AND PRICES.

SIZE OF ROLLS.	Height.	Length.	Width.	Driving Pulley.	Revolutions per Minute.	Approximate Power Required.	Length of Driving Belt Above Floor.	Approximate Shipping Weight.	Price.
14" x 16" Single ..	5' 7"	3' 2"	4' 5"	20" x 6½"	200 to 300	1½ to 2½ H.P.	16' 3"	2,700 lbs.	\$600 00
14" x 16" Double...	5' 10"	5' 6"	4' 10"	20" x 6½"	200 " 300	3 " 4 H.P.	19' 3"	4,000 "	800 00

Gray's Patent Noiseless Belt Roller Mills.

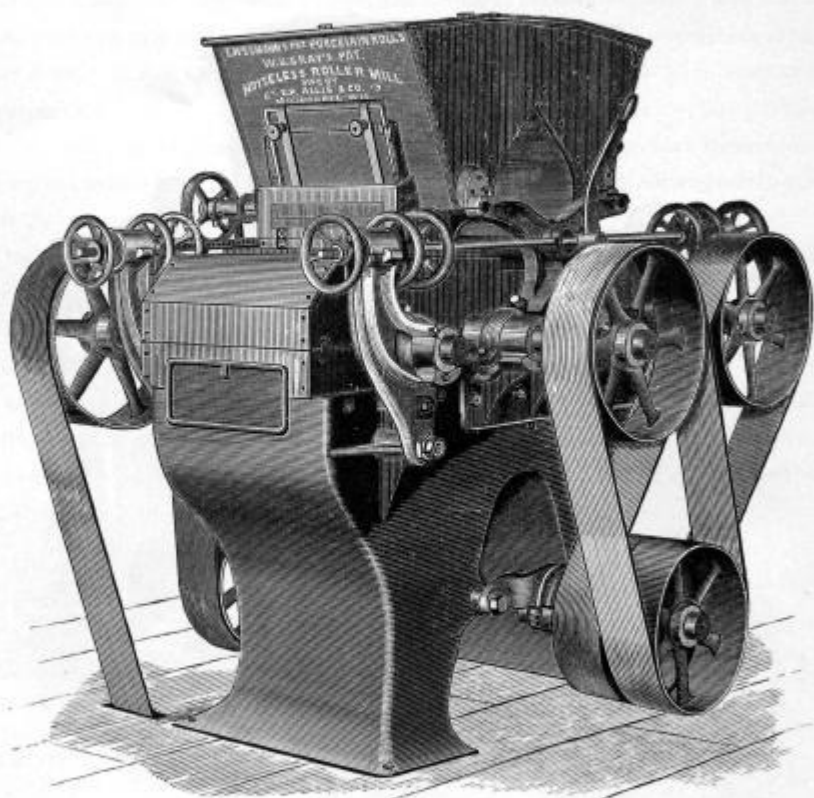
WITH WEGMANN'S PATENT PORCELAIN ROLLS.



Driving Side.

Gray's Patent Noiseless Belt Roller Mills.

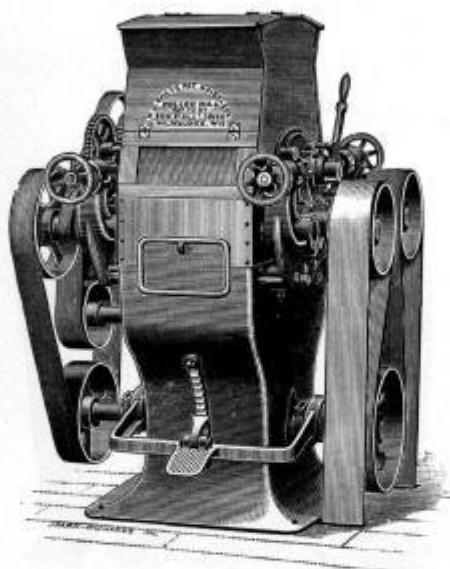
WITH WEGMANN'S PATENT PORCELAIN ROLLS.



Side Opposite Driving Side.

Gray's Patent Noiseless Belt Roller Mills.

SIX INCH ROLLS,—STYLE E.



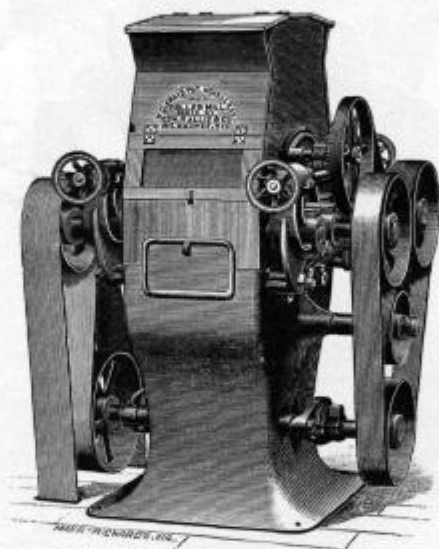
Driving Side.

Many millers believe that there is a great advantage to be derived from using rolls of small diameter, and there has been quite a large demand for six-inch rolls.

In order to meet this demand, we present our Style C roller mill to the trade. To millers who want a six-inch roll, we can freely recommend this machine, which is practically the same as our Standard roller mill, except that the drive on the back is accomplished by one belt, instead of two.

Gray's Patent Noiseless Belt Roller Mills.

SIX INCH ROLLS,—STYLE E.



Side Opposite Driving Side.

Another difference between our Style C and Standard machines is in the device for tightening the belts, which is similar to that employed on our Style B roll.

The adjustments are identical with the Standard. This machine is strong, durable and presents a very handsome appearance.

GRAY'S PATENT NOISELESS BELT ROLLER MILLS.

WITH SIX INCH ROLLS,—STYLE E.

DIMENSIONS AND PRICES.

WITH SMOOTH CHILLED IRON ROLLS.

SIZE OF ROLLS.	Height.	Length.	Width.	Driving Pulley.	Revolutions per Minute.	Approximate Power Required.	Length of Driving Belt Above Floor.	Approximate Shipping Weight.	Price.
6'' x 12'' Double or 4-Roll.....	4' 7''	2' 10''	3'	10'' x 4 $\frac{1}{2}$ ''	500	1 $\frac{1}{2}$ to 1 $\frac{3}{4}$ H. P.	13' 6''	1480 lbs.	\$465 00
6'' x 16'' " " "	4' 7''	2' 10''	3' 4''	10'' x 4 $\frac{3}{4}$ ''	500	1 $\frac{3}{4}$ " 2 $\frac{1}{4}$ "	13' 6''	1680 "	515 00
6'' x 20'' " " "	4' 7''	2' 10''	3' 9''	10'' x 5 $\frac{1}{2}$ ''	500	2 $\frac{1}{4}$ " 2 $\frac{3}{4}$ "	13' 6''	1860 "	565 00

WITH CORRUGATED CHILLED IRON ROLLS.

6'' x 12'' Double, or 4-Roll	4' 7''	2' 10''	3'	10'' x 4 $\frac{1}{2}$ ''	500	1 $\frac{1}{2}$ to 1 $\frac{3}{4}$ H. P.	13' 6''	1480 lbs.	\$480 00
6'' x 16'' " " "	4' 7''	2' 10''	3' 4''	10'' x 4 $\frac{3}{4}$ ''	500	1 $\frac{3}{4}$ " 2 $\frac{1}{4}$ "	13' 6''	1680 "	530 00
6'' x 20'' " " "	4' 7''	2' 10''	3' 9''	10'' x 5 $\frac{1}{2}$ ''	500	2 $\frac{1}{4}$ " 2 $\frac{3}{4}$ "	13' 6''	1860 "	580 00

DIVIDED, ONE PAIR CORRUGATED AND ONE PAIR SMOOTH.

6'' x 12'' Double, or 4-Roll.....	4' 7''	2' 10''	3'	10'' x 4 $\frac{1}{2}$ ''	500	1 $\frac{1}{2}$ to 1 $\frac{3}{4}$ H. P.	13' 6''	1480 lbs.	\$472 50
6'' x 16'' " " "	4' 7''	2' 10''	3' 4''	10'' x 4 $\frac{3}{4}$ ''	500	1 $\frac{3}{4}$ " 2 $\frac{1}{4}$ "	13' 6''	1680 "	522 50
6'' x 20'' " " "	4' 7''	2' 10''	3' 9''	10'' x 5 $\frac{1}{2}$ ''	500	2 $\frac{1}{4}$ " 2 $\frac{3}{4}$ "	13' 6''	1860 "	572 50

MILWAUKEE, WIS.

Gray's Patent Noiseless Belt Roller Mills.

STYLE L.

This style of our well known roller mills is similar in general appearance to our six-inch, or Style E machine. The rolls are nine inches in diameter. This machine can be fitted with either positive, automatic or shaker feed.

DIMENSIONS AND PRICES.

WITH SMOOTH CHILLED IRON ROLLS.

SIZE OF ROLL.	Height.	Length.	Width.	Driving Pulley.	Revolutions per Minute.	Approximate Power Required.	Length of Driving Belt Above Floor.	Approximate Shipping Weight.	Price.
9" x 14".....	5' 1½"	3' 10"	3' 10"	12" x 5¼"	300 to 400	1½ to 2½ H. P.	16' 6"	2700 lbs.	\$580 00

WITH CORRUGATED CHILLED IRON ROLLS.

9" x 14".....	5' 1½"	3' 10"	3' 10"	12" x 5¼"	300 to 400	1½ to 2½ H. P.	16' 6"	2700 lbs.	\$600 00
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WITH WEGMANN'S PATENT PORCELAIN ROLLS.

9" x 14".....	5' 1½"	3' 10"	3' 10"	12" x 5¼"	300 to 400	1½ to 2½ H. P.	16' 6"	2700 lbs.	\$650 00
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DIVIDED FOUR ROLLER MACHINES.

9" x 14".....	5' 1½"	3' 10"	3' 10"	12" x 5¼"	300 to 400	1½ to 2½ H. P.	16' 6"	2700 lbs.	\$590 00
1-pr. cor. 1-pr. sm.	5' 1½"	3' 10"	3' 10"	12" x 5¼"	300 " 400	1½ " 2½ "	16' 6"	2700 "	615 00
9" x 14".....	5' 1½"	3' 10"	3' 10"	12" x 5¼"	300 " 400	1½ " 2½ "	16' 6"	2700 "	625 00
1-pr. sm. 1-pr. por.	5' 1½"	3' 10"	3' 10"	12" x 5¼"	300 " 400	1½ " 2½ "	16' 6"	2700 "	625 00
9" x 14".....	5' 1½"	3' 10"	3' 10"	12" x 5¼"	300 " 400	1½ " 2½ "	16' 6"	2700 "	625 00
1-pr. cor. 1-pr. por.	5' 1½"	3' 10"	3' 10"	12" x 5¼"	300 " 400	1½ " 2½ "	16' 6"	2700 "	625 00

Height of machine with Shaker Feed, 5' 8½".

Gray's Patent Noiseless Belt Gradual Reduction Machine.

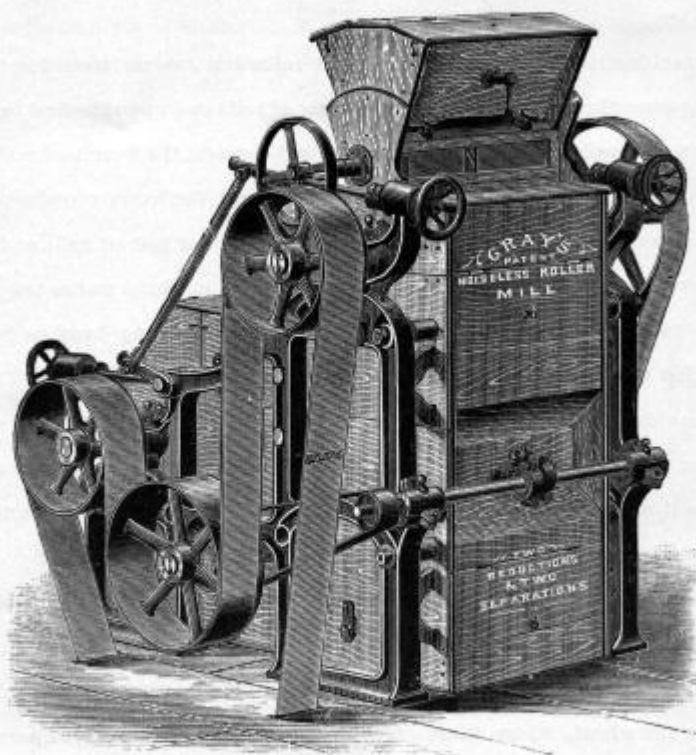
This machine has two pairs of corrugated rolls and two reciprocating sieves. The grain passes through the first or upper pair of rolls and upon the first or upper sieve, where a complete separation of the product is made, the flour and middlings passing through the sieve and out of the machine, and the large un-reduced portion passes over the tail of the sieve to the second or lower pair of rolls and to the second sieve, where a second separation is made. The machine makes two reductions and two separations. Both of the sieves have traveling brushes beneath them, so that their meshes are kept perfectly clean.

The machine is perfectly adjustable, the same devices being used as on the plain roller machines. The same feed gate and roll is used, and the same adjustable and self-oiling boxes. The machine is driven by a single belt. Both rolls can be spread simultaneously. The machine is dustless and noiseless.

These machines are designed for use where economy of space is desirable, as they save the room required by two scalping reels and an elevator. They are especially serviceable for reducing screenings, and may be used in small mills for reductions on wheat, where there are no convenient places for scalpers. By using this machine, the scalping is brought under the eye of the grinder, where it is easily managed.

Gray's Patent Noiseless Belt Gradual Reduction Machines.

FOR MILLS OF 75 TO 150 BARRELS CAPACITY.



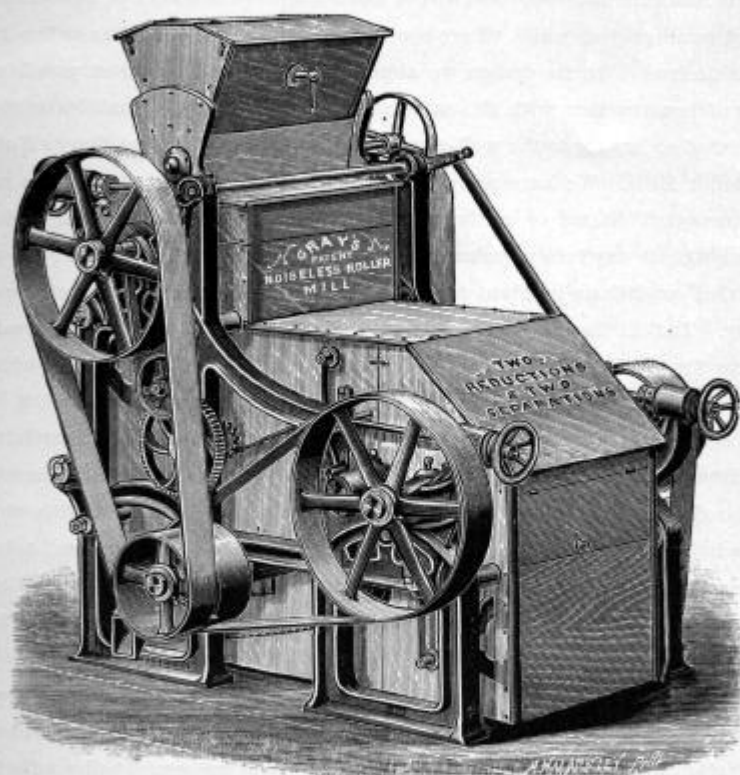
Driving Side.

DIMENSIONS

SIZE OF ROLLS.	Height.	Length.	Width.
9" x 14"	6' 5"	5' 10"	4' 7"
9" x 18"	6' 5"	5' 10"	5' 0"
9" x 24"	6' 5"	5' 10"	5' 8"
9" x 30"	6' 5"	5' 10"	6' 2"

Gray's Patent Noiseless Belt Gradual Reduction Machines.

TWO REDUCTIONS AND TWO SEPARATIONS IN ONE MACHINE.



Side Opposite Driving Side.

AND PRICES.

Driving Pulley.	Revolutions per Minute.	Approximate Power Required.	Length of Driving Belt Above Floor.	Approximate Shipping Weight.	Price.
16" x 5½"	275 to 350	3½ H. P.	17' 6"	3460 lbs.	\$ 750 00
16" x 6½"	275 " 350	4 " "	17' 6"	4020 " "	800 00
16" x 7½"	275 " 350	5 " "	17' 6"	4360 " "	900 00
16" x 7½"	275 " 350	6 " "	17' 6"	7800 " "	1,000 00

Gray's Patent Noiseless Belt Four-Break Reduction Machine.

This machine has been designed to meet the requirements of that numerous class of small custom mills, where economy of room and power, as well as in first cost, is desired. In its design we aimed to combine the greatest possible simplicity of construction with the same perfection of working qualities which has contributed so largely to the well-earned success of our Standard Gray's Noiseless Belt Roller Mills. We have not attempted to force this machine upon the market by extravagant claims or puffing advertisements, preferring rather to let the machine win its way into popular favor, by proving its merits by actual use under the varied conditions incident to its operation in mills in different sections of the country. That it has proved to be all that we have claimed for it as a valuable machine for small mills, is amply shown by the numerous testimonials which we have received. It is the result of long experience in building roller mills, and we are confident that in solidity of construction and simplicity and durability in operation it cannot be excelled. It is not claimed that it is all that is required to make a roller mill, or that it will give the best results, without intelligence in operating it. What we do claim is, that it will save room, take less power and require less millwright work and expense to place it in position to work in connection with the other machinery in the mill, than any other machinery capable of doing the same work.

In the machine illustrated, we have not tried to devise some cheap substitute for roller mills, nor to abridge our system of roller milling, which we have put in operation in by far the greater portion of the most successful roller mills in the country. The reductions are made on rolls in every respect, except length, the same as those used in our Standard roller mills. They are the best Ansonia rolls, and corrugated the same as the longer rolls, and not, as in the cheap affairs which have been palmed off on unsuspecting millers as roller mills, with corrugations cast in, which soon wear out and cannot be replaced. The adjustments are the same as in the Standard Gray's Patent Roller Mills; the only respect in which the roller mills in this machine differ from our Standard machines, is in being placed on the frame which contains the scalping reels; the rolls, reels and elevators being combined in one machine, all parts of which are readily accessible,

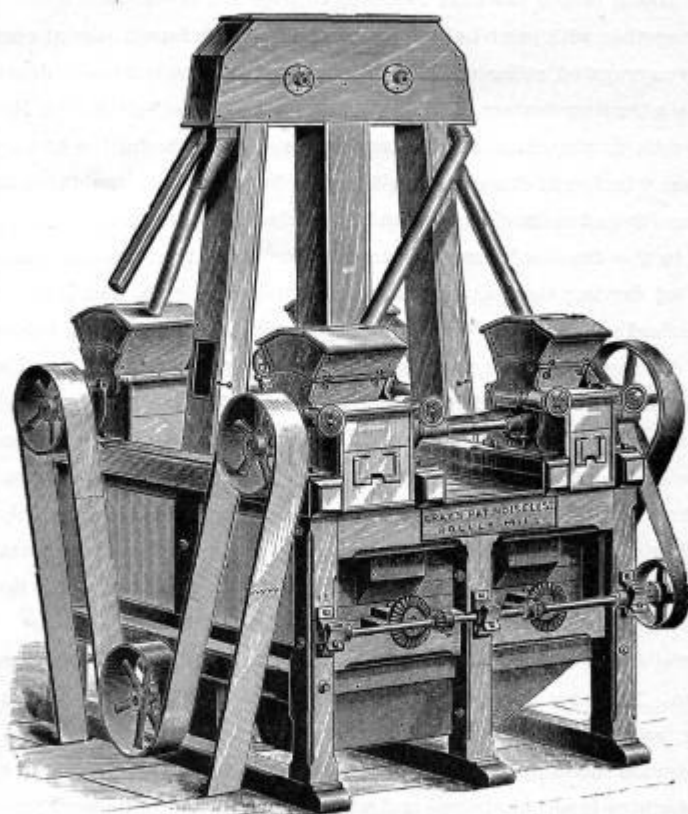
which can be placed on the grinding floor, *without extending into the floor above*, and which requires only one driving belt. The machine is cheap,—not that it is slighted in any way, or that it lacks any single essential part of our Standard roller mills, but because it is compact, simple durable, and requires very little millwright work or machinery to place it in the mill. This will be readily seen from the following description :

The frame of the machine is solidly constructed of seasoned timber, strongly framed together with joint bolts. On the top of this frame, one at each corner, are four corrugated roller mills, each with one pair of rolls and provided with the same adjusting devices, as Gray's Patent Noiseless Belt Roller Mills. Each pair of rolls is placed in a solid iron frame. The rolls for the first and second breaks are 9 inches in diameter and 8 inches long, and for the third and fourth breaks are 9 inches in diameter and 12 inches long. The corrugations are the same as in the Standard Gray's Patent Roller Mills for the same breaks. The manner of driving the rolls is plainly shown by the cuts, and is the same as in our Standard roller mills. The main driving shaft and pulley are below the floor and the driving belt passes over the driving pulleys on fast rolls and under the pulley on counter shaft, which extends through the machine, from the opposite end of which the slow rolls are driven. The rolls are coupled to the corresponding ones on the opposite side of the machine by short shafts, forming a universal joint, thus permitting the adjustment of each pair of rolls separately, without interfering with the others. The rolls are at just the right height from the floor to be easily adjusted and to permit the miller, while standing on the floor, to feel of the chop and examine the work.

In the body of the machine, there are four scalping reels of improved construction. These reels are placed two on each shaft and driven by a cross shaft and gearing, as shown in the cut. The reels discharge at the center into elevators, which elevate the tailings from each reel to the next succeeding pair of rolls. The whole machine is self-contained and when once adjusted to its work, requires very little attention. Under each scalping reel is a hopper, from which the flour and middlings from the different breaks can be spouted separately or together, as desired. When required, the machines are fitted with conveyors under the scalping reels. The machine contains all necessary elevators and is complete, ready to attach driving belt.

Gray's Patent Noiseless Belt Four Break Reduction Machine.

FOR SMALL MILLS.



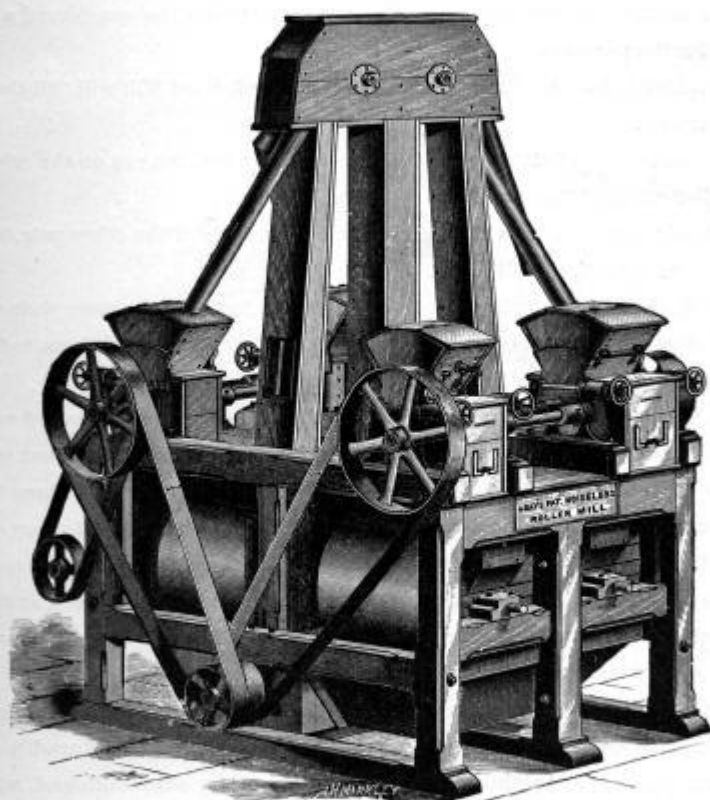
Driving Side.

DIMENSIONS

No.	SIZE OF ROLLS.	Height to top of Elevator Heads.	Length.	Width.
1	1st and 2d break, 6''x6'' } 3d " 4th " 6''x8'' }	9' 6''	6' 5''	5' 8''
2	1st and 2d break, 9''x8'' } 3d " 4th " 9''x12'' }	10' 6''	8'	7'

Gray's Patent Noiseless Belt Four Break Reduction Machine.

FOUR REDUCTIONS AND FOUR SEPARATIONS IN ONE MACHINE.



Side Opposite Driving Side.

AND PRICES.

Driving Pulley.	Revolutions per Minute.	Approximate Power Required.	Length of Driving Belt Above Floor.	Approximate Shipping Weight.	Price.
12"x5½"	500	3 to 4 H. P.	24' 6"	3100 lbs.	\$1,100 00
16"x7½"	300	4 " 5 "	17' 6"	4630 "	1,350 00

Gray's Patent Noiseless Belt Roller Mills for Grinding Corn, Feed, Rye, etc.

STYLE M.

Many attempts have been made to produce a successful machine to grind feed and corn by one operation, or without elevating the stock from one pair of rolls to another and passing it through a second time, but, as far as we know, there has been no machine heretofore upon the market that can be considered a perfect success for the purpose.

We believe that the Gray Patent Noiseless Belt Feed Mill will "fill the bill in every particular."

The plan of the belt drive and adjustments are the same as on the celebrated Gray roller mills, with some slight modifications.

One pair of rolls is set a little higher and to one side of the other pair, to admit of the use of our patent belt drive.

The upper pair of rolls is fed with a shaker feed and the same shoe extends below the upper pair and is made to carry the stock from beneath them, to feed the lower pair of rolls, so that the one shaker shoe feeds both pair of rolls.

The vertical and lateral adjustments are the same as on our Standard rolls.

The boxes for the roll journals are ball and socket, permitting the box to adjust itself to its bearing, so that a high rate of speed can be attained without heating and requiring, of course, the minimum power. An especially good feature of these rolls is, that the boxes may be removed and new ones substituted in a few moments.

Millers will find this to be a great convenience and saving of time, as they will not be obliged to stop the machine to re-babbitt the boxes, but can have an extra set and readily make a change when necessary.

Our machine with four rollers has many decided advantages over the three-roll machines, that are now being put upon the market, as millers will readily see. It is almost impossible to obtain a good adjustment for three rolls and, without a good adjustment, good and economical work cannot be done.

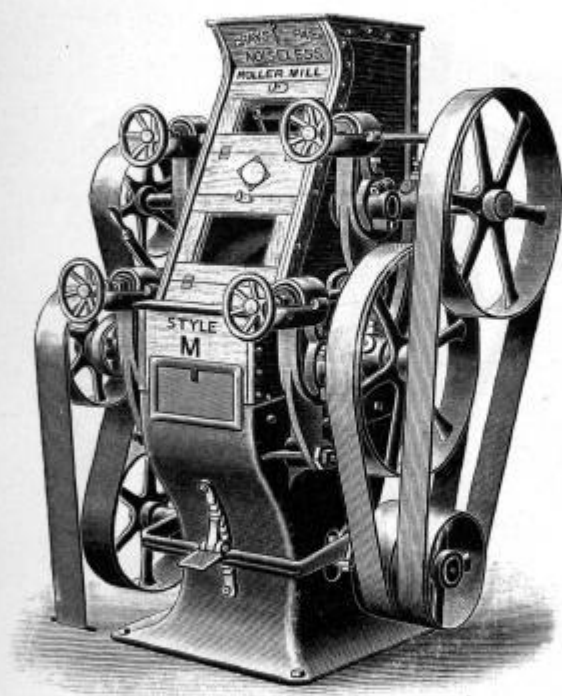
Also the middle roll cannot be corrugated to properly suit both the upper and lower rolls. At the best, such an arrangement is but a "make shift." With our machine, both pairs of rolls being entirely independent, they may be corrugated as desired, to adapt them perfectly to the class of work to be done.

It will pay anyone, who is in need of a machine of this kind, to investigate our roll thoroughly before placing their order elsewhere.

The rolls used are identically the same in size and quality as those in our Standard roller mill.

Gray's Patent Noiseless Belt Roller Mills for Grinding Corn,
Feed, Rye, etc.

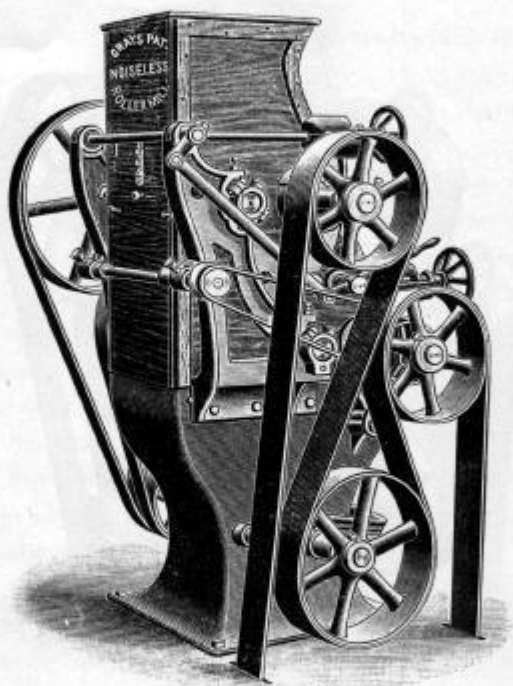
STYLE M.



Front View.

Gray's Patent Noiseless Belt Roller Mills for Grinding Corn,
Feed, Rye, &c.

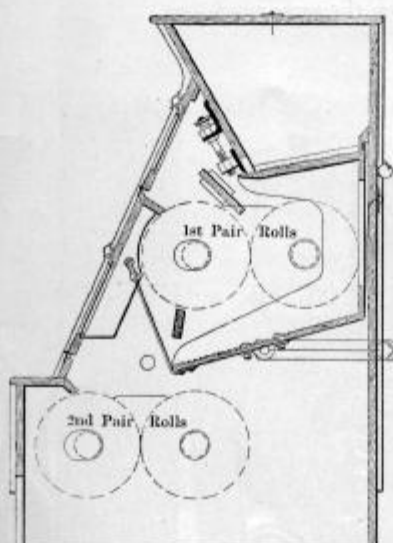
STYLE M.



Back View.

Gray's Patent Noiseless Belt Roller Mills for Grinding Corn, Feed, Rye, etc.

STYLE M.



Sectional View.

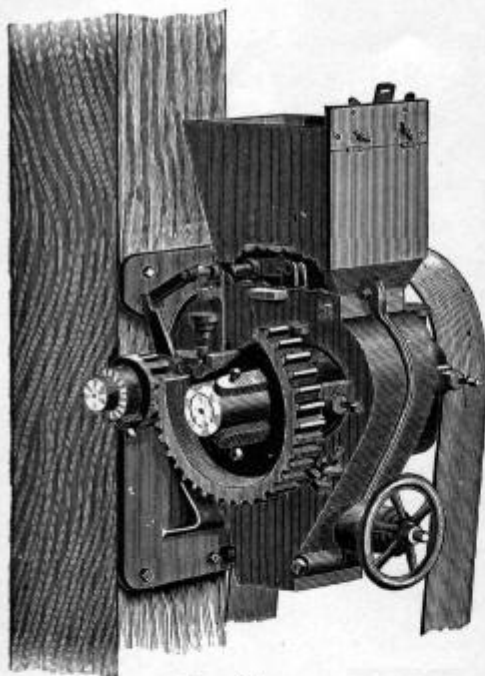
DIMENSIONS AND PRICES.

Size.	Height.	Width.	Length.	Driving Pulley.	Revolutions per Minute.	Length of Belt above Floor.	Approximate shipping weight.	Price.
9"x14"	5' 8"	3' 10"	3' 5"	14"x6 $\frac{1}{4}$ "	350 to 450	18 ft.	2600 lb.	\$600 00
9"x18"	5' 8"	4' 9"	3' 5"	14"x7 $\frac{1}{4}$ "	350 to 450	18 ft.	3050 lb.	650 00
9"x24"	5' 8"	5' 6"	3' 5"	14"x8 $\frac{1}{4}$ "	350 to 450	18 ft.	3350 lb.	735 00

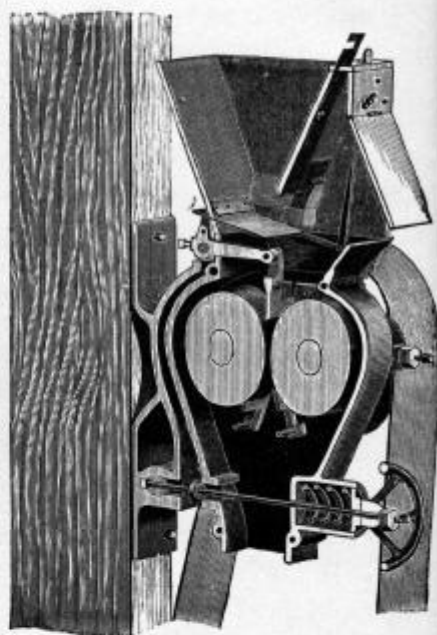
The Milwaukee Granulator.

This machine is a complete and perfect roller mill, with all necessary and adjusting devices, yet so simple in operation and management, that any one can run it, though they never saw a roller mill before. A sure proof of its success is the rapidly increasing demand for them from all parts of the country.

The rolls used in this machine are of CHILLED IRON, suitably corrugated for the work to be performed and are identical with those used in our Standard roller mills, being corrugated on the same machines.



Gear Drive.

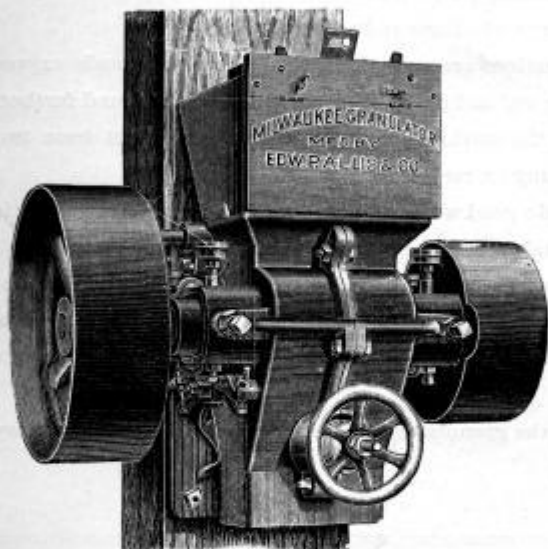


Sectional View.

The construction of the machine makes it very *durable, easily managed and capable of doing superior work*, with fully fifty per cent. less power than any other mode of grinding, while the cost of repairs is so low as to hardly be considered.

By means of the hand-wheel in front of the machine, the rolls can be quickly and easily set together or apart and *kept in the same position given them, whether grain is passing through or not.*

As there are always more or less foreign substances finding their way into the grain, such as nails, screws, nuts, bits of wire, stones, etc., which would be liable to cause damage to the rolls, we have provided a spring to permit the rolls to yield momentarily and allow the foreign substance to pass through, with the minimum amount of injury to the rolls, the spring returning the rolls to their former position. We have known of instances where one or two 20d nails have passed through the machine without any perceptible injury to the rolls, and in one case, an eight-inch three-cornered file was run through two granulators, without causing any damage, except a slight V-shaped cut in the rolls.



THE MILWAUKEE GRANULATOR, BELT DRIVE.

The rolls of the Milwaukee Granulator are corrugated spirally, one roll running about three times as fast as the other, the teeth of the slow roll pointing up, while the teeth of the fast roll point down.

For grinding corn and meal this machine is very efficient. It produces a nicely cut, sharp and even product, with but little flour, and no matter how finely ground, the meal will always be sharp and granular.

It has proven itself to be just the thing for elevators and mills, to grind screenings and feed, whether mixed with corn or not.

It can be left running and grind the screenings as they come, for the machine requires scarcely any attention, and the rolls retain their proper position, whether feed is passing through or not.

As a general thing each reduction calls for a separate machine, the rolls of each succeeding reduction being corrugated finer than those in the machine preceding.

For general feed purposes, we would advise two reductions, especially on corn.

For farmers' use, and where very small capacity is wanted, one reduction is sufficient.

For corn meal, three or four reductions are necessary, with three or four separations.

For screenings, one or two reductions are sufficient.

Corn for distilling purposes, should have two reductions, as also rice.

Rye requires two to three reductions.

Where separations are wanted, we furnish scalpels, made expressly to go with these machines; cut and description of which will be found further on.

The rolls in the machines, with proper usage, will last from two to five years without regrinding or replacing.

In order to do good work with any machine, it is very essential that proper care should be taken and that it should be looked after occasionally, to see that the adjustments are as they should be, to insure the best work. We issue a special pamphlet, giving full instruction in regard to setting up the granulator and directions for its operation, which we shall be pleased to furnish to all who may write for it.

We furnish the granulator with either gear or belt drive, as may be preferred.

DIMENSIONS AND PRICES.

Size of Rolls.....	{ 6'' Diameter.	Driving Pulley.....	16'' x 5½''
	{ by 8'' Face.	Weight.....	600 lbs.
Height.....	30''	Capacity per hour.....	10 to 20 Bush.
Depth.....	21''	Price of Geared Mill.....	\$100.
Width over all.....	35''	Price of Belt Mill.....	\$110.

Special Machinery.

The Reliance Purifier.

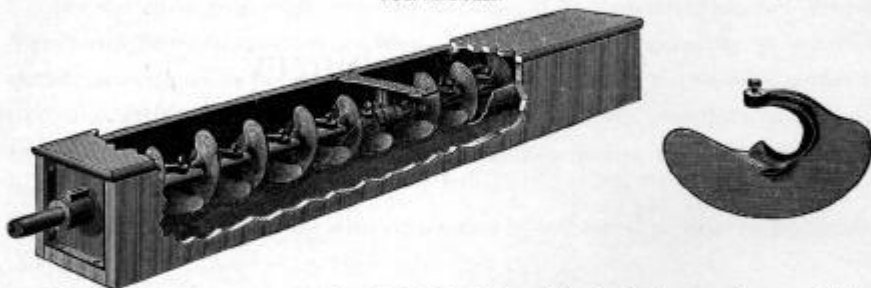
The Reliance Purifier is new, but not untried. It has been in use in several of the best mills of the country for a long time, and we believe it to be the best machine for purifying middlings that we have ever seen.

In our extensive mill building business, we have used all of the different makes of purifiers that have been presented to the trade, and, in placing this machine before the milling public, we give our assurance that it will only have to be tried to be pronounced, as we say, "THE BEST, AND A MODEL OF PERFECTION."

The machine is very carefully constructed throughout, the frame being of selected hardwood, finely finished and presenting the same handsome appearance as all of our special machines.

An engraving on the opposite page shows the side and head end of the purifier. The amount of air can be regulated by opening or closing the blinds at the side and ends and, if necessary, the air may all be shut off the head of the sieve and taken through the tail end. This is very important, especially where fine or dusty middlings are to be purified.

CONVEYORS.

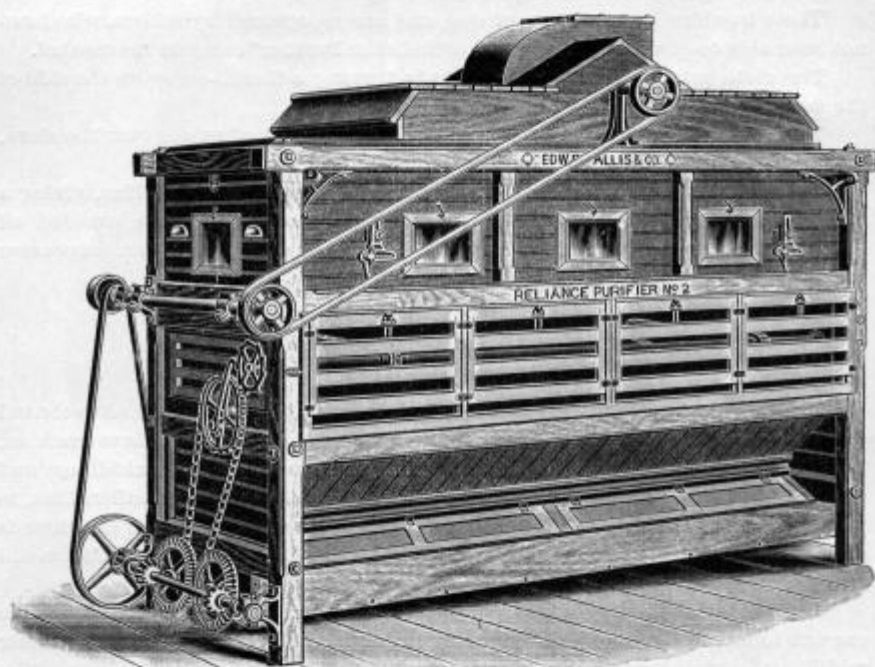


There are two conveyors, placed side by side. Their shafts are iron and the flights are malleable iron. The flights may be easily reversed, without removing them from the shafts or taking the shafts out of the conveyor boxes, simply by turning a set screw. The shaft, being iron, insures strength and a perfectly true running conveyor, which is almost an impossibility with wooden shafts, having gudgeons in the end. The ends of the boxes are of cast iron, the whole making a very strong conveyor.

CLOTH CLEANING DEVICE.

Our cloth cleaning device is the most effective ever invented for the purpose. It is a brush the entire length of the cloth, but the action is NOT TO BRUSH the cloth. By a simple mechanism, the brush is made to rise and touch the cloth of the reciprocating sieve and then drop away. The brush moves laterally its own width, coming up again and touching the cloth. This movement is repeated, until the whole under surface of the cloth has been touched. The brush then turns and travels to the opposite side of the machine, cleaning itself on the way, where it commences to operate across the cloth again. The brush may be adjusted to touch the cloth lightly or hard, by turning a screw at each corner of the machine; this adjustment can be readily made while the machine is in motion.

The Reliance Purifier.



A Model of Perfection.

The advantages of our cloth cleaning device, over the common way, of a traveling, wiping brush from head to tail of the sieve, will be readily seen by all practical millers. The action of the brush in other machines is as much to wipe as to brush and this tends to paste and fill up the meshes of the cloth, as much as to clean them. In fact, the brush, traveling one way, gets set and is nothing more than a wiper, the result being, that the cloth will not be clean and the miller must go over it with a hand brush, this being especially the case when milling on soft wheat or in damp weather. Another objection to the ordinary brush or wiper, traveling lengthwise of the cloth is, that the brush gets loaded with middlings at the head of the machine and drops them with the poorer middlings at the tail, thus, while intending to separate the middlings by different grades of cloth, they are mixed to a greater or less degree by the wiper.

These troubles have always existed and are recognized by millers, who have not been able to obviate them until the "Reliance Purifier" came on the market.

The cloth may be tightened by simply turning a thumb-screw on the side of the machine, while in motion.

We have a very convenient and effective arrangement of valves over the sieve, which can be regulated from the tail end of the machine.

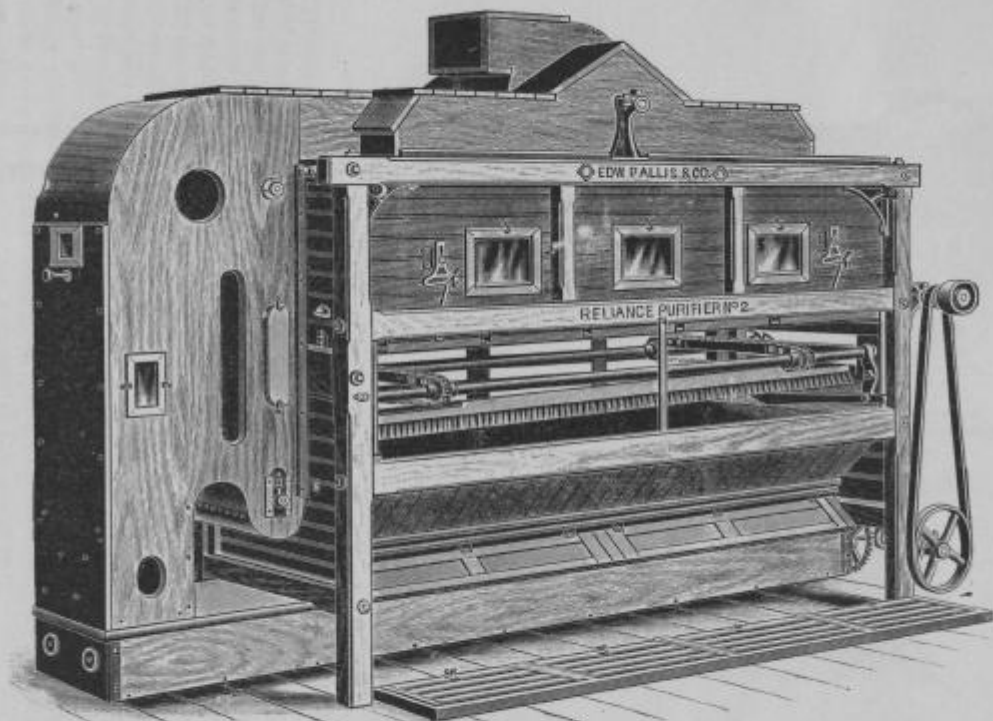
The fan is placed further from the cloth than in the ordinary purifier, giving a better chance for even suction on all parts of the cloth. We have avoided all shelves, drawers and partitions, which in use, have proven an expensive incumbrance.

THE RELIANCE PURIFIER WITH ASPIRATOR ATTACHED.

The cut opposite shows the Reliance Purifier with Aspirator attached to the tail end of the machine. This is not merely a suction on the tail end of a sieve machine, but the aspirator purifies and makes perfect separations on coarse middlings and tailings, that go over the end of the sieve. It is well known to millers that, to purify coarse or medium middlings, which contain branny particles, if the sieve is clothed coarse enough to let all the middlings through, the branny particles will also pass through and the result is that the middlings are not clean.

The object of the aspirator is, to enable the miller to clothe the sieve fine enough to insure clean middlings passing through the cloth and permit the coarser middlings, containing the impurities, to pass over the tail of the sieve. The aspirator will separate the impurities from the middlings, making one product poor enough for feed and the other in excellent condition to go to the rolls.

In the ordinary method of purifying, when the good middlings pass over with tailings, which go to the rolls, the result is, that the impurities are reduced, making, of course, subsequent separations harder. Millers will find our purifier with aspirator a great improvement for some classes of stock.



RELIANCE PURIFIER, WITH ASPIRATOR.

THE RELIANCE PURIFIER.

DIMENSIONS AND PRICES.

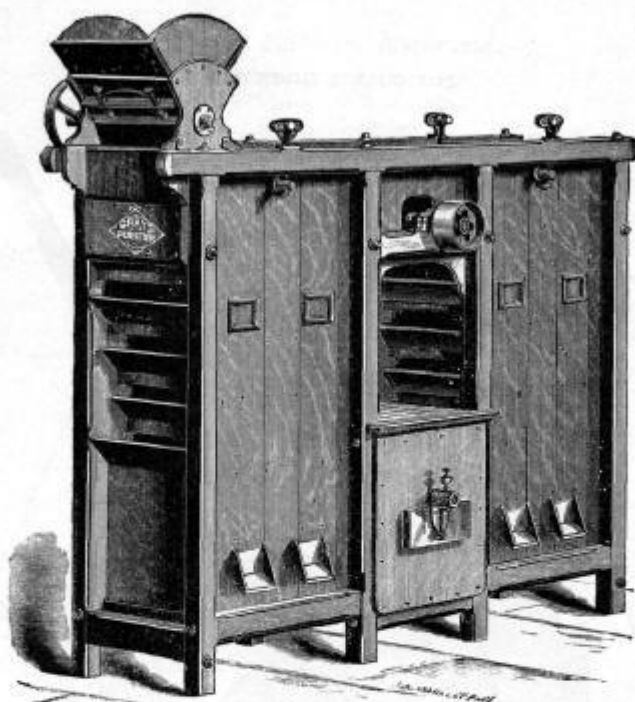
No.	Height of Frame.	Extreme Height.	Length of Frame.	Length with Aspirator.	Width of Frame.	Driving Pulley.	Revolutions per Minute.	Price.
0	6'	7' 9"	7'	9' 4"	3' 3"	8" x 4 $\frac{1}{4}$ "	500	\$250 00
1	6'	7' 9"	9'	11' 4"	3' 3"	8" x 4 $\frac{1}{4}$ "	500	275 00
2	6'	7' 9"	11'	13' 4"	3' 3"	8" x 4 $\frac{1}{4}$ "	500	325 00

Price with Aspirator will be quoted upon application.

We shall be pleased to furnish any further information that may be desired regarding this machine.

Gray's Patent Sectional Purifier.

FOR COARSE MIDDLEINGS.



This machine is especially designed for purifying coarse middlings, before going to the sizing roll, or corn meal gritz.

The sieve separates the middlings into four grades, and for each grade that passes through the sieve, there is a series of valves and shelving work, which subject the middlings to an air current, effecting a perfect purifying.

The air current of each section is regulated independently of all others and very clean and distinct separations are made. The clean middlings is discharged from one side of the machine and the offal from the other.

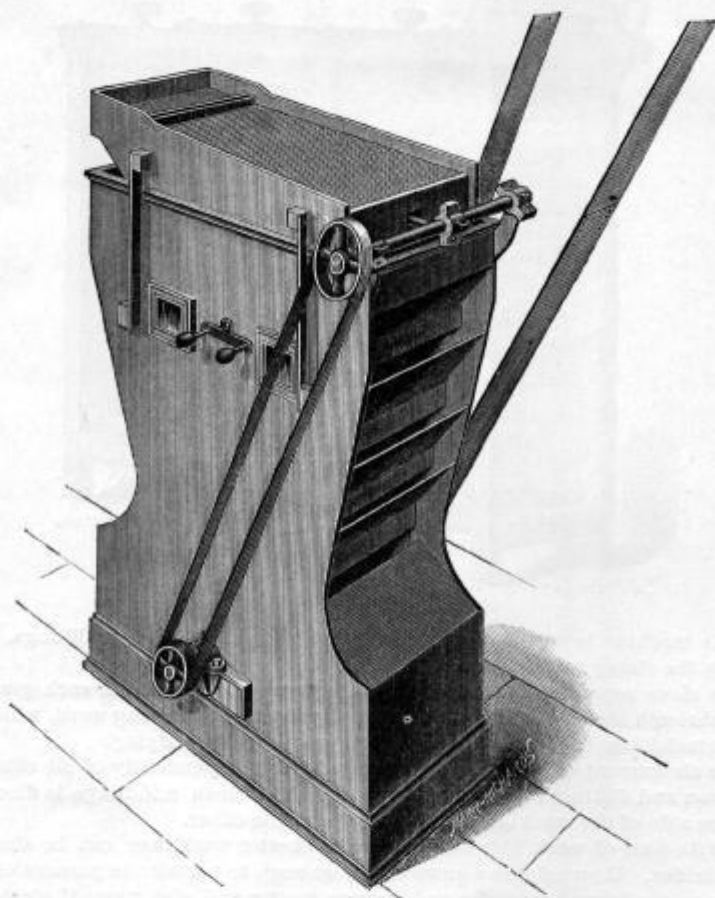
For its class of work, this machine will do better work than can be done by a sieve purifier. If you clothe a sieve coarse enough to permit the passage of coarse middlings, the branny particles and impure matter will also pass; if clothed fine enough to make clean middlings, good stock will tail over. The best and most economical way is to purify coarse stock with this machine.

DIMENSIONS AND PRICES.

No.	Height.	Length.	Width.	Height to Center of D. Pulley.	Driving Pulley.		Rev. per Min.	Approx. Power Required.	Approx. Shipping Weight.	Price.
					Dia. & Face.	Bore.				
1	6' 3"	8' 6"	3' 6"	4' 9"	8" x 4½"	1⅞"	500	1 H. P.	1200 lbs.	\$350 00
2	6' 3"	8' 6"	4' 0"	4' 9"	8" x 4½"	1⅞"	500	1½ "	1500 "	425 00

Gray's Patent Purifier (No 0).

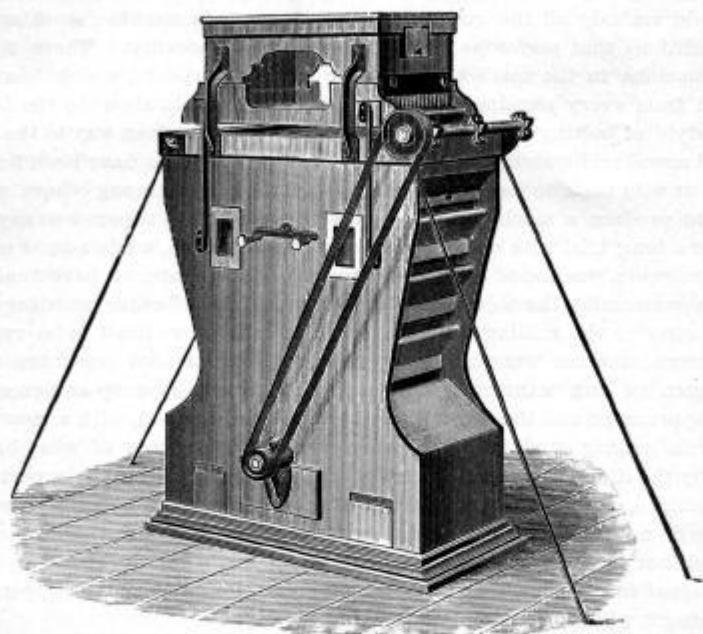
FOR COARSE MIDDLEINGS.



DIMENSIONS AND PRICE.

Height.	Length.	Width.	Height to center of D. Pulley.	Driving Pulley.		Revolutions per Minute.	Approx. Power Required	Approx. Shipping Weight.	Price.
				Dia. & Face.	Bore.				
5'	4'	2' 10"	1' 1"	4" x 3½"	1 7/16"	1000	¾ H. P.	450 lbs.	\$175 00

Gray's Suction Aspirator.



Gray's Suction Aspirator is designed to aspirate the broken wheat from the first and second breaks, or to aspirate the breaks in a corn meal mill, where nice corn grits is desired, or where a grade of meal better than common corn meal is required. It is fitted with shaker feed and contains the necessary fan (not shown in cut). It is a most economical, as well as a cheap and durable machine.

DIMENSIONS AND PRICE.

No.	Height.	Length.	Width.	Driving Pulley.		Revolutions per Minute.	Approximate Power Required.	Approximate Shipping Weight.	Price.
				Dia. & Face.	Bore.				
1	5' 9"	4'	2' 10"	4" x 3½"	1 7/8"	1000	½ H. P.	350 lbs.	\$175 00

Gray's Improved Centrifugal Reel.

For several years the different mill furnishers throughout the country have been struggling to gain ascendancy in bringing to public notice a centrifugal reel that should embody all the good points necessary to a machine, working under such conditions that *perfection* in construction is a necessity. There is probably no machine in the market to-day, for milling purposes, which is so much criticised from every standpoint. This has been brought about by the fact that the old style of bolting with hexagon reels has partially given way to the centrifugal and round reel system, and all progressive mill builders have been forced to experiment with them to meet the demands of the trade. Among others, we have essayed to produce a machine that should be equal, if not superior to any other, and, after a long trial with our Standard centrifugal, which, while a good machine in many respects, was found to be defective in some points, we have finally succeeded in overcoming the objectionable features to this and other centrifugals, and can now offer to the milling public a reel that will prove itself to be THE BEST CONSTRUCTED, EASIEST WORKING, MOST DURABLE, SIMPLE AND COMPLETE CENTRIFUGAL REEL IN THE MARKET, equal to any other as to *capacity* and excelled by none in appearance and the manner in which it is constructed, with a view to convenience in getting at all its parts when working. In view of what has been claimed by the different manufacturers of centrifugal reels, as to the superiority of their machines, and the fact that many of these claims have never been substantiated, we do not intend to burden readers with a lengthy description of the merits of our reel, but will simply give a few of its good points and say that we *guarantee* it to be *equal in every respect to any machine in the market*; if it is superior, the miller using it will soon find out the truth.

The machine is thoroughly made of the best material, with frame of selected hardwood and body of clear white pine, properly shellaced and varnished, to produce a handsome and lasting appearance.

The MAIN BEARINGS of the machine consist of brass thimbles, containing graphite and are so constructed as to require *no oil whatever*, no matter how rapidly the shaft may revolve, thus keeping the machine perfectly clean inside and out, and overcoming the great objection to reels where oil is used, with the consequent accumulation of grease and dirt. The boxes are so arranged, however, that oil may be used if desired. Within the main bearings, the trunions of the silk reel revolve and within these trunions, are placed smaller thimbles, also containing graphite. These thimbles form the bearings for the beater shaft, are adjustable and so arranged that they may be readily removed and replaced by new ones when necessary. The main shaft rotates at such a speed that the centrifugal force imparted to the material increases its weight about seventeen times at the point of contact with the cloth, thus the particles will bear upon the silk at the top of the reel with but one-eighteenth less pressure than at the bottom, and consequently the reel bolts at all points of its circumference. The beater shaft (projecting at both ends of the machine, so that pulley may be placed upon either end, as de-

sired) has spiders, to which the beater wings are attached, inside the silk reel. These wings are so placed as to throw the material against the silk at a suitable angle (not squarely against the meshes), thus bolting only the flour particles and not forcing through specks and other impurities. The beaters are set as closely as possible to the cloth, in order to keep the stock thoroughly alive, preventing accumulation and thereby giving full action to the reel. They are also pitched spirally, to a degree sufficient to hold the material in the machine long enough to effect its proper bolting.

Careful experiments have shown us that to do good work, the beaters should rotate in the same direction as the silk cylinder, that the silk reel should rotate rapidly, but not so rapidly as to hold the material too firmly on the silk by its centrifugal force, and our machine is so constructed as to meet these points. The reel, when driven with sufficient rapidity, proves a perfect carrier for the material and we find no necessity for using inside, trappy, tipping buckets. The ribs of the silk reel are flat and set off from the cloth, thus allowing the material to circulate freely on the silk and making the cloth behind the ribs available.

The brush applied to our machine, is so constructed that it will not fill up and hold the material before it upon the silk. It is adjustable, and when working, merely touches the cloth. When bolting greasy, soft flour, the cloth is ventilated sufficiently to keep its meshes open and the brush need not be used.

At the head of reel, we attach a basket to catch all foreign material which may enter and this is so arranged that it can be opened and cleaned, without stopping the machine.

The cut-offs are tipping valves and so arranged as to be easily handled from either side of the machine. They are fitted closely and so constructed that the material passing through cannot crowd nor clog.

The conveyors are of small diameter, giving as little grinding action as possible; they are of iron and fitted with patent malleable iron, reversible flights, which can be placed on the shaft without removing it from its bearings.

The driving arrangement of the machine is very simple and so constructed that any slack in either belt or chain can be taken up by means of a device for lowering the conveyors at either end.

The cloth is made up with one inch ticking lengthwise, and two inch ticking at either end. In putting on, it is first firmly tacked upon the wood band at head of reel, sewed lengthwise, so that it is loose on the rings, and then stretched lengthwise and tacked to the band at tail of reel. This effectually prevents all inward bagging of the cloth between rings.

Our machine is entirely free from all gears and other devices, which cause great trouble and expense when out of order, and any ordinary disarrangement or accident to any of its parts can be repaired at the mill. In case of trouble with gears and the complicated parts on other reels, it is often necessary to shut down and send the machine to the shops.

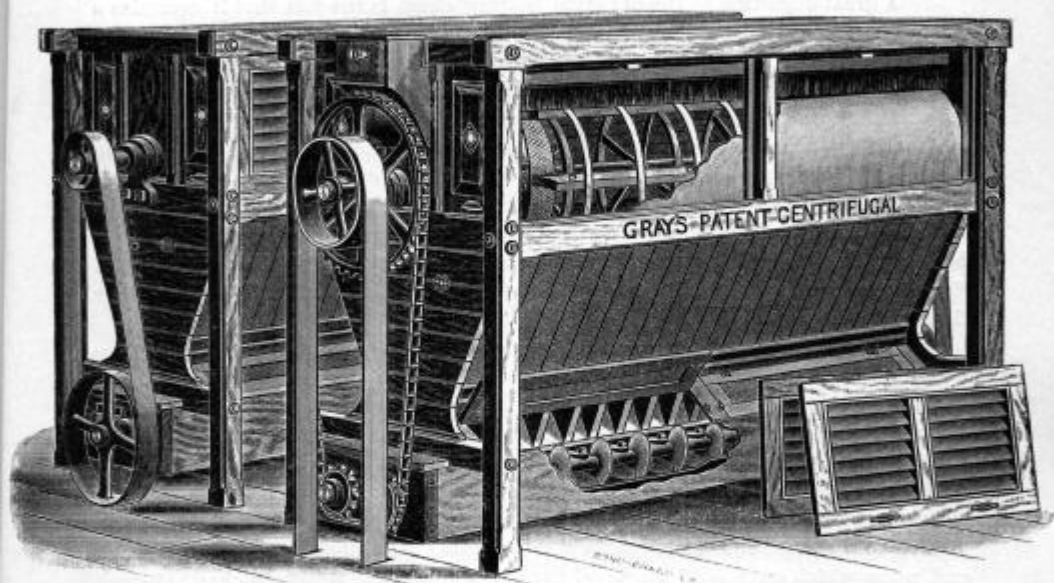
Gray's Improved Centrifugal Reel.

DIMENSIONS AND PRICES.

No.	REEL.		Height.	Length.	Width.	PULLEY.		Revolutions per Minute.	Height to Center of Driving Pulley.	Height to Top of Feed Spout.	Approximate Power Required.	Approximate Shipping Weight.	Price.
	Diameter.	Length of Cloth.				Diameter and Face.	Bore.						
00	21"	4' 4"	4' 3"	6' 10"	2' 7"	8" x 3½"	1½"	275	3'	3' 10"	½ H. P.	650	\$200 00
0	21"	6' 4"	4' 3"	8' 10"	2' 7"	8" x 4½"	1½"	275	3'	3' 10"	¾ "	800	225 00
1	27"	6' 4"	4' 10"	9' 1"	3'	12" x 4 "	1½"	225	3' 3"	4' 1"	1 "	950	240 00
2	27"	8' 4"	4' 10"	11' 1"	3'	12" x 4½"	1½"	225	3' 3"	4' 1"	1¼ "	1200	255 00
3	32"	6' 4"	5' 3"	9' 8"	3' 6"	16" x 3¾"	2¾"	200	3' 8"	5'	1¾ "	1400	270 00
4	32"	8' 4"	5' 3"	11' 8"	3' 6"	16" x 4½"	2¾"	200	3' 8"	5'	1½ "	1600	290 00

The frames of Nos. 1, 2, 3 and 4 of our centrifugal reels are made to correspond in dimensions with the frames of Nos. 1, 2, 3 and 4 of the GRAY PATENT FLOUR DRESSERS, in order that the latter may be placed on top of the centrifugal reels, when it is desired that the machines shall work together.

Gray's Improved Centrifugal Reel.



Gray's Patent Flour Dresser.

The use of flour dressers or round reels has for some time been a subject of much attention with mill furnishers and millers. The prime objects in view being to secure economy in space and in the power required to drive the machinery; to reduce the expense in building mills and to have a machine for bolting, that would handle the stock much more gently than the hexagon reels, and at the same time have greater capacity.

A great objection to the old style bolting chest is the fact that it occupies a large space in the mill and renders it difficult at times to locate the machinery conveniently in small buildings. A further objection exists in the excessive cost of bolting chests, especially when purchased at factories, where they must be knocked down for shipment and then put together again at the mill. In addition to these points, it has been demonstrated beyond question that the old six-sided reel is too severe in its action upon the stock, and in bolting, forces through the silk coarse particles and specks, that would not pass through the meshes if the action was less severe. As a result, perfectly even bolting cannot be obtained. The extreme length of the reel and the severe handling combined, make a certain percentage of flour in the reel, which, as *flour dust*, is inferior and this passing into the other flour reduces its grade.

All of the above objections are overcome by the round reel. The machine occupies but little space, is easily handled, cheaper and requires less power than the old style reel; can be shipped from the factory ready for use and bolts the stock freely and evenly. The success of the round reel system of bolting is assured, after careful experimenting, and we now offer to the trade a reel that is as nearly perfect as it is possible to make a machine. One that we can guarantee to be superior to any other machine for the purpose, taking all points into consideration.

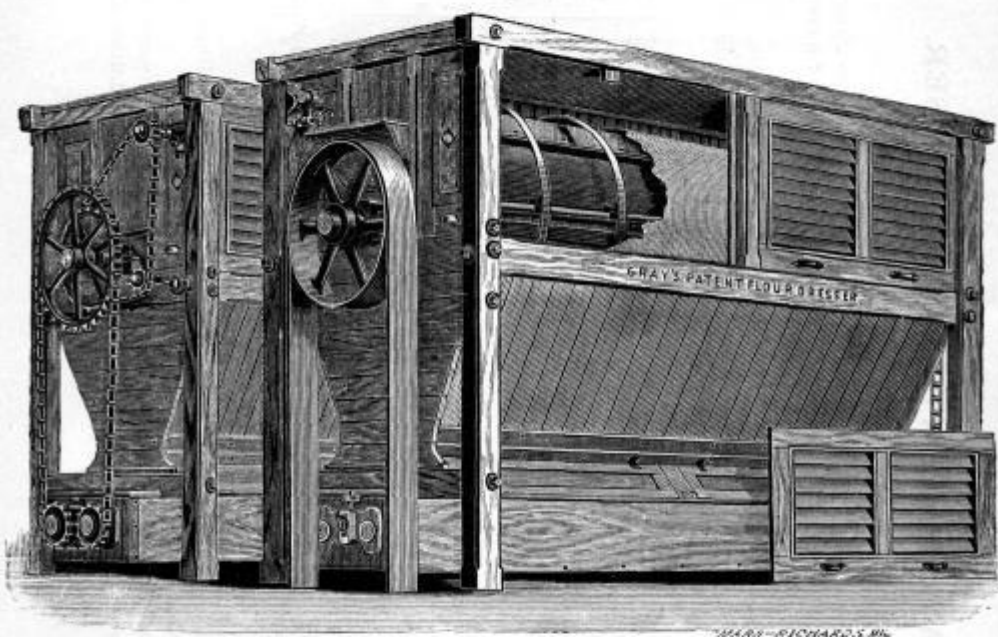
The reel, mounted on the main shaft, consists of a substantial casting at each end, upon which are placed the wood rings to which the cloth is attached. Round rods connect the head and tail castings, to which are attached rib rings for the cloth and carriers, preventing contact of the cloth with the rods. Within these rods is placed a light sheet-iron drum, fastened firmly to the shaft. The carriers are pitched spirally toward the tail, leading the stock continually in that direction. Sufficient space is left between the outer edge of the carriers and the cloth, also between the inner edge of the carriers and the drum, to enable the stock to bolt properly without any beating or rough handling.

The space between the outer edge of the carriers and the silk, is just large enough to allow the stock, with an ordinary load, to pass. If the machine should be overloaded, the space between cylinder and the inside edge of the carriers, will allow the stock to fall back upon the cylinder and thus clogging or choking the machine is absolutely prevented. This is a very important feature in our machine and should receive careful consideration.

The reel shaft is of sufficient length to be either single or double geared at either end and drives the brush at the head and the conveyor at the tail of the

machine, by chains of suitable strength. Chain tighteners are provided for each of these drives.

The machine can be made double geared, so as to drive with an open belt from the line-shaft, when it is placed at right angles with the driving-shaft. The double gear device consists of a short counter-shaft across the front of the machine, with a pair of bevel wheels to connect it with the reel-shaft. If the machine stands in line with the line-shaft, and the line-shaft runs at a high speed, it is not advisable to belt directly to the reel. In such cases, we employ a pair of spur gears and counter-shaft, in order that a large driving pulley may be used on the machine.



GRAY'S PATENT FLOUR DRESSER.

A revolving brush is used in our machine, which is so constructed as to produce a whipping action, proving very effective. The brush can be adjusted at the head or tail, either together or independently.

The conveyors are of iron, with our patent malleable iron adjustable flights, the same as are used in the centrifugals.

In placing our round reel before the public, we claim that it is superior to any other flour dresser upon the market. While we have spared no expense to make it perfect in construction, we offer it to millers at a price that will compare favorably with other similar machines.

GRAY'S PATENT FLOUR DRESSER.

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We often find it very convenient in planning mills, to place the flour dresser on top of a centrifugal and to drive both machines with a quarter twist belt directly from the line shaft. In such cases, the double gear consists of a spur wheel and pinion, as shown in the engraving opposite.

This arrangement is very convenient and we have used it repeatedly and with perfect success.

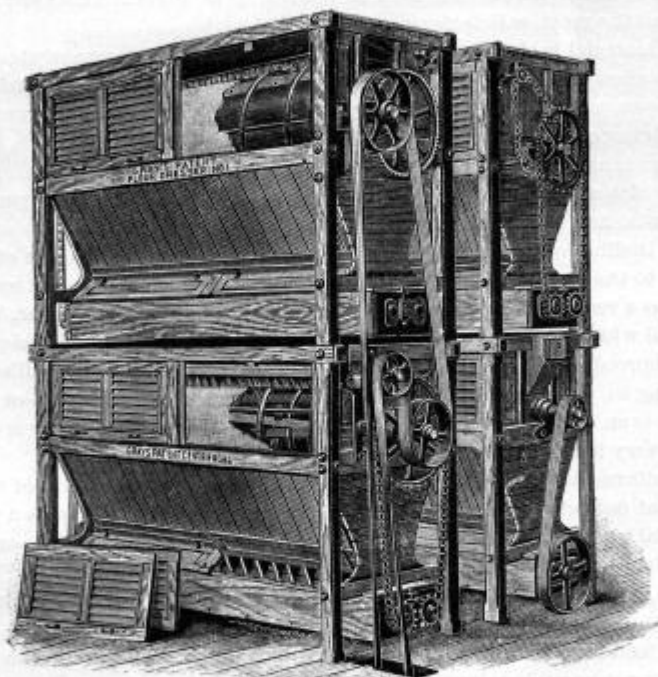
DIMENSIONS AND PRICES.

No.	REEL.		Height.	LENGTH.		WIDTH.		DRIVING PULLEY.						Height to Center of Driving Pulley.	Height to Top of Feed Spout.	Approximate power Required.	Approximate Shipping Weight.	PRICE.			
	Diameter.	Length of Cloth.		Single Geared.	Double Geared.	Single Geared.	Double Geared.	Single Geared.		Double Geared.		Rev. p. Min.						Single Geared.	Double Geared.	Single Geared.	Double Geared.
								Diameter and Face.	Bore.	Diameter and Face.	Bore.	Single Geared.	Double Geared.								
1	27"	6' 4"	4' 10"	8' 9"	9'	3'	3' 6"	20" x 4½"	1½"	12" x 3½"	1½"	35	110	3' 3"	4' 10"	0.3	800	\$240 00	\$260 00		
2	27"	8' 4"	4' 10"	10' 9"	11'	3'	3' 6"	20" x 5½"	1½"	12" x 4 "	1½"	35	110	3' 3"	4' 10"	0.4	900	255 00	275 00		
3	32"	6' 4"	5' 3"	8' 11"	9' 4"	3' 6"	4'	24" x 4½"	1½"	16" x 4 "	1½"	32	135	3' 6"	5' 3"	0.5	1350	270 00	290 00		
4	32"	8' 4"	5' 3"	10' 11"	11' 4"	3' 6"	4'	24" x 5½"	1½"	16" x 4½"	1½"	32	135	3' 6"	5' 3"	0.6	1500	290 00	310 00		
5	36"	8' 4"	5' 5"	1' 11"	11' 4"	4'	4' 8"	24" x 5½"	1½"	16" x 5 "	1½"	30	125	3' 10"	5'	0.7	1650	305 00	325 00		

Machines may be driven from either end.

The flour dressers are built to be placed either on top of each other or on top of our centrifugals. In either case, the machines will fit upon the tops of their corresponding numbers.

When two machines are placed one on top of the other, we furnish a double geared flour dresser and a belt tightener on the centrifugal, which is applied so that both machines are driven by a quarter twist belt. An additional charge of \$10.00 is made for the tightener.



GRAY'S FLOUR DRESSER PLACED ON TOP OF CENTRIFUGAL.

The Improved Morse Elevator Bolt.

In its construction and action the Morse Bolt is radically different from any other bolting device manufactured, and the results attained from its use have been pronounced the most satisfactory.

The material is elevated to the top of the machine by means of steel buckets, moving at a low rate of speed and dropped upon a curved metallic surface, from which it flows, smoothly distributed upon an inclined sieve, thus preventing dashing or wedging of the material upon the silk.

There is an active vibratory motion imparted to the sieves, causing the impurities, which are lightest, to rise to the top and permitting the purer parts, which may be fine enough, to pass freely through the silk.

The inclination of the silk is never changed; therefore the size of the mesh presented to the material is always the same, producing the most even results possible and as a result, a more equal absorption of moisture in the flour, making a lighter and whiter loaf and one that will not dry out as quickly. The sieve frames may be removed and others readily substituted, thus enabling the miller to adapt the clothing to varying stock. Two yards is the maximum amount of cloth required for even the largest size of this machine. Its great capacity is due to the fact that every inch of the silk is constantly at work.

A uniform depth of load is maintained upon the entire length of the sieves by means of deflecting boards, arranged in sections, so that as fast as a portion of the material bolts through, the remainder can be retarded and held on the silk until finished.

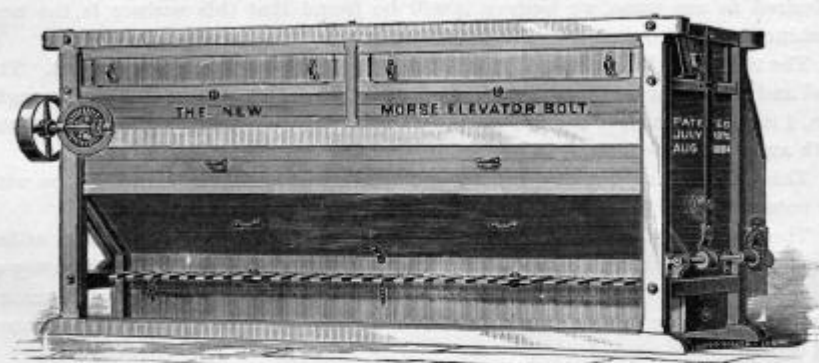
This machine is so constructed that the miller has perfect control of the material, and may easily examine it at any point of the process.

The feed may be introduced at any point in the length of the machine, thus making it possible to put two or more classes of stock through at the same time; stock containing some clear flour and the rest low grade or offal, can be fed at the head and a stream containing nothing but low grade and offal introduced farther down, and the results kept separate.

The principle upon which the Morse Bolt operates prevents forced bolting; the material is handled gently, sliding smoothly over the silk, and the results accomplished are very thorough and perfect.

The machine is built in the very best manner. It is simple, durable and easy to operate, and the results are guaranteed.

The Improved Morse Elevator Bolt.



DIMENSIONS AND PRICES.

No.	DIMENSIONS OVER ALL.			SIEVE.		DRIVING PULLEY.		Revolutions per Minute.	Price.
	Length.	Width.	Height.	Length.	Width.	Diam.	Face.		
1	10' 8"	4' 5"	5' 9"	8'	2' 10"	16"	4"	100	\$300 00
2	10' 8"	3' 9"	5'	8'	1' 11"	16"	3½"	100	280 00
3	8' 8"	3' 9"	5'	6'	1' 11"	16"	3½"	100	260 00

Gray's Improved Single Scalper.

In some cases millers still find it necessary to use hexagon reels. Wherever it is desired to use same, we believe it will be found that this scalper is the best machine for the purpose ever invented.

The reel is made entirely of iron, there is nothing about it to wear out. The head and tail are of cast iron, as well as the center spiders. The ribs are of wrought iron, $\frac{5}{8}$ inch in diameter, and are wrapped with cotton flannel, in order to keep the cloth away from the iron, thus preventing cutting or chafing.

This scalper has but one conveyor, the shaft of which is wrought iron with our patent reversible malleable iron flights.

The machine can be driven from either head or tail and we make them either single or double geared. They are also made so that they may be placed on top of either our flour dresser or centrifugal reel and in such cases both machines are driven by the same belt, in the manner shown with description of our flour dresser and centrifugal.

DIMENSIONS AND PRICES.

SINGLE GEARED.

No.	REEL.		Height.	Length.	Width.	Driving Pulley.		Revolutions per Minute.	Height to Center Driving Pulley.	Height to Top Feed Spout.	Approximate Shipping Weight.	Price.
	Diameter.	Length.				Diameter and Face.	Bore.					
00	1' 11"	4' 2"	3' 11"	6' 4"	2' 7"	18" x 3 $\frac{1}{2}$ "	1 $\frac{1}{8}$ "	40	2' 8"	3' 11"	400 lbs.	\$100 00
0	1' 11"	6' 2"	3' 11"	8' 4"	2' 7"	18" x 4 $\frac{1}{2}$ "	1 $\frac{1}{8}$ "	40	2' 9"	3' 11"	625 "	110 00
1	2' 4"	6' 4"	4' 1"	8' 5"	2' 11"	20" x 4 $\frac{1}{2}$ "	1 $\frac{3}{8}$ "	35	2' 9"	4' 1"	800 "	120 00
2	2' 4"	8' 4"	4' 1"	10' 6"	2' 11"	20" x 5 $\frac{1}{2}$ "	1 $\frac{3}{8}$ "	35	2' 10"	4' 1"	950 "	140 00

DOUBLE GEARED.

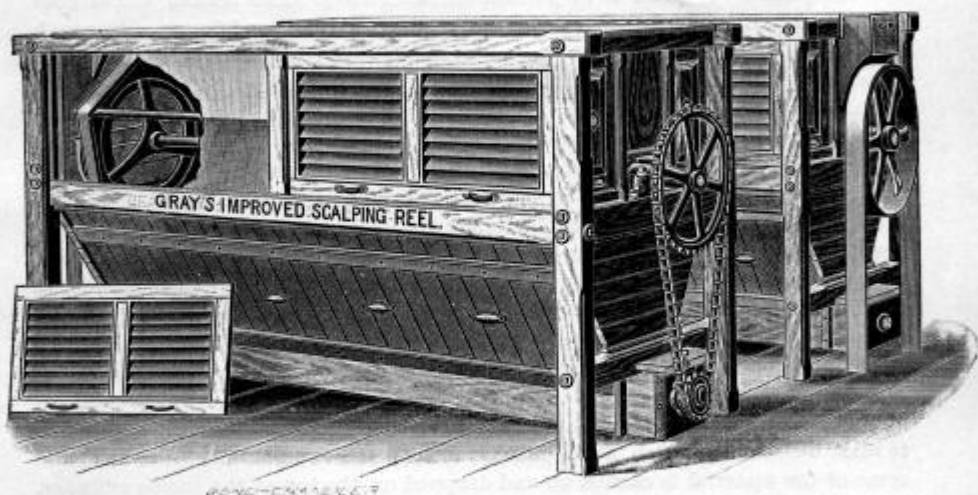
00	1' 11"	4' 2"	3' 10"	6' 1"	3' 2"	8" x 3 $\frac{1}{2}$ "	1 $\frac{7}{16}$ "	98	2' 7"	3' 4"	400 lbs.	\$110 00
0	1' 11"	6' 2"	3' 10"	8' 1"	3' 2"	8" x 4 $\frac{1}{2}$ "	1 $\frac{7}{16}$ "	98	2' 7"	3' 4"	625 "	120 00
1	2' 4"	6' 4"	4' 1"	8' 5"	3' 6"	8" x 4 $\frac{1}{2}$ "	1 $\frac{7}{16}$ "	113	2' 9"	3' 6"	800 "	130 00
2	2' 4"	8' 4"	4' 1"	10' 6"	3' 7"	8" x 5 $\frac{1}{2}$ "	1 $\frac{7}{16}$ "	113	2' 9"	3' 6"	950 "	150 00

Prices include cloth.

Cloth should be tight on reels.

Machines may be driven from either end.

Gray's Improved Single Scalper.

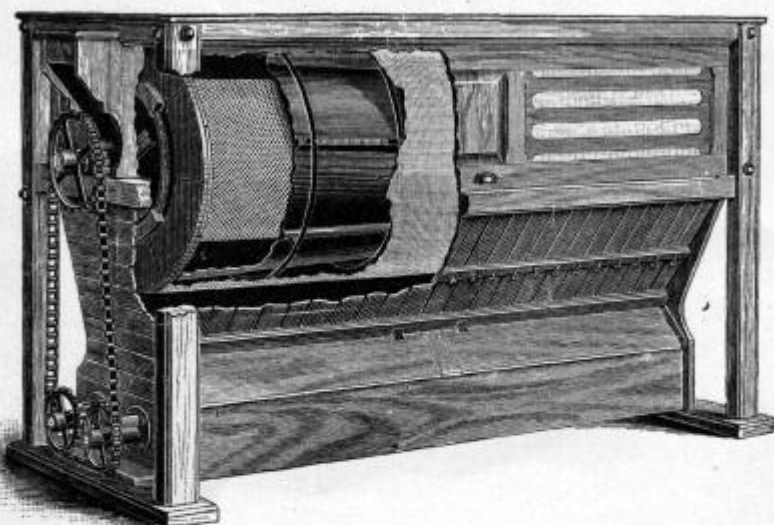


Gray's Patent Double Scalping Machine.

The object of this machine is to scalp the middlings and flour from the broken wheat, preparatory to going from one break to the next for reduction, also to grade the middlings preparatory for the purifiers. This is the only machine made that will enable the miller to take the middlings directly from the scalping reels to the purifiers, thus avoiding wearing out the middlings by handling and the necessity of carrying them through conveyors, elevators or other reels to be dusted and graded, before going to the purifiers. By the use of this machine, mills will make a considerably larger percentage of patent flour.

The inside cylinder is of perforated sheet steel. The broken wheat goes into this cylinder and passes over the tail, all the middlings and flour pass through this inside cylinder, dropping upon an imperforated cone or deflector, carrying the stock to the head of the machine and dropping it through holes upon a silk cloth, the outside reel, which is so constructed as to give an unusually large capacity, making it very easy to dust the middlings. The coarse middlings may be taken over the tail of this silk reel direct to the purifier, and also the next grade of middlings through the tail of the cloth; the flour and finest middlings going through the head of this cloth are ready for the centrifugal or other bolting device, to be re-bolted. The finest middlings will then go directly from the centrifugal to the purifier. By using perforated sheet steel, the inside scalping cylinder does not clog and fill up nor scour the stock, as does a wire cloth covered scalper. By having the cone between the outer and inner cylinders, none of the stock that goes through the inside scalping cylinder, can drop through into it again, when it is carried up in the outside reel, as is usually the case in common double scalpers where there is no intervening cone and in which it is impossible to make a clean separation, as the inside reel bolts through on the lower side, and some of the material is carried up and dropped on the top of the inside cylinder, a part passing through into the inside reel again. This new device obviates all that trouble and the separations are clean and distinct. On the inside of the inner scalper are iron carriers about the same as those on our Flour Dresser, for taking the stock further up on the side of the smooth cylinder without dropping any, thus materially increasing its capacity. The stock is treated very much more gently by the smooth, round scalping cylinder than it is in the ordinary six-sided reels. We believe that there is about as much flour made in the common scalping reel from each break as there is by the rolls. The continued lifting up of the ribs and pounding from one side of the reel to the other makes considerable flour, which is an inferior dust flour and the cloth is not used to its fullest extent. This machine is strong and substantially built, and will last for a long time. The motion is slow, requiring very little power to drive it.

Gray's Patent Double Scalping Machine.



DIMENSIONS AND PRICES.

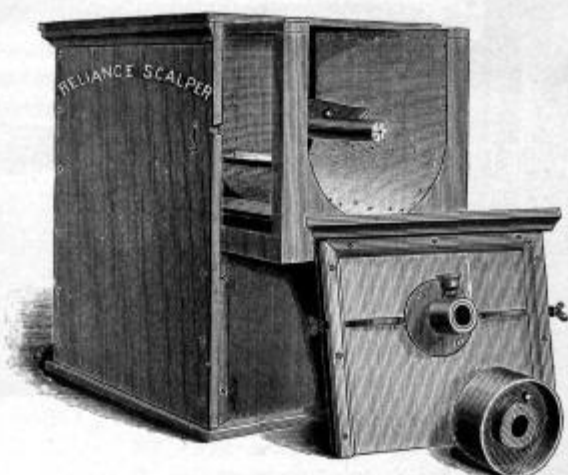
SINGLE GEARED.

No.	Height.	Length.	Width.	DRIVING PULLEY.			Height to Center of Driving Pulley.	Height to Top Feed Spout.	Approximate Shipping Weight.	Price.
				Diameter and Face.	Bore.	Rev. per Minute				
0	4'	6' 1"	2' 9"	18" x 3 1/2"	1 1/8"	40	2' 9"	4'	500 lbs.	\$175 00
1	4' 9"	6' 2"	3' 3"	20" x 4 1/2"	1 1/8"	35	3' 3"	4' 9"	700 "	200 00
2	4' 9"	8' 2"	3' 3"	24" x 4 1/2"	1 1/8"	35	3' 2"	4' 9"	950 "	250 00
3	4' 9"	10' 5"	3' 5"	24" x 5 1/2"	1 1/8"	35	3' 4"	5' 2"	1300 "	300 00
4	5' 10"	11'	4' 3"	30" x 5 1/2"	2 1/8"	28	3' 10"	5' 10"	1800 "	350 00
5	5' 10"	13'	4' 3"	30" x 6 1/2"	2 1/8"	28	3' 10"	5' 10"	2100 "	400 00

DOUBLE GEARED.

0	4'	6' 4"	3' 3"	12" x 3 1/2"	1 1/8"	80	2' 9"	4'	700 lbs.	\$195 00
1	4' 9"	6' 6"	3' 10"	12" x 4 "	1 1/8"	77	3' 3"	4' 9"	900 "	220 00
2	4' 9"	8' 8"	3' 10"	16" x 4 "	1 1/8"	77	3' 2"	4' 9"	1150 "	270 00
3	4' 9"	11'	4' 2"	16" x 4 "	1 1/8"	70	3' 4"	5' 2"	1500 "	320 00
4	5' 10"	11' 7"	4' 10"	16" x 4 1/2"	1 1/8"	84	3' 10"	5' 10"	2000 "	370 00
5	5' 10"	13' 7"	4' 11"	16" x 5 "	1 1/8"	84	3' 10"	5' 10"	2300 "	420 00

The Reliance Scalper.



The Reliance Scalper is used for corn meal and general bolting purposes, for separating the bran from the finished meal, and in making the separations between the breaks. It should run about 180 revolutions per minute.

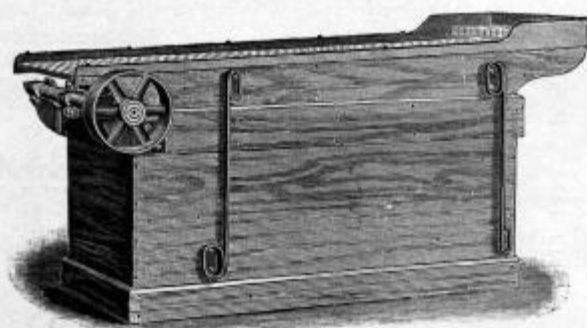
This bolt also makes an excellent detacher, for use in flour mills. It is so constructed that, by loosening two thumb-screws and unhooking two hooks, the entire frame to which the wire cloth is attached can be removed from the machine and new cloth substituted when desired. When running, the cloth is stationary, the iron beaters inside revolving and doing the work. It has large capacity and is a very compact and complete machine, while the price at which we have placed it is very low.

DIMENSIONS AND PRICE.

Height.....	2' 4"	Length.....	3' 5"
Width.....	1' 7"	Driving Pulley.....	6" x 3"
Price, \$40 00.			

Gray's Improved Shaker Screen.

FOR CLEANING AND SIZING GRAIN.



This screen can be used for a variety of purposes. It is often used for corn meal. The corn may be passed over the screen before going to the stone or rolls, and all broken cobs, etc., taken out. The perforations in the sieve are made coarse or fine, to suit the work that is to be done. The machine is well built and requires but little space and power.

DIMENSIONS AND PRICE.

Height.	Length.	Width.	Driving Pulley.		Revolutions per Minute.	Approx. Power Required.	Approx. Shipping Weight.	Price.
			Diam. & Face.	Bore.				
2' 6"	5' 0"	2' 5"	8" x 3½"	1"	500 to 750	½ H. P.	150 lbs.	\$50 00

GRAY'S IMPROVED ROLLING SCREEN.

DIMENSIONS AND PRICES.

SINGLE GEARED ROLLING SCREEN, WITHOUT FAN.

No.	REEL.		Height.	Length.	Width.	Height to Center Driving Pulley.	DRIVING PULLEY.		Revolutions per Minute.	Approximate Power Required.	Approximate Shipping Weight.	Price.
	Length.	Diam.					Diam. and Face.	Bore.				
1	4'	2'	3' 7½"	6' 11"	2' 10"	2' 5½"	16" x 4½"	1½"	40	½ H. P.	500 lbs.	\$120 00
2	6'	2'	3' 7½"	9'	2' 10"	2' 5½"	20" x 4½"	1½"	40	¾ "	700 "	135 00
3	8'	2'	3' 7½"	11'	2' 10"	2' 5½"	20" x 5½"	1½"	40	1 "	900 "	150 00

DOUBLE GEARED ROLLING SCREEN, WITHOUT FAN.

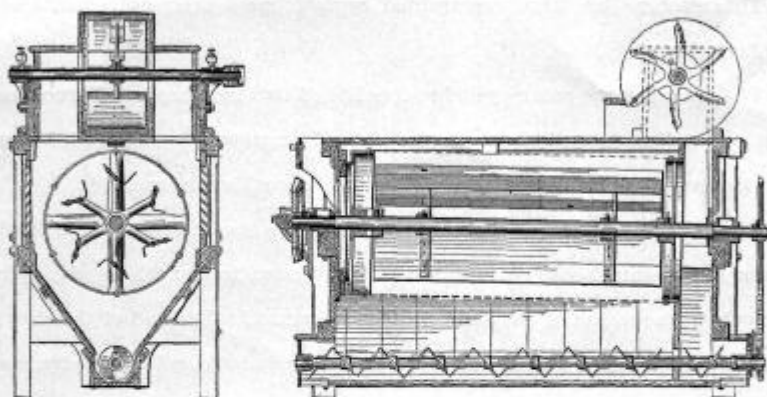
1	4'	2'	3' 7½"	7' 1"	3' 3"	2' 5½"	12" x 3½"	1½"	130	½ H. P.	575 lbs.	\$135 00
2	6'	2'	3' 7½"	9' 1"	3' 3"	2' 5½"	12" x 3½"	1½"	130	¾ "	775 "	150 00
3	8'	2'	3' 7½"	11' 1"	3' 3"	2' 5½"	12" x 3½"	1½"	130	1 "	975 "	165 00

DOUBLE GEARED ROLLING SCREEN, WITH FAN.

1	4'	2'	5' 4"	7' 5"	3' 9"	4' 6"	20" x 5½"	1¾"	750	1 H. P.	650 lbs.	\$200 00
2	6'	2'	5' 4"	9' 5"	3' 9"	4' 6"	20" x 5½"	1¾"	750	1½ "	850 "	225 00
3	8'	2'	5' 4"	11' 5"	3' 9"	4' 6"	20" x 5½"	1¾"	750	2 "	1050 "	250 00

Capacity per hour :—No. 1, 100 to 150 bushels ; No. 2, 200 to 300 bushels ; No. 3, 400 to 600 bushels.

Gray's Improved Rolling Screen.



FOR CLEANING, SIZING AND ASPIRATING GRAIN WHEN RECEIVED IN MILLS.

These machines are built in three sizes, single or double geared. But little power is required to operate them, and they have great capacity. The screen is a perforated steel cylinder, the bolting surface being increased to a maximum by means of carrying buckets.

Gray's Improved Bran Duster.

This machine has been constructed by us to meet the requirements of our present system of milling.

The frame of the outer cylinder consists of two iron heads. Three wooden frames or cradles, formed of wood ribs, extend lengthwise and the wire cloth is tacked to these ribs, forming a perfectly round, smooth cylinder inside.

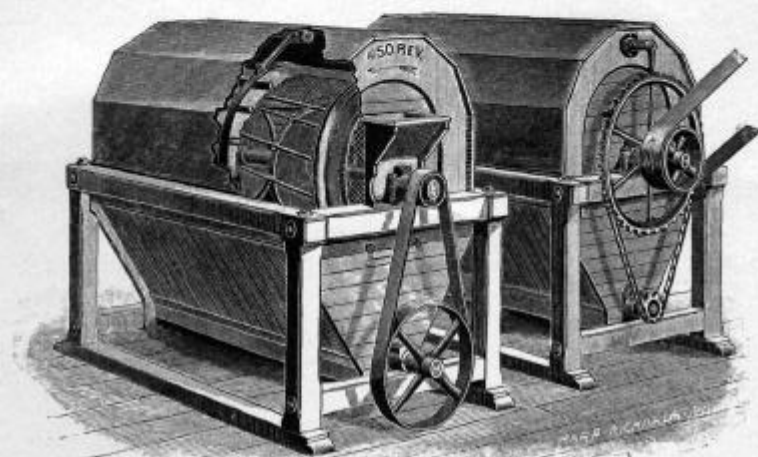
Around the outside of the center of the ribs, we fasten an iron hook; a knocker strikes this hook, causing a vibration the entire length of the cylinder and keeping the meshes of the cloth perfectly clean. At the head of the slow running cylinder, we fasten a wire basket, to catch dough-balls and all foreign matter. This basket can be cleaned readily while the machine is in motion.

We have no brushes in our machine, but use, instead, steel beaters. We do not believe that it is desirable or proper to scour the bran, but aim to simply dust off the flour and loose particles through coarse cloth, to be re-bolted on machines more suitable for making flour than a bran duster.

This machine has one conveyor. The main journals run in graphite and require no oil.

Our bran duster is well constructed in every detail and presents a handsome appearance. It is very durable, having nothing about it which can get out of order with proper use.

Gray's Improved Bran Duster.



DIMENSIONS AND PRICES.

No.	Height.	Length	Width.	Height to Center Driving Pulley.	Height to Top of Feed Spout.	DRIVING PULLEY.		Revolutions per Minute.	Approximate Power Required.	Approximate Shipping Weight.	Price.
						Diam. and Face.	Bore.				
0	3' 10"	4' 6"	2' 7 $\frac{1}{2}$ "	2' 4"	3' 1"	8" x 4"	1 $\frac{1}{8}$ "	450	$\frac{1}{2}$ H. P.	325 lbs.	\$180 00
1	3' 10"	5' 6"	2' 7 $\frac{1}{2}$ "	2' 4"	3' 1"	8" x 4 $\frac{1}{2}$ "	1 $\frac{1}{8}$ "	450	"	450 "	200 00
2	3' 10"	6' 7"	2' 7 $\frac{1}{2}$ "	2' 4"	3' 1"	8" x 5"	1 $\frac{1}{8}$ "	450	1 "	600 "	230 00

Machine is furnished with cloth on reel.

CAPACITY.

	Diameter of Reel.	Length of Cloth.	Capacity bbls. per day.
Number 0	1' 8"	2'	25 to 80
Number 1	1' 8"	3'	80 " 120
Number 2	1' 8"	4'	120 " 160

