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1900

GRAY'S

HORSE
POWER
MACHINES

FOR
GRAIN THRESHING
AND
WOOD
SAWING

MANUFACTURED BY

A·W·GRAY'S SONS

MIDDLETOWN SPRINGS·VERMONT·

ESTABLISHED 1840

ESTABLISHED IN 1840.

GRAY'S



The end of the century brings us to the sixty year point in the manufacture of HORSE POWERS, THRESHING MACHINES and WOOD SAWS.

For nearly two-thirds of the century the name of GRAY has been indented with the business. Commencing with the father, and continued by the sons, its present proprietors and managers, it has been a steady march of progress. Never without the painstaking interest so necessary to success and the laudable ambition to stand at the head.

The result has been that our machines are sold and used in nearly every country on which the sun shines. This has not been accomplished by any meteoric display, but by persistent and careful attention to the business, keeping abreast of every real improvement, and making the name of Gray a synonym for honest material thoroughly made and the most careful regard for mechanical laws.

We feel proud of the record, and shall continue to merit the liberal patronage so long enjoyed by using none but the very best of all kind of materials, and the same care to the mechanical construction that has characterized our machine in the past.

The public award for special merit for our machinery includes, WORLD'S FAIR, Chicago, NATIONAL FAIR ASSOCIATION, Washington, D. C., NEW ORLEANS EXPOSITION, NEW ENGLAND FAIR, VERMONT STATE FAIR, MAINE STATE FAIR, NEW HAMPSHIRE STATE FAIR, NEW YORK CENTRAL and WESTERN NEW YORK, CONNECTICUT STATE, and the highest awards at hundreds of County and District Fairs, and the only reason the list is not longer is the fact that nearly all fairs have stopped making awards on our class of implements.

They Have Never Failed to Receive the Highest Honors whenever Exhibited.

The business will continue to be under the personal control and supervision of the proprietors, who are the original owners and inventors, and who have ever been and still are the sole manufacturers.

Our Manufactory

contains every possible improvement in mechanical appliances for the special work to be done, and is manned by thoroughly skilled workmen, who have had long years of experience in the particular work, so that no pains will be spared to make every machine that leaves our factory

Perfect in Every Respect,

both in finish and working capacity, our aim being to produce just what the farmers and others who use them would desire, always considering capacity for work, durability, freedom from friction, and at the same time be light and portable, and furnished at

Lowest Possible Price

consistent with first-class material and workmanship.

The prospective purchaser should consider quality as well as price, as it often happens that the article with the largest price is the cheapest one to buy.

A few dollars buys a Waterbury watch, but no one expects to get a genuine Howard at a low price.

We firmly believe that we make the very best machine in the market, and that our prices, considering quality, are among the lowest, and that the man who buys an outfit from us is sure to have something that will give satisfaction wherever he goes, and prove a profitable investment.

We desire to call *particular attention* to

THE USE OF OUR HORSE POWERS

For Driving

**Cream Separators, Churns, Ensilage Cutters, Apple Grinders,
Portable Grist Mills, Pumps, etc.**

Our Horse Powers.

The One, Two and Three Horse Powers are constructed with an endless platform on which the horse walks. The platform is made of pieces of maple plank, of suitable length, fastened together on the under side by a steel gear, connected by polished cast-steel rods, which also serve as axles for rollers, and move with the platform running on a cast-iron and steel track. The steel gear meshing with pinions on main shaft, to which is attached the driving (or band) wheel, from which is propelled the various kinds of machinery to be attached. Weight of our One Horse Power, 900 lbs.; Two Horse Power, 1,500 lbs.; Three Horse Power, 2,300 lbs.

Our Two and Three Horse Powers have tracks under the center of the lags, on which a set of middle rollers run. The Two Horse has one track and the Three Horse has two tracks, so that each horse in every power we make has a set of rollers each side of him, thus obviating the spring of the lags and rods and taking a part of the weight of the horses off the end rollers, rendering them more durable and giving the power a more steady motion.

The speed of the band wheel on our Horse Power with horses walking ordinarily fast is 80 revolutions per minute. Our regular sizes for band wheels are : One Horse, 4 feet 2 inches; Two Horse, 4 feet 6 inches, and Three Horse, 4 feet 10 inches.

Our Three Horse Power,

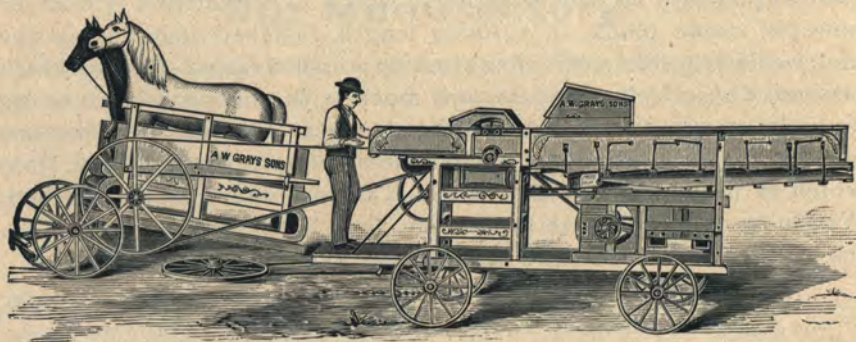
With the Threshing Outfit (a cut of which will be found on another page.)

These machines are complete in every particular, including THE STRAW STACKING ATTACHMENT, tailings elevator and dust flue, and are especially intended to be used where the crops are large and the threshing must be done out of doors.

Price for Three Horse Power, mounted on trucks, with (18x35 inch patent iron cylinder) Thresher, Separator and Cleaner, also mounted, complete for threshing and cleaning grain, including oilers, wrenches, and jack and 50 feet of five-inch belting, 20 foot straw stacker, tailings elevator, dust flue, and straw and grain arrester, **\$538.00**

Our Mounted Two Horse Power,

With Thresher, Separator and Cleaner also Mounted.



These machines are especially adapted for parties who intend to go around from place to place threshing, being convenient to move, always ready for work — all that is required being with the aid of a jack to raise the rear end of the power, take off the hind wheels, let the axle down on to the floor (or ground), put on the main belt, and you are ready for business. This makes the most complete arrangement of the kind ever introduced.

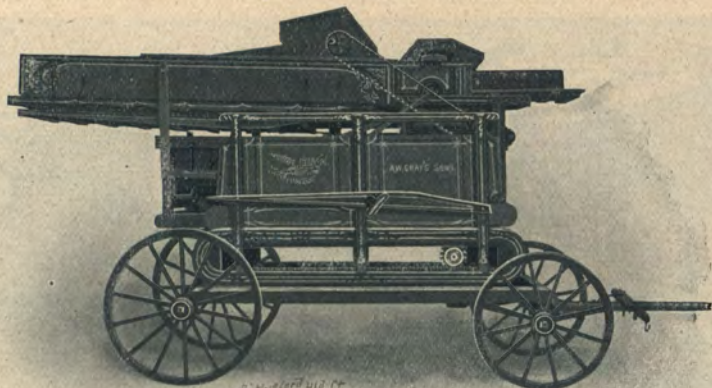
The trucks sent out with our machines are our own manufacture, and will be furnished with either iron or wood wheel as preferred.

The great objections to most machines of this class are that they are heavy, hard to move and take too much time to set up. But here you have a machine, the combined weight of which, including both trucks, is only 3,700 lbs., which can be set at work in ten minutes after reaching the barn, thus saving much valuable time and permitting parties to thresh several jobs the same day, when, as often happens, they are small.

Price of the Above Mounted Two Horse Power, Thresher (18x30 inch patent iron cylinder), Separator, Cleaner, dust flue, Straw and Grain Arrester, also mounted, complete with oilers, wrenches, jack, bagger and 36 feet of four inch rubber belt, - - - - \$382.00
If Straw and Grain Arrester is not wanted, deduct \$10 from above price.

Our Mounted Two Horse Power,

With Thresher, Separator and Cleaner Loaded Inside the Power.



AS IT APPEARS WHEN ON THE ROAD.

Parties who desire to go out threshing find a very good arrangement is to have the Power mounted on trucks, and Thresher, Separator and Cleaner not mounted. Then, when desirable to move it from place to place, the Thresher, Separator and Cleaner can be loaded into the Power, making a very convenient method of transportation. Above we give a cut showing these machines as they appear when on the road.

This combination of machines has proved very satisfactory to a large number of purchasers. They take up a little less room than when the Threshers are on trucks, and for going around are quite convenient. Weight of the whole combined, including weight of trucks, is 3,100 pounds, and as will readily be seen, can be easily handled by a pair of ordinary horses. Can be set at work in a very few minutes, and is altogether a very desirable arrangement.

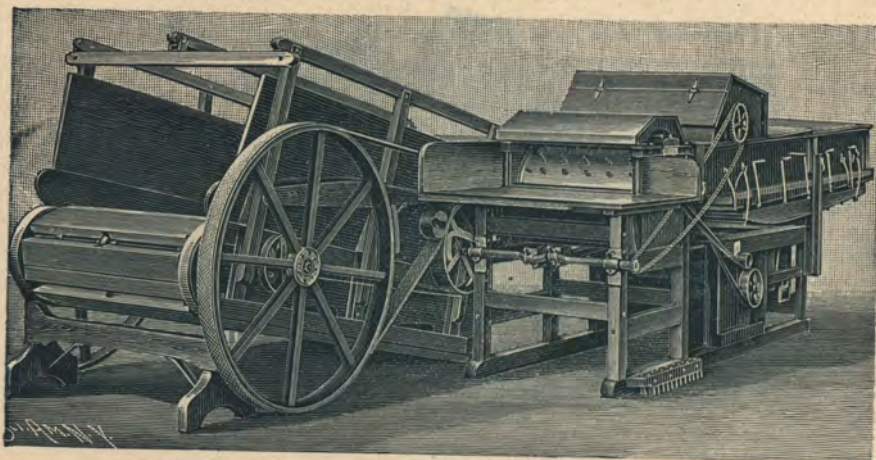
Price of the Above Mounted Two Horse Power, Thresher (18x30 inch patent iron cylinder), Separator, Cleaner, dust flue, Straw and Grain Arrester, complete with oilers, wrenches, jack, and 30 feet of four inch rubber belt, - - - - - \$337.00

The Same, with 18x26 inch patent iron cylinder Thresher in place of 18x30, - - - - - 327.00

If Straw and Grain Arrester is not wanted, deduct \$10 from above price

Our Two Horse Power,

With Thresher, Separator and Cleaner.



These machines have become so generally known and appreciated that a description is almost unnecessary. These are more particularly the farmer's machine. They take up a little less room than the mounted machines, and, where they are not required to be moved, are as convenient.

The combined weight of these machines is 2,600 lbs.

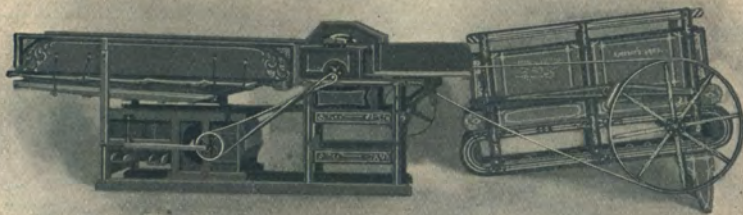
Price of Two Horse Power and Thresher (18x30 inch patent iron cylinder), Separator, Cleaner, dust flue, Straw and Grain Arrester, 30 feet of four inch rubber belting, oiler, wrenches, etc., complete for threshing and cleaning grain,		
		\$287.00
The Same, with 18x26 inch patent iron cylinder Thresher instead of 18x30,		277.00
Jack, extra,		5.00

The Straw and Grain Arrester we do not put on unless specially ordered. If not wanted deduct \$10 from above prices.

Our Threshers are thoroughly up to date in every respect; the best Cylinder in the market; Separator in two parts, securing equalizing balance, saving friction and strain in shaking it; punched galvanized steel sieve for top of cleaner, and all wire sieves made of best soldered and galvanized wire cloth.

Our One Horse Power,

With Thresher, Separator and Cleaner.



This is the outfit for those who want machines to do their own work. The farmer can thresh his own grain when he wishes to and doesn't have to wait for some one to come along; then with the Drag Saw Machine and Circular Saw, cut his own wood; use the power to cut fodder, run creamery, etc., and, if he takes good care of it, he will have a good machine for his lifetime.

The weight of One Horse Power, Thresher, Separator and Cleaner is 1,800 lbs.

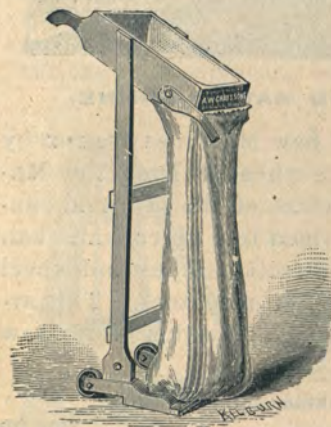
Price of One Horse Power, Thresher (18x23 inch iron cylinder), Separator, Cleaner and dust flues, with 28 feet of three and one-half inch rubber belt, oiler, wrenches, etc., complete for threshing and cleaning grain,	\$206.00
Straw and Grain Arrester (see page 11), extra,	10.00

BAGGER.

PRICE, - - - - - **\$3.00**

We also manufacture a very simple little apparatus for holding bags while they are being filled with grain. The hopper is made with flange on the bottom, with a simple application of a cam and lever to hold the bag securely. It is also arranged with rollers on the bottom, so that when the bag is filled the whole can be tipped down and rolled off with the greatest ease.

Every man owning a Threshing Machine should have the BAGGER.



Drag Saws and Machines for Sawing Logs.

We would call attention to our Cross-cut Drag Saw Machine for sawing large logs into stove length, or any length desired. With one of our Drag Saw Machines and our Two Horse Power there can be cut from hard maple logs from forty to fifty cords of stove wood per day, and about two-thirds as much with our One Horse Power.

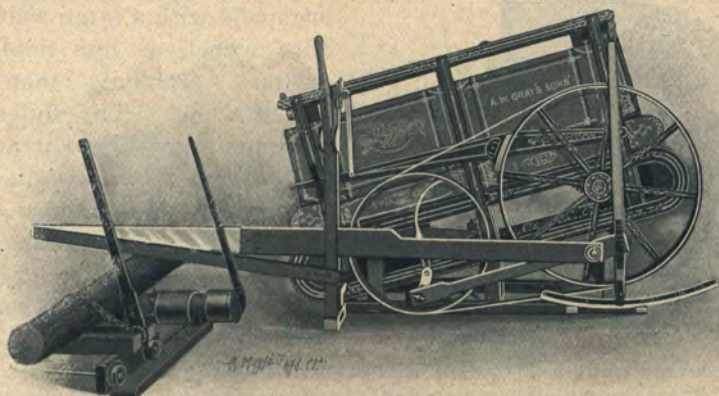


TWO HORSE POWER WITH DRAG SAW MACHINE.

You will see by the cut that our Drag Saw Machines are run by belt from band wheel of Power to balance wheel of Drag Saw Machine, thus increasing the speed of the stroke of the saw, and enabling a larger amount of work to be performed in a given time than would be possible if the saw were attached directly to the band wheel of the Power, as is the case with some other machines. This arrangement also removes the strain of the jerking motion of the saw almost entirely from the Power.

Price of Two Horse Power, with Drag Saw Machine, complete with belt, - - - - - **\$194.00**

One Horse Power with Drag Saw Machine.



Price of One Horse Power and Drag Saw Machine, complete with belt, \$144.00

Price of Drag Saw Machine for either One or Two Horse Power, with belt, 54.00

Price of belt for Drag Saw Machine, 4.00

In ordering Drag Saw Machines, be very particular to give length of lags in power they are wanted to fit.

Many of our patrons already have the Horse Powers, which they use for threshing, and to those we would especially recommend our Wood Sawing Attachments, as it will put them in a way to earn many a dollar during the winter season, when they would perhaps otherwise be idle, and this at a very small outlay. Where parties already have the Power and Thresher, they will need no extra belt for the Circular Saw, as it can be run by the same belt that is used to run the Thresher; but with the Drag Saw Machine the belt is shorter, and it would be advisable to get a belt specially for it, rather than cut the long threshing belt.

A Jack for Raising and Lowering Powers.

RATCHET LEVER JACK.

Price, \$5.00.



This is a very convenient and simple arrangement for saving many a lift. With one of these it is a very easy matter to raise up the end of the mounted power, slip off the wheels, and then lower the axle down to the ground, thus setting up your machine without any lifting. It can also be used with powers which are not mounted; for instance, in raising the front to put under the feet.

Circular Saw Machines

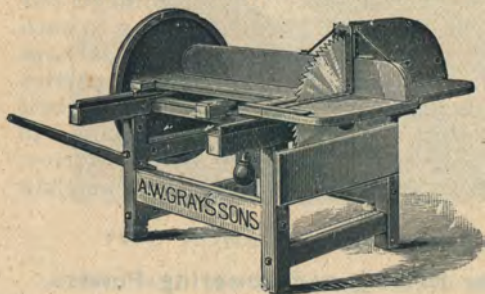


are made with a large web balance wheel, as less liable to produce accidents than an armed wheel. The slides the table moves on are so arranged as to render it impossible to displace the table when the machine is in motion, and has a set of rollers under the table next to saw which does away with nearly all friction. We

have recently added a covering for the bottom part of the saw, for the purpose of preventing accidents to the man who takes away the wood from the saw. We are furnishing steel arbors for all our saws. Our Saw Machines have a cast-steel collar to hold the saw, in place of cast-iron as heretofore, thus *obviating any possibility of the collars bursting*. This machine is used for sawing four-foot wood once and twice in two. We believe this is the best Circular Saw Machine manufactured. Weight, 375 lbs.

Price, with 24-inch Saw, \$45.00

Circular Saw Machines with Extended Table



are made with a table both sides of the saw, which is better adapted for sawing long wood, and can be used for sawing four-foot wood into stove wood. Saw machines made in this way can be used by one person sawing, as there is a rest for the wood both sides of the saw, which very often is convenient, when there are but a few cords of wood to be sawed and only one person to do the sawing.

Price, with 24-inch Saw, \$47.00

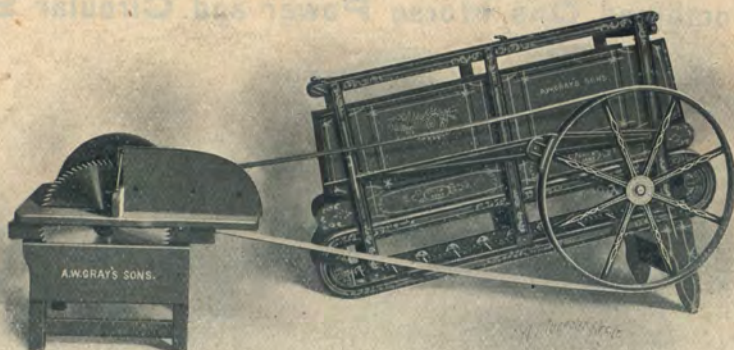
Our Circular Saw Machine with our Two Horse Power is capable of sawing from 18 to 24 cords of four-foot wood twice in two per day; with One Horse Power about two-thirds as much. We can furnish, at small additional expense, an extra table and splitting saw for splitting boards. We also furnish a cheap shingle saw and attachments to fit our regular frame, to enable parties to make their own shingles.

Swing Table Saw Machines at same price, if preferred.

We also have just introduced a swing attachment for our wood saws, for sawing long poles. See cut, page 15.

Our regular Saw Machines are made 3 ft. 2 in. between balance wheel and saw, which is long enough for cutting four-foot wood twice or three times, but if customer desires longer, we can furnish them at very small extra expense.

Our One Horse Power and Circular Saw Machine.

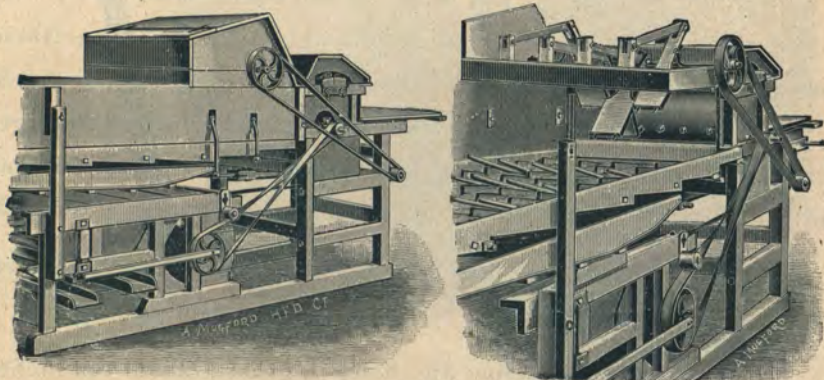


Our One Horse Power and Circular Saw are serviceable machines, and are very extensively used. They will cut from eight to twelve cords of four-foot wood twice in two in a day, with an ordinary weight horse.

Price of Our Horse Power and 24-inch Circular Saw Machine, with extended table, complete, with 28 feet of three-and-a-half inch rubber belting, oilers, wrenches, etc., - - - - - **\$143.00**

Straw and Grain Arrester.

(Patented March 24, 1891.)

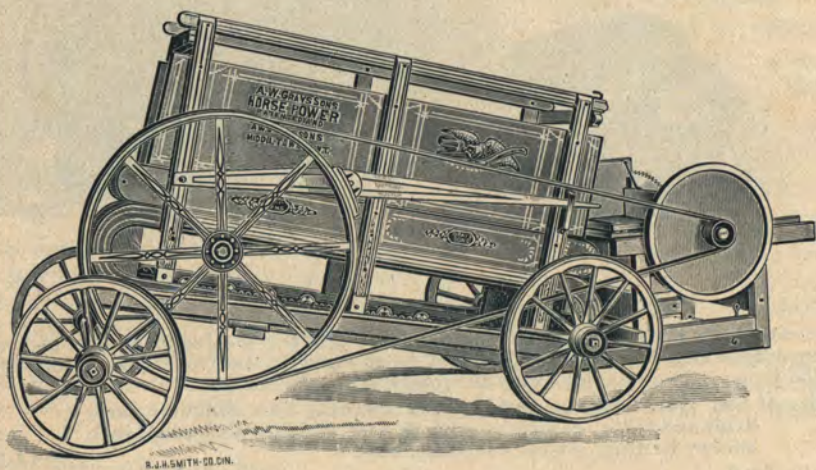


In threshing where straw is very dry and short, it sometimes goes through so fast that it is liable to shoot too far into the separator. On the other hand, when the straw is long and damp, it is inclined to clog and wind around the cylinder.

OUR PATENT ARRESTER overcomes both of these troubles. The straw and grain as it comes from the cylinder strikes the paddles, and is in turn taken by the next set of paddles and forced along the separator, insuring a perfect separation of the grain as it passes along over the forks of the separator.

Price, complete, with belt ready to attach, - - - - - **\$10.00**
 Supplied with chain belt, instead of ordinary belt, as shown in cut.

**Combined One Horse Power and Circular Saw,
MOUNTED.**



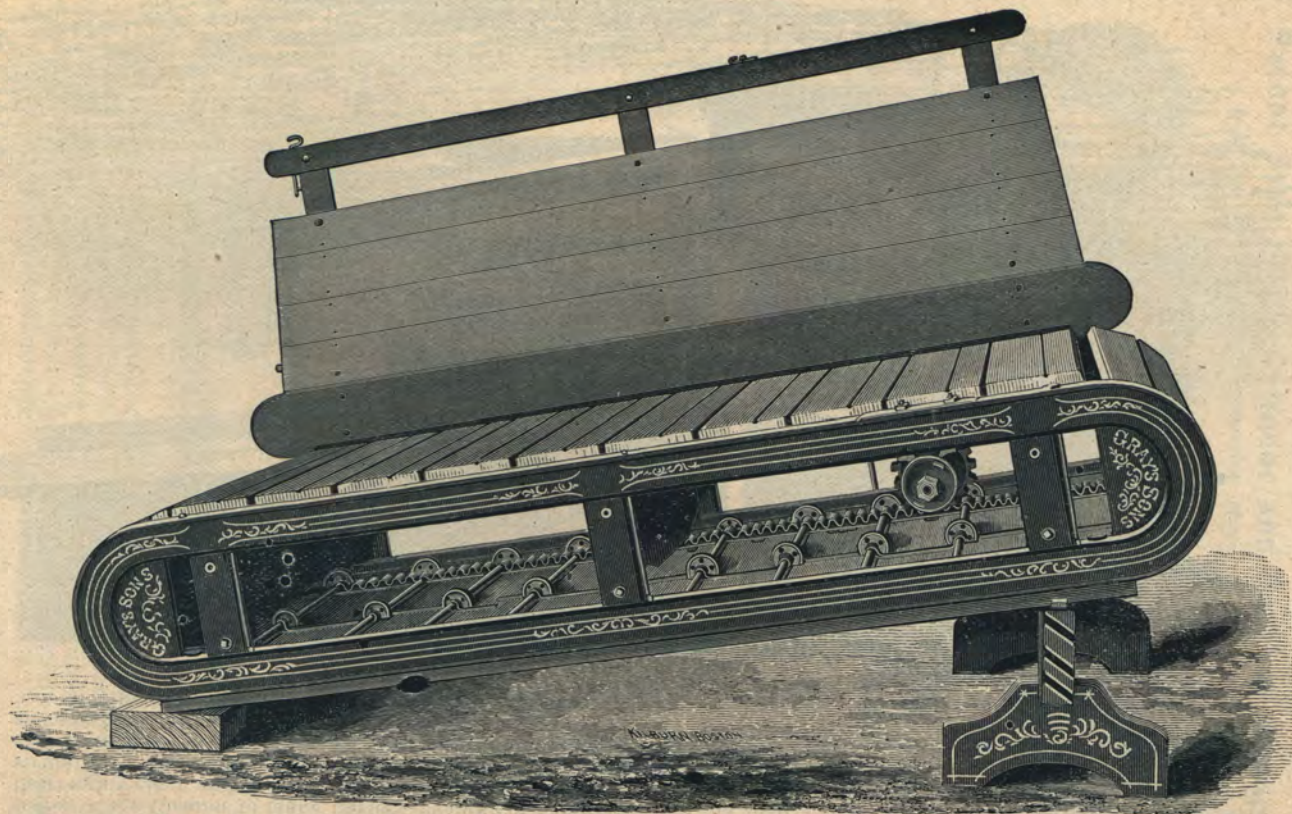
SOMETHING NEW.

Above we show cut of a new combination, being the One Horse Power and Circular Saw Machine, mounted on trucks for convenience in moving from place to place, and is a most satisfactory arrangement, using as it does the regular One Horse Power and Circular Saw, which can be taken off the trucks and used separately if desired.

The saw machine may be used directly back of power, as shown in cut, or may be set off to one side, same as shown in cut, page 11.

To set up this machine, dig holes in ground about ten inches deep for rear wheels to drop into, or take wheels off and let rear end of frame rest on the floor or ground.

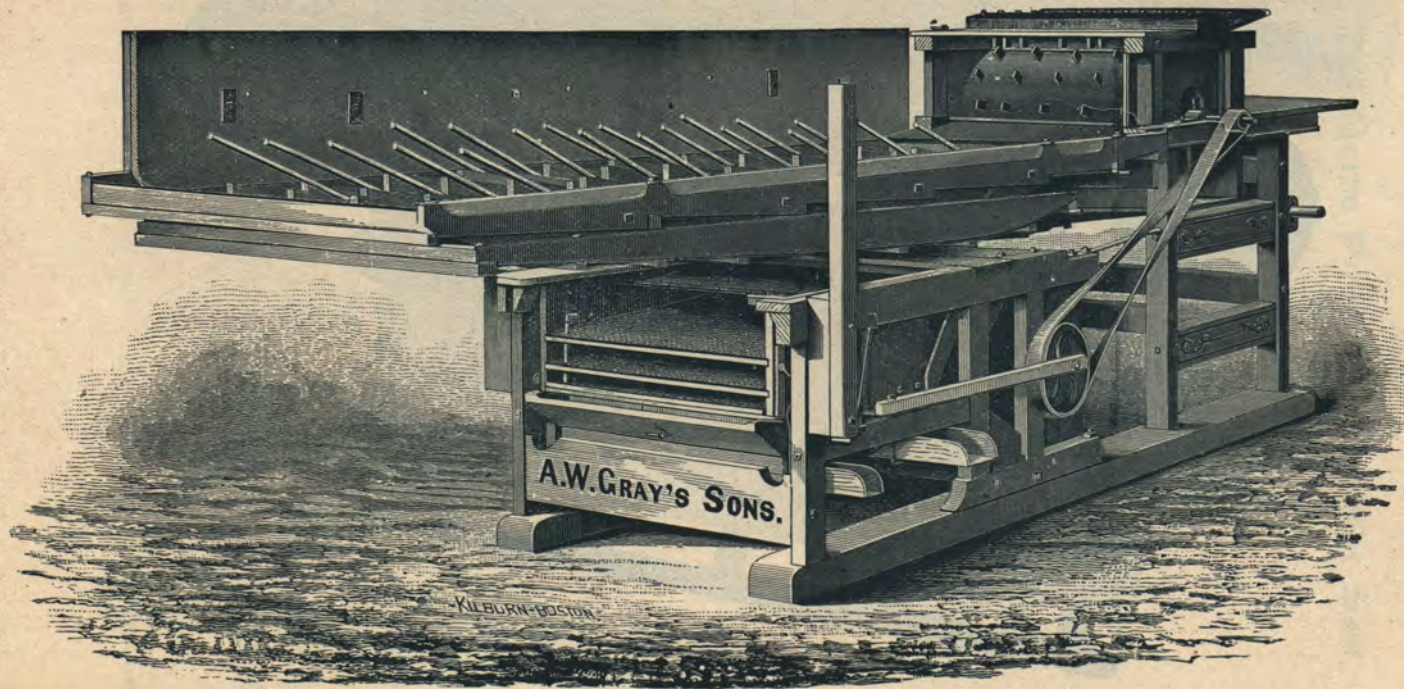
Price Complete, with Belt, - - - - - \$175.00



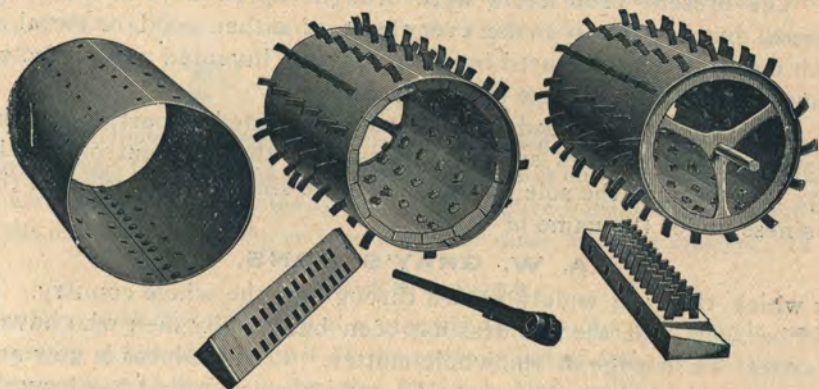
The above Cut shows our Two Horse Power with one side taken off to show the working parts.

Below we show our Thresher and Cleaner, taken apart to show working of Separator. We give a very large separating surface in order to ensure a complete separation of grain from straw. We also have a very large surface of sieves in the Cleaner to make perfect cleaning of the grain from the chaff, delivering the clean grain into the measure thoroughly clean and fit for the mill or market. The cylinders are our patent plate cylinders, and are practically indestructible. The teeth can be readily replaced when worn. We furnish a dust flue and straw and grain arrester not shown in cut. Our sieves are the best soldered and galvanized wire cloth, and for top a punched galvanized steel sieve to take out thistle heads.

We invite a careful examination of our machines.

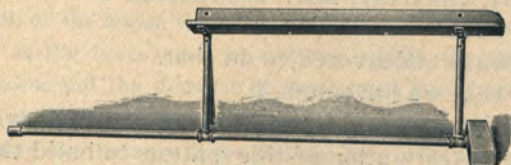


Our Improved
Patent Steel Plate Cylinder and Ratchet Wrench
 For our Threshing Machines.



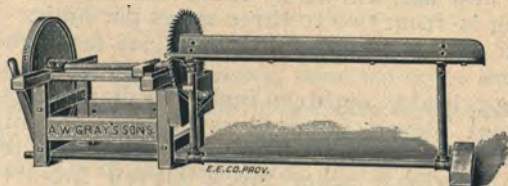
This is unquestionably the best Threshing Cylinder in the world. It combines lightness, strength, durability, and being a solid cylinder, does not cause wind to blow dust in the face of the feeder.

Something New.



Here we show an attachment for our Circular Saw Machines, for cutting poles and long wood into stove length, and below we show it attached to the saw frame, ready for work. Can be attached to any of our Circular Saw Machines.

Price, Complete, ready to put on, - - - - - \$9.00



In view of the large demand for our Powers to run fodder cutters for cutting the so-called "ENSILAGE," and for running portable grist mills, we have made arrangements so that we can furnish, at a fair price, first-class fodder cutters and grist mills (which we do not manufacture), and invite correspondence on the subject.

A Few Words about Ourselves, Our Factory and Our Machines.

The present proprietors were brought up as boys in the shop, learned by practice to make every part of either wood or metal of each machine manufactured by them, having invented and perfected many of the devices in use in the machines.

Arriving at manhood they became interested as partners in the business. Many years since they assumed the sole control, and in 1875 they became the sole owners, and have since then conducted the business under the name of

A. W. GRAY'S SONS,

by which they are widely known throughout the whole country. It will be seen that the business has been built up by men who have a practical knowledge of the whole matter. That business is now and will be conducted by the same skill and experience that has brought it thus far; and, as in the past, so in the future, these machines will be kept at the very front of all the improvements and inventions that shall be made.

It is for our interest, alike with that of our patrons, for us to furnish the BEST, CHEAPEST, MOST ECONOMICAL MACHINES for use that can possibly be built.

We have always endeavored to do that.

We believe that we have done it.

We ask your careful consideration of the facts which have induced us, in the investigation of this matter, to build these machines as we now do, and to recommend them as the best in use.

LEVER POWER vs. TREAD POWER.

Two forms of building these machines presented themselves to us. One was what is known as the *Sweep or Lever Power*, the other, and the one we now use, known as the *Tread Power*. The speed of a horse in walking is from two to three miles per hour. We call it, as an average, two and one-half miles, or 13,200 feet, which is 220 feet per minute.

A threshing cylinder, eighteen inches in diameter, to thresh well, must make about eleven hundred revolutions per minute. As the cylinder is nearly five feet in circumference, and the teeth which are to do the work describe a larger circle, eleven hundred revolutions per minute give them a velocity of more than six thousand feet per minute. The power that the horse exerted in moving at a speed of two hundred and twenty feet per minute, has now, by the intervening wheels, cogs, belts and bands, been changed into one that is moving six thousand feet in the same length of time, or twenty times as fast.

The force is now moving twenty times as fast as before, but, at the same time, it has diminished twenty times in amount. If the horse pulled with a force of two hundred pounds, the cylinder would start with a force of ten pounds, or one-twentieth as much, *provided* there was no loss by

FRICITION.

But friction is *always* present in all machines of whatever kind, and detracts largely from their working power. When so little as one-twentieth the power of a horse comes through to the cylinder as an effective force, the loss or gain by a little more or less friction, or from any other cause, becomes apparent. In the

LEVER POWER

the horse is hitched to the end of a lever and draws it around in a circle; and of necessity a considerable part of the power is lost at once. If the horse was drawing at right angles to the lever, his whole force would be expended in an effective manner on the lever; but he is not drawing in that way, for if he was he could never complete a circle, but is obliged to draw at an acute angle to it; and as the angle is more or less acute, more or less of his power is lost. If the lever be nine feet long, which is about the usual length, then the diameter of the circle is 18 feet, which is about the usual size.

The length of the horse, the tugs, whiffletree and connections being about nine feet, and as the horse must be entirely within the circle, the lever, the length of the horse and the distance of the horse's head from the center will be nine feet each, and will make an equilateral triangle, of which each angle will be sixty degrees, and the horse will be pulling on a lever at that angle, instead of ninety degrees or a right angle, thus causing a loss of nearly one-third of the power. This loss is inherent and *cannot be avoided* in this machine, and is enough of itself to condemn it.

For these reasons we discarded the lever power, and have never built any for sale, but have always built the

TREAD POWER.

That power, from its construction, saves the entire amount of both these losses. The platform on which the horses walk moves just as fast as do the horses, and only enough gears or wheels and bands are necessary to make 200 feet per minute 6,000 feet in the same time; and as the power is taken from the straight moving platform by a cog wheel or reel, the platform having a tangent to the circle is always *delivering the power at right angles to itself and thus there is no loss from an acute angle there*. In the tread power there are two forms in common use, the *single-gearred* and the *double-gearred*. In each of them the 220 feet

per minute of the platform is converted into the 6,000 feet per minute of the teeth of the cylinder. Both accomplished the result. It is only a question of economy of the loss of power by friction. The machine which produces the requisite 6,000 feet per minute of the cylinder with the *least loss from friction* saves the greatest amount of horses' strength to be used in threshing out the grain, and is, of course, the *most effective machine*.

In the *Single Geared Machine*, the power is taken from two chains of cogs on the under side of the platform by two cog wheels of suitable size on the same shaft running in metal boxes. On either end there is a band wheel large enough so that a belt on it shall give sufficient motion to the cylinder.

In the *Double-Geared Machine*, the power is taken in the same manner by two cog wheels, or else on two reels from the rods connecting the links, and then by a cog wheel on the end of the shaft gives an increased motion to a smaller wheel on the end of a second shaft, which on its other end bears a smaller band wheel than in the single geared power, and a band on this wheel, as before, runs to the cylinder and gives it the necessary motion.

NOW FOR THE COMPARISON.

There must be such a tension on the band as will make it hold to the small pulley on the cylinder and give it the necessary velocity, and that will be the same in either case, no matter how large or small the wheel on the power is, for if the belt slips anywhere it will slip on the small pulley.

Now, the power having the double gear has the smaller band wheel. As a matter of course, to give the belt the same velocity, it must turn more times on its axis than the larger, and as the strain of the belt is the same, the friction of its axis is in proportion to the number of its revolutions, and it is as much greater than the other as the number of its revolutions is greater.

This alone, if other things were equal, settles the matter in favor of the single gear. But when we take into account the fact that the single-gear machine has one set of gears only to set this band wheel in motion, while the double gear has two sets of gears and an extra shaft on which to lose power, it is thus plainly evident that the loss of power on the double-gear machine is very much more than in the single-gear, and this loss therefore is just so much subtracted from the working power of the machine. For these reasons we build and sell the single-gear machines, and claim for them greater simplicity of construction and greater economy of power.

Having settled the respective merits of the single-gear and double-gear machines, we proceed to discuss the question of the moving platform and its appurtenances, and here we meet the question of

WHAT IS THE BEST STYLE OF PLATFORM?

Some manufacturers make a style of platform to which they give the very deceptive title of "level tread." This often leads to the erroneous conclusion that the horse walks on a level. This is not a fact. In all tread powers the horses have to go up an incline more or less steep to develop the required power by their weight alone. The so-called level tread is made by raising the back end of each lag in the platform, thus making a series of steps (or stairs) up which the horses have to walk, and the fallacy of the claim will be readily seen when you consider that the horse has to step just so far in order to accommodate himself to the steps, as if he steps a little too far he catches his toe on the back of the lag, which is from two and one-half to three inches higher than the front of the one back of it, or if he steps a little too short the same result occurs. Now anyone can readily see that the smooth incline such as we make is much easier for the horse, as he can step long or short, as is most natural, and his feet are all the time on the same angle to his body as they would be if he was walking up a hill of the same grade. Again we are met by the question of

LARGE WHEELS vs. SMALL WHEELS,

as connected with their use under the platform. The claim made by some makers of tread powers, "*That large wheels bring the center of the wheels on which the weight of the team always bears, when the power is elevated, further back from a perpendicular line from the point where the wheels touched the track,*" is true. But the conclusions which they draw therefrom, to wit, that "*In consequence of which an additional amount of purchase or leverage is gained proportionate to the difference of their diameters,*" is NOT TRUE; for if there be a leverage, then there are two arms to the lever, and if the distance from the "perpendiculars to the point where the wheels touch the track" be one arm of the lever, then the distance from the same point to the center of the wheel where the weight rests is the other arm of the lever, and an increase of the diameter of the wheel increases each of these distances by the same ratio; and the merest tyro of a school boy knows that *to increase the length of both arms of a lever in the same ratio neither increases nor diminishes the power.*

The wheels, be they large or small, revolve in opposite directions on the upper and under tracks. Whenever in their circuits they change, at either end of the power, to the other track, they are borne across the intervening space revolving by their own momentum on their axles. On striking the track this momentum is overcome by the friction on the track and the strain on the axle, and in each case is so much force subtracted from the effective power of the machine.

As this is repeated twice in each wheel in every revolution of the platform, it becomes no small amount of retarding force; and as a six-inch wheel, to be equally

strong with a four-inch wheel, must be at least three times as heavy and have three times the momentum, and as a consequence in each revolution subtract three times the amount of effective force from the power that a four-inch wheel does, this loss immensely overbalances any fancied advantage that the large wheel may have. Again, the large wheel cannot have so long a bearing in proportion on the rod, and therefore when worn a little it does not run so true, and wabbles and crowds against the track, and is much more likely to break the rod or link.

For these reasons we early adopted a *small wheel*, and have never had one, or a rod, break. We often have applications to replace large wheels in other powers with small ones.

Our one horse power has a set of wheels on each side of the platform like those of other makers. Our two horse power, unlike those of other makers, has another set running in the middle, on a track, thus making the rods and lags *twice as strong* as those of any one horse power. Our three horse power has *two sets of wheels* under the center, making it just three times as strong as the single power.

Each horse, in every power made by us is supported by a *bearing on each side of him*, which is more than can be said of any other power, and we have that additional strength over any other. We have been thus particular in our description of the building of this power, as an answer to the question so often asked us:—

“How can you at the same time build and combine in the same machine the lightest, strongest and cheapest power that is made?”

In this description we have shown by our obedience to the laws of mechanics how it is done. We have shown, too, how we save for use, instead of losing in friction and otherwise, a large percentage of the power developed, which enables the user of our machines to accomplish results *impossible by others*.

We use no material of wood or metal except the very best, and we ask the comparison of this power with others in the matter of lightness, strength, durability, capacity for work, and cost to the buyer, knowing that in each one of these several qualities there will be a large balance in our favor.

So much we have said of our power, for this is at the foundation of the whole; and without a good power—that is, one that can save and use the largest possible quantity of the strength of the horses to accomplish the work—we cannot hope for success. Before we close this article, we desire to speak in particular of an improvement that, after a full trial, we have adopted in our cylinder—our new

PATENT STEEL PLATE CYLINDER.

Two forms of cylinders have been in use: The iron bar cylinder, which was very heavy, strong, and did good work, but was heavy, ran hard, the bars gath-

ering wind and throwing out a cloud of dust, to the great annoyance of the feeder, and from the shortness of the bearing and the rigidity with which it held the teeth, broke many of them on obstructions.

The other was the wooden cylinder which was made of wood, covered with sheet iron and heavily banded. This was lighter, ran easier, and the thickness of the wood gave a long bearing to the teeth, with which a little elasticity in the wood tended to save them when meeting with an obstruction. These cylinders were not so durable as the iron ones.

Our new cylinder is made of the best plate steel, is about one-eighth of an inch thick, all in one piece, the edges riveted together. This is then punched for the teeth by machinery built on purpose, and then a set of staves of hard maple wood nearly two inches thick is driven on the inside. Open iron heads are now placed in the ends, with the shaft in their center.

The teeth now pass through the steel surface, exactly fitting the holes, the thickness of the wood staves gives them a long bearing, and they are held by a nut on the end, which is easily put on through the open head. This cylinder combines the great strength and durability of the iron bar cylinder, together with the elasticity and easy running qualities of the wood cylinder, and proves now, on a trial of several years, to be the very

NE PLUS ULTRA

of all cylinders, and is furnished with all our threshers, unless otherwise ordered. This cylinder now makes our thresher and cleaner better than ever before, and better than any other. As such we offer it to the farmers and threshers of the land. We have already many thousands in use. We desire to put other thousands at work threshing out the magnificent crops of the country. There is room enough. The number of these machines used in threshing each year's crop is simply immense.

WHICH IS THE BEST MACHINE?

Our three-horse machine is, in capacity and economy of work, superior to the eight horse lever power, and nearly equal to the ten-horse power.

For take notice that in the ten-horse machine the power of three horses is gone at once by the loss from the angle at which they are compelled to draw, and only seven are left. Then, as these machines are geared with wheels, rods and cogs, on the authority of the *Scientific American*, as to the loss by cog gearing over belts of thirty-three per cent, three horses more are gone, and that, too, if the horses had an equal chance to work on a smooth platform. But the horses on the lever power must work on the ground in the dirt and mud, perhaps, and with

all must step and draw sidewise, and if in teams, then the two horses draw and work unequally, so that this loss is none too great.

The impossibility, too, of any driver making ten horses work alike together under any circumstances, is to be taken into the account.

Compare this with three horses on a tread power. Their weight carries the machine, and if they walk up the incline they cannot avoid doing the work.

Nobody dare claim that even an eight-horse lever power can in use compete with a three-horse tread power, so we have instead, "THE TREAD POWER IS A HORSE KILLER."

"IT KILLS A HORSE TO WORK ON THEM." WELL, HORSES HAVE BEEN KILLED ON A TREAD POWER, SO THEY HAVE ON LEVER POWERS. Horses have been killed on everything they have been hitched to, from a thirty-pound trotting sulky to a truck loaded with pig iron. Incompetent, careless, brutal drivers can kill a horse on anything.

THERE IS NOTHING IN A TREAD POWER TO KILL A HORSE.

The horse was made to go up hill or down hill, as well as on a level.

When going up hill it is of course harder for a horse than on a level, but no harder than to draw a corresponding load on a level.

When on a tread power his four legs stand on the same angle to the line of his backbone that they would if he were on a level exerting the same power to draw a load.

His feet would be thrown back on the incline to support his weight and on the level to get a foothold to move the load, and his head down to the same angle, in both cases, while the strain on each muscle and tendon would be alike, as any competent animal anatomist will testify.

Where then, is the horse killing in one case more than in the other?

As a conclusion to all this, we have all about us horses that have worked continuously in the season upon tread powers without injury from ten even to twenty years.

THE ECONOMY OF THE TREAD POWER IS BEYOND QUESTION.

One and two-horse tread powers have driven four and six-horse lever powers almost entirely out of the Eastern States. It is our firm belief that the three-horse power is in like manner to drive out the eight and ten-horse powers of the West.

We have been thus particular in our explanation of the matter that our readers may be in possession of the facts that have caused us to believe that we build and offer

The Champion Machines of the World.

CONDITIONS AND TERMS OF SALE.

The prices in this circular are for machines delivered at the railroad station in Poultney, and do not include freight charges to any place. Freights are to be paid by purchasers when they receive machines.

All machines must be settled for with us, or the agent from whom they are purchased, when they are received. In event of the machine failing to satisfy the purchaser, as provided for by the terms of the contract, payments that have been made will be refunded. We relinquish no title to any machine we send out, directly ourselves or through an agent, until the stipulated terms of payment to us or our agent are fully complied with.

TERMS OF PAYMENT.

In order to best accommodate those who find it inconvenient to pay all cash down, and in order to bring terms of payment so those who purchase can make machines pay for themselves, we sometimes sell our machines on any of the following terms :

1st.—For cash on arrival of goods, five per cent off circular prices.

2d.—For well-endorsed paper, one-half payable in six months, and balance in one year or fifteen months, at circular prices.

3d.—For one-half cash, and balance in six months and one year, in equal payments, and a lien on machine as security for the notes.

4th.—When parties wish to purchase to amount of one hundred and eighty dollars, or more, at list price, for one-third cash, balance in two, four, eight and twelve months, equal payments, a lien on machine as security for the notes.

All notes to be on interest from time machines are shipped, and for all cash that is paid on arrival or delivery of machines, we allow a discount of five per cent.

Parties who desire time should fill out the property statement on our order blanks, making a correct statement of property and resources, and sign the same. Make all orders for machines on our blanks. By filling out the property statement it gives us the information we should require before granting credit, and saves several days time, which would be necessary to obtain the information elsewhere.

Make all orders carefully, and state fully the terms and conditions desired.

If parties wish to give mortgage on personal property as security for notes, they will please give a list of the property, and in their opinion its value.

Parties who wish to send cash with the order will find it entirely safe as they can see by referring to any mercantile agency or any bank in this section.

TESTIMONIALS.

WE HAVE received many testimonials from persons who have used our machines in different parts of the country, and often a good word from the press. We copy a few of these testimonials and some extracts from newspapers, to which we respectfully invite your attention, as they go to show the durability of our machines, and also the amount of work they will perform, as represented by the parties who have used them.

PENNACOOK, N. H.

Gentlemen:—The two horse power and saw run fine, a foot elevation gives plenty of power to saw wood by. I cut 11 cords once in two and one cord twice in two in $4\frac{1}{2}$ hours; could have cut it quicker, but they did not handle it fast enough. Yours truly, W. S. HOLLAND.

BUTTE CITY, MONTANA.

Gents:—Your little one horse machine is the most complete of anything of the kind I ever saw. It does all that you claim for it, and even more. I have cut eleven cords, twice in two, in five hours; and five cords, once in two, in one hour. You are at liberty to use this statement. J. M. JONES.

DERBY LINE, VT.

A. W. Gray's Sons:—I received the two horse power and thresher all right, and it is a dandy. I have threshed 450 bushels a day, and have run through 50 bushels in 38 minutes. That is a big thing for this country. Yours truly, J. A. WILDER.

RIVER FALLS, WIS.

Messrs. Gray:—My three horse machine is giving every one we thresh for perfect satisfaction. We thresh from 800 to 1,200 bushels of oats per day, and can beat any of the other machines in cleaning the grain. Yours truly, J. E. CRYDERMAN.

WILMINGTON, VT.

A. W. Gray's Sons—Gentlemen:—We have two of your powers in constant use and a good many farmers and others see them. I think perhaps we do as much of a variety of work with horse powers as most any one. With our two horse power we run a drag saw and a circular saw for wood, a small 20-inch surface planer, a 10-inch buzz planer, turning lathe, emery wheel, grind stone, about eight different bench saws, small grist mill, band saw, etc. In our barn we have a one horse power which we use to cut fodder and to run the elevator that takes a large load of hay to the top of the barn. All these are conveniently arranged and work nicely. Yours truly, HENRY ADAMS.

MANCHESTER CENTRE, VT.

Messrs. A. W. Gray's Sons—Gentlemen:—You probably remember that I bought a machine of you last spring. It has given entire satisfaction. I sawed six cords of hard four-foot wood twice in two at the rate of one and three-quarters cords per hour with an ordinary weight horse, no extra elevation; did it with one of your little one horse powers, and when I got through for the season my horse was as fat as a hog. Had a good season; all I could do. Yours truly, MILO HALL.

A. W. Gray's Sons—Gentlemen:—I went out yesterday, for one of my neighbors, to saw three cords of wood with my One Horse Power and Saw bought of you. The wood was all big, heavy body maple, not a limb or round stick in the pile. I sawed it in $1\frac{1}{4}$ hours, and sawed every stick three times.

Yours truly,

TICONDEROGA, N. Y.

F. H. RAND.

Messrs. A. W. Gray's Sons—Gentlemen:—Your Horse Power is a perfect success in running my cream separator, and the governor controls the speed as perfectly as a steam engine, and no expense except for oil.

Yours truly,

RUSSELL, KAN.

E. J. MILLARD.

A. W. Gray's Sons—Gentlemen:—I am doing a lot of work with the little machine (One Horse Power and Circular Saw combined). I have cut ten cords of dry maple wood twice in two in four hours quite a number of times.

Yours respectfully,

LISBON, N. D.

M. O. COLTON.

We wish to say that the governor you sent us last spring works complete. It enabled us to keep a uniform motion to our churn and we made from three to five pounds more butter at a churning (same quantity of cream) than we did before using the governor.

D. W. STRICKLAND & SON.

ADAMS, N. Y.

A. W. Gray's Sons—Gentlemen:—In regard to the Two Horse Power I purchased from you, will say it is all right, does all and more than we expected. We run cream separator, grind corn, and pump, all at the same time, with a 900 lb. horse. We found the separator run a little more steadily to let the Power do more work, so we do most of our grinding while separating, thus saving time and wear of Power. The Power is well liked by all who have seen it run. The governor works perfectly, and it would seem that we could hardly do without it.

Yours respectfully,

NORTH BEND, NEB.

D. B. HOWARD.

A. W. Gray's Sons—Gentlemen:—I have been threshing oats today with the Two Horse Power I bought of you, and myself and three men threshed, cleaned and bagged, and put away the straw, 204 bushels of oats, in four hours and five minutes, and did it well. Am well pleased with the machines.

Yours, etc.,

LANSINGBURG, N. Y.

JAMES G. MOTT.

F. H. Burdick wishes to say that the Thresher and Cleaner bought this season of you works like a charm. The new patent, viz., Grain Arrester, is a great improvement, as no straw can clog before the cylinder with that device. He further says he had no trouble to clean Jap buckwheat clean. He threshed 40 bushels oats in 45 minutes, and also 104 of very wet oats in $3\frac{3}{4}$ hours, and cleaned them perfectly.

H. J. BURDICK.

JOHNSBURGH, N. Y.

Gentlemen:—I am more than pleased with the One Horse Power and Saw. It works to a charm, and gives more power than any I have tried; indeed I would not have any other at any price.

Yours truly,

QUAKER SPRINGS, N. Y.

J. MONROE PERKINS.

A. W. Gray's Sons—Gentlemen:—The One Horse Power and Circular Saw Machine I bought of you in 1883 has given perfect satisfaction. I can saw 8 to 10 cords of four-foot wood in a day, easily. I have a cider mill attached to the power, and last fall I ground 50 bushels of apples in 37 minutes.

Yours truly,

HAMILTON, MASS.

ALVIN SMITH.

We threshed 2,353 bushels in $3\frac{1}{2}$ days, and the straw of some of it was 5 feet long.

CATLINE BROS.

WHITE SULPHUR SPRINGS, MONT.

Gentlemen:—I got the two horse power and thresher home from Jackson Park all right, and it is a good one and does all you claimed for it. Lots of men come to my barn to see it run, and I am sure there will be many sold here next fall. I thresh corn right along. It beats the corn threshers they have here.

GILBERT, KANE CO., ILL.

Yours truly,

H. N. MARKS.

A. W. Gray Sons—Gentlemen:—The two horse power and thresher arrived all right and is working finely. I have threshed 60 bushels of oats in an hour and the oats are light this year. I am well pleased with it.

MORRIS, N. Y.

Yours truly,

JOHN M. HOPKINS.

A. W. Gray's Sons—Gents:—The two horse power I bought of you is running the best of any power I ever saw. I can cut as much wood with it as one of my neighbors can with his ten horse sweep power, and I am satisfied with that.

MAQUOKETA, IOWA.

Yours truly, O. J. HUBBELL.

Messrs. A. W. Gray's Sons—Gentlemen:—In reply to your card asking if I had bought a machine, I write to say that I bought one of your One Horse Power and Circular Saw Machines through your agent last March, and since then I have sawed hundreds of cords of wood and have not spent a cent for repairs. It works finely. I have sawed a cord of 4-foot wood three times in two in 35 minutes, and a number that saw me do it were surprised to see how easily it was done. They said they had seen two or three other horse powers work and it looked like hard work for them.

BRANFORD, CONN.

Yours truly,

G. S. PROUT.

Gentlemen:—I received the one horse power and circular saw all right, and you have done me a good deed and I hope you will do me another, and I think you will be willing to do it after I tell you what it is. I want you take this whole machine back if you want me to live; I can't take any peace, for it is nothing but saw wood all the time. They send for me for ten miles around and come in big teams to see the machine run. It is a big thing. I have to run it half the time and there is no end to it I guess. I have sawed over 300 cords and have just begun.

CONTOOCOOK, N. H.

I enclose clipping, showing what I have done.

Yours truly,

J. C. HOWE.

The clipping referred to: "Jason Howe is doing quite a business sawing stove wood with one horse power machine. He sawed one cord of hard wood three times in seventeen minutes and two cords in forty-five minutes."

Gentlemen:—I have been out threshing. One day last week I threshed 100 bushels of mowed oats in one hour and forty minutes. The Machine works complete.

SHARON, VT.

Yours truly,

H. C. HARRINGTON.

Messrs. A. W. Gray's Sons—Gentlemen:—The thresher, separator and cleaner I bought of you last September has proved to be about perfection as to work and durability. It has not cost me a cent for repairs. I have threshed about ten thousand bushels of grain. I threshed 1,272 bushels of oats in five and one-half days, and in the time I moved to four different barns and set up seven different times. The two horse power I have has been in use for twelve years, threshing in the fall and sawing wood in the winter.

COLEBROOK, N. H.

Yours truly,

ALONZO HEATH.

Messrs. A. W. Gray's Sons—Gentlemen:—I have received the Drag saw Machine you shipped to me at Ausable Forks, and find it works very nice. I run it six hours and cut 13 cords of wood just as it was corded from the saw without splitting.

FRANKLIN FALLS, N. Y.

Yours truly,

S. E. GALE.

ASHLAND, WIS.

Messrs. A. W. Gray's Sons—Gents:—The one horse power and sawing machine I bought of you gives excellent satisfaction. I consider it by far the best machine I have ever seen. I saw ten or twelve cords of four-foot wood twice in two per day, moving two to five times.

Yours, etc..

A. L. BILLINGS.

ALTONA, N. Y.

Messrs A. W. Gray's Sons—Gentlemen:—I will make you the statement of my experience with your machines.

In August, 1875, I bought a two-horse power and thresher, separator and cleaner, and have been running your machines ever since. I run the first one for eight years, and only paid out \$2.75 for repairs, except to replace the lag planks. In the fall of 1883 I bought a new two-horse power and threshing machine complete, and have run that one ever since.

Now, talking about horses working on a tread power, I have a horse that I put on to the power in August, 1875, and it has worked on the power during every season since. It was four years old when it went on first, and is still sound and all right. Now you will see that it makes twenty-five years consecutive work, and during that time he and his mate have threshed over 130,000 bushels of grain.

Can thresh 50 bushels of oats per hour of any fair crop, and will put the "Gray" against any other power made and it will win every time.

Respectfully yours,

ANDREW DULY, JR.

MCCANNA, N. DAK.

Messrs. A. W. Gray's Sons—Gentlemen:—I have this day mailed you two photos of the Three Horse Power and Thresher I bought of you. It was threshing from the shock the day the photo was taken, and on that day we threshed from wheat in the shock, and put it in the granary 1,050 bushels in eleven and a half hours with seven men and five teams, including the power horses and an extra horse for taking away the straw. We have threshed, at different times, 100 bushels in fifty minutes, and once 100 bushels in forty-five minutes.

If you can get the two-horse outfits introduced here they are just what the small farmers, who own, say half a section, want. I know they can thresh wheat out of the shock and put it in the granaries cheaper than they can stack it, and aside from the teams and help they have on their own farms, it will not cost over two and a half cents per bushel to put it in their granaries, while now it costs them for the big machines nine to ten cents per bushel and the extra help about two and a half cents more. We threshed 20,300 bushels of oats and wheat in twenty-one and a half days, and 1,450 bushels of flax in five days. They are the only machines I ever saw that would thresh flax and not waste any seed.

Yours truly,

M. S. WALLACE.

WHITE SULPHUR SPRINGS, MONTANA.

A. W. Gray's Sons—Gentlemen:—Your horse power and thresher are all that you claim for and we could hardly get along without ours. We use the power for a good many things beside threshing.

We have threshed with our two horse power and thresher as high as 800 bushels of oats in a day. We could have done a large portion of the threshing in this valley if we had cared to go about our machine.

Yours truly,

GEORGE CATLIN.

—* This probably means headed grain.

So, NEW BERLIN, N. Y.

Gents—We were well pleased with our machine. At one time last fall we threshed, in less than five hours, 320 bushels of oats, and made three stops to empty bags—several runs of two bushels per minute for forty or fifty bushels.

Yours truly,

HULL & KENDALL.

RANGELY, MAINE.

A. W. Gray's Sons—Gentlemen:—In regard to the two horse power we purchased of your agent, we will say, it is all right—does all and more than we expected. On Monday, Nov. 23, 1893, we set the machine up in J. R. Toothaker's barn, and in 5½ days threshed 1,389 bushels of grain. In another man's barn, in four hours, we threshed 176 bushels.

We are very much pleased with the machine.

Yours truly,

R. & O. ROSS.

SERGEANTS BLUFFS, IOWA.

Messrs. A. W. Gray's Sons, Middletown Springs, Vt.—Gentlemen:— * * * * The one horse power bought of you in August is a perfect treasure, and sets in my creamery to do the work there, and is admired by all. The tread power is the cheapest power on the farm.

Yours truly,

A. J. WESTFALL.

HAMILTON, MASS.

A. W. Gray's Sons—Gentlemen:—The one horse power and saw I bought of you in February, 1888, has given me perfect satisfaction.

I easily saw 8 to 10 cords of four-foot wood per day. I also have a cider mill which I run by the horse power.

Last fall I ground 50 bushels of apples in 37 minutes.

Yours truly,

ALVIN SMITH.

ROCKDALE, N. Y.

Gentlemen:—My son has just finished threshing, for this season; he has made a remarkable record; he has threshed 106 bushel of oats in 60 minutes, and he has threshed since the 8th day of August over 16,000 bushels of grain. How is that for a two horse power?

Very respectfully,

S. N. SKINNER.

WILMINGTON, N. Y.

A. W. Gray's Sons—Dear Sirs:—The two horse power, with thresher, I bought of your agent last fall, has been given a most thorough trial, and has given entire satisfaction. I can highly recommend it to any one who wishes for a good and durable machine.

Yours truly,

ZACH. LAURENCE.

Gentlemen:—As I have just finished threshing, I thought I would let you know about the machine I bought of you, November 20, 1888. I have run it all the fall of 1889 with the best results. Everybody is astonished, and bet it is a piece of perfection and durability, as it hasn't cost me one cent for repairs. I have threshed about 14,000 bushels of grain, and run twice the amount of straw usually run for a bushel of grain. I haven't threshed for a man this fall but what said A. W. Gray's Sons' Machine is the best one they ever had in their barn. It has run all other machines out. There have been threats made to burn my machine by some of the older threshers; but "barking dogs never bite." Any one doubting this can write to me and I will prove it to them.

CALVIN D. LOUCKS, North Blenheim, Schoharie Co., N. Y.

OAKLEY, TENN.

Messrs. A. W. Gray's Sons:—The thresher me and my brother bought of you is a good one. We have threshed a bushel of wheat in a minute, and can thresh oats as fast as we want to. The people say we out-thresh the eight-horse power. We have the one-horse power.

Yours truly,

G. T. MAINARD.

NO. HAVERHILL, N. H.

W. F. Eastman, Says:—I am running a No. 14½ Baldwin Cutter, with elevator carrying at about 75°, with the one-horse power I had of you and it keeps two men busy to feed it. The power and circular saw machine work splendidly. I think I could cut a single cord of four-foot hard wood, twice in two, in thirty minutes.

BROOKSIDE FARM, FT. FAIRFIELD.

A. S. Finley—Dear Sir:—This morning I noticed in the *Maine Farmer*, issued on the 24th of December last, the following:

"On November 25th, George Eaton and Elex Willet of New Limerick, threshed for Zephaniah Parks at his barn in Hodgdon, 411 bushels of grain in 8½ hours," which gave rise to this letter. Strange to say that on the very same date (November 25) my sons Vinal and Merrill Harmon, were threshing with the two-horse power Gray machine, which I purchased from you last fall, in Mr. Charles Dinsmore's barn in this town, who expressed himself well satisfied with the way the work was done. The result was that they threshed and cleaned 282 bushels of oats in four hours.

S. H. HARMON.

WEST LEYDEN, MASS.
Messrs. A. W. Gray's Sons—Gentlemen:—We like the drag saw machine very much. There was a man here to-day to see it; he thought it beat anything he ever saw. We had a log on about twenty inches through. He says he could hold his breath while it was being sawed off. It works like a charm.

Yours truly,

GEORGE N. NELSON.

STANDISH, MAINE.
Messrs. A. W. Gray's Sons—Gentlemen:—Since writing you in September about the one-horse power and circular saw machine, I have had the pleasure of testing it myself, and must say that I find it to be all you claim for it. I used it on dry, rock-maple wood and sawed at the rate of a cord every half hour, which has never been done here before even with a two-horse power. I run the saw myself and had two other men to tend me.

Yours truly,

H. B. HARTFORD.

BARRE, VT.
A. W. Gray's Sons—Gentlemen:—The machine is doing good business. We have cut about 600 cords this winter; have averaged over twenty cords per day—not bad for a one-horse power. Haven't had to pay out a dollar for repairs and have sawed over 1,400 cords of wood.

Yours truly,

C. A. BADGER.

ALTONA, N. Y.
Andrew Daly, Jr., says:—The dust flue is a great thing for the man feeding the thrasher, but I think the best improvement that has ever been put on the *Arrester*. There is no clogging nor grain flying through the separator.

PORTLANDVILLE, N. Y.

Gentlemen:—Send me governor at once.
 The men are running the one-horse power with the jack you furnish under the front end and 7 inches under back end and can't keep the speed down cutting hay.

Respectfully,

FRED. F. TOWNSEND.

ASHLEY FALLS, MASS.
Mr. Gray—Dear Sir:—Received the power and belt all right, and have used it to cut corn fodder, and it gives perfect satisfaction. My neighbors admire the machine.

Yours truly,

CHAS. T. SHOVE.

STATEMENTS.

James McDonald, Ludlow, Vt., says: The speed governor I bought of you last fall gives best of satisfaction. Would not take \$50 for it if I could not get another like it.

Moriah, N. Y. Gents: I am very well suited with the two horse power and circular saw machine I bought. I sawed $5\frac{1}{2}$ cords of wood in one hour.

Yours truly,

H. W. LANG.

Miles D. Arblo, Oxboro, Me. Have used your two horse power and thresher for the last six years and it gives perfect satisfaction.

John P. French, Candia, N. H., says: I bought one of your horse powers in 1872, and it has proved very satisfactory up to the present time.

Frank E. Chandler, Brandon, Vt., says: I am very much pleased with the one horse power and saw machine I bought of you.

C. L. Allen, Whitehall, N. Y., says he threshed, with our two horse power and thresher, 130 bushels of oats in three hours, and that what makes it more remarkable was that the straw was quite damp.

Isaac Roberts, of Davie County reports twenty-four bushels in 16 minutes.

George W. Sheldon of Pawlet, Vt., says he sawed $6\frac{3}{4}$ cords of 4-foot wood in one hour and forty minutes with a two horse power.

C. A. Gallup, North Pownal, Vt., says he sawed a cord of hard wood twice in two in twenty-five minutes with two-horse power.

W. H. Hollister and man, say they threshed for Beebe, of Granville, 50 bushels of oats in $37\frac{1}{2}$ minutes, and at the same place 50 bushels in forty minutes.

C. L. Barber, Bellows Falls, Vt., says that he has a two horse power and thresher bought about twenty-five years ago that they have used on their farm ever since.

Champlain, Vt. I have been running one of your two horse powers and threshers for the last two seasons, and it is a daisy and gives entire satisfaction.

Yours truly,

E. E. McNALL.

North Creek, N. Y. Gents: The two horse power and drag saw I bought of you work like a charm. I saw about five cords of stove wood an hour and can saw forty cords a day.

Yours truly,

S. J. WINSLOW.

Fair Haven, Vt. The speed regulator I bought of you works like a charm.

Yours truly,

E. R. HILL.

Jason Warner of Sherburne, Vt., says: I cut with the two horse power and circular saw machine I bought of you last year, 14½ cords of hard wood twice in two in 3½ hours.

C. W. Richards, West Concord, Vt., says he threshed 584 bushels of loose and damp oats in fourteen hours.

Chas. Hutchins, Middletown Springs, says he has used the Governor on his one horse power to cut a large amount of ensilage, and would not part with it for \$25 if he could not get another. Says he cut 3,500 pounds of green corn in ten minutes with one horse power.

Cavendish, Vt. Gents:—I will say in regard to your patent straw and grain arrester, it works complete. Dry grain will not blow over and damp grain will not clog the cylinder. Would not take \$50 for it if I could not get another.

Yours truly,

IRA P. ESTY.

John Kenyon, Athol, N. Y., says he threshed 41 bushels of oats in 39 minutes with one horse machine.

H. A. Boynton, Jay, N. Y., says: Machine works to perfection; have threshed 338 bushels in eight hours.

E. L. Cummings, Lebanon, Conn., says: Have run machines for 15 years and find yours is the best by far.

J. W. Shaler, Salem, N. Y., says he threshed with two horse machine over 40,000 bushels of rye, oats and wheat, and the winter following sawed over 600 cords of wood with one pair of horses.

A. N. Van Fleet, Marysville, Cal., says: Have threshed 388 bushels of wheat in a day, and have threshed 400 bushels of barley in same time, two horse machine.

H. C. Gates sawed for Warren Earl, in Middletown Spa., Vt., 9 cords maple wood frozen hard, in four hours.

A. D. Pace, Greenville, Miss., says: I am very much pleased with my machine.

Jacob Heiler, Mohawk, Hill, N. Y., says he threshed 97 bushels of oats in 73 minutes with two horse power.

Post Mills, Vt. I sawed for Mr. Jackman thirty-five feet of maple wood (wood measure) in thirteen minutes, with my drag saw. I also sawed off a maple block, twenty-seven and one-half inches in diameter, in two minutes and forty seconds, regular run.

H. N. HIGGINS.

C. W. Wilcox, Delhi, N. Y., says: I have had one of your celebrated one horse powers for ten years, also one of your circular saws and cross cut drag saws, which has been one of the best investments I ever made.

* * * * *

These are only a few of the many testimonials which have been sent us voluntarily by parties who have purchased and used our machines. These statements are made of work done under favorable circumstances, but are all actual occurrences and can be verified by writing to the parties themselves, as we give the address.

We shall be pleased to have a report from all purchasers of our machines. Write us as to the successful working of the machines.

WHAT THE NEWSPAPERS SAY OF US.

FARM AND HOME.—*Threshing Corn.*—A trial of shelling corn by the threshing machine, without picking and husking it, was recently made by S. E. Gowing, proprietor of a large Connecticut river farm at Charlestown, N. H. Two horses were put in one of A. W. Gray's Sons' powers, and carried the motion as evenly as in threshing small grain. The bundles were passed on to the table and fed into the cylinder top first, usually. The shelled corn came out well cleaned of cob and husks. The fodder came out well shredded and broken, about as a shredder would leave it. No corn was left on the pieces of cob, and but very little was scattered on the floor. At the spout where foul seed usually comes out, there were some small pieces of cob and a little corn. This was put by itself to be cleaned or fed. A rope with a pulley had been attached to the high beams and the bags of corn were hoisted and spread overhead on the floor. Twenty-two bushels were threshed in an hour, including two stops, and one hundred bushels of shelled corn can be easily threshed in a day. At least three operations were performed in one: husking (which is a slow occupation where one has a number of acres), shelling (also a slow job), and cutting or shredding the fodder. The last has come into practice to some extent of late. The work was done at the rate of two hundred bushels of ears per day, and at a cost probably not exceeding the expense of husking. How about curing the shelled corn? Aye, there's the rub! It has been suggested that a rat-proof bin could be made of wire net fine enough to permit the air to circulate through; or it can be spread and handled over. It would be best at all events to let the corn stand in the field until well cured. It looks practical, and a good many talk of trying it next year.—[W. A. H., Sullivan County, N. H.]

THE MERCANTILE AND FINANCIAL TIMES.—*The Honorable Fifty Years' Record of a Leading New England Firm.*—The American republic, as becomes a country whose metallurgical resources are of absolutely inestimable value, is taking up a more commanding position every year with regard to its manufactures in metal. Leading the entire world in mineral production, the United States maintains a long lead, also in the output of metal-working establishments. The often-commented-upon inventive power and mechanical skill of our manufacturers find ample scope for their exercise along the different lines, and the work of the whole civilized world is made light through the agency of iron and steel of American make. No more remarkable productions, in the lines for which the manufacturers of this country are noted, have ever been given to the world, than are to be found in the mechanical appliances manufactured by the Messrs. A. W. GRAY'S SONS, of Middletown Springs, Vt. The business conducted under this firm name comprises the manufacture of all kinds of horse-power machinery, and was established more than fifty years ago. It was successful from the start, and has expanded during this half century in a manner which must be gratifying indeed to the honored proprietors. The Messrs. Gray are typical New Englanders, keen, alert, judicious and enterprising. They have expended on this interest the force

of their entire business life, having been identified with it from their boyhood up. They have, therefore, as a matter of course, a very complete practical knowledge of every part of the work, and exert a personal supervision over all departments of the business that is wise in the highest degree, and that guarantees a steady maintenance of their reputation for unparalleled excellence of production. They are men, also, of a high order of inventive skill, and many of the devices in use in their machines were originated and perfected by them.

The "horse powers" manufactured by the Messrs. A. W. Gray's Sons are adapted to run a wide variety of machinery—notably in such establishments as wagon shops, bakeries, dairies, etc., and for pumping, grinding apples for cider, cutting feed for stock, operating farm grist mills, and other similar purposes. Grain threshing and wood sawing machines are operated to excellent advantage by them, and the outfit may be conveniently removed from place to place as occasion may require—a point that will appeal at once to those who are familiar with such machinery and its workings. The planks of the platform in the horse powers upon which the animal walks, are fastened together on the under side by a steel gear connected by steel rods. These serve as axles for rollers, moving with the platform, and the gear meshes with pinions on a shaft from which power is furnished to the various descriptions of machinery brought into requisition. The grain threshing machines made by the firm have long enjoyed a full measure of popular favor, and the drag saws and machines for sawing logs, and circular saw machines, all perfect in their adaptability for convenient and efficient operation by these horse powers, have for many years been regarded as among their most valuable specialties. All the material used in the construction of the firm's productions is of superior quality, and the workmanship is fully up to the highest standard.

A great deal of attention has been attracted to the firm and their productions through the fine display made by them at the late Columbian Exposition. Their exhibit, which occupied a prominent place in the Agricultural Building, presented a most attractive appearance, and received the "Highest Award"—an honor justly won. There are a good many of the readers of this paper in different sections of the country, who might find it greatly to their advantage to inform themselves fully as to the merits of these mechanical appliances, which meet such varied requirements in so uniformly admirable a manner. And to these we may say that the Messrs A. W. Gray's Sons will send an illustrated catalogue, giving full detailed information as to the construction and operations of the machines, to any person who makes application, by mail or otherwise, to them at their place of business at Middletown Springs, Vt.

AMERICAN AGRICULTURIST.—*Superior Horse Power Machinery.*—We are pleased to note the fiftieth anniversary of the establishment of the well-known firm of A. W. Gray's Sons, Middletown Springs, Vt. Through invariable honest dealing with their customers, combined with high inventive skill and superior quality of all goods manufactured by them, they have easily gained a wide and enviable reputation for their goods. Their exhibit at the Columbian Fair presented a most attractive appearance and received the highest award. Messrs. A. W. Gray's Sons will send free an illustrated catalogue, giving full particulars and detailed information as to the construction and operation of their machines to any person.

RURAL NEW YORKER.—*Horse Powers.*—Catalogue from A. W. Gray's Sons, Middletown Springs, Vt.—It is claimed that this machinery is all manufactured of the very best materials and in the most durable manner. The makers aim to have everything that leaves their factory first-class in every respect, and the long-continued success of this house will induce the belief that they have held to their aim. The catalogue is splendidly gotten up. The various implements are well illustrated and described. The chapter on tread powers is the clearest description and explanation of the mechanism of these implements we

have read. These powers are adapted to one, two and three horses. They can be used for a multitude of purposes, such as grinding feed, pumping water, sawing wood or churning. The smaller powers are just the thing for small farmers. They take up very little room; they are easily moved about, and they will last for years. On days when the horses cannot be worked to advantage outdoors, they can be put into the powers, under cover, and made to do useful work. There is use for a good power on every farm. Any farmer can make money out of one. Those who think of buying will do well to send for this catalogue. They can depend upon securing good implements at fair prices if they patronize this house.

NEW ENGLAND HOMESTEAD, SPRINGFIELD, MASS.—Fifty years of honest business dealings. Such is the proud record of A. W. Gray's Sons, Middletown Springs, Vt., who are manufacturers of horse-power machinery, and have gained an enviable reputation for their goods. The men connected with this concern are men of high inventive skill, many of the devices in use in their machines being originated and perfected by them; all the material used in the construction of their product is of superior quality, and the workmanship fully up to the highest standard. Their exhibit, which occupied a prominent place in the Agricultural Building at the Columbian Exposition, presented a most attractive appearance and received the highest award. No doubt many of the readers of *The Homestead* saw this exhibit. Messrs. A. W. Gray's Sons will send free, an illustrated catalogue, giving full particulars and detailed information as to the construction and operation of their machines to any person.

BOSTON JOURNAL OF COMMERCE.—*Gray's Latest Improved Horse Powers.*—A. W. Gray's Sons of Middletown Springs, Vt., exhibited a Two Horse Power and Thresher of superior design and finish, which, while noticeably light and convenient, seemed to contain every element of strength and durability. Their horse powers have, at many state fairs, taken the first honors, and better than all, received the enthusiastic commendations of the many who have proved their workings, and lasting qualities, under all the varying conditions of practical use. Besides their New England trade, they have supplied many machines to Nova Scotian farmers, have filled many orders from Italian agriculturists and the great plantations of Brazil, while their trade with the Southern States is also extensive and rapidly growing. Their improved wrought iron plate cylinder for threshing machines, which combines the lightness of the old-fashioned wood cylinder with the strength equal and even superior to the heavy bar cylinder, is indubitably the best in market. Circulars sent on application to the above address.

MIRROR AND FARMER.—*Horse Powers.*—Among the many devices which have been invented to utilize the power of the horse in driving light machinery, such as threshers, circular or cross cut saws, grindstones and the like, none has ever attained to a higher degree of practical efficiency than has been reached in the "horse power" manufactured by A. W. Gray's Sons at Middletown Springs, Vt. For almost forty years this machine has been before the public, and has earned for itself a reputation second to none. The same firm also manufactures sawing and threshing machines, of all sizes and adapted to the use of large or small farmers, in all of which the same carefulness of construction and efficiency of operation are prominent features.

NEW YORK WORLD.—*Gray's Horse Powers.*—Among the multitude of horse power machines which are offered for sale, those manufactured by

A. W. Gray's Sons of Middletown Springs, Vermont, are conceded to be the best. They have received the highest award wherever exhibited, and the manufacturers have many medals received from the various expositions and fairs throughout the country, besides hundreds of certificates of pre-eminence from county and district fairs. The firm is an old one, the name of Gray having been associated with horse powers and threshing machines for more than fifty years, and from the small beginning in 1840 the business has increased until a large force is required to meet the demand. Messrs. Gray's Sons manufacture one, two and three horse powers, which are adapted to a great variety of purposes. In addition to the threshers, drag saws, etc., with which they are generally used, they can be made to furnish power for almost any work, such as cutting feed, pumping, churning, etc. They are easily transportable and can be set up under cover in bad weather. The threshers, cleaners and separators manufactured by this firm have earned the highest encomiums wherever they have been used. A strong proof of their superiority is the fact that they have a market in almost every civilized country of the globe. Messrs. Gray's Sons also make a specialty of drag-saw machines, which are warmly commended for speed and smoothness of action. Their capacity for work is said to be most remarkable. All the machines turned out by this firm are carefully inspected and subjected to the most thorough tests before being allowed to leave the factory. The partners, who are themselves practical mechanics, are the inventors and patentees of the implements and improvements they manufacture, and have earned a very high character for the quality of their work and their fairness in matters pertaining to business.

HOME AND FARM, SPRINGFIELD, MASS.—The catalogue of horse powers gotten out by A. W. Gray's Sons, Middletown Springs, Vt., is what every farmer should have. It is claimed that this machinery is all manufactured of the very best materials and in the most durable manner. The makers aim to have everything that leaves their factory first-class in every respect, and the long continued success of this house will induce the belief that they have held to their aim. The catalogue is splendidly gotten up. The various implements are all well illustrated and described. The chapter on tread powers is the clearest description and explanation of the mechanism of these implements we have read. These powers are adapted to one, two and three horses. They can be used for a multitude of purposes, such as grinding feed, pumping water, sawing wood, or churning. The smaller powers are just the thing for small farmers. They take up very little room; they are easily moved about, and they will last for years. On days when the horses cannot be worked to advantage outdoors, they can be put in the powers under cover, and made to do useful work. There is use for a good power on every farm. Any farmer can make money out of one. Those who think of buying will do well to send for this catalogue. They can depend upon securing good implements at fair prices if they patronize this house.

FALCON, CLARKSVILLE, Mo.—*Shredding with a Separator.*—I bought last year, what was considered the best shredder on the market. I had about a thousand shocks (16 hills square) of heavy corn to put through, and was making sorry work of it when one of the men suggested the use my neighbor's old threshing separator. The idea was immediately adopted, and resulted in three to five times the work of the largest shredder made. Don't spend money on a shredder when there is a separator to be had. You can't feed the latter fast enough to choke it; there are no knives to get dull; and its product is decidedly better. No harm is done the separator, as all the more fragile parts are thrown out of gear while shredding. Try it.

DIRECTIONS FOR SETTING UP AND USING

A. W. Gray's Sons Patent Horse Power,**WITH THRESHER, SEPARATOR AND CLEANER.**

1. Place the forward end of the power upon the feet. (When power is mounted on trucks, by taking off the hind wheels of the trucks, and let the hind axle rest on the floor. It gives the right elevation to power, and no feet are needed.)

2. After bolting on the sills to the thresher (that come separately for convenience in shipping), put the nineteen-inch wheel on the crank shaft; then put the pitmans on the crank shaft; then place the cleaner on the long sills to the thresher, setting it into the notches in the sills and bolt it to the sills. Then bolt the two pieces (about three feet long) on each side of the cleaner. Then bolt the separator side boards, the end with two cleats, to the thresher; also bolt to the short pieces on each side of the cleaner. Then hang the separator to the side boards, with the sheet iron apron of the thresher resting on the bottom of the separator.

The small pulley on one end of the thresher shaft is intended to run the cleaner. Put the two-inch leather belt on the small pulley and on the ten-inch pulley on the cleaner shaft, crossing this belt so the fans of the cleaner will blow up instead of down.

Now place the thresher so the four-inch pulley on the thresher-shaft will be in line with the band wheel of the horse power, then put the main belt on the four-inch pulley and the band wheel of the power, running it on the top of the nineteen-inch wheel that is on the crank shaft that shakes the separator.

The sieves are so arranged that the inner ends can be raised or lowered so as to clean damp or dry grain, and throw off the straw and thistleheads that may be with the grain. Use the punched sieve for oats and finer for wheat and rye; the coarser screen for wheat, and the finest for rye, oats and grass seed. The spout which carries the grain into the half bushel can be changed so as to run the grain either side of the machine.

The regular sieves sent out with each machine are :

One Punched Galvanized Steel Sieve.

" Wire Sieve, - - - - -	meshes, 1x3
" " " - - - - -	" 2x4½
" " Screen, - - - - -	" 8x8
" " " - - - - -	" 16x16

When put together, run it by hand at first to see that it is set up in range with one another, and the belts are of proper tightness, before putting in horses for work. Take out two-inch piece in feed table in front of cylinder to prevent dirt and stones passing over the cylinder.

REMARKS.

OIL the small shafts or connecting rods once a day, by raising up the lags on the under side of the power, taking off and dropping three or four drops of oil into the friction rollers ; at the same time oil between the links. Oil the bearings of horse power shaft two to four times a day, and shafts that run faster often enough to prevent heating or wearing.

Use the best sperm or lard oil. *Oil the Ratchet Pulley occasionally.*

Harness the horses the same as for a wagon. The manufacturers do not furnish bridges, as the cost of transportation is more than the cost of building. Will explain how to make a cheap bridge: Take two pieces, some three feet long, twelve to fourteen inches wide at one end, running to a point at the other, and nail one-inch cross piece on the same about three feet long. After the horses are in the power, hitch the traces to the hooks, and buckle the side or hold-back straps through the rings. Horses not used to tread power should be held by the head and not allowed to draw or hold back ; in this way, and with a man at the brake to regulate the speed of the machine, they will soon learn to take their natural walk, and when they do the machine is ready for work.

Let the machine get under good motion before commencing to feed it, and feed it carefully and not too fast until the horses get thoroughly accustomed to the work. In many cases where the grain is damp, and would otherwise be necessary to put in extra concaves to thresh clean, by increasing the speed it will thresh clean without the extra concave.

The belt should be just tight enough to prevent slipping ; when tighter than that, it causes the machine to run hard, and may cause the bearings to heat. It should be kept clean, free from dust and softened with oil occasionally ; if of leather, use the same kind as on the machine ; if rubber, use boiled linseed oil.

The toe calks of horses shod to work on the machine should not be very long, and bent a little forward to prevent the calks from catching between the lags, and not very sharp, as the floor will wear much faster if the calks are sharp.

The cylinder spikes should pass at equal distances each side from the concave spikes and not have too much play endwise ; one concave with spikes is sufficient for threshing all kinds of grain, if dry, except Black Sea wheat. For grass seed and wheat that threshes hard, use the two. The concaves can be raised or lowered according to the condition of the grain ; the cylinder can be fastened from playing endwise by the boxes.

When it is desirable to thresh fast, the power may be a little more elevated ; if slow, elevate less. In all cases let the elevation be just enough to have the weight of the horses give power to thresh as desired.

The sheaves should be taken apart and spread as much and as evenly as possible. The feeder should put in grain just fast enough to keep the motion right and constant.

By referring to the picture the relative position of machines and belts can be seen.

DIRECTIONS FOR SETTING UP

Two Horse Drag Saws.



CONNECT the guide post that saw runs through to the sill that has two irons on, bent upwards. Bolt the piece that has the part circle on to piece that runs under rear end of power. Put the drag saw frame with shaft on through rear end of power, bolting same to sills of power, leaving the end for the balance wheel on the off side of the horses. Then take off cross bar on the forward end of the power, under the breast of the horses, and bolt on the longer bar with the casting on the end, to hang the swing post; the bar should be bolted on so that the swing post will hang perpendicularly; but the cast iron balance wheel on the shaft, the rubber belt on drive wheel of the power and balance wheel of the frame; attach the pitman to the balance wheel and swing post; put the handle of the saw through the guide post, and attach it to the pitman near the swing post; see that the roller near the bottom of the guide post is stopped at sufficient height to prevent the saw dropping down when the log is cut off, and breaking or crooking the saw. The strokes of the saw can be lengthened or shortened to suit the power, by moving the wrist pin of the balance wheel to or from the center; the longer the strokes, the more power required. The track for the trucks is not furnished by the manufacturers; it is simply two pieces of 4 x 4 scantling of the desired length, fastened with cross pieces upon the under side so as to make a track for the trucks; the spike roll fastened to one end of the track with the iron and bolts for that purpose.

BRAKE FOR DRAG SAW.—Take off the iron brake on horse power and bolt on one that accompanies drag saw machine; attach the horse power break to one inch piece on guide post by bolt.

DIRECTIONS FOR SETTING UP

One Horse Drag Saws.



CONNECT the guide post that saw runs through to a sill fitted for same, and bolt other end of sill to the frame. Bolt on the frame the part circle made to steady the swing post. Place the horse power in the drag saw frame, which will give the proper elevation of the power, fasten the power into the frame with a bar across the frame against the girt of the power, said bar fastened to the frame with an iron pin at each end. Put the shaft into the drag saw frame, passing through under the floor of the power ; take off the cross bar on the forward end of the power, under the breast of the horse, and bolt on the long bar with the casting on the end, to hang the swing post; the bar should be bolted on so that the swing post will hang perpendicularly; put the cast iron balance wheel on the shaft, the rubber belt on the drive wheel of the power and balance wheel of the frame; attach the pitman to the balance wheel and swing post; put the handle of the saw through the guide post, and attach it to the pitman near the swing post; see that the roller near the guide post is stopped at sufficient height to prevent the saw dropping down when the log is cut off, and breaking or crooking the saw. The strokes of the saw can be shortened or lengthened to suit the power, by moving the wrist pin of the balance wheel to or from the center. The longer the strokes, the more power required. The track for the trucks is not furnished by the manufacturers; it is simply two pieces of 4 x 4 scantling of the desired length, fastened with cross pieces upon the under side, so as to make a track for the trucks; the spike roll fastened to one end of the track with the irons and bolts for that purpose.

INSTRUCTIONS FOR ORDERING.

Order machines and repairs early, so that there may be ample time to get them for you in season.

For ordering a machine, provide yourself with one of our blanks (which we will send on application, or they may be obtained from our agents), and give a full description of the kind of machine wanted, directions for shipping, proposed terms of payment, and, if credit is desired, fill up and sign the property statement on the order.

If the terms of payment and security offered are satisfactory, we will fill the order at our earliest practicable moment.

Give the following particulars with your orders :

Use the same names for machines that they are designated by in our price list. For different combinations from those made in our list, give full particulars. For threshers to be driven by other power than ours, or by an engine, give diameter of band wheel and number of revolutions it makes per minute.

For repairs give plain directions, with number, if given on list, that there be no excuse for mistakes, and state whether for horse power or thresher, also if for one or two horse. A sketch of the size and shape of pieces difficult to describe, will many times give us the desired information. Before undertaking to start a machine, read carefully and follow implicitly printed directions.

Persons designing to purchase machines are advised that it is important to them to open correspondence and give their orders early, though shipment of the machines may not be desired immediately, instead of waiting until nearly or quite the commencement of the threshing season, at which time orders pour in upon us from all quarters at once, when we are frequently obliged to disappoint many who delay their orders until the last day.

Give the name of the place to which the goods are to be shipped, and if it be a railroad station, give the name of the railroad on which the station is situated ; also give shipping directions if any particular route or line of transportation is desired.

When no shipping directions are given, or when the same are not sufficiently full and clear to enable us to direct the goods properly, according to our judgment, we mark and ship in the manner and by the route deemed by us to be the best and most advantageous to the purchaser—always exercising great care in regard to shipments.

LIST OF PRICES FOR MACHINES SEPARATELY.

HORSE POWERS.

Three horse power alone,	\$175 00
Two horse power "	140 00
One horse power "	90 00

THRESHERS, SEPARATORS AND CLEANERS.

Threshers for three horse power (18x35 iron cyl.) with separator and cleaner, including tailings elevator and 20 feet folding straw stacker,	\$225 00
Thresher for three horse power (18x35 iron cyl.) with separator and cleaner, with tailings elevator (no stacker),	175 00
Thresher for two horse power (18x30 iron cyl.) with separator and cleaner,	130 00
Thresher for two horse power (18x26 iron cyl.) with separator and cleaner,	120 00
Thresher for one horse power (18x23 iron cyl.) with separator and cleaner,	110 00
No main belts are included in prices of powers or threshers if sold separately.	

TRUCKS FOR MOUNTING MACHINES.

Trucks for three horse power,	\$ 60 00
Trucks for two horse power,	45 00
Trucks for three horse thresher, separator and cleaner, with feeder's pl'fm	45 00
Trucks for two horse thresher, separator and cleaner, with feeder's pl'fm	42 00

SAWS, BELTS, Etc.

Drag saw and frame, spike roll and truck, for either one or two horse power, including belt,	\$ 54 00
24-inch circular saw and frame,	45 00
24-inch circular saw and frame with extended table,	47 00
26-inch saw in place of 24-inch (extra),	2 00
14-inch splitting saw and extra table to attach to our regular wood saw machine for splitting boards,	6 00
24-inch shingle saw and attachments fitted to go on regular saw frame,	20 00
5-inch, best 3-ply rubber belt, 50 ft. long (for three horse power),	18 00
4-inch, best 3-ply rubber belt, 30 ft. long (for two horse power),	7 50
3½-inch, best 3-ply rubber belt, 28 ft. long (for one horse power),	6 50
Any desired length of belt, at same price pro rata.	
Leather belting furnished at manufacturers' prices if preferred.	
Belt for drag saw machine (rubber),	4 00
Ratchet lever jack,	5 00
Bagger,	3 00
Speed governor and fixtures,	8 00
Straw and grain arrester, complete, with belts all fitted,	10 00
20-ft. folding straw stacker for three-horse thresher,	50 00

We sometimes have call from parties, who use extra large horses, for powers wider than our regular size. We can make these to order, but charge an extra price.

Pole sawing attachment for circular saw machine (see page 15),	9 00
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PRICE LIST FOR REPAIRS.

IN ORDERING, REFER TO NUMBERS, WHERE GIVEN.

FOR THREE HORSE POWER.

No.			No.		
1.	Lag Woods, ironed, per set of 27.	\$58 00	5.	Middle Lag Irons, each.	\$ 20
2.	Lag Woods, per set of 27.	18 00	11.	Pinions, per set, fitted.	3 50
3.	Cast Steel Rods, per set of 27.	15 00		Band Wheel.	7 50
4.	Steel Lag Gears, each.	50	18.	Steel Wear Iron, each.	30
10.	One-eyed Lag Gears, for making the last connection of floor, each with hinge attached.	65	24.	Nut for band wheel shaft, each.	25
9.	Six cog Lag Gear, for taking up slack in chain, each.	50	13.	Boxes, each.	70
			15.	Cast Iron Rail or Track, each.	1 00
			17.	Middle Rollers, each.	12
			8.	End.	12

FOR TWO HORSE POWER.

No.			No.		
1.	Lag Woods, ironed, per set of 25.	\$32 00	15.	Cast Iron Rail or Track, each.	\$ 85
2.	Lag Woods, $3\frac{1}{4}$ ft., per set of 25.	8 00		Band Wheel, $4\frac{1}{4}$ to $4\frac{3}{4}$ ft.	6 00
3.	Lag Woods, 4 ft., per set of 25.	9 00		Band Wheel, larger, up to 5 ft.	6 50
3.	Spindle Steel Rods, 25 for 4 ft. power.	9 00	16.	Short Rail.	15
3.	Spindle Steel Rods, 25 for $3\frac{1}{4}$ ft. power.	8 00	17.	Hub for band wheel.	1 00
4.	Steel Lag Gears, each.	35	18.	Steel Wear Irons, over the pinions, each.	30
5.	Middle Lag Irons, each.	20	19.	Part Circle for track, each.	30
6.	Hinge Iron for middle of lag.	10	20.	Casting for middle bar.	20
7.	Middle Rollers, each.	12	21.	Brake Irons, each.	20
8.	End Rollers, each.	12		Brake Iron with block.	35
9.	Six cog Lag Gear, for taking up slack in chain, each.	35	22.	Breeching Ring.	10
10.	One-eyed Lag Gear, for making the last connection of floor, each, with hinge attached.	50	23.	Tug Hook.	08
11.	Pinions, per set (see note below).	2 50	24.	Nut for band wheel shaft, each.	25
12.	Solid Hub for shaft.	1 00	25.	Brake Wood.	35
13.	Boxes, each.	70	26.	Steel Track for middle rollers.	1 25
14.	Wrench for wheel.	15	27.	Post for Horse Power side, Shaft and Pinions complete, Two Horse Power.	10 00
			30.	Coil Spring, to hold up brake.	20
			31.	Brake Block.	15

We are making a new style of lag gear, which fastens to lag wood with coach screws instead of having the cap inserted in end of lag wood. These will be furnished at same price if desired.

FOR ONE HORSE POWER.

No.			No.		
	Band Wheel, 4 ft. 2 in.	\$ 5 50	29.	Spindle St'l Rods, 25 for 18 in. power	\$ 3 50
	Lag Woods, ironed, per set of 25.	22 00		Spindle St'l Rods, 25 for 15 in. power	3 00
28.	Lag Woods, 15 in., per set of 25.	3 50		Rivets, per lb.	12
29.	Lag Woods, 18 in., per set of 25.	4 00	8.	Rollers, each.	12
11.	Pinions, per set, fitted.	2 50		Shaft and Pinions, complete, One Horse Power.	9 00
4.	Steel Lag Gears, each.	35			

 Always mention whether repairs wanted are for One, Two or Three Horse Powers. In ordering lag woods, give length. In ordering part circles for track, state which side and end of power they are wanted for. In ordering steel rods, give length of lags they go with.

When we send out pinions, we send them with holes drilled the proper size, but only cut the key seat (or slot) in one of them. The reason for this is that it is necessary to put one of them on to the shaft, key it on, and then put the other on, so the cogs will be in line with the shaft and the cogs on the other pinion, then mark where to cut the key seat. This can be done by any blacksmith.

It is a good plan, after Power has been run some time and got worn, to take the shaft out and change ends with it, to bring the wear on the other side of the pinion cogs.

Sometimes, after Horse Powers have been run for some years, the band around the machine, over the shaft, becomes worn and bent upward, so as not to keep the friction rollers down in their proper places to keep the machinery in gear.

REMEDY.—There will be found a piece of steel, about one foot long, under the band of the Horse Power, over the driving shaft. Take out bolts that hold up the boxes to the shaft, and the short pieces will slip out; then put in a new piece and see that there is just room under this piece to allow the rollers to go under when rolling on the track; then adjust the shaft so the pinions will mesh into the cogs or lag gear; but care should be used not to get the shaft too high, and thus cause the irons to rest on the pinions, and thus wear off the ends of the rivets, and cause the irons to come apart. The pinions should mesh into the lag gear just as deep as possible and not strike the bottom of the cogs.

FOR CLEANER.

No.			No.		
91.	Spout for cleaner, each,	\$0 50	102.	Iron for back of cleaner,	\$0 25
92.	Steel shaft, fitted,	1 25	104.	Shaker iron, with pin,	75
93.	Wing for fan,	10	105.	Shoe ironed, with two spouts,	6 00
94.	Short pitman crooked,	12	106.	Irons for large spouts, each,	15
115.	straight,	12	113.		15
95.	Long pitman, each,	12	107.	Irons for small spouts, each,	15
96.	Arms for fan,	25	109.	Iron to hold up back of shoe,	75
97.	Boxes, each (for shaft),	40	110.	10-inch wheel,	1 00
98.	Half box for shaker iron,	15	111.	10-inch wheel, with crank pin,	1 20
99.	Hanger iron for shoe,	20	112.	7-inch	1 20
100.	Hub for fan,	35	114.	Shaker iron, new pattern,	75
101.	Iron under shoe,	20	116.	Belt tightener for cleaner,	1 00

Long pitman half malleable iron boxes, \$0 50

Leather belt for cleaner, 1 50

Wire sieves, each, 75

Punched galvanized-steel sieves, each, 1 25

In ordering Sieves, give the meshes per inch, which range as follows : Coarsest, 1x2; next finer, 1x3; finest of the sieves, 2x4½. Screen, 8x8 and 16x16. Also state if for one or two horse machine, and give size of sieve in inches.

In ordering wheels for cleaner, give diameter in inches.

In ordering shaker iron for cleaner, say if wanted with pin over or under the girt.

In ordering short cleaner pitmans, say if straight or crooked. (See cuts).

FOR CIRCULAR SAW.

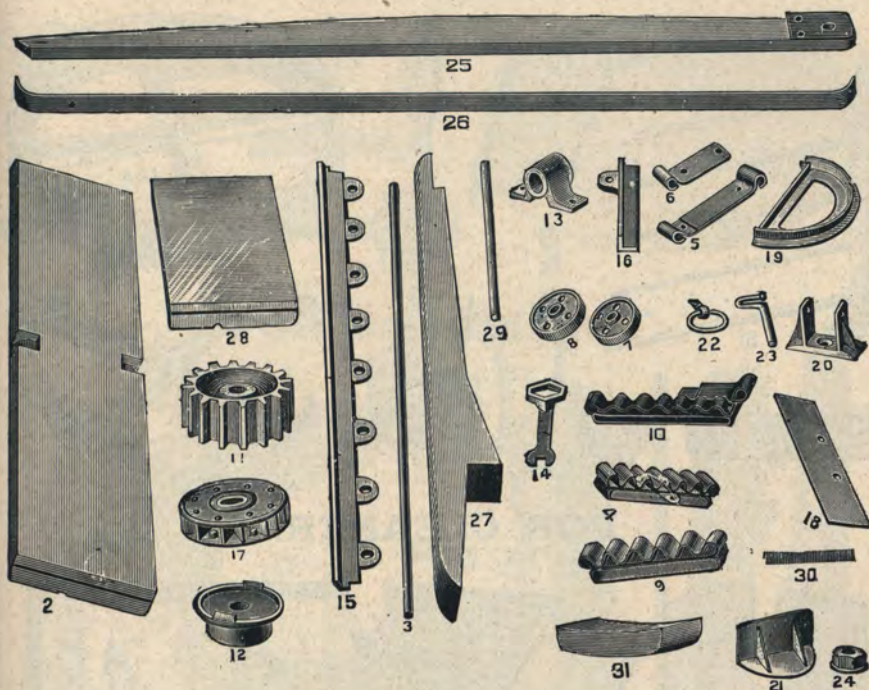
No.			No.		
	Steel shaft, balance wheel, boxes and pulley,	\$20 00	127.	Rails for carriage, left hand, each,	\$0 40
121.	Weight to draw carriage back,	60	125.	Boxes, each,	1 25
123.	Balance wheel chucked and balanced,	8 00		Pulley (iron),	1 40
129.	Steel shaft and boxes,	10 50		24-inch circular saw, filed and set,	8 50
126.	Rails for carriage; right hand, each,	40		26-inch	10 00
	Wrought nut to hold collar,		123.	Steel collar to hold saw,	1 25
			124.	Slide for carriage, each,	10
					\$0 30

FOR DRAG SAW.

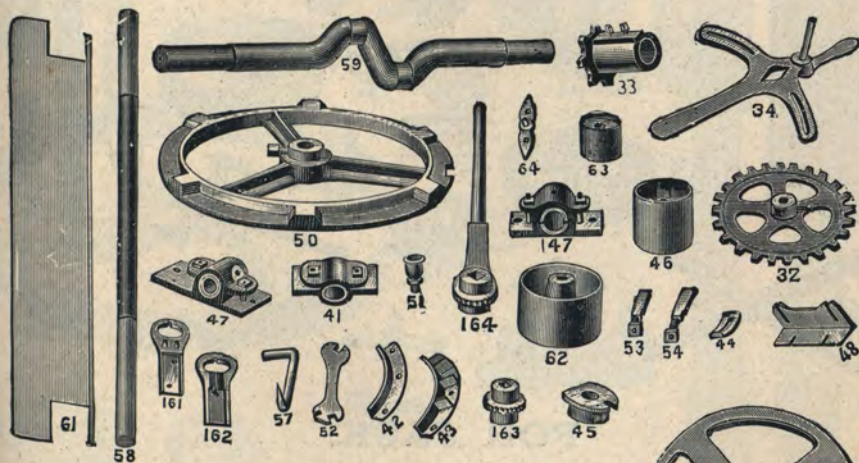
No.			No.		
141.	Spike roll,	\$ 2 00	152.	Pitman and iron,	\$1 50
142.	Truck and binder,	5 25	154.	Swing post, ironed,	1 50
143.	Balance wheel turned, and wrist pin,	14 00	149.	Cross bar iron,	30
155.	Wrist for balance wheel (and bolts)	1 25		Dog to hold log,	60
	Spike roll and truck,	7 25		*Drag saw filed and set,	5 00
	Saw arm,	1 25	150.	Rollers for trucks, each,	30
147.	Boxes, each,	1 00	148.	Rods for trucks, steel, each,	50
153.	Iron for end of spike roll,	75		Log binder, chain and ratchet,	2 50
157.	Iron for handle of spike roll,	50	165.	Roller for jack,	85
151.	Latch for spike roll,	15	166.	Roller and chain for jack,	2 00
144.	Rollers for guide post, each,	50	167.	Catch to hold roll,	20
145.	Iron castings for end of pitman,	1 00	168.	Catch to go on handle,	20
			146.	Iron for handle to jack,	50

*We furnish chisel tooth saw or regular V tooth, as preferred, at same price.

FOR HORSE POWER.



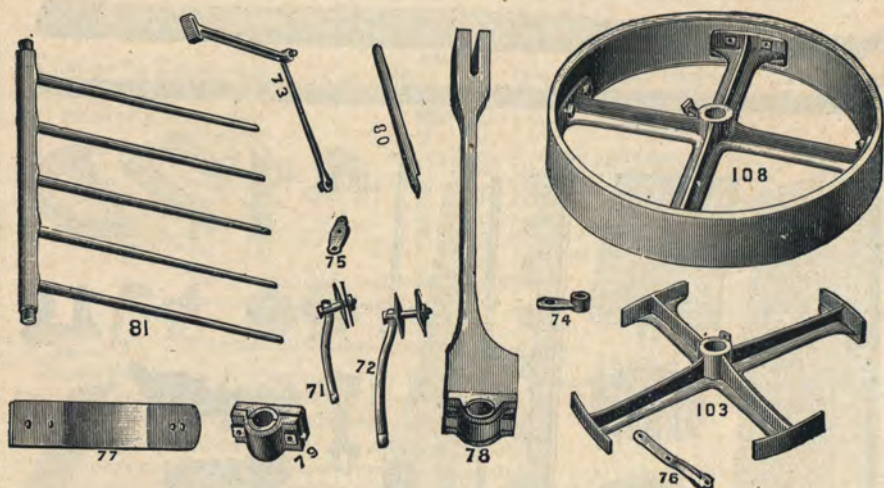
FOR THRESHER.



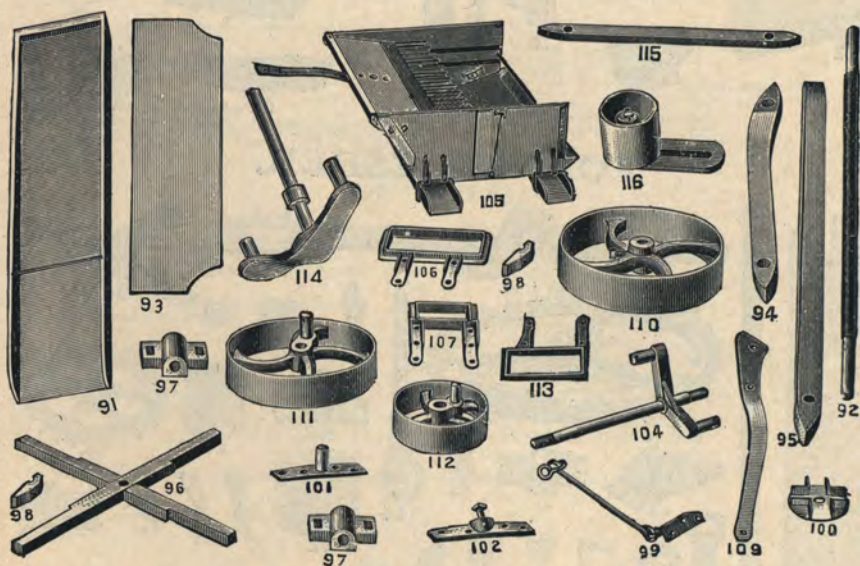
FOR GOVERNOR.



FOR SEPARATOR.



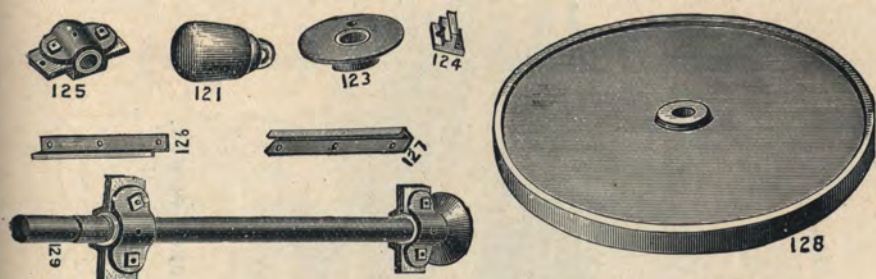
FOR CLEANER.



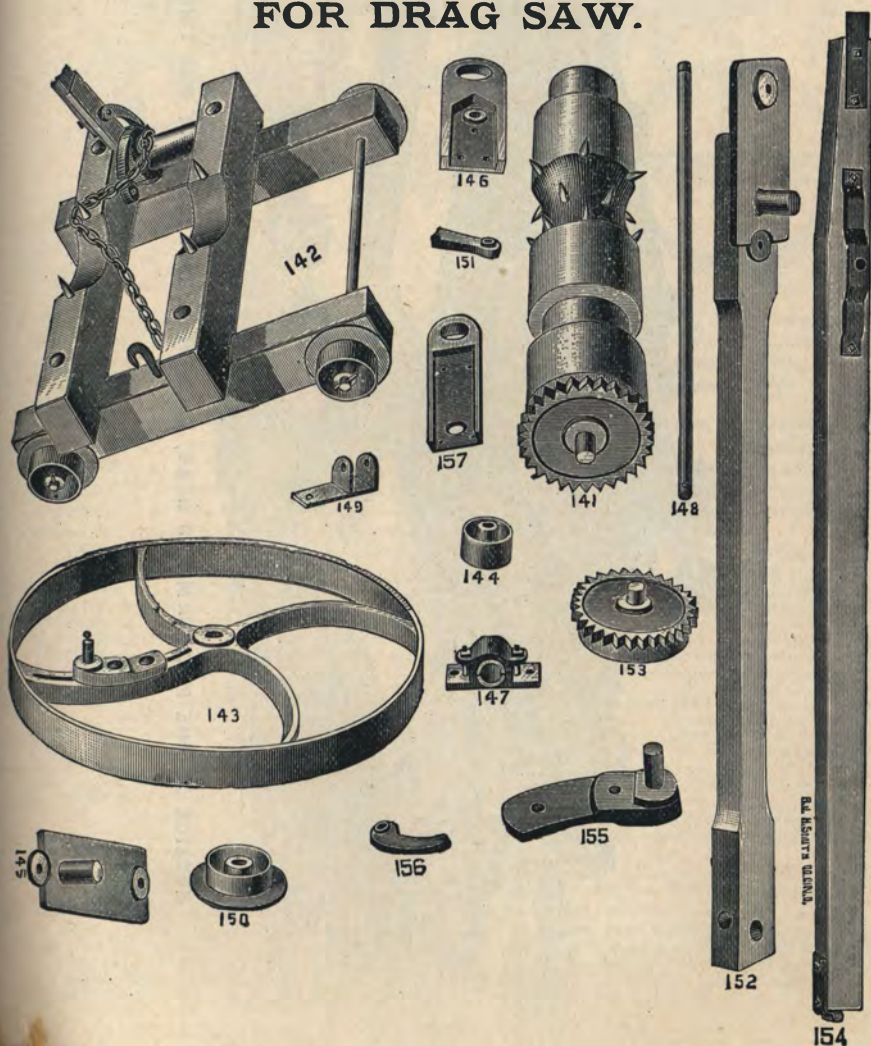
FOR JACK.

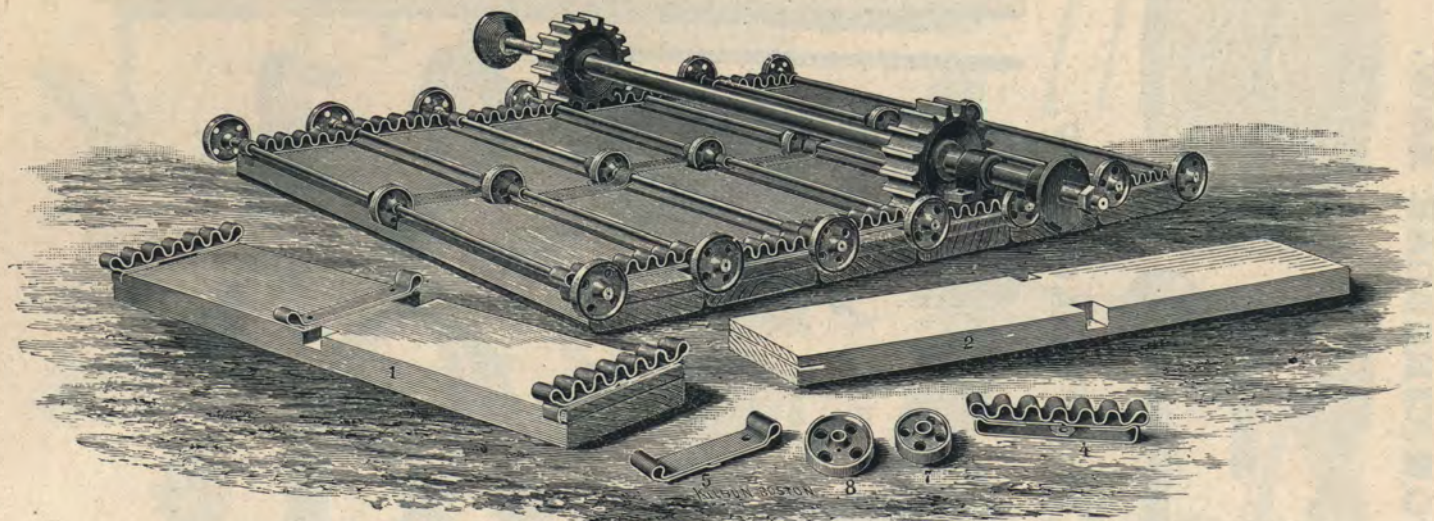


FOR CIRCULAR SAW.



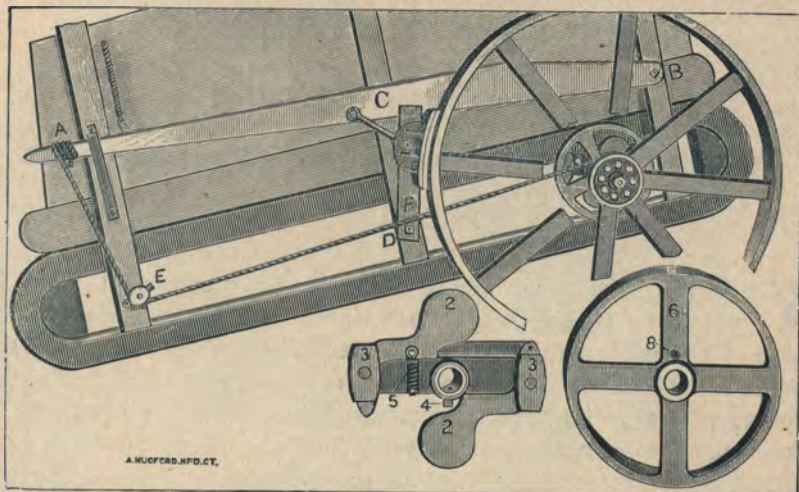
FOR DRAG SAW.





SECTION OF THE PLATFORM AND GEAR, SHOWING CONSTRUCTION OF OUR TWO HORSE POWER.

Our Patent Speed Governor with Horse Powers.



The above cut represents our Patent Speed Governor. We have long seen the advantage that could be gained by having an automatic governor, or regulator, for our Horse Powers, especially when used for cutting feed, grinding, churning, pumping and similar work, requiring a steady motion, and in general work to prevent accidents, which sometimes occur, when the belt flies off, as it often does.

We have experimented quite extensively with different devices, and for a long time without the success we desired, but we now believe we have reached the point very near perfection, and we now offer to our patrons our latest improvement in the way of SPEED GOVERNOR, and guarantee it to do the work it is intended for, thus reducing to a minimum the danger of accidents, and enabling parties using our Power to do work requiring an uneven amount of power without necessitating a man at the brake to control the speed.

The price for Governor and necessary attachments all ready to put on to the Power is \$8.00.

DIRECTIONS for attaching the Speed Governor to our Horse Power: Take off the hub on end of the main shaft. In putting on the governor, first slip the bar (1) on to the shaft, leaving room for the circle part (6) to go between it and the hub and play loosely, then fasten bar (1) to the shaft by set screw (4), then slip on circle (6) and put on hub; attach the cord to arm of circle at hole (8) running through the pulley block at lower end of power and up to and attached to end of brake wood at A, as shown in cut; attach coil spring at top of brake wood to hold the brake up when Governor is not acting, as shown in cut, and draw the rope so there will be no slack when attached to end of brake; take the brake iron off from the long bar C, bore a 5-16 in. hole in the post of Horse Power at D; this hole should be $2\frac{1}{4}$ in. below the center of the bolt that holds the side on to Power, then put on the bar F, with brake iron attached, as shown in cut, swing it up so the brake will be $\frac{1}{4}$ in. from wheel, then raise the iron brace up as shown near C, and mark for bolt to fasten it to the long brake wood, bore $\frac{1}{4}$ inch hole for this bolt and attach as shown in cut. Be particular to see that all parts of the Governor work free and easy, and try it before putting in the horse; see that the working parts of the Governor are properly oiled, especially the circle part where it runs loose on the shaft.

When desirable to run the band wheel on the opposite side from the one the Governor is on, run the cord through the pulley at E, then through the Power to another pulley on opposite side and then up to brake on that side.

To make power run faster tighten nut at end of set spring (5); to make run slower loosen the nut at end of spring (5). A very little change of the nut will be all that is required.

It is the best to allow the Power to go at a good speed before the Governor acts.

In some of our powers not made recently, the hub on end of main shaft is fastened only with a key. In such cases if parties mention it when ordering, we will send a new hub with set screws to go in place of old one, and in putting in the key should be filed so it can be put in and taken out easily, then screw the set screw down on the key tightly and it holds it and the hub firmly in place; this is for the purpose of enabling the hub to be taken off when desired.

TO OUR PATRONS.

To Parties who are not our Regular Authorized Agents.

WE WILL hereafter allow a discount of 5 per cent from list prices on repairs when cash is sent with the order, so that parties who send cash with the order will save not only the 5 per cent discount, but also the charge of from 15 to 30 cents that the Express Companies charge for returning money when goods are sent C. O. D. When money does not accompany the order, we send goods C. O. D. Small bundles by express, and large packages by freight, care of Express Company, with bill C. O. D. Our reason for this rule is:

FIRST.—That many prefer this way and so make their orders.

SECOND.—It saves a large amount of bookkeeping, and the loss of many small accounts that would cost more to collect than we would get out of it.

THIRD.—If we were to give credit it would cause a delay which would be necessary in order for us to ascertain whether the party is responsible before sending, as out of our several thousand customers it is impossible for us to know their responsibility.

FOURTH.—We make prices low, as they are cash, while if credit is given, prices would necessarily be higher in order to cover losses that arise from the credit system.



Mounted Three Horse Power and Thresher, Separator and Cleaner, with Straw Stacking Attachment.

