

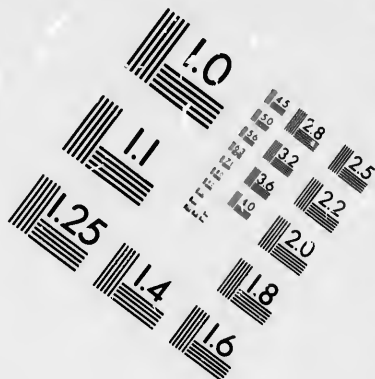
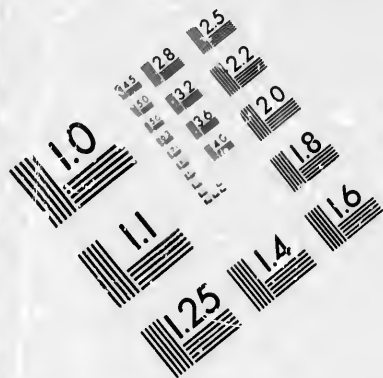
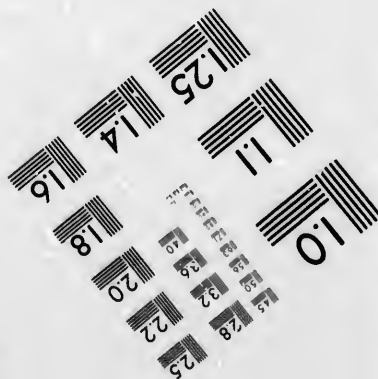
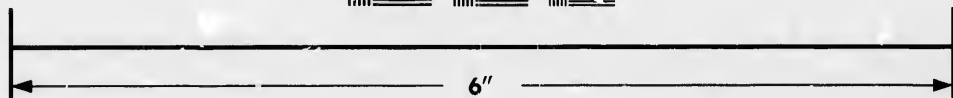
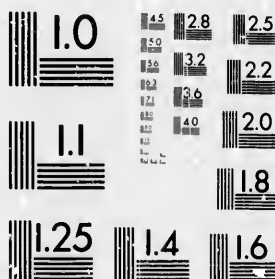


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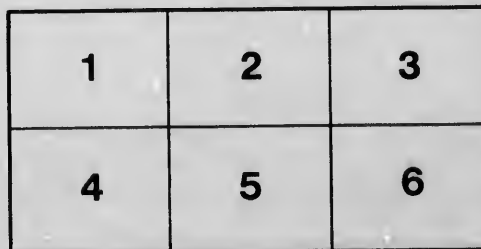
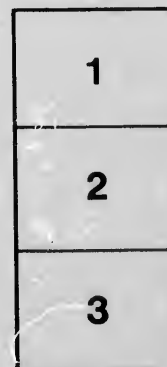
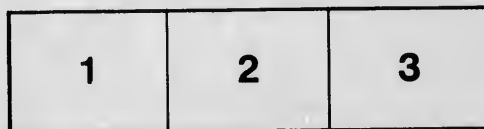
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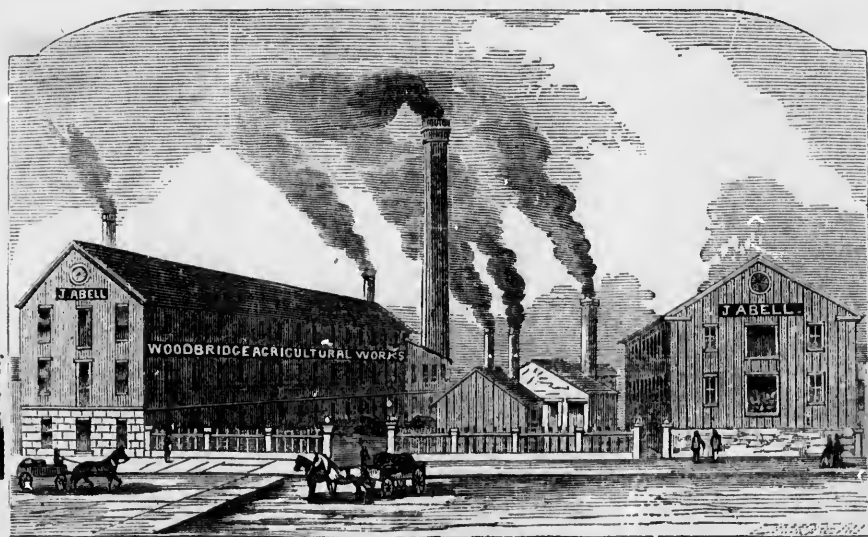
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MANUFACTURED BY

JOHN ABELL.



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COUNTY YORK, ONTARIO, CANADA.

Established in 1849.

TORONTO:

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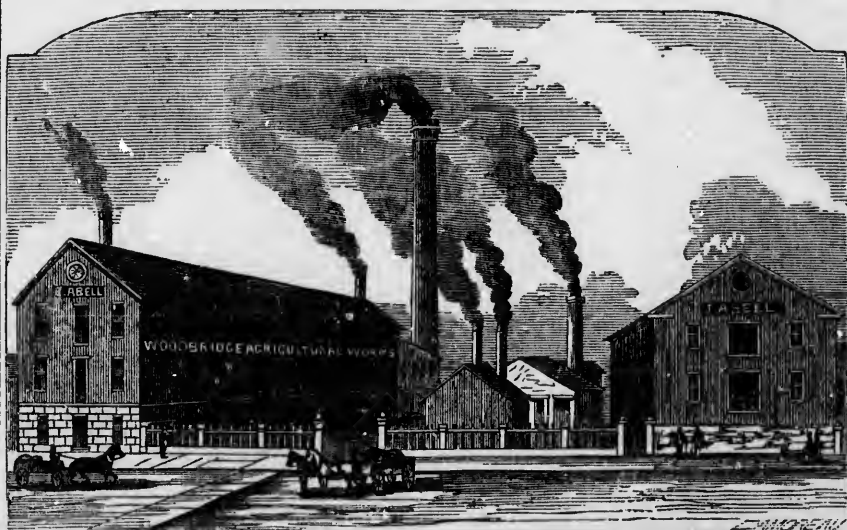
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INTRODUCTORY REMARKS

I have much pleasure in presenting to my valued connexion an entirely new and enlarged edition of my Catalogue of Machinery, extensively illustrated with a new series of Wood-cuts, which, I trust, will prove serviceable to them in making a selection of such Machinery and Implements as they may require.

In the manufacture of the various articles described in this Catalogue, I respectfully request that it may be borne in mind that I rest my claim for notice on the intrinsic excellence of my Implements and Machines in workmanship as well as in principle. It will be my aim, not only to maintain the high standard of excellence which has hitherto characterized my manufactures and given them their high reputation with consumers, but to make every resource available for their improvement.

I have much pleasure in calling your attention to the improvements and additions made to my machines since my last issue, which will greatly enhance their value and efficiency.

In the class of HORSE-POWER THRESHING MACHINES I occupy the first position, holding patents and licenses that enable me to manufacture and offer for sale to the public a Threshing Machine that stands unequalled in Canada, with Machinery of the most approved description; and twenty-five years' experience in the manufacture of Threshing Machines enables me to carry into effect the motto, "Practice with Science," so that of late years my Patent Improved Threshing Machines have stood unapproachable in their excellence. They have now won their way by their intrinsic value, and are recognized throughout Canada as unrivalled in their Simplicity, Excellence of Workmanship, Ease of Draught and Durability, and have attained the well merited and fairly earned reputation of the most perfect Threshing Machines in use. They have for years past maintained their acknowledged position as the standard machines of the day; and every modern improvement and appliance of mechanical skill is employed to keep them in advance of all competition.

I beg an inspection of my Machines, feeling confident they are of a character to show that I do not wait to copy or follow in the track of others, but constantly and successfully aim at standing in the very first rank of producers. The constantly increasing demand for my Threshing

Machines is a striking proof of their great value, and their success has called forth a number of imitations; but at every exhibition for the last twelve years where they have been brought into competition with other machines, they have invariably been pronounced by impartial judges superior to all opponents, and have never failed to carry off the Highest Prize.

Being unable to meet the demands for my Implements and Machines last year, I have again enlarged my premises, and added New Machinery of the most approved kind, which warrants me in asserting that the facilities I now possess enables me to offer my production as the **VERY FIRST OF THEIR KIND**; and this is borne out by the many prizes awarded me when in competition with all the principal makers in Canada.

I invite attention to my new **PATENT PORTABLE STEAM ENGINE**. This is in fact the first successful Portable Engine yet introduced in Canada. To obtain the highest amount of power with the smallest quantity of fuel, is a most important point to be aimed at in the manufacture of a portable engine. This object I have kept in view, and it will be found in practice that my engines are both thoroughly efficient in working power and economical in the consumption of fuel.

It will be found on perusal that I have added a number of new machines to my already large stock.

I have also made arrangements with Mr. Cole, the Patentee, for the manufacture of his **NEW PATENT IMPROVED SAMPSON TURBINE WATER WHEEL**. This Wheel will be found the most Economical Water Wheel made.

The Works are situated on the line of the Toronto, Grey & Bruce Railway, within five minutes' walk of the station. The Montreal Telegraph Company and the Express Company both have offices here, in the Works, so that every facility for speedy communication is offered to the Public.

Thankful for past favors, I respectfully solicit a continuance and extension of the liberal patronage heretofore given me, being confident of my ability to give entire satisfaction.

JOHN ABELL.

*Woodbridge Agricultural Implement and Machine Works, }
Woodbridge, Ontario.*

RESULTS OF LAST YEAR'S EXHIBITION.

I have much pleasure in drawing attention to the

UNPRECEDENTED SUCCESS

—OF MY—

MACHINES AND IMPLEMENTS!

At the Provincial Exhibition at Kingston, against Most of the Leading! Makers of Canada.

My Threshing Machines have by their success there (under actual trial on the ground,) fully confirmed the awards made THREE YEARS IN SUCCESSION at the previous Exhibitions of the Provincial Agricultural Association, and have established beyond question their claim to be considered the  MOST PERFECT MACHINES  of the day.

Best Portable Steaam Engine,—First Prize and Diploma, Kingston Provincial Exhibition, 1871.

Best Steam Threshing Machine,—Extra Prize, Kingston Provincial Exhibition, 1871.

Best Horse Power Threshing Machine,—First Prize and Diploma (15 machines entered for competition) Kingston Provincial Exhibition, 1871.

Best Mowing Machine,—First Prize and Diploma, (21 machines entered for competition) Kingston Provincial Exhibition, 1871.

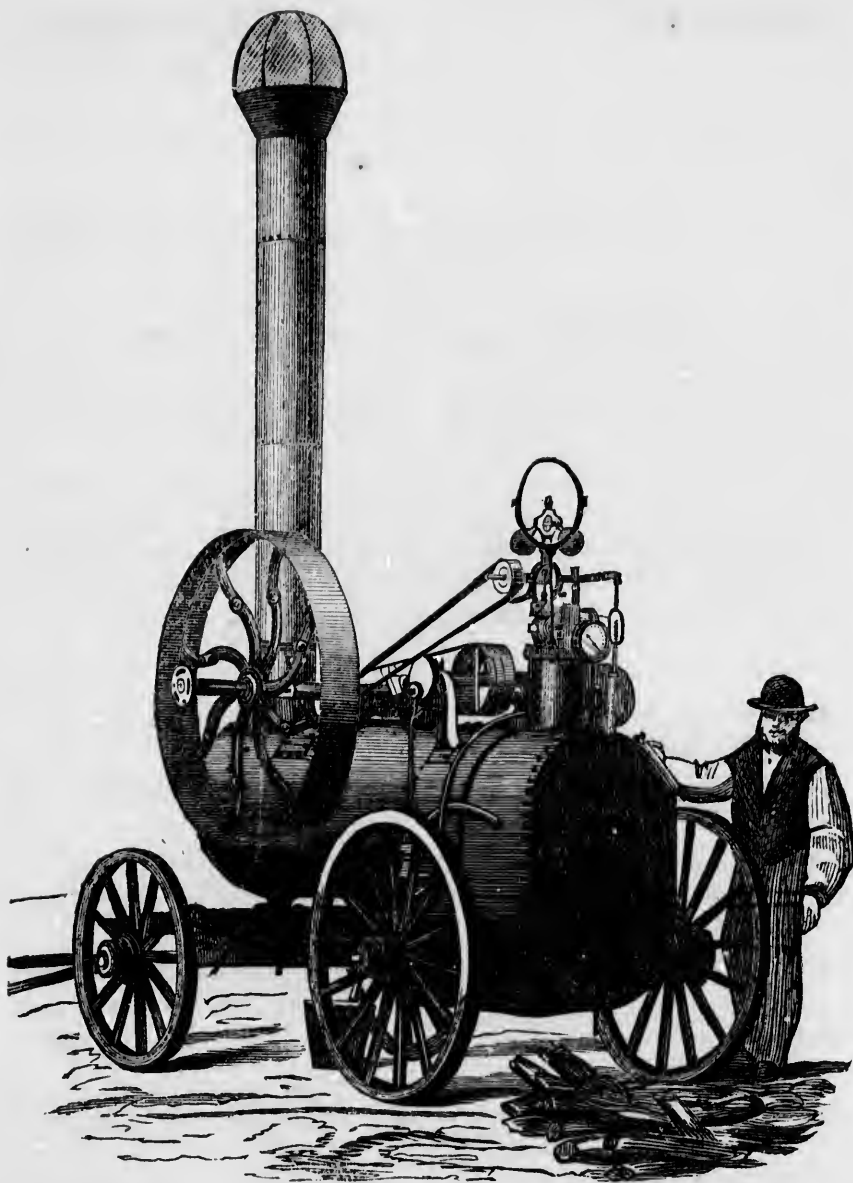
Best Clover Threshing Machine,—First Prize, Kingston Provincial Exhibition, 1871.

Best Totman Sawing Machine (2 or 4 horses),—First Prize, Kingston Provincial Exhibition, 1871.

Best Land Roller and Clod Crusher Combined,—First Prize, Kingston Provincial Exhibition, 1871.

Best Ditching Machine,—First Prize, Kingston Provincial Exhibition, 1871.

BEING A MUCH LARGER NUMBER OF FIRST PRIZES THAN WAS AWARDED ANY OTHER MANUFACTURER.



The above engraving represents my New Patent Portable Steam Engine, designed to meet a want long felt in Canada. This engine is adapted for driving a Threshing Machine, Shingle Machine, Grain Crusher, Sawing Wood, or any conceivable purpose requiring steam power. Being mounted on wheels, it is easily removed from place to place. *Weight 4700 lbs., all complete.*

DESIGN REGISTERED.

For Elegance of Proportion, Simplicity of Construction, Superior Workmanship, Economy, Power and Durability, I challenge comparison with any other Portable Engine made.

They are constructed with enlarged Fire Boxes, and Chimnies furnished with Spark Arresters.

The material and workmanship used in their construction throughout are of the VERY FIRST CLASS.

Unusually large allowance of Power

In Cylinder area,

Boiler capacity,

Extra strength in the wearing parts.

Judson's Patent Governor, most sensitive in action, ensuring perfect regularity of speed.

The Water Heating Apparatus used is of the Tubular description, which, with the aid of waste heat from the boiler and the exhaust steam, heats the water from 175 to 200 degrees Fahrenheit, thereby causing a much more rapid generation of steam, with a diminished consumption of fuel, than when cold water is pumped into the boiler.

The Boiler is furnished with a round-bottom Fire Box, which entirely surrounds the fire-grate and ash-pit, forming underneath the ash-pit, as up the sides, a three-inch water space, by which additional heating surface is obtained. The accumulation of sediment around the fire-box is thus entirely prevented, and perfect safety to the farm yard, barns or other premises, is at once secured, as sparks cannot possibly blow out of the fire-box. The ash-pit door also forms a perfect damper, whereby the draught may be regulated to the greatest nicety.

The sediment has free passage to the bottom of the fire-box, and can be blown off by the blow-off cock, underneath the ash-pit, by which means the boiler may be kept clean much longer than under the old system.

Every Boiler and Engine is thoroughly tested both by Hydraulic and Steam pressure before leaving the works, which proves that they are perfectly tight and safe.

The above Engines are furnished with Judson's Patent Governor, Glass Water Gauge, Safety Valve and Spring Balance, Steam Pressure Gauge, Pump, Blow-off Cock, Oil Can, Monkey Wrench, Funnel for filling boiler, Firing Irons, Tube Cleaner, and Mud Door.

If Boiler is covered with Felt, extra cost \$50. Prices are subject to change without notice.



Steam
engine is
Grain
steam
place to

AWARDED AN EXTRA PRIZE FOR SUPERIOR EXCELLENCE,

PROVINCIAL EXHIBITION HELD AT KINGSTON, 1871.

STEAM THRESHING MACHINE.

In introducing the Steam Threshing Machine to the farmers of Canada, I beg to call their attention to the great advantages it possesses over any Horse Power Machine manufactured.

The Farmer has no extra horses to hire or feed, and it only requires about half-a-cord of good hardwood and ten barrels of water to run it all day. (Soft water is much the best when it can be obtained.)

The machine has a much steadier motion, therefore will accomplish much more work, and do it fit for market. It will thresh and thoroughly clean Wheat, Barley or Oats, in the most perfect manner.

LARGE THRESHING CAPACITY.—The Cylinder used in this Machine is the Twelve-Bar Cylinder, with teeth in each bar (unless otherwise ordered), furnished with steel shaft, and is two inches wider than in the horse-power machines.

MORE CLEANING CAPACITY.—The frame of the machine is wider than the Horse-power machine; also, the Canvas, Belt, Shoe and Riddles, which gives a larger cleaning capacity.

COMPLETE SEPARATION OF GRAIN FROM STRAW.—This machine is fitted with my new Patent Revolving Grate, which is one of the most useful and economical inventions ever applied to a Threshing Machine. The perfect manner in which it separates the grain from the straw makes it now an indispensable part of a Threshing machine. It only requires to be seen to be appreciated.

UNRIVALLED SAMPLES PRODUCED by means of my new Patent Barley Scourer and Elevator, which can be attached to this machine if required. The grain receives such brightness as can only be so obtained, and its market value is thereby increased.

It does not require any unloading, as the machine is mounted on wheels.

The large "Threshing" and unequalled "Separating" capacity, and "superior" cleaning qualities of this machine, renders it just the thing for rapid steam threshing, while its light draught, causing it to use much less steam, renders it without an equal for economy.

The Engine is also mounted on wheels, and, if ten-horse power, full capacity, it is made as light as possible compatible with strength: it weighs but 4,700 pounds, all complete. It has a plain but handsome finish.

It is First-class in Strength, Principle, Simplicity and Durability, and with these leading points kept distinctly in view as light in draught and as economical in consumption of fuel as possible.

I make the manufacture of Threshing Machines a Speciality, and have now added new and valuable Improvements (which are Patented) for the coming season.

This justly celebrated Threshing Machine has again been triumphant at the Provincial Exhibition held in Kingston last year, when in competition with a large number of Threshing Machines, all others had again to succumb and yield to the superior qualities of the Celebrated Abell Threshing Machine; and after actual trial on the ground with the Double Cylinder Climax Threshing Machine, although doing their utmost, failed to come up to the mark, and had to yield the palm even before the decision of the Judges. The Judges unanimously awarded me the FIRST PRIZE and DIPLOMA, and acknowledged it did the best work they had ever seen done by any Threshing Machine.

My new Patent Revolving Grate at the end of the concave has proved a perfect success, making a complete separation of the grain and straw, besides allowing a much more rapid and easy passage of the straw through the cylinder, and effectually prevents what is termed choking. It also protects the canvas from wearing so rapidly, and from injury by broken teeth, &c.

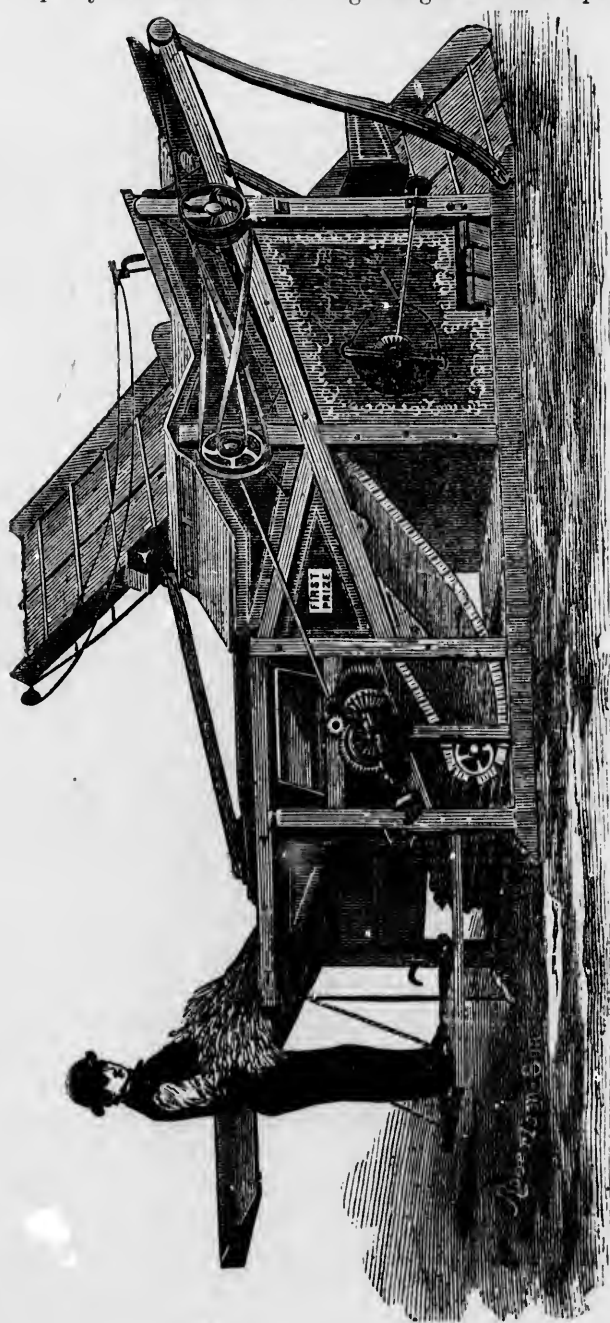
In the construction of these machines great care is taken in the selection of the materials, and nothing but the best are used. The Cylinder and beater shafts are steel, and the cylinder teeth are made from the celebrated "Low Moor" or "Norway" Iron. I still continue to make three kinds of cylinders: the ordinary twelve bar cylinder with six rows of teeth in, and a nine bar cylinder with teeth in each bar, also a twelve bar cylinder with teeth in each bar, as parties may wish; but in the absence of instructions put in either the former or the latter.

My Patent Gear, with cut wheels, covered with a safety protection, is now the standard gear. It is simple, durable, reliable, and complete; superior to all others ever invented for driving a threshing machine; its great durability has been thoroughly established, and it is everywhere known and recognized as the standard of excellence in material and workmanship as well as perfection of principle.

It will be observed by referring to the price list that I have reduced the price of this celebrated gear to eighteen dollars per set, thus bringing them nearly as cheap as the common description. In so doing, however, their high character for material and workmanship is maintained.

I have made arrangements with the Patentee for the manufacture of Bigelow's Patent Safety Coupling. This coupling is very durable, sim-

ple, and perfectly safe. It does not require so much care in setting the horse power to have it in line with the separator with this coupling, as it will run equally well when set at a slight angle with the separator.



HORSE-POWER THRESHING MACHINE.

The grain boxes are filled by means of a slide, by which one man or boy can attend to them, or the conveyor can be put in when parties wish it; but in the absence of instructions to the contrary, the machines are always fitted with the slide, except when ordered to run on trucks; then the conveyor is put in.

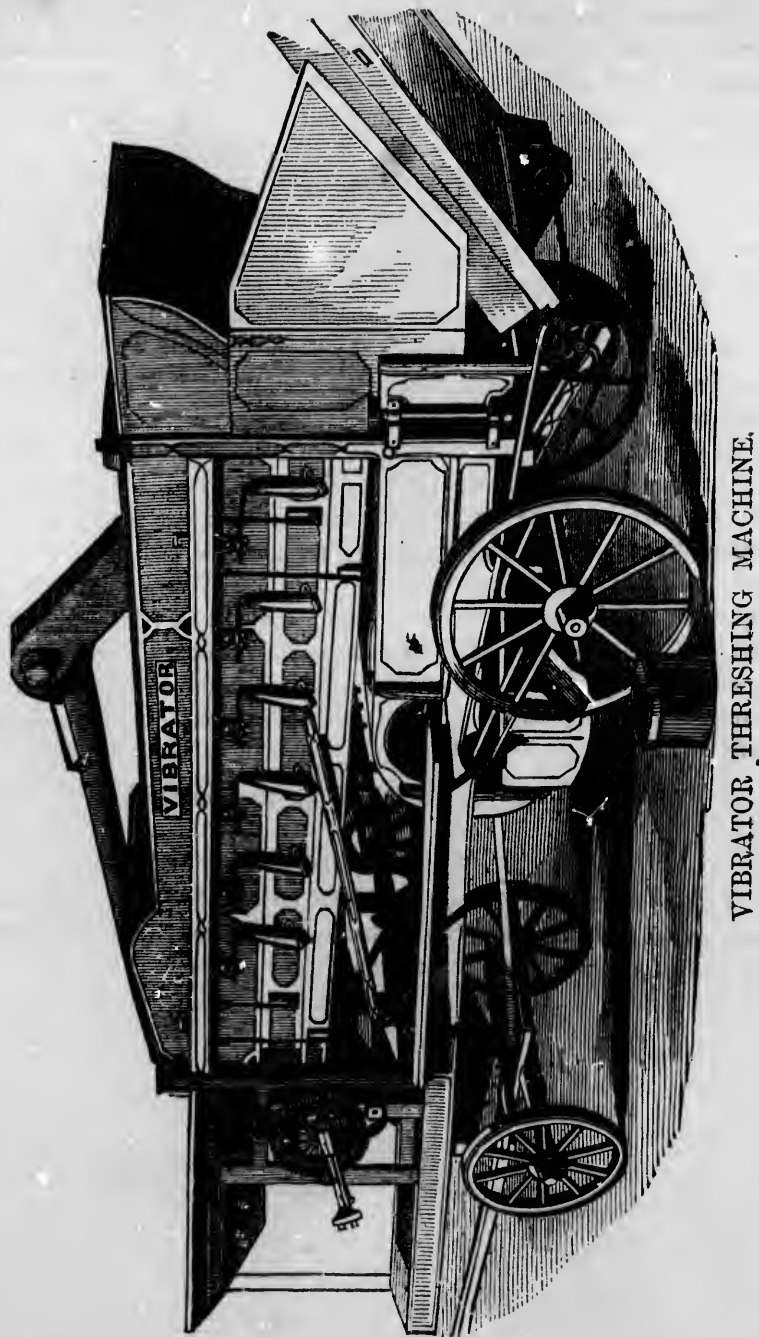
I have invented a simple method by which the straw carrier can be driven at any angle required to carry the straw in the mow. This arrangement, which has been in use several years, works admirably, and has given good satisfaction. It saves a great deal of very dusty, dirty work. The arrangement consists of a cast iron bracket, placed at the back end of the machine, which carries a short shaft running vertically, with two pulleys on with grooves in them. It is very simple, and can be put on any machine in use.

In purchasng a Threshing Machine, the fact should be kept well in view that the best machine will take the best jobs, and not only gives better satisfaction to the farmer, but earns much more money for the thresher. The peculiar construction of my machine enables it to command the preference wherever known. Its durability, workmanship, completeness, and general excellence, place it beyond all others, and make it the most desirable machine now offered in the market. It combines all the good qualities found in any other machine, together with numerous advantages that are peculiar to this machine alone, and cannot be found in any other.

Many valuable improvements added for the coming season.

BUY THE BEST.

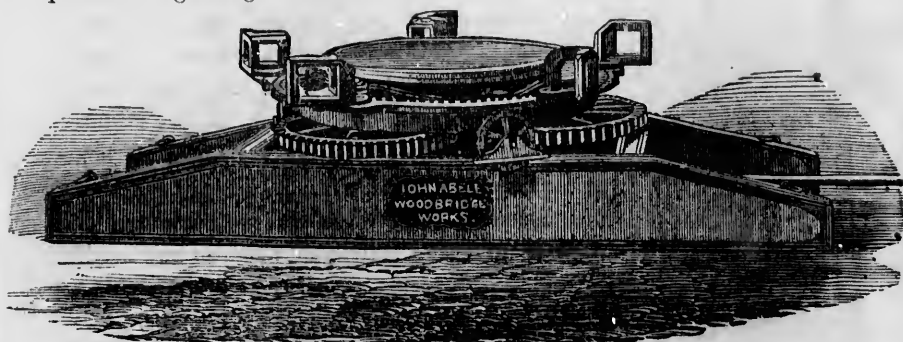
Extras given with this machine:—wood shaft, two iron shafts, couplings, coupling bolts, rings, brace chains, hooks and links, one dozen teeth, sledge, screw wrench, and oil can.



VIBRATOR THRESHING MACHINE.

The above cut represents the Vibrating Threshing Machine, manufactured by me.

I have commenced the manufacture of this class of machine, and they will be found the best of their class, thoroughly well made, of good material, and all the latest improvements. Some few men prefer them, and it is to meet this class of customers that I am induced to manufacture them: not that I think they will supercede the machine heretofore made by me, but in order to be able to supply every good customer with just the machine he prefers. It is furnished with my patent improved cut gearing.



THE NEW TRIPLE GEAR POWER.

This is comparatively a new power in Canada, as will be seen by the engraving; it differs materially from the Planet power. All the boxes, shafts, wheels, and pinions, are set in an Iron Frame, thus allowing all the working parts to maintain their proper relative positions. No yielding of bolts in wood; no springing of timbers; no racking of frame work; the staunch iron frame holds all the parts in place; the power is complete in itself, without the wooden ground timber to which it is attached merely for convenience in moving, loading, and staking down; in this respect it has decided advantages over the Pitt's and other similar powers.

THIS POWER IS VERY STRONG.

In the Pitt's power the large or master wheel works into two pinions: owing to the large diameter of the wheel, as compared with the pinions, there are never but two cogs in each pinion at the same time, and, therefore, only four cogs in the large wheel under strain at the same time. These four cogs have to sustain all the pressure. In this power the large or master wheel works into three pinions, and they are so proportioned that three cogs in each pinion are in bearing all the time; thus in this power there are nine cogs doing the work that has to be done in the Pitt's power by four, or less than half as many. Let it be remembered in each case the cogs are just about the same size.

Again, in this triple gear power three spur wheels work into the centre pinion and two cogs of each are always in bearing, whereby six cogs of the centre pinion and six cogs of the spur wheels are constantly under pressure. In the corresponding parts of the Pitt's there are never more than four and often only two cogs under pressure at one time, or only about half as many.

Then again this power has an advantage in the distribution of the labor of the boxes, journals and shafts at three points instead of two. Add to

this the greater stability of the heavy iron frame as compared with the yielding wood, and the superior strength of this power is manifest.



IT IS VERY EASILY REPAIRED.

Any pinion, box, or shaft (except barely one) may be taken off and replaced by a new one in five minutes, and in a proper manner. A pinion may be taken off and replaced by a new one in one minute. There is but one pinion or wheel in the power that is "keyed" on. Any shaft except the line shaft can be replaced in five minutes. There are but two boxes, viz. the line shaft boxes and these are both accessible and easy taken off. No necessity for blacksmith or machinist, any man of ordinary intelligence can do any needful replacing of parts. This great convenience in repairing will be found a great advantage.

IT IS EASILY MANAGED,

But "it will not take care of itself," no machinery will; but as compared with other powers it is much easier understood and kept in order. The absence of the wooden frame—the absence of keys and wedges—the equal distribution of the work—the accessibility of all the parts, all conduce to its greater ease of management, and with the same amount of care bestowed on it, will be kept in better order. Every bolt and box is accessible; every box is attached to the iron frame, and can be kept in place; every part is fitted by machinery, so that new parts will duplicate perfectly, and the whole power can be taken to pieces and put together again in a few minutes owing to the absence of keys, wedging and rivetting.

In the Pitt's power all the boxes are set in wood, or in some way attached to the wooden frame, so as to be dependant for their relative positions upon the stability of the wood. From this may result many evils. The heavy strain of eight or ten horses cause the bolts to press into the wood, and parts of the wooden frame to spring or rack: boxes thus "get out of line," then follows the heating of journals, cutting or filing of cogs, unequal wearing, heavy draught, and perhaps breakage. These evils do not always result but often do.

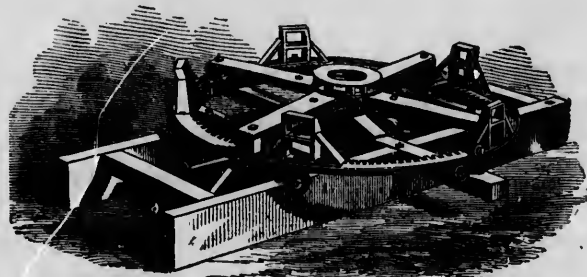
THE MOUNTED POWER AS SET FOR OPERATION.

It is set upon a peculiar frame which is mounted upon four wheels as indicated in the engraving, and remains on the wheels when in operation. The illustration also indicates—when moved from farm to farm upon the road,—the levers, tumbling-rods, &c., are loaded upon the power. It costs sixty dollars more than the power not mounted on wheels. It is for the purchaser to judge for himself whether the saving of loading and unloading at each job, the saving of time, and the use of an extra waggon, will compensate for the additional cost.



MOUNTED TRIPLE GEAR POWER AS LOADED FOR TRAVELLING.

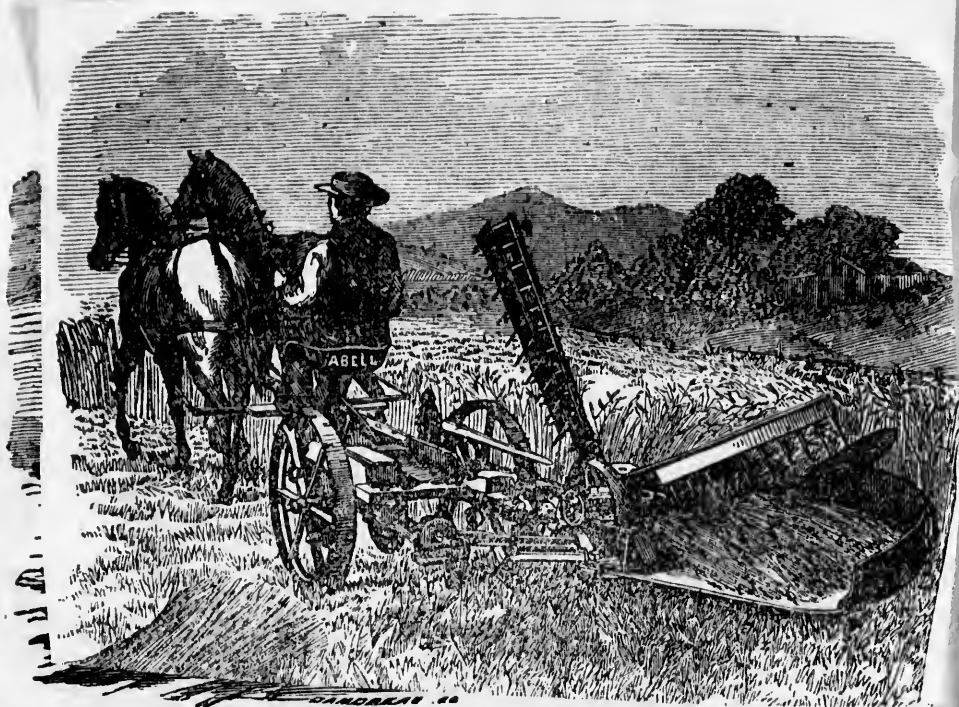
PITT'S HORSE POWER.



The above cut is a representation of Pitt's Horse Power, as manufactured and improved by me. No Horse Power, it may be safely asserted, has ever met with such universal favor. It is an old established power well known to all threshers, and is a great favorite with some.

Especial attention is now given to the manufacture of my horse powers. This year I have made new patterns, with larger and stronger wheels, which with Babbit metal boxes for lay shaft, steel upright shafts, improved bridge tree, and other improvements, will make this power the best of its class.

The iron used in the manufacture of the castings is the very best that can be procured, regardless of price, and they are warranted perfectly sound and to give satisfaction, with proper usage.



**DODGE'S COMBINED MOWER AND SELF-RAKING REAPER;
IMPROVED FOR THE HARVEST OF 1872.**

This Machine deservedly stands at the head of its class. As a combined machine it has no equal. It embraces the most useful improvements of the day. It has a **TILTING TABLE**, and a double or changeable speed, when desired. It now stands without a rival as a Combined Machine.

The unusual success of this machine, both in closely contested trial and in the hands of the farmer warrants me in saying that as a Combined Mowing and Self-Raking Reaping Machine it has more good points and less defects, and has met with more success and less failure than any combined machine ever offered to the public.

The cutting apparatus for reaping is equal to any mowing attachment; it consists of a wrought-iron bar firmly fixed in the wooden beam, with malleable fingers with steel ledger plates inserted, highly tempered, ground concave, and to an acute angle, which enables this machine to cut any and all kinds and qualities of grain, laid, twisted or variable crops, damp or dry, grass, or otherwise: it is furnished with both a smooth knife and a single section knife for reaping.

The Platform can now be raised by the driver by means of a lever without leaving his seat, and is readily adjusted to cut any height.

The Self-Rake attachment is now attached to the shoe entirely, which places it more readily under the control of the driver. The arm is arranged so that the rake can be adjusted to all kinds of grain.

The point of the Drag-bar is now so arranged that the driver can raise or lower it at pleasure, by means of a lever, throwing the points of the guards and also the rakes up or down without leaving his seat.

The Grain is easily delivered at the rear of the machine, entirely out of the way of the team on the next round, in good shaped bundles for binding.

The Rake is so arranged that when the machine is not cutting, or when moving it from field to field, it can readily be thrown out of gear by means of a lever, and the machine can travel on without moving the rakes.

The Grain Wheel is now raised or lowered by means of a lever, it will be found a simple arrangement, and much quicker changed than the old way.

This Machine has the most important features of the modern single mowers, viz.: Two driving wheels and the floating cutter bar, which makes it perfectly adapted to uneven ground. It has no gearing on the driving wheels. Its gearing is all completely covered up and protected from grit and dirt which makes the machine run easier and much more durable. The knife has a rapid motion and a three inch section.

The points of the guards can be raised or depressed to take up down or tangled grass, or raised to cut as high as desired without stopping the team.

The Improvements made in this Machine are real Improvements, not theories, but such as have been subjected to a thorough test and their merits fully established.

I beg to draw special attention to the fact that Mowers and Reapers are now constructed by me so as with ordinary management to be almost entirely free from breakages. Being fully aware of the inconvenience and loss occasioned by any stoppage during harvest, I have used every exertion to render my machines the most perfect in this as well as in other respects.

This machine is furnished with four complete knives; two for reaping and two for mowing; two knife sections, two guards, screw wrench, punch, cold chisel, oil can, pitman box, and some rivets, doubletrees and whippetrees.



BALL'S OHIO COMBINED MACHINE.

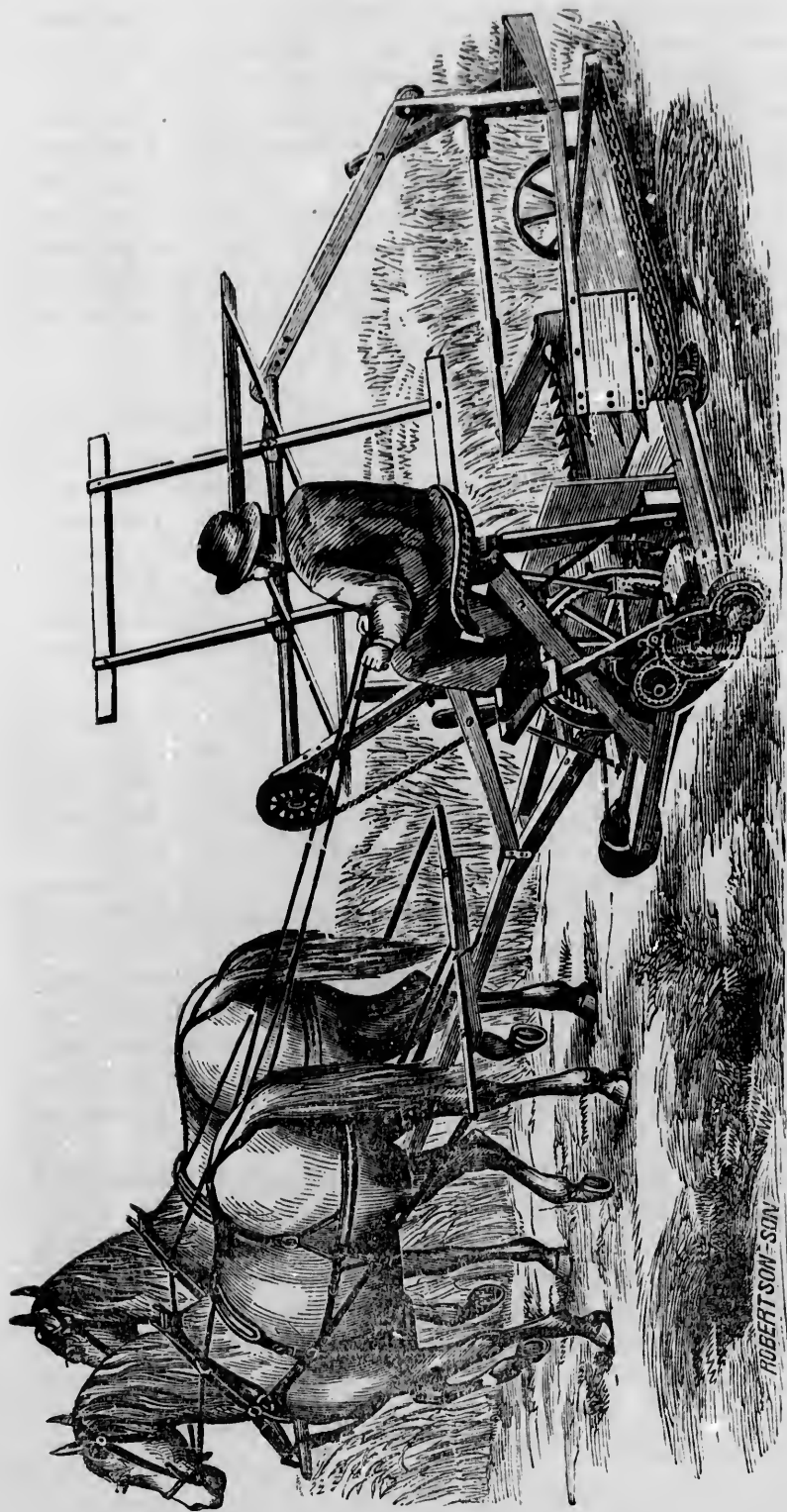
This machine has been thoroughly tested, and has a good reputation. Some of its advantages are these:—It has two large driving wheels and a sliding or adjustable tongue which obviates that objectionable feature so common in Reaping and Mowing Machines, viz.: side draft; it is so constructed that each wheel drives the knife independently of the other, or both together, according to the direction in which it is moving, so that in turning to the right or left a strong and powerful motion is kept up on the knife; the large circumference of the wheels allows it to move over furrows and uneven land easily; the mowing and reaping attachments are entirely independent of each other; the change from the mower can be effected in a few moments, and *vice versa*.

AS A MOWER

It has given general satisfaction, by being light of draught and easily managed. The cutter bar is made of steel, five feet long, and is extra strong. The guards, which are made of wrought iron, and faced with steel, are highly tempered and ground up to an acute angle. The knives, which are the best that are made, are nicely fitted, rendering it a perfect cutter, and insuring it against clogging. The cutter bar is under the perfect control of the driver, who can easily raise it over any obstruction while in motion. It is easily folded for transportation, and equal to any single mower made.

In reaping it cuts a swath six feet wide, and having no weight on the platform except the weight of grain, has not the same amount of strain to endure as a single wheeled machine, and therefore is not liable to twist or warp about. The knives are sickle-edged, and driven at a good speed it cuts free and easy. The grain wheel is hung on a pivot, so as to run in any direction. This overcomes the difficulty of turning, which has been a source of trouble in some reaping machines. The reel is driven by a chain from the end of the axle of the driving wheel, through a universal joint, which allows the wheel to maintain its relation to the platform, over the uneven surface of the ground. The inner reel post is of iron, and is constructed with a long screw and a rubber spring, which allows it to accommodate itself in passing over the uneven surface of the land, and by keeping the strain on the chain uniform, prevents its breaking.

The Ohio Mower and Reaper is warranted perfect in material and workmanship, and with proper management to do good work. Parties purchasing are allowed one day to try them, and if they should fail to work satisfactorily, the parties must notify me or my Agent, and allow sufficient time to send a man to put them in order. If they do not operate after this, they will be taken back in exchange for those that will work.



WOOD'S SELF-RAKE REAPING MACHINE

ROBERT SON - SON

Extras given with the Ohio combined Machine—Doubletrees, whippletrees, one complete knife, two knife sections, two guards, screw wrench, punch, cold chisel, oil can, pitman box and some rivets. The Reaper will not have an extra sickle, but will have two extra sickle sections, two guards and a rake.

WOOD'S SELF-RAKE REAPING MACHINE.

The cut on the 20th page is a representation of this machine, which is well known in Canada now, and has proved itself one of the best self-rake reapers yet introduced. This machine throws off the sheaf at a sufficient distance from the standing grain to allow the team to pass round without interfering with the cut grain. It is very simple in its construction and not liable to get out of order, and yet very strong and light weighing only about 875 lbs.

This machine is adapted to cut all kinds of grain, tall or short, heavy or light, lodged or standing; the driver having perfect control of the machine when in motion, and can raise or lower the finger-bar to suit the grain while cutting, and can regulate the size of the sheaf at pleasure.

I have this season made some very valuable improvements in this machine. From its first introduction the machine has been improved in detail, parts of which were too weak have been made stronger, and it is now acknowledged, after repeated field contests in all parts, to be one of the best single reapers invented. Every machine is tested by actual running before sent out.

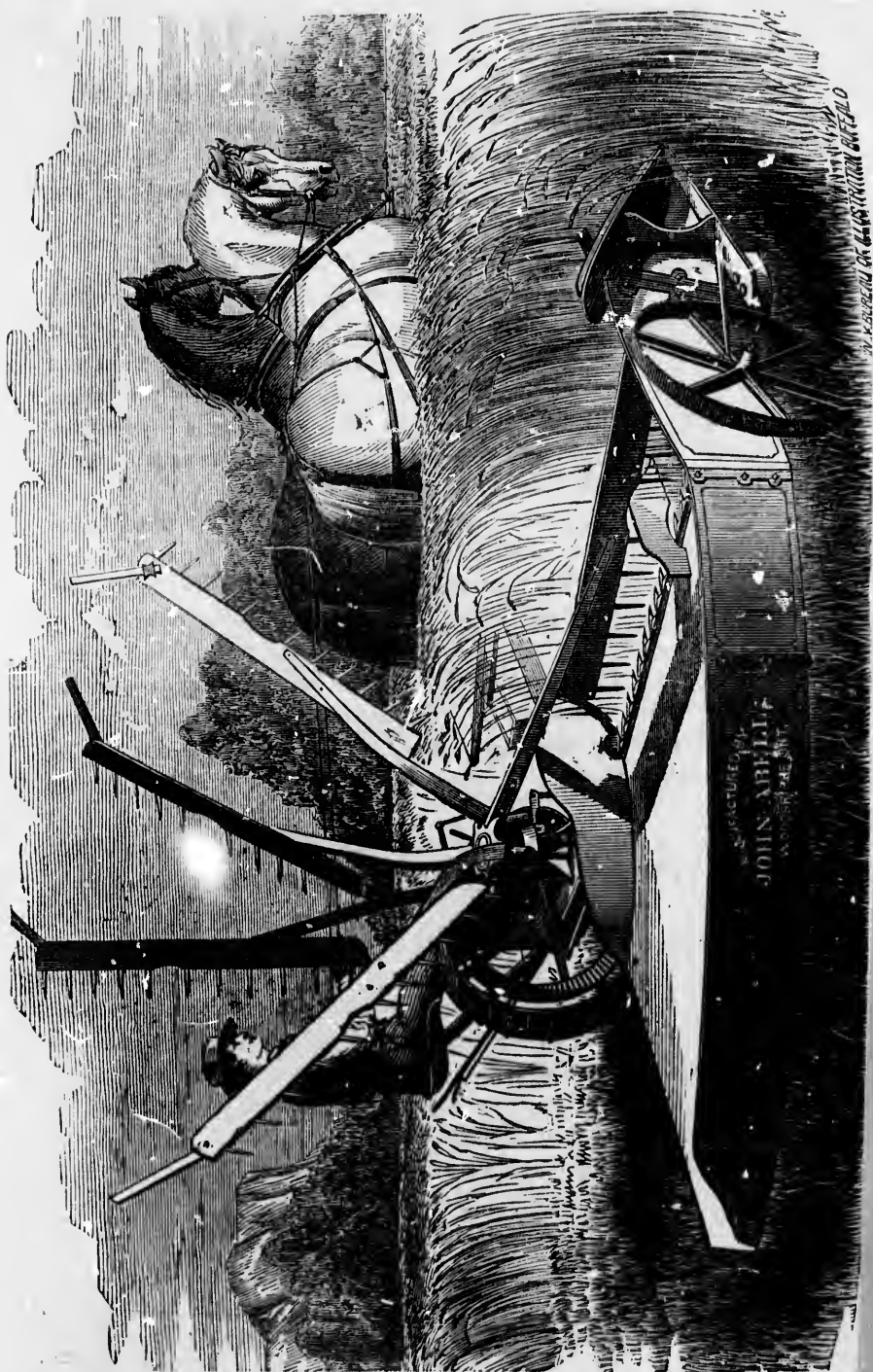
Extras given with this machine—One pair of whippletrees and doubletrees, two knife sections, two guards, one screw wrench, oil can, punch, chisel, and neck-yoke.

This machine is warranted capable of cutting from twelve to twenty acres per day, and when properly managed to do good work. Parties purchasing are allowed to try them one half-day; then should anything prove defective, notice must be given me or my Agent, and time allowed for a second trial, when, if the machine does not work as recommended, it will be exchanged for one that will work; continued possession of the machine will be evidence of satisfaction.

Improved for the coming season by the free use of steel or other suitable material throughout, where there is any liability to wear or breakage.

WOOD'S SELF-RAKE REAPING MACHINE.

ROBERTSON & SONS



JOHNSTON'S SELF-RAKING REAPER.

This Reaper has met with the most unparalleled success of any Reaper yet introduced. It is beyond comparison the best single Reaper now offered to the Farmer. In tangled or lodged grain it has no equal.

This machine is designed for reaping only; is supported by two wheels, one of which drives the gearing that carries the rakes, the other an outside grain wheel that supports the platform.

The finger beam and cutting apparatus are located opposite the centre of the driving wheel.

The driver's seat is supported on the outer end of the main axle, out of the way of the gearing and machinery.

The main frame and cutting apparatus are connected to the axle plate of the driving wheel in such a manner that they are free to be raised or lowered and fastened to any required height from two to eighteen inches. The machine is also provided with a lever, which is connected with the hinged tongue in such a manner that the driver can raise and lower the cutting apparatus at pleasure, while passing along. By this arrangement the platform can in an instant be tilted so that the rakes strike below the cutting apparatus, and nearly to the ground to pick up the laid grain.

The apparatus for gathering and discharging the grain is combined in one device, and consists of five rakes attached to arms which are pivoted to a central hub or head. All of these rakes act in gathering the grain; any one of them may be used to discharge the grain at the will of the operator, or either of them may be set to discharge the gavel at regular intervals. It gathers and delivers tangled and lodged grain easily and in good shape. It cuts easily with a common team, from fifteen to twenty acres per day.

This machine being expressly designed for reaping, is far more simple and efficient than combined machines constructed for both reaping and mowing.

This machine is furnished with two complete knives for reaping, one sickle edge, and one smooth edge, which enables it to cut grain with grassy bottoms without choking.

GREAT FIELD TRIAL AT XENIA, OHIO, 1870.

A very important Field Trial of Reapers and Mowers occurred at Xenia, Ohio, on the 29th and 30th of June, at which the JOHNSTON was awarded the *First Prize—a Grand Gold Medal*. The following is taken from the report of the Committee.

"The JOHNSTON HARVESTER is a new machine here, and it was the first time it had been seen by any of us. As we awarded it the First Gold Medal as the best Reaping Machine, we would as briefly as possible state our reasons for so doing. Manufacturers have long known that it was a desideratum with the farmer to obtain a machine for taking up lodged grain, although it might be laying out from the machine, or in the direction it is moving; hence all the devices for raising or lowering the

access of any
single Reaper
has no equal.

cut while in motion. Whilst all the other competing machines cut about as low, yet the reel of the JOHNSTON is so arranged that in lodged grain it can be dropped to the ground some eighteen inches in front of the cutters, lifting the grain clean from the ground on to the platform in about as good condition as it found it. This being the case, and the mechanical construction and draught of the machine being about equal to others, satisfied us to make the award."

The JOHNSTON Reaper received the First Premium as a Self-Raking Reaper from the State Agricultural Societies of Maryland and Virginia, and also a large number of First Premiums from County Societies.

Below we give an extract from the Official Report of the Trial of Farm Machinery, held at Ripon, Wisconsin, July 12 to 16, under the auspices of the Ripon Farmer's Club, and published by order of the Club.

We had on trial there a single Self-Raking Reaper only, and the following is its record on the different qualities on which the Committees reported, in comparison with all others on trial.

The general qualities of the machines were divided into one hundred points, of which the

Quality of Work was put at	-	-	-	-	-	-	-	40
Management,	-	-	-	-	-	-	-	15
Control of Rake,	-	-	-	-	-	-	-	5
Durability,	-	-	-	-	-	-	-	10
Simplicity,	-	-	-	-	-	-	-	10
Draught,	-	-	-	-	-	-	-	15
Side Draught,	-	-	-	-	-	-	-	5

Total, making a perfect machine, - - - 100

The following is the comparative standing of the JOHNSTON Reaper that trial.

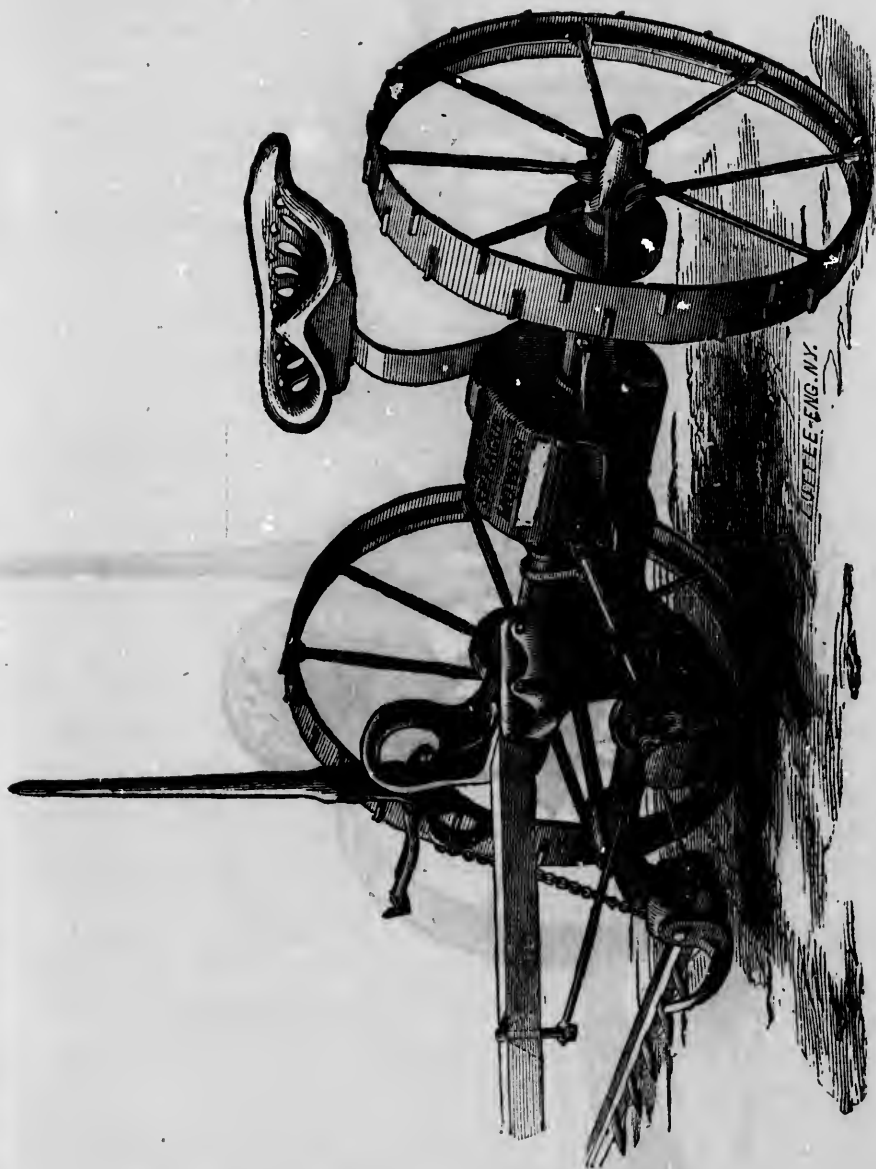
	Maximum Quality.	Little Champion.	New Yorker.	New Manney.	J. P. Manney.	Burdick.	Clew.	Johnston's.
Quality of Work.....	40	35	31 $\frac{1}{2}$	30	26	36 $\frac{1}{3}$	40	38 $\frac{1}{3}$
Management.....	15	12 $\frac{1}{2}$	12 $\frac{1}{2}$	10	11 $\frac{1}{3}$	12	11 $\frac{1}{2}$	14 $\frac{1}{2}$
Control of Rake.....	5	2 $\frac{1}{2}$	4 $\frac{1}{3}$	1 $\frac{1}{2}$	1 $\frac{1}{3}$	2 $\frac{1}{2}$	2	4 $\frac{1}{2}$
Durability.....	10	5 $\frac{1}{2}$	8 $\frac{1}{3}$	8 $\frac{1}{3}$	6 $\frac{1}{3}$	7 $\frac{1}{3}$	6 $\frac{1}{2}$	8 $\frac{1}{2}$
Simplicity.....	10	7 $\frac{1}{2}$	5 $\frac{1}{2}$	6 $\frac{1}{2}$	6 $\frac{1}{2}$	6	10	8 $\frac{1}{2}$
Draught.....	15	13 $\frac{1}{2}$	7 $\frac{1}{2}$	11	10 $\frac{1}{2}$	11 $\frac{1}{2}$	13 $\frac{1}{2}$	13
Side Draught.....	5	4	4 $\frac{1}{2}$	4	4	4	3	4
Totals.....	100	81 $\frac{1}{2}$	75	71 $\frac{1}{2}$	67	80	86 $\frac{1}{2}$	90 $\frac{1}{2}$

Showing a general quality of 33 $\frac{1}{3}$ per cent. higher than the highest of its competitors, and 13 per cent. higher than the general average.

Farmers and all interested in Farm Machinery will do well to note the above facts and act accordingly.

SPRAGUE MOWER.

THE LIGHTEST DRAUGHT MOWER IN THE WORLD.



FRONT VIEW OF THE SPRAGUE MOWER.

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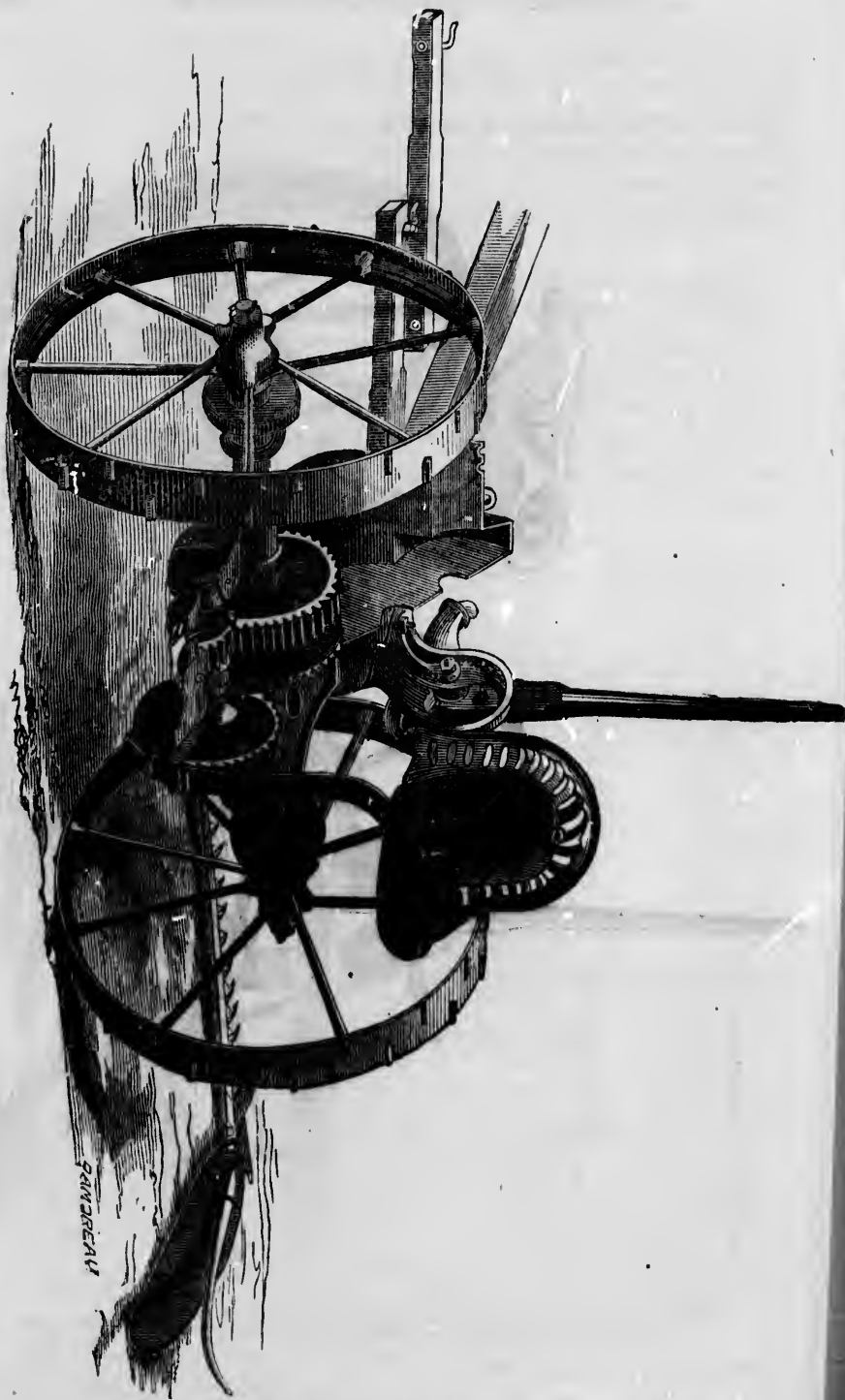
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Reaper

Johnston's.	
38½	
14½	
4½	
8½	
6½	
13	
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90½	

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Back and Side View, Showing Working Parts.

In presenting the Sprague Mower to the notice of the Farmers of this country, and in soliciting their patronage, I feel no hesitation in making the statement that I am calling attention not to a new and untried experimental machine, but to one that has been subjected to the most thorough and trying tests in many sections of the United States and this country, and in all the various and difficult kinds of work which are required from a first-class mower. The result obtained from these trials have been most satisfactory both to the purchasers and manufacturer.

The Sprague mower as manufactured and exhibited by me at the Provincial Exhibition, held in Kingston, last year, was awarded the First Prize and Diploma, when in competition with all the leading machine in Canada. There were 21 machines entered for competition.

My aim has been, and will be, to place in the hands of the Farmer, a mower, light of weight, easy of draught, strong in construction, with the best and most simple mechanical arrangement and proportion of the newest and most complete facilities for handling a cutting apparatus working parts; the second to none in use; and at a price at once fair and reasonable and much below that heretofore charged for the same quality of first-class mowers.

The machines placed in the field last season, were carefully tried and watched in all the different positions and upon all kinds of mowing, and the Sprague Mower of the present day stands higher and is nearer perfection than any mowing machine offered to the public.

WARRANTY.

The Sprague Mower is warranted to cut grass equal to the best work with a scythe, or at the rate of one acre per hour, or ten to fifteen acres per day. Every purchaser is allowed one half-day to try the machine, and in case anything proves defective, notice must immediately be given me or my Agent, and time allowed for a second trial, and if it does not work after this, and the fault is in the machine, it will be taken back and exchanged for one that will work.

Each machine is entitled to one extra scythe, two extra sections, two extra guards, an oil can, wrench, cold chisel, punch, neck-yoke, double tree and whippletrees, two guard bolts, and six section rivets.

PRICE LIST OF EXTRAS.

WE ALWAYS HAVE THE FOLLOWING EXTRAS ON HAND AND IN THE HANDS
OF OUR AGENTS :

A Driving Wheels -	\$8 00	15 Shipper Lever -	\$0 60
B Ratchet Box Cover, left	1 10	16 Shipper Saddle -	20
C Ratchet Box, left -	1 10	17 Bar Holder -	1 75
D Pawl -	12	18 Lifting Chain -	50
E Ratchet Box Cover, right	1 10	19 Lifting Lever Spring -	30
F Ratchet Box, right -	1 10	20 Oil Cup Cover -	05
G Pawl -	12	21 Axle Washer -	05
Ratchet Box complete	2 60	22 Linch Pin -	05
Ratchet Box Key -	05	23 Pawl Spring, right -	05
H Frame -	15 00	24 Pawl Spring, left -	05
I Frame Cover -	2 25	25 Guard Plate -	10
J Crank Shaft Cap -	1 50	26 Wedge for Seat Spring	20
K Balance Wheel -	1 25	27 Draught Rod -	40
Balance Wheel, with pin	2 00	Cutter Bar complete -	20 00
L Crank Fender -	1 00	Crank Shaft -	2 25
M Hinge Joint -	3 25	Crank Shaft complete } with gear }	5 00
N Inside Shoe -	3 25	Back Shaft -	2 25
Inside Shoe complete	5 00	Hinge Joint Brace comp.	1 00
O Scythe Head Holder -	30	Rivets, per lb. -	40
P Guard Finger -	50	Rod to hold Cover -	20
Q Outside Shoe -	2 00	Washer on Pole -	05
Outside Shoe complete	2 75	Washer on Crank Pin	10
R Track Clearer Iron -	70	Set Screws for false Shoe	10
S Outside Scythe Button	12	Inside Shoe Bolts -	15
T Ratchet Stand -	1 25	Outside Shoe Bolts -	10
U Lever Ratchet -	1 00	Guard Bolts -	08
V Brace Socket -	40	Bolts for Crank Shaft Cap	12
W Pitman -	3 00	Ratchet Stand Bolts -	25
X Scythe Head -	80	Pole Bolts -	20
Y Inside Scythe Button	12	Pole Irons -	25
Z Tool Box -	1 50	Main Gear Pin -	12
1 Spur Gear -	1 75	Pole -	3 00
2 Spur Pinion -	1 25	Neck Yoke -	1 50
3 Spur Gear -	1 75	Evener -	1 25
4 Bevel Gear -	2 25	Whiffletree -	75
5 Bevel Pinion -	70	Track Clearer -	1 50
6 Finger Bar, 4 feet -	6 50	Lifting Lever -	30
7 Scythe complete, 4 feet	6 00	Monkey Wrench -	1 00
8 Section -	20	Cold Chisel -	15
9 Inside Shoe Spring -	1 00	Punch -	15
10 Outside Shoe Spring -	60	Oil Cup -	25
11 Seat -	1 75	Draught Rod Bolt thro' Pole	12
12 Seat Spring -	1 75	Scythe Heads complete	50
13 Seat Spring Holder -	30	Bushing -	-
14 Spring Key -	50		

When ordering Extra Parts send the Number of the Machine.

DIRECTIONS FOR SETTING UP AND OPERATING THE SPRAGUE MOWER.

The Machines are shipped in three pieces. The Machine with all the parts securely lashed to it; the Pole; and the Cutter Bar with the Seythes secured to it. See that the Numbers on the Machine Pole and Cutter Bar correspond.

1. Unpack all the parts that are lashed to the Machine.
2. Bolt the Pole and Ratchet stand to the Frame, screwing the nuts up as tightly as possible, in order to hold them firmly in their places.
3. Hook the end of the Draught Rod, that has the round eye on it, into the hook in the Hinge Joint, then place the Evener under the Pole, bring the oval end of the Draught Rod up to the underside of the Evener, put the bolt through Rod, Evener and Pole, with the head underneath, and turn the nut up as tightly as possible.
4. Attach Cutter Bar to Machine by bolts in Hinge Joint.
5. Put the Pitman in its place on the Crank balance.
6. Put the Seythe into the guards until the eye is against the round end out place in the Seythe Head Holder, then stand on the back side of the Cutter Bar, take hold of the outside Shoe and Seythe with the right hand, and raise the outer end of bar until the Pitman can be connected with the Seythe by the left hand.
7. Attach Track Clearer, Whiffletrees and Neck Yoke.
8. Oil every place where there is any friction, before use, and afterwards keep all the bearings well oiled. Oil the Pitman head and both bearings of Crank Shaft more frequently than any other part. Use the best Sperm or Machinery oils.
9. While Mowing, drive straight, and let the team move at a moderate gait.
10. To make good clean work, drive out at the corners before beginning to turn, and never commence a swath without having the guards free from grass.
11. Always keep the Seythe sharp, grinding when necessary, and sharpening with a whetstone as often as you cut an acre of grass.
12. Be sure and keep the Buttons down close to the Seythe: by so doing, you will cut the grass better, with less work for your team, and less wear on the Machine.
13. Always throw the Machine out of gear before you raise the bar to a perpendicular position.

Follow all the Directions and you will be perfectly satisfied with the working qualities and durability of the Sprague Mower.

ADVANTAGES PECULIAR TO THE SPRAGUE MOWER.

1. The Machine is constructed entirely of Iron and Steel, without any woodwork except the Pole and its attachments.

2. The Frame is an Iron Case, cast in one piece, with the bearings for the Shafts cast on it.

3. The Shafting is of the best refined iron, and running as it does in bearings cast on the Frame, it cannot get out of line from any warping of Frame or loosening of Bolts; thereby avoiding the trouble which so often occurs from those causes on *all* wooden frames and all iron frames that are made of separate pieces.

4. The Gears are cast from the best American iron, and are the strongest set of Mowing Machine gears in use; they are arranged in a mechanical and compact manner within the Frame and are completely encased; by this arrangement they are protected from dirt and grass, and it is impossible for the operator to be injured by them.

5. But four Bolts (and those with cheek or double nuts) are required on the frame, to hold in their proper places the Cover, Cap, Seat, Shafting and Gears. The Cover is hinged to the Frame, and by simply raising it, access is readily obtained to all the working parts of the Machine.

6. Almost the entire weight is carried on the wheels while mowing, thereby giving the greatest possible amount of driving power in proportion to the weight of the Machine.

7. The Machine weighing but 600 lbs., is one of the lightest, but from its peculiar construction, one of the strongest and most effective.

8. Having the most simply constructed Lifting Central Draught properly arranged, the labor upon the team is much lessened, and the liability of damage to the Machine from striking obstructions is greatly reduced..

9. The Machine has been so carefully constructed and balanced, with a view of avoiding side draught, that no device is necessary to conceal that which does not exist.

10. The Frame and Gearing are placed in the centre of the Machine, bringing the weight equally upon the drive wheels, thus obtaining a more steady motion with less shaking of the driver.

11. The apparatus for working and handling the Cutter Bar is the most complete, simple and efficient of any in use; with the single Lever, without moving from his seat, the operator can bring the Cutter Bar to a perpendicular position and secured for the road, and with the same lever, unfasten and lower the Bar to the proper position for mowing, the whole operation not requiring more than ten seconds.

12. The Seat and Tool Box are combined, the Tool Box forming the base of the Seat, and the seat forming the cover of the box. By a slot in the bottom of the base, the seat can be moved forward or back, according to the weight of the driver, thus relieving the horse's neck.

13. The Lever for throwing the Machine in and out of gear is worked entirely with the foot, leaving the hands of the operator at liberty.

14. The Cutting apparatus is regarded as the best ever placed upon a mower. Neither pains nor expense have been spared to have the material of the best quality, and the workmanship of the first class.

15. The Sprague Mower is pre-eminently *the* light draught machine for the following reasons: The Gears are so carefully made and mechanically arranged; the Shafts are so exactly fitted into the solid bearings, both

being so completely protected from dirt or grass, that they run with much less than the usual amount of friction; the Wheels and Gears are so correctly timed, and work in unison with such a perfectly constructed Cutting apparatus, that the amount of power used and required to cut the grass, is reduced to the smallest possible limit.

16. The Sprague Mower is the most durable machine offered to the public. In order to be satisfied on this point, so important to the success of the Mower, the Sprague Mowing Machine Company had one of their Machines, which had cut four hundred tons of hay, (equal to the ordinary work on a farm in four years) brought to their works and taken entirely apart, to ascertain the parts most worn. The Scythes were worn entirely out, but the working parts of the Machine, were nearly or quite as good as new. Below we give the statement of the Farmer who used the Machine, and who has charge of the largest farm in that State:—

“During the season of 1870, the Sprague Mower, No. 328, was used under my direction and supervision to cut at least four hundred tons of hay.

(Signed :)

GEO. WELLMAN.”

PREMIUMS AWARDED TO THE SPRAGUE MOWER 1870.

A DIPLOMA *from the Agricultural and Mechanical International State Fair of Pennsylvania*, held at Pittsburgh, awarded as a Special Premium to the

SPRAGUE MOWER,

In competition with “Champion,” “Climax,” “Wood,” “World,” “Etna,” “Russell,” “Acme,” “Buckeye,” “Kirby,” “Clipper,” “Quaker,” and ten other mowers, the same being

THE HIGHEST PREMIUM AWARDED.

CASH PREMIUM at Lancaster County Fair,	-	-	Pennsylvania.
FIRST PREMIUM at Bellefonte Centre County,	-	-	“
FIRST PREMIUM at Lock Haven, Clinton County,	-	-	“
FIRST PREMIUM at Huntington, Huntington County,	-	-	“
FIRST PREMIUM at Camden County Fair	-	-	“

FIRST PREMIUM AT THE VERMONT STATE FAIR.

TEN MACHINES COMPETING FOR THE PREMIUM.

The Sprague Mower was exhibited in competition with ten or twelve of the best Mowing Machines of the country at the Vermont State Fair, held at Burlington, September, 1870, and received an Award seldom if ever granted to a new machine. The very able and intelligent Committee reported as follows:

"In the absence of any opportunity for testing the Machines, we laboured under some little embarrassment, as all seemed to be possessed of very much merit, but taking into consideration the apparent strength, durability, compactness, of form, the perfect enclosing of the gears within the case or frame of the machine, the well-arranged cutting bar, the ease with which it can be raised, lowered and unfolded without leaving the seat, and the direct lifting draught, we have awarded to the *SPRAGUE MOWER*, FIRST PREMIUM of \$20.00 and a DIPLOMA.

E. CLEVELAND,
B. F. DEANE,
O. S. BLISS, } COMMITTEE.



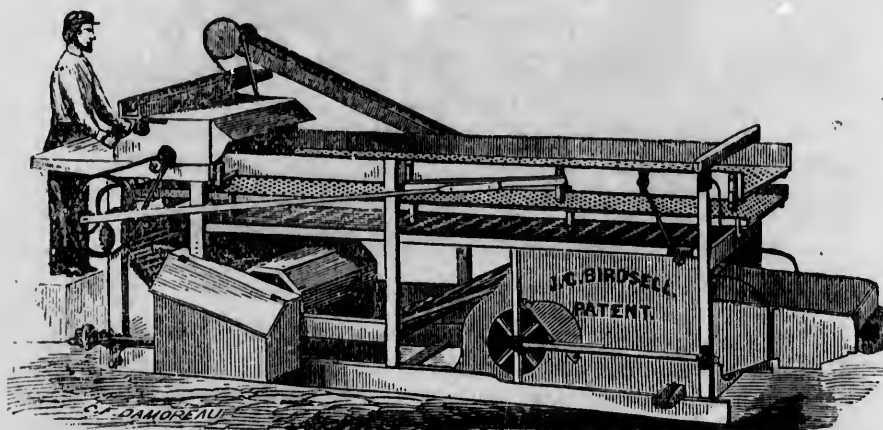
CAYUGA CHIEF, JUN.

This is a splendid Mowing Machine where farmers have a Reaping Machine, or where the separate machines are preferred. Its success has rendered it a favourite among the farmers. Its construction, portability, lightness of draught, and adaptability to cutting all kinds of grass, from the heaviest to the lightest, and that too on the most rough and uneven surfaces renders it the gem of Mowing Machines.

The following description of this Machine, with its properties and advantages, will enable the intending purchaser to form an idea of its qualities as a Mower:

1. It is constructed wholly of iron and steel. 2. It has two driving wheels, acting upon ratcheted pinions, each driving the knives independently of the other, enabling it to cut round stumps and other obstructions, by securing a strong motion of the knives when turning to the right or left. 3. Its gearing is all enclosed in metal cases, entirely preventing accidents arising from anything coming in contact with the gearing, and effectually protecting it from dirt and grit. 4. The back part of the frame carrying the pitman, and to which the cutter-bar is also attached, is hinged upon the axle of the driving wheels; this, with a hinged or flexible cutter-bar, allows it to follow the surface of the ground, however uneven, and keeping the connecting rod always square with the knives. 5. The cutter-

bar is made of steel, light and strong. 6. The guards are made of the best wrought iron, and are laid with steel finely tempered, and are grooved and ground up to an acute angle, thereby forming a perfect cutting edge. Against these the knives are made to fit with the greatest precision, and driven by a rapid motion they cut the heaviest meadows with ease, and without clogging. 7. The cutter-bar is quickly raised by a lever, in order to pass over obstructions. 8. Its leading and peculiar feature is a dipping motion given to the cutter-bar, which is regulated by the driver. This motion is obtained by a graduating lever, which enables him to throw the knives downwards or upwards, and thereby enables him to cut lodged grass when lying directly from the Machine; also, to raise the points of the guards, allowing the cutter-bar to pass freely and easily over the loose stones and sticks without injury to the knives; also, of cutting higher or lower, as desired. This peculiar construction gives it an advantage over all other mowers. 9. It cuts a swath four feet wide, and will cut from seven to ten acres per day. 10. It is easily folded for transportation, requires little room for storage, and is the lightest draught Machine made. Valuable improvements added to this Machine for the coming season.



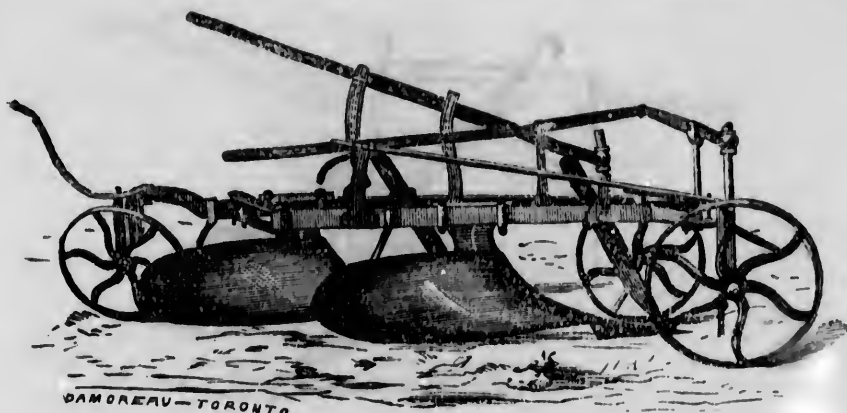
BIRDSSELL'S PATENT COMBINED CLOVER THRESHER AND HULLER.

This Machine operates in clover threshing similar to grain separators in wheat threshing, doing all the work at one operation, without rehandling the chaff. It has received a number of alterations and additions this last season, which have been thoroughly tested, and proved beyond doubt to be real improvements.

I have also arranged the machine to put on my Patent Gear, with cut wheels, which with the above improvements, have placed this Machine far in advance of all others.

This Machine has given the best of satisfaction, and last season the orders came in in such large numbers that I was unable to supply the demand for them.

In the hands of good operators, it will thresh, hull and clean from twenty to fifty bushels per day, without waste of seed.



NEW IMPROVED TWO-FURROW PLOUGH.

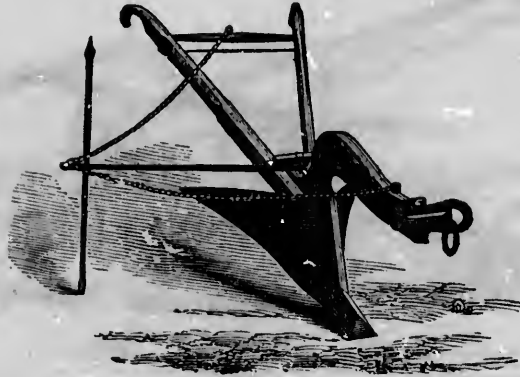
PATENTED.

The above engraving represents my new Patent Two-Furrow Iron Plough ; it is very light, but still very strong, and is remarkable for its extreme lightness of draught. One span of heavy horses, in light or medium soil, or three light horses in heavy clay, will draw it easily, thus doing the work of two men and teams. It does its work in good shape, and is easily managed.

Farmers will readily see the great advantage arising from the use of two-furrow ploughs, as in the spring time they can get over double the quantity of land, and do it as well as the single plough. In this variable climate, it is often of the utmost importance to get the seed in as early as it is possible to get on the land ; a few days time and labor in the spring would often save the whole crop.

The frame of this plough is made entirely of wrought iron, well braced ; it has steel boards, and can be fitted with either steel or cast iron shares as parties may desire. The steerage is most complete, and one of the peculiarities of this plough, it has a compound movement by which the ploughman can instantaneously alter the depth while the plough is at work, without stopping the horses or leaving his usual position when following the plough. It is readily set to plough any width of furrow. The ploughman has the most perfect control of it in every respect.

The two-furrow plough has been extensively used in Great Britain, with great success ; its great merits has become thoroughly known there, and it is looked on as a standard implement. Its great superiority and economy over single ploughs has been thoroughly tested, and can no longer be disputed.



MOULDING OR RIDGING PLOUGH.

These Ploughs are fitted with double mould-boards, and are intended for moulding up potatoes, beets, or other plants sown on the ridge, and for opening water furrows. These operations are sometimes performed by a single-breasted plough, which has to go up and down the field to accomplish the same work which this plough effects in one journey. For drawing furrows, for planting potatoes and other roots, a marker is fitted to it, to be used for setting out the land, which saves the trouble of measuring or dividing the land before commencing work, as the Plough, whilst making one furrow, is marking a course for the next. By removing the boards and marker, it can be used for subsoiling, and again, by attaching a frame and cutter, it forms a hoc, suitable for clearing land between rows of plants sown either on the ridge or flat.

PRICE WITHOUT THE WEEDER, \$20.

PRICE COMPLETE - - - 25.



CHAMPION PRIZE PLOUGH, No. 4,

WITH ROUND COULTER.

This plough has proved itself to be the very best of its class ; it has never yet been beaten, always coming out victorious at every ploughing match where it has contested. It was awarded the First Extra Prize at the Provincial Exhibition held in Toronto. It also won the First Prize at the Provincial Ploughing Match, when in competition with most of the principal makers. The coulter is so arranged that the ploughman can set it to suit himself in the field, without the aid of wedges.

PRICE WITH EXTRA SHARE, \$20.



CHAMPION PRIZE PLOUGH, No. 4,
WITH FLAT COULTER.

This Plough is the same as the preceding one, only fitted with a flat coulter.

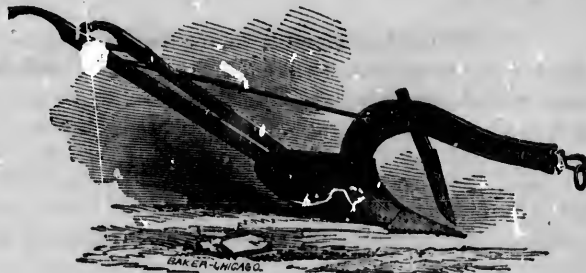
PRICE WITH EXTRA SHARE, \$19.



ECLIPSE PLOUGH, No. 3,
PATENTED.

This Plough is a general-purpose Plough, fitted with steel mould-board, and suitable for both light and heavy land. It has won several First Prizes at the different County and Township ploughing matches, and has given in every instance perfect satisfaction.

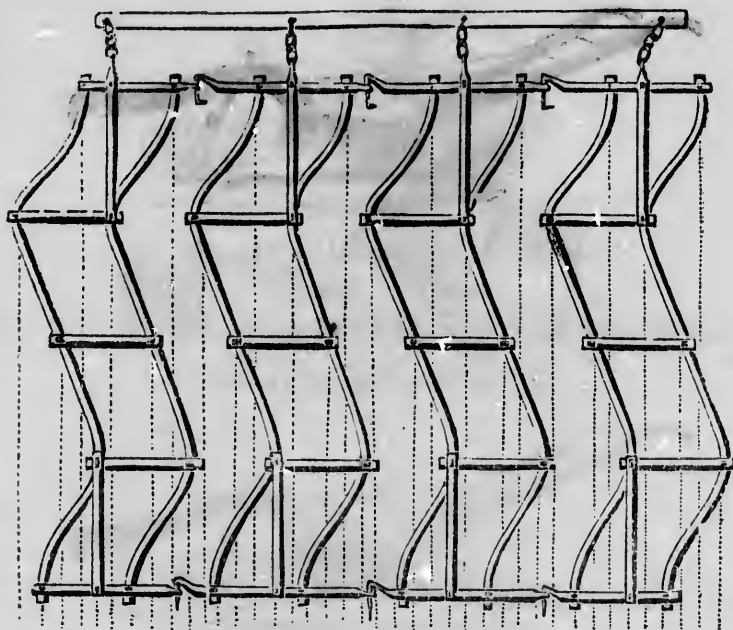
PRICE, \$18.



PLOUGH No. 2.

The above cut represents Plough No. 2, which is used principally for summer fallow. It is fitted with a steel board, and is a very good plough for that purpose. It runs remarkably easy on the horses.

PRICE WITH EXTRA SHARE, \$17.



COLLARD'S PATENT IRON HARROW.

I have made arrangements that enable me to furnish all parties requiring a good harrow with the above implement. The Patentee, who spent much time and money in perfecting his patent Iron Harrow, and preparing machinery for manufacturing it, has succeeded in producing a superior article, which can be furnished at a moderate price.

Each part is formed by machinery, by means of dies, presses, and punches—each joint is thereby a perfect fit, and each part exactly like its fellow. The harrow is made in two-row sections, four making up a harrow of 40 teeth.

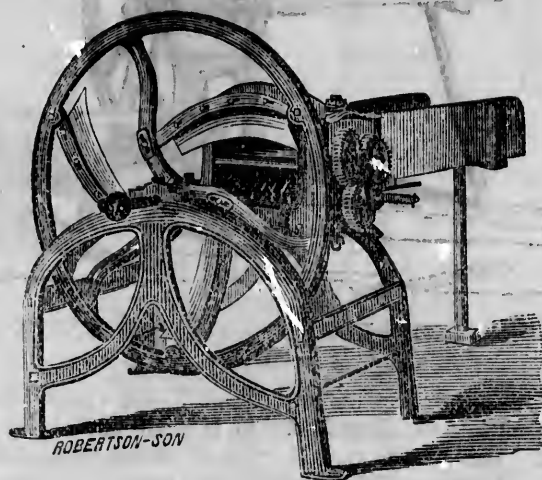
It has a very lively motion when at work; being in small sections, it readily adjusts itself to uneven surface in the ground, and is light to handle or move and of easy draught. There is not a nut or key to remove when taking it apart to remove from one field to another, consequently no small parts to lose. By taking out one of the inside sections, and reversing one inside and both outside sections, it makes a light thirty-tooth harrow, suitable for one horse or a pair of colts, and it can at any time be enlarged by adding one or more sections—thus making a 50 or 60 tooth harrow.

The hinges or connections are so arranged that there is a joint exactly behind each horse and one between them, so that when either horse is walking in the furrow, or if the furrow is between them, the harrow will with ease adapt itself to the shape of the furrow, thus nicely dressing the edges of both lands at the same time.

The head or shoulder of the teeth is formed by a peculiar die forming the tenon, or part passing through the upper bar tapering, which gives

the greatest strength to the tooth, and is the subject of a patent. The teeth are laid with the best of steel one third the length.

DIRECTIONS.—Dispense with the ordinary evener—attach each single whiffletree to the hooks on the doubletree—*cross the inside traces*. Every two or three days examine the nuts, and keep them turned hard down.



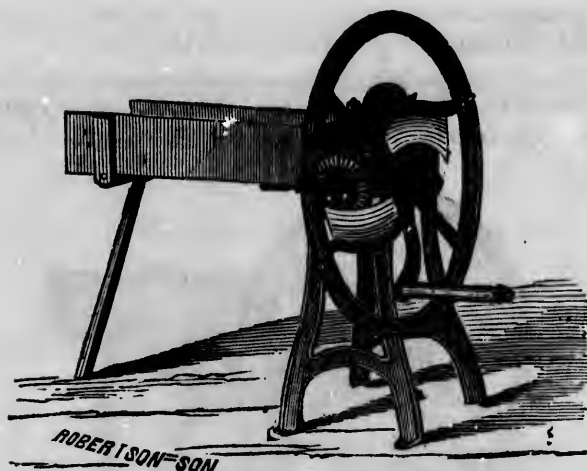
IMPROVED ARCHED IRON FRAME CONCAVE KNIFE CHAFF MACHINE.

The above cut represents my Horse Power Chaff Cutter, which is a very superior article, and for strength, simplicity and endurance it is unsurpassed. It is made entirely of iron and steel, except the tail-box. It also has an arch iron frame, which gives it great strength and durability. The fly-wheel carrying the knives is placed on the main shaft, between two bearings filled with Babbit metal, and is enclosed in the frame, to prevent accidents, and also to give it greater strength and durability. It cuts three different lengths of chaff; three-quarters, half-inch, and three cuts to the inch. It is furnished with improved registered rollers, which never fail to draw forward the material to be cut, and entirely obviate choking, which is a point of great moment to the purchaser of a chaff cutter. It is also fitted with rising mouth-piece and arresting gear, which places the machine entirely under the control of the feeder, as in case anything should get into the machine the feed can be instantly stopped.

NOTE.—In the use of chaff cutters, especially those driven by horse power, too much care cannot be taken to have the material to be cut free from stones, iron, sticks, etc., as accidents either to the machinery or the feeder often ensue from want of care in this respect. The bearings should be frequently oiled, and precautions taken to keep the oil-holes free from dust.

For sharpening the knives a small file is best, and it should be done on the bevelled front face of the knife.

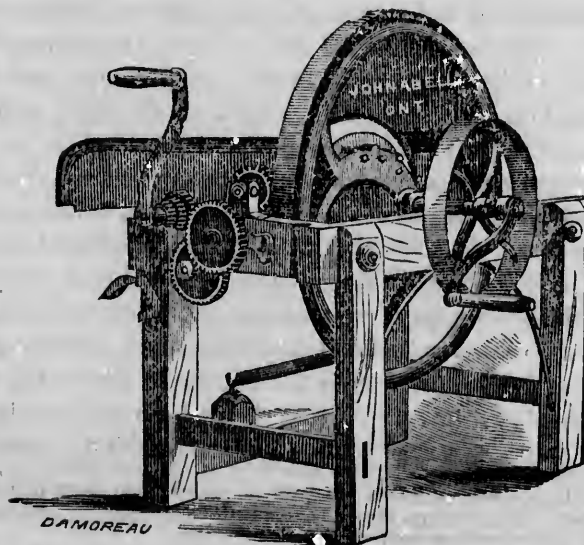
PRICE - - - \$60.



IMPROVED IRON FRAME CONCAVE KNIFE CHAFF MACHINE.

The above cut represents my Hand Power Chaff Machine. This machine is similar to the large one. It is made entirely of iron, except the tail-box. The shafts are all wrought iron, with rising rolls and mouth-piece. It can be attached to a horse power by screwing on a coupling instead of crank. It cuts remarkably easy, and is very simple and durable. Mouth-piece eight inches wide, and cuts the chaff $\frac{5}{16}$ long, or three cuts to the inch.

PRICE - - \$25.

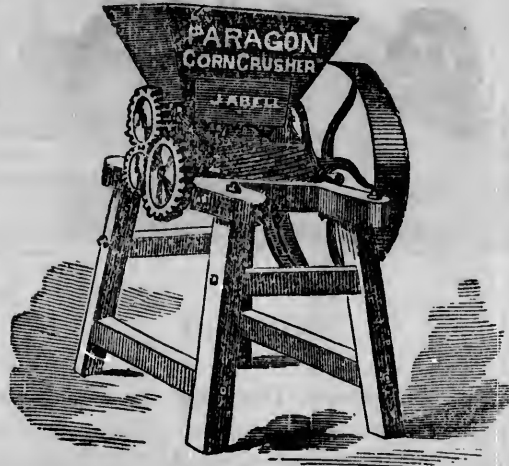


RICHMOND AND CHANDLER'S PATENT CHAFF CUTTER.

The above engraving represents this well known chaff cutter. It is well adapted to hand or horse power. The fly-wheel works inside the

frame, which imparts greater steadiness to the machine, and renders it easy working and durable. The frame is made of well seasoned timber, and the knives are of the best quality, cast steel, imported direct from best English makers; the workmanship throughout is of the best description, and it is capable of cutting one ton per hour. It cuts three lengths of chaff $\frac{3}{8}$, $\frac{5}{8}$, or $\frac{7}{8}$, as may be desired, by changing the gear wheels. It is furnished with stop motion and can be instantly thrown out of gear.

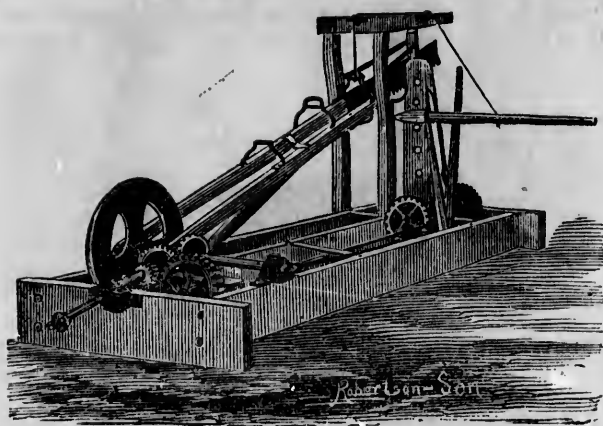
PRICE - - - \$45.



GRAIN CRUSHERS.

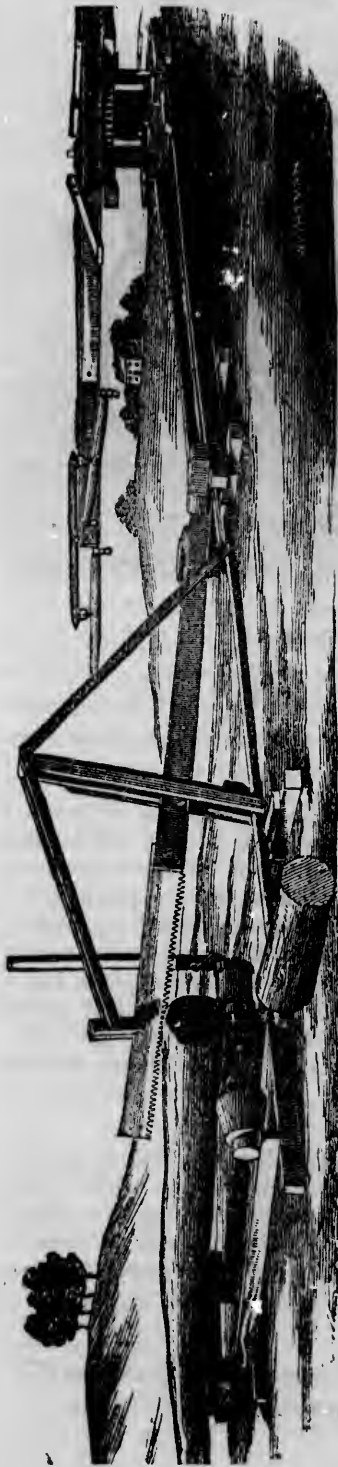
I also manufacture Grain Crushers. No apology is necessary for this class of machinery, nor is the value and importance of crushing, bruising or splitting all kinds of grain, before it is given to horses, cattle, or pigs, a disputed question. These mills are prepared with a view to economy. They are strong, simple, useful, and thoroughly good, both in principle and workmanship, and are capable of crushing oats, barley, peas, or small grain of any kind. They have two rollers, finely grooved by machinery; one roller travelling faster than the other causing a grinding motion. They are set to grind coarse or fine, by means of an adjusting screw. The feed roller is exactly adapted to supply the crushing rollers, and is easily arranged to give the rollers full work, without the fear of being choked. Their action is perfect, and the arrangement most convenient. With the aid of improved machinery, I have been enabled to considerably reduce the price of this machine; in so doing, however, their high character for material and workmanship is maintained, and the machine will now crush the finest seeds. Capacity, from forty to eighty bushels per hour. I manufacture three sises of the above machine; prices are—

10 inch Roller,	\$30.
12 " "	35.
14 " "	40.



DRAG SAW.

The above cut represents the Drag Saw I still continue to manufacture. This machine is intended for cutting stove or cordwood, or shingle stuff, cut of the log. One great advantage in this Machine to the farmer is, he can by it have all his rough knotty timber cut into stove length, which is easily split when cut short, and which would otherwise most likely be consigned to the log heap. The whole weight of the slides, guides, saw, and pitman, is on the log when cutting, which enables the saw to cut very fast. It will cut from eighty to one hundred cords per day. In this Machine the use of the screw and worm is dispensed with for feeding up the log, which is such an objectionable feature in most other Machines, and the use of spur wheels substituted in their place. It is also fitted with steel slides and Babbit boxes. The Machine is under the perfect control of the man in attendance. With the aid of a lever, putting the wheels in gear, the log moves forward at the pleasure of the operator. It is also furnished with a break, by which the Machine can be stopped in a few seconds. The frame is bolted together, and the whole Machine made in a strong, substantial manner, and has given perfect satisfaction.



DRAG SAWING MACHINES, FOR TWO HORSES.



APPLIED TO A STRAW-CUTTER.

These Machines are made for two or four horses, with or without Platform.



COMBINED ROLLER AND CLOD CRUSHER.

This valuable implement is made upon the principle of Mr. C. Cambridge's Improved Patent Double Action Press Wheel Roller and Clod Crusher. It is composed of a number of Cambridge's old patent plain wheels, with thin cutting edges; a serrated or notched wheel, of peculiar construction, is placed between each plain wheel, by which arrangement the effective action of the best clod crusher and wheel rollers are combined in this one.

This new Patent Roller and Clod Crusher will surpass every other in use for the following purposes: For rolling cloddy land before harrowing; also for rolling grain as soon as sown. For rolling wheat upon light land in the spring, after frosts and winds have left the plants bare; for stopping the ravages of the wire worm and grub; for rolling barley, oats, &c., when the plants are three inches out of the ground; for rolling before sowing clover, and in the spring, when the clover plant has a tendency to throw out; for rolling turnips in the rough leaf before hoeing, when the plants are attacked by the wire worm and grub; for rolling pastures, breaking up as it does, by its weight and shape, the old hard sward and enabling the roots to throw fresh shoots, thus renovating the pasture.

Some of the peculiar advantages of this roller over others are, the equalization of the pressure upon the land, the Discs, which work independently of each other, do not sink so deep into the land; therefore the draught is lighter; the indentation of the Discs approach nearer to the trampling of sheep than any other, and a special advantage is found in the rolling of wheat and other crops in spring, in the destruction of the wire worm, grub, &c.

PRICE, 5 ft. WIDE WITHOUT TRAVELLING WHEELS, 22 in. DIAMETER \$75.

Other widths in proportion.



I have made arrangements with the Patentee for the manufacture of

CARTER'S PATENT IMPROVED DITCHING MACHINE.

WARRANTED TO CUT A DITCH 3 FEET DEEP 100 TO 250 RODS PER DAY.

PRICE AT THE FACTORY\$160.

This well known Machine, manufactured by me, was again awarded the First Prize at the Provincial Exhibition held in Kingston, 1871.

The above Machine also took the First Prize at the Dominion Exhibition in London, in 1869, and in Toronto, in 1870. A First Prize and Silver Medal was awarded at the New Jersey State Fair, in 1869, and highly recommended by a Special Committee appointed to examine and report on the workings of the Machine. A First Prize and Medal was awarded at the International Exhibition at Buffalo, in 1869, and highly recommended by the Committee who witnessed its operations.

FACTS FOR FARMERS.

The best authorities on Agriculture say that thorough Drainage will add at least one-third to the product of the soil. Drainage will often save a crop. Drainage will enable a farmer to work his land much earlier in the Spring, and thereby his crops escape risks to which late planting exposes them. Drainage will often convert useless land into the most productive. Rain should not be permitted to run off the surface of the soil, nor should it remain in it to sour, but should percolate through it, and then be removed, thus imparting to vegetation the valuable properties it contains, so necessary to the sustenance of vegetable life. Hence the great importance of underdraining. A thorough system of underdraining prevents the soil from baking

preserves it always in a moist and porous state, so that the roots can extend to great distances in the soil in search of nourishment, and thus causes a vigorous growth of the crop.

Testimonial of eye-witnesses :—

We, the undersigned, having been present at a trial of Carter's Improved Ditching Machine, held on the farm of Mr. Andrew Murray, Malehide, Ont., 28th July, 1869, hereby certify that the said Machine, in our judgment, is perfectly adapted for the purposes of Land Draining, supplying a machine exceedingly simple in construction, easily handled, and admirably adapted for agricultural purposes, and for which we feel assured a good return will be realized by any person requiring it, being satisfied that under ordinary circumstances the Machine is capable of making drains from $2\frac{1}{2}$ to 3 feet deep and 8 inches wide at a cost of from two to four cents per rod, according to the nature of the soil operated on; and we therefore recommend the said Machine to the favorable notice of the farming community :

T. M. Nairn, Warden, Elgin,
Geo. F. Clark, M.D.,
Edwin Price, M.D.,
Ezra Foot, M.D.,
W. E. Murray, Conveyancer,
A. Hill, Mill Owner,
W. R. Farthings, Merchant,
G. I. Walker, Merchant,
Andrew Murray, Merchant,
Rev. Joseph Clutton,
J. W. Gillett, J.P., Farmer,
Jas. Brown, J.P., Farmer,
P. Clayton, J.P., Farmer,
T. Locker, J.P., Farmer,
Abram Bemer, Farmer,
Jesse Learn, Farmer,
Jesse Kinsey Farmer,

Ganes Pritchard, Farmer,
Harvey Vanpatter, Farmer,
Seth Lewis, Farmer,
A. Treadwell, Farmer,
B. Schooley, Farmer,
Joel W. Davis, Farmer,
E. J. Adams, Farmer,
Ira Doolittle, Farmer,
Richard Locker, Farmer,
A. J. Davis, Farmer,
Wm. Adams, Farmer,
J. Vanpatter, Farmer,
Richard Hill, Farmer,
Jas. McCausland, Farmer,
Simon Miller, Farmer,
W. J. Kerr, Farmer,
Calvin Adams, Farmer.

The following Certificate, as to the Working of the Machine, was addressed to the editor of the *Farmer's Advocate*, Nov. 27th, 1869 :

MR. EDITOR,—Sir, I am highly pleased with the Ditching Machine. It is doing good work, and in this section all that have seen it speak highly of it and believe it will be of great advantage to the country.

LAMBETH, Nov. 27th, 1869.

SAMUEL HUNT.

The following Report is from the Tri-weekly *Commercial*, published at Toledo, Nov. 22nd, 1869 :—

CARTER'S DITCHING MACHINE.—A few gentlemen visited the farm of Dr. Shaw, in Adam township, yesterday afternoon, to witness the working qualities of the Carter Ditching Machine. It was cold and rainy, but the Machine was running, and gave a full and fair exhibition of its merits. It cuts a ditch three feet in depth, eleven inches wide at the top and eight at the bottom. On Wednesday, this Machine, in two hours and a half, cut a ditch eighty rods long and two feet nine inches in depth. It will cut about three inches in depth at each time passing over the ground. The earth is thrown off to one side far enough to prevent it from falling

or washing back into the ditch. Two large horses will draw the Ditcher, but four of common size are necessary. Its construction is simple, its working exceedingly perfect, and its durability must be all that could reasonably be expected. It is cheap, and is just what the farmers of this section need, for tile draining is necessary on most farms. Ditching with this Machine would lose more than half its terrors to farmers, since a whole farm could be thoroughly drained with but very little labor, as the Ditcher is as easily managed as a plough, and dishes out the bottom of the ditch in perfect order for the tile. All things considered, we do not hesitate to pronounce the Carter machine superior to all competitors that we have ever seen on trial.

The following is a copy of Report of Committee appointed by the New Jersey State Agricultural Society :—

H. CARTER'S, AYLMEY, ONTARIO, DITCHING MACHINE.—This Machine is one of great merit, and must only be known to be appreciated. It does its part with ease and accuracy, and a great work is predicted for it in the reclaiming of wet lands. The Society award either a diploma or silver medal, at the option of the exhibitors.

The Committee appointed by the New Jersey State Agricultural Society to examine the Ditching and Draining Machine exhibited by H. Carter, of Aylmer, Ont., reported that they were present at Mr. Hunter's, and examined it at work on the 13th instant. The ground being very dry and baked hard, gave a very severe test upon the Machine, which performed to the satisfaction of your Committee and a number of gentlemen who were present at the trial. The Machine, in the dry hard ground, cut two and a half (2½) inches at one cut, and made a ditch eight inches wide and two feet six inches deep in a short time. Your Committee were much pleased with its working, the ease to the operator, the great simplicity of its construction, and the small cost of repairs when parts are worn. They report the Machine a decided success. All of which is respectfully submitted.

N. NORRIS HALSTEAD,
E. G. BROWN,
AMOS CLARK, JR.



PATENT PORTABLE ENGINE.

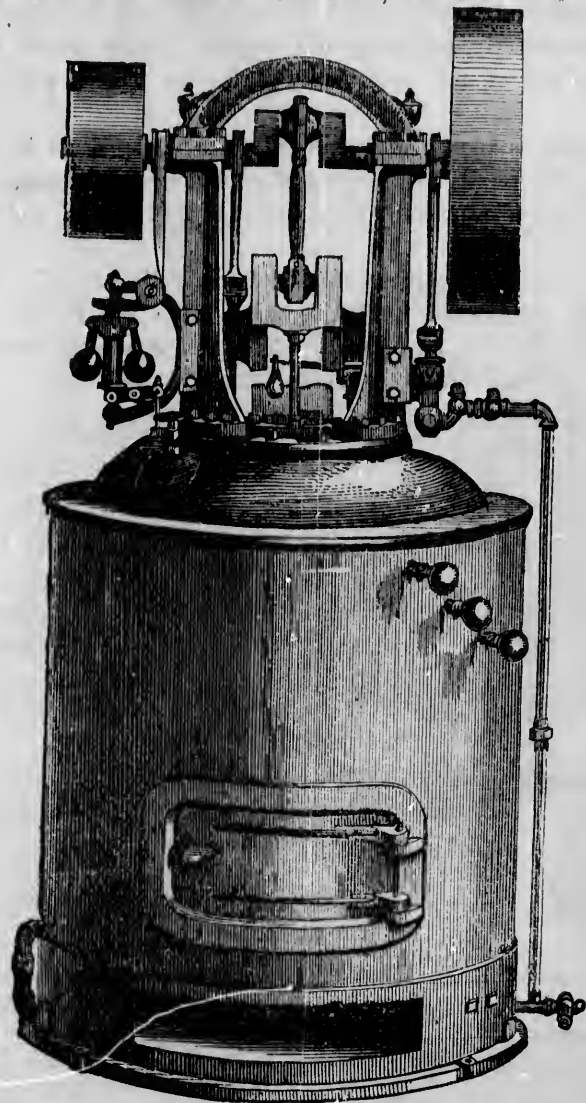
These Portable Engines, mounted on wheels, are used for a variety of purposes, such as driving a Shingle Machine, Threshing Machine, or

buil

any other Machinery requiring steam power ; it is specially adapted for driving Threshing Machines or sawing Shingles. The Engine is speeded so that it requires no intermediate motion, but the belt can be taken immediately from the Engine to the pulley of the cylinder of the Thresher, or to pulley of the saw mandril of Shingle Machine ; it is fitted with water heater and round bottom boiler, and has all the advantages and appliances described on page 7.

It is furnished with water gauge, safety-valve, and spring balance, steam-pressure gauge, pump, blow-off cock, oil can, monkey wrench, funnel for filling boiler, firing irons, tube cleaner, and mud door.

IF BOILER IS COVERED WITH FELT, EXTRA COST \$50.



The above engraving represents an Engine and Boiler combined, built of different sizes, from two to ten-horse power. The Boiler is so

constructed as to generate the greatest amount of steam, the draught is up and down and up, by which the largest possible amount of heating surface is secured.

All the parts are cylindrical or circular, consequently can be made perfectly secure under any pressure required.

The circulation of the water within the boiler is perfect, holding all sediment in suspension so that the same may be blown from the surface, or by blowing off the boiler once a week under pressure, it can be kept perfectly clean. The Engine is built upon and secured to the Boiler; all parts are being turned and squared by lathes and planers, consequently all parts will fit properly, be in line and correctly placed one to the other, so that no one of the parts will be thrown out of adjustment by expansion.

The shaft is the farthest removed from the head as it should be, while the cylinder and its parts are kept hot by being immersed in the steam. All the adjustment is made before the Engine is placed on the Boiler.

There are no loose pieces within to become disarranged. Whenever necessary the Engine can readily be taken from the Boiler by simply unscrewing the holding down bolts. The piston can be taken out, or can be adjusted from the top without difficulty.

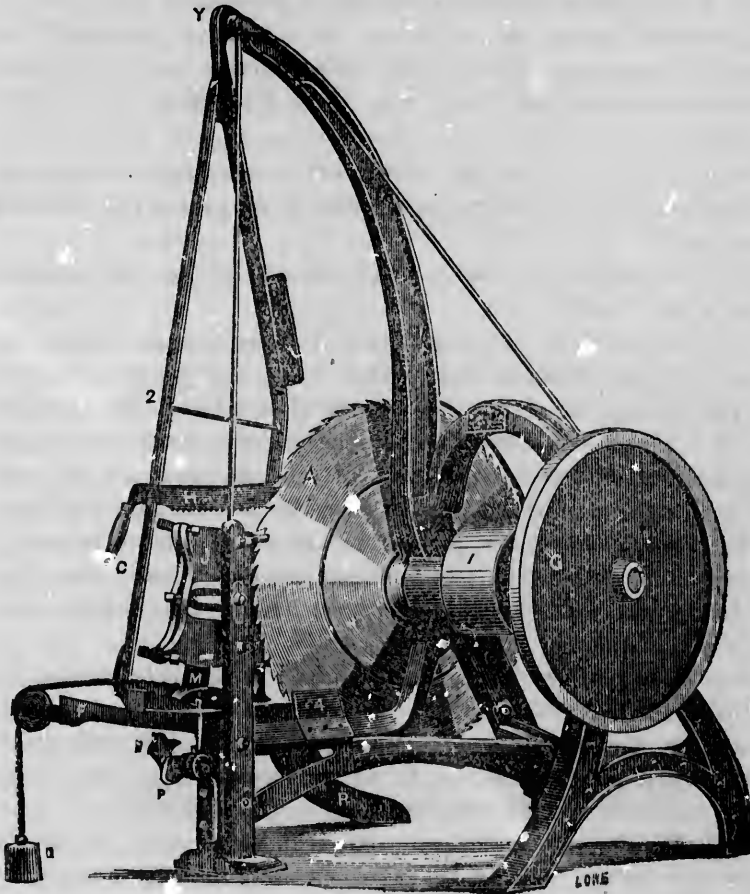
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SHINGLE, HEADING AND STAVE MACHINERY,

—AND—

SAWS OF ALL KINDS.



[FIG. 1.]

LAW'S PATENT COMBINED SHINGLE AND HEADING MACHINE.

Improved Machine, with Self-setting Gauge. Pulley 12 inches diameter, 8 inches face. Speed, 1200. Capacity, from 15,000 to 25,000 Shingles per day; of Heading 8,000 to 10,000. Power required, from 6 to 12 H. P. Easily operated, and not liable to get out of order. Combines Simplicity, Durability, and Economy of Power and Timber.

IMPROVED LAW PATENT SAWING MACHINE,

With improved Self-Setting arrangement.

For Sawing Barrel Heading, either for Tight or Slack Barrels; Shingles, Pail. Tub and Cheese-box Bottoms, Box Boards, Wagon Spokes, Cloth Boards, &c.

The attention of Mill Owners and manufacturers is called to this excellent Machine for Sawing Shingles and Heading. It has met with marked favor wherever introduced, owing to its superior work, both in Shingles and Heading, as well as to its simplicity, durability and economy of power and timber. Great improvements have lately been made in this machine, and I now offer it to the public with renewed confidence.

This machine has been thoroughly and severely tested during the past twelve years, and experience has shown it to possess the following advantages :

1st.—Its simplicity renders it easily managed by any one capable of keeping a saw in order.

2nd.—Owing to the peculiar manner of presenting the block to the saw, the following advantages are secured : 1st. Less power is required. 2nd. The saw entering at the upper corner of the block, has to cut the grain of the timber but ONCE, and, consequently, keeps sharp much longer than would be the case if it entered the side and cut the grain twice, as in other machines. 3rd. If properly filed, the saw feeds itself, with hardly an effort on the part of the attendant. 4th. The work is smoother. 5th. It is found that a thinner saw can be used than when the block is presented directly sideways or endways, thus making a very great saving of timber.

3rd.—Being fed by hand, the operator has complete control, and can regulate the feed according to the timber he is sawing, thus avoiding the expensive breakages caused by forcing the saw through curls, knots, &c., which is so great an objection to all self-feeders. This renders the machine capable of operating successfully in any kind of timber.

4th.—It will average from two to three thousand more heading or shingles per day than any of the numerous machines with which it has been compared. It dogs very close to the saw, thus reducing the waste to the least possible amount.

5th.—It is thoroughly adapted to sawing both Shingles and Heading without the removal or addition of any parts.

6th.—The power is applied DIRECTLY to the work with an OPEN belt, consequently none is consumed in driving contrivances.

7th.—The saw is so guarded as to make this the safest of machines to work with, and at the same time it can be got at with great facility for the purpose of filing, &c. No taper arbor being used in our improved

machines, to remove it from the machine is the work of a minute, as no surrounding parts need be removed.

8th.—This is the only machine capable of sawing equally well BOTH Shingles and Heading.

9th.—By means of screws the gauge is easily and quickly adjusted, so that tight barrel heading can be sawed with great facility, *as thick at the sap edge and as thin at the heart as desired.*

10th.—Any desired taper for Shingles is readily obtained.

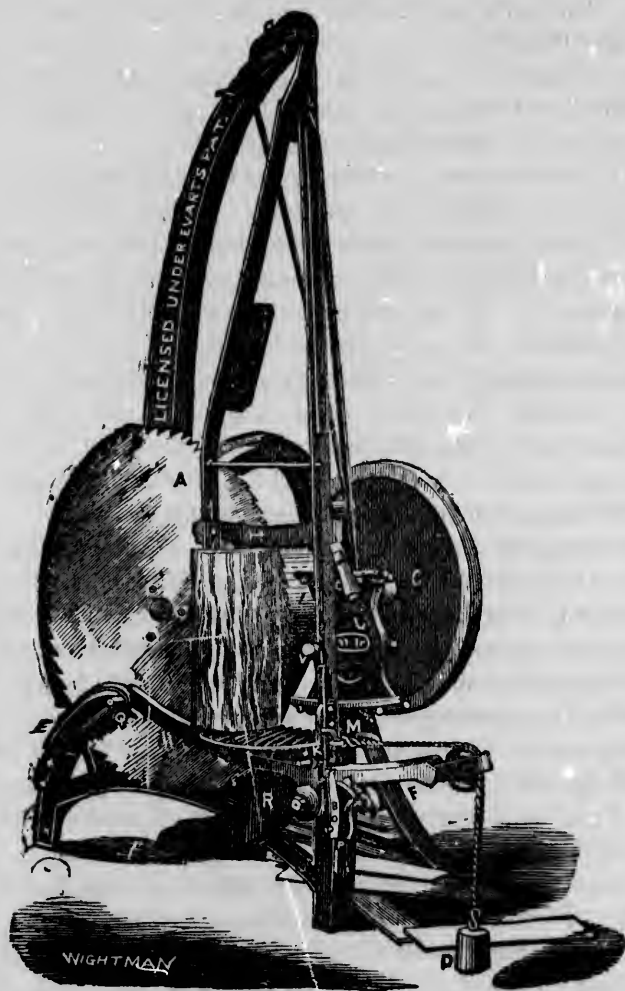
11th.—The position of the operator is such that he can at all times see both the block and the Shingle or Heading he is sawing. By the advantage thus given him, and the convenient arrangement for dogging and undogging the block, he can, when necessary to avoid knots, shakes, &c, shift the block, and thus make a better quality of work than could be made by sawing through and through, regardless of defects in the stock.

As a machine for sawing barrel heading of all kinds, the Law Patent stands unrivalled. Hundreds of these machines are in operation in the United States, Canada, Spain and the West Indies, and the favor with which they are received by mill men steadily increases.

It is thoroughly adapted to working in all kinds of timber, having been extensively operated in stocks of *frozen* Hemlock, Cypress, Curled Maple and Oak, both green and seasoned, and it proved itself fully equal to working up such timber. The feed being controlled entirely by the will of the operator, and the work being *at all times in full view*, the Law machine possesses a great advantage over all others when operating in anything but the clearest timber. On an average it will saw more pieces per day, with less injury to the saw, than is possible when the machine feeds itself regardless of inequalities of stock. The gain in quantity and quality of work done, comes from two reasons: 1st. The bolt and carriage travel away from the saw only enough to just clear it, making the travel considerably less when the bolt is narrow. A self-feed carriage generally travels the whole distance necessary for the widest bolt, whether the one being sawed be narrow or wide. This lost time amounts to many pieces in a day. 2nd. Instead of having to set the feed slow enough to prevent injury to the saw, in dangerous timber, the Law machine can be eased through the knots, &c., and lost time made up in the clear portions. The result is a good average and smoother work.

In cases where it is not desired to lose time by stopping the machine for the purpose of filing, &c., it will be found very advantageous to have two saws fitted to the machine, one saw being at work on the machine while the other is being filed. When a machine is ordered to be fitted with two or more saws, we fit so that in changing saws it is not necessary to re-set the gauge, so that to change saws requires a stoppage of but a few moments.

LAW'S PATENT COMBINED SHINGLE AND HEADING MACHINE.



[FIG. 2.]

IN SETTING UP OBSERVE THE FOLLOWING DIRECTIONS AND GENERAL REMARKS.

A few simple directions, if carefully followed, will enable almost any one to set up and run the Law machine successfully.

Having prepared a substantial platform, of the shape of the letter L, 10 or 12 inches high, place the frame upon it so that all the feet will bear and the Shingles or Heading fall to the floor without striking the platform. The platform must be large enough for the operator to stand upon it. In case the machine is set up so it is convenient to allow the Heading or Shingles to fall through the floor to the lower story, then this platform is not needed. Put the slide (F) and arm (E)—Fig. 2—in place, and connect them by means of the small nut on the end of the screw (Q). Do not move the large lock nut on the screw (Q). Then place the piece (Y) on the top of

the frame. Next hang the swing frame (2)—*Fig. 1*—on the wrist (Y), letting the gibs under the grate embrace the slide (F). Take off the caps, wipe the boxes clean and put a little oil in them. Wipe the shaft clean and place it carefully in its bearings and replace the caps, and do not screw down too tight. Screw down the set-screws in the pulley tight as they will bear. Wipe clean the end of the shaft and the face of the small collar on it, also the eye and recess in the saw collar, and place the saw on the shaft, making the punch marks on the end of the shaft and saw collar agree. Then put in the three screws around the centre hole of the saw and screw them carefully and equally up *together*.

Level the saw arbor by plumbing the *outside* of the saw; then make all the feet of the frame bear firm, and bolt securely down.

Hold a rule on the swing, opposite the centre of the saw and with the end touching it, and vibrate the swing, noting whether the rule leaves the saw or crowds against it in passing from the teeth to the centre of the saw. The end of the rule so held should clear the saw about one thirty-second of an inch. This is effected by loosening the large lock nut on the screw Q at the back end of the slide F, and by means of this screw the end of the slide is moved towards the saw, or away from it, which governs the direction of the motion of the swing frame 2—*Fig. 1*. The lock nut on screw Q should be always left tight. In sawing green or damp timber, the slide F should be adjusted so that the swing will clear a little more than above stated. A little observation will bring this all right.

Any slight "running" of the saw while working, caused by imperfect filing or setting, can be remedied by adjusting the slide with this set screw.

Bolt the gauge J to the post at such a height that the centre of it will be at the centre of the block and see that the ends of the slides do not come nearer than within about an inch of the edge of the saw.

Put the saw-dust box under the saw and secure it with a set screw provided for that purpose.

Adjust the sheet-iron separator 4 on the frame so that it will not *quite* touch the saw, but as near as possible, with the back end a little the farthest off.

Having filed and set the saw, put on the curved guard at the back of the saw, and attach the weight D to the swing. Finally place the round brace on the top of the post and secure the upper end at the point Y, with the set screw provided for that purpose.

TO SET FOR HEADING.

The levers B and the arm which goes into the slot in the bottom of the gauge, are turned down and not used.

Screw up the set screws in the post so as to hold the gauge firm, and adjust the thickness by the four set screws passing through the gauge into the ends of the small slides.

The end of a rule held on the swing and against the sides of the gauge should, in passing towards the saw, clear them a very little, so as to prevent friction against the block.

For sawing tight barrel heading, place the block in the swing frame, with the sap side towards the saw; draw back the ends of the slides on the gauge nearest the saw, and advance the ends farthest from the saw, until the proper thickness at the sap edge and heart is obtained. If greater thickness of sap edge is desired than can be obtained by this, then twist the gauge round by chipping away the rib provided for this purpose, on the edge of the post nearest the saw.

TO SET FOR SHINGLES.

Secure the gauge as before. The centre of vibration of the gauge should be placed at a distance above the top of the ribs on the swing equal to half the length of the Shingle. This can be done by moving the bolt in the slot of the post and raising or lowering the shifter to correspond. Slack the two screws in the post which go against the back of the gauge. Bolt the shifter to the front of the leg, so that the levers B—*Fig. 2*—shall engage with the small dog at the bottom of the grate, and the arm at the other end of the small rock shaft shall move *freely* in the slot M and strike neither end.

Get the required amount of taper by moving the pin in slot B, at the bottom of the lever B. To increase the taper, move it *from* the saw, and the reverse to decrease the taper. At the same time the hub at the right hand end of the rock

shaft S should be moved slightly around, if the lever strikes the end of the slot in the gauge. Adjust the slot at the bottom of the gauge so that the shifter will always work freely. In bolting the shifter to the frame be careful to let the lip on the left hand come against the frame. When adjusted so that the vibrations of the swing give the proper vibrations to the gauge for the desired thickness of point and butt, then screw up the two screws in the post just enough to have the gauge, in vibrating, come fairly against their ends alternately. Do not screw them through so far as to strain the shifter each time. A little practice will make all easy.

FILING, SETTING, ETC.

The saw should be filed as nearly square across as possible, both front and back. File *with* the set, or from *both* sides.

Keep the teeth as nearly the original size and shape as possible, except that for hard wood they may be made a little less hooking. If allowed to become much shorter than at present much more power will be required.

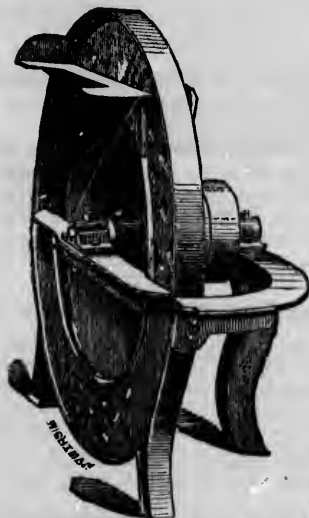
Never set *after* filing, and use the least set possible. If you would do smooth work, set as little as possible and *very* carefully.

A set and gauge accompany each machine. The gauge is always to be applied to the flat or outside of the saw. It cannot be properly set in any other way.

The saw should be jointed till perfectly round, and occasionally afterwards, to keep it so.

TO OPERATE THE MACHINE.

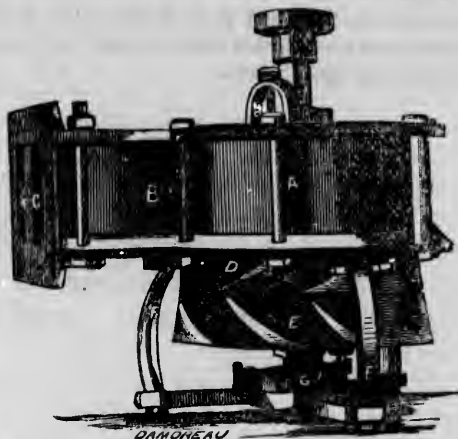
The block to be sawed is placed in the swing carriage 2, against the gauge J. the dog H is brought down on the block by means of the handle C, and by pressing on C the block is securely held in place and the swing moved past the saw, making a Shingle or piece of Heading, as the case may be. The weight D draws the carriage and block back. Then the dog is slightly raised and the block pressed against the gauge by the left hand and knee of the operator, and the dog secured as before. The block sliding on the ribs of the bottom of the swing, moves very easily. The small dog attached to the bottom of the swing engages alternately with the two small levers B on the rock shaft S which vibrates the gauge J for sawing Shingles. For sawing Heading, the rock shaft and small dog at bottom of swing are not used. By means of a small handle, not shown in cuts, the operator is enabled to cut two or more points or butts successively from the same end of the block. This attachment is so placed, near the handle C, that the operator can control it with facility and ease, without quitting his hold of the swing handle C.



WHEEL JOINTER FOR SHINGLES AND HEADING.

This engraving represents my Iron Wheel Jointer for Jointing:

Shingles and Heading. It has a solid cast iron wheel three feet in diameter, securely banded with a wrought iron band shrunk on, around the edge, giving much additional strength to an already strong wheel. It is turned up perfectly true and the workmanship throughout of the best class.



COLE'S PATENT "SAMSON" TURBINE WATER WHEEL,
WITH PATENTED IMPROVEMENTS.

I have much pleasure in informing my friends and the public generally that I have made arrangements with Mr. A. D. Cole, the patentee, for the manufacture of his Patent Samson Turbine Water Wheel, of which the following is a description of the above engraving:—

DESCRIPTION.—In the above engraving the Wheel is represented in a vertical position, with a portion of the outer covering or rim removed at D E, so as to show the form of the buckets and direction of the water. A is the cylinder or reservoir of the wheel, the sides of which are built of Staves, having a cast iron plate top and bottom. B is the neck, at the end of which is C the Gate or Valve for the admission of the water, D is the shoot plate or stationary part of the wheel with guides arranged to give the proper direction to the water. E is the revolving part of the wheel to the centre of which the shaft is firmly attached. It is formed with buckets against which the water presses in its exit from D, as shown by the arrow, and so produces its rotary motion. F F are legs by which the stationary part of the wheel A D is supported, resting on the cross C, which forms the foundation and pedestal of the wheel. H represents the cover of a man hole, by which easy access can be had to the inside of A at any time

The Samson Turbine Water Wheel, of which the above is an engraving, Invented and Patented by the undersigned, has been for some years

back in every-day use both in the Dominion of Canada and the United States, to the entire satisfaction of both the patentee and the purchasers.

The Wheels are fully warranted and Mr. Cole will give every purchaser the following Guarantee, namely:—

All my Wheels are warranted to give perfect satisfaction, when put in and run under competent management, and if on Starting, the Wheel does not work satisfactorily, the purchaser may at once return it, and I will pay the freight both ways, and refund all moneys paid thereon.

A. D. COLE.

—O—O—

Among the many qualities which distinguish this Wheel from all others, the following may be named as a few of the leading advantages:—

1st.—It is simple in its construction, and so proportioned as not to be liable to fracture or derangement, either from carriage or use.

2nd.—It will give the largest per centage of power for the quantity of water used at any given head.

3rd.—It is not liable to freeze, and anchor ice or rubbish of any kind do not effect it.

4th.—It is suitable for every variety of head, high or low, and can in all cases be made to use the whole head or fall.

5th.—Back water has no effect on it, as it works equally well in or out of it.

6th.—It works equally well when placed vertically or horizontally.

7th.—It occupies less space than any other wheel of equal power, and can be placed inside or outside the mill, as may suit the convenience of the place or owner.

8th.—The actual discharge of water is 40 per cent. less than the theoretical.

9th.—It is not liable to get out of repair, and can be set up by any competent millwright in two or three days.

10th.—It can be adapted to existing machinery with ease and economy, and can replace a breast or other wheel without any material alteration.

11th.—It runs very steady, is easily regulated, and will yield a larger per centage of power than any other wheel in use.

A. D. COLE.

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Mr. A. D. COLE,
DEAR SIR,
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From the mass of correspondence and recommendations I have by me respecting the superiority of my Wheels, I submit the following

TESTIMONIALS :

Toronto, February 13, 1860.

Mr. A. D. Cole, Toronto,

Sir,—We have pleasure in testifying to the superior qualities of your water wheels. You put one 4 feet in diameter into our Streetsville mills, where we have 9½ feet head in place of a breast wheel. This gives perfect satisfaction. You also put one 3 feet in diameter in our Pine Grove Mills, where we have twenty-two feet head, in place of an over-shot wheel. This also gives perfect satisfaction. In both cases we do more work with the same water, and the whole cost did not exceed what we should have had to expend in repairing the old wheels. Besides the cost of keeping your wheel in repair is little or nothing. They are not effected by frost, and will work well in back water. You are at liberty to refer intending purchasers to either of our mills, where they can judge for themselves.

Yours truly,
GOODERHAM & WORTS.

PORT NEUF MILLS,
Province of Quebec, 1860.

Mr. A. D. Cole,

Sir,—I have now had three of your Samson Water Wheels in use some time, and they give entire satisfaction. After an experience of over thirty years in mills I can say, that for cheapness of first cost, economy in working, and great power in proportion to the water used, they are far before any wheel I know of. A great advantage your wheel has, it works under water without any inconvenience. I shall be glad to afford information regarding the working of your wheels to any one you may refer to me.

Yours truly,
ANGUS McDONALD.

Small Wheel and High Head.

Quebec, 10th October, 1860.

I hereby certify that I have had one of Mr. A. D. Cole's Samson Wheels, TWELVE INCHES in diameter, working under a head of 75 feet, driving a saw mill and joiner's factory, for the last twelve months, and from its great power and steady motion, I can recommend it to any one as one of the best wheels that has ever been put up in this part of the country.

I could recommend Mr. Cole as a man who understands his business as a millwright, and a person who is capable of getting up mills upon the best and cheapest plans.

JOSEPH ARCHER.

WELLAND VALE WORKS,
St. Catharines, Dec. 22, 1870.

Mr. A. D. Cole, Toronto,

DEAR SIR,—In May last we ordered from Mr. Cole one of his SAMSON TURBINE WATER WHEELS, also from the Joseph Hall Manufacturing Co., one of

their LEFFEL WATER WHEELS (to take the place of two Slater Wheels, which we removed), with the understanding, that the wheel which proved a failure should be taken out. On trial we found the SAMSON WHEEL TO DO MORE WORK, USING 193 INCHES LESS WATER THAN THE LEFFEL WHEEL. We at once ordered another of the Samson Wheels (to take the place of the Leffel Wheel), and now have it at work and doing well. We shall be pleased at any time to inform parties regarding the wheels.

We remain, dear Sirs, truly yours,
(Signed) TUTTLE, DATE & RODDEN.

PORT NEUF MILLS,
Province of Quebec.

Mr. A. D. Cole,

DEAR SIR,—I have great pleasure in confirming the last certificate I gave you in regard to your Water Wheel. Since then I have put seven of your wheels into my saw mills, for driving both gangs and circular, which are a GREAT IMPROVEMENT BOTH IN ECONOMY AND POWER over those I took out.

I have also lately put one of your 4 feet wheels into my Lorette paper mills, to replace a Tuttle Wheel, and we get the same power by using only about one-third the water we formerly used. You are at liberty to refer intending purchasers to me.

I am, yours truly,
ANGUS McDONALD.

TRENT PAPER MILLS,
Trenton, Ont., July 23, 1869.

Mr. A. D. Cole,

DEAR SIR,—In answer to your enquiry, how we like your Water Wheels, we beg to say that it gives us great satisfaction to state, we are PERFECTLY SATISFIED WITH THE WHEELS, AS THEY HAVE FULLY COME UP TO WHAT YOU PROMISED. Our experience leads us to believe, that there is NOT A BETTER WATER WHEEL MANUFACTURED IN CANADA, EITHER FOR HIGH OR LOW HEADS. Back water does not effect them in the least, which is a great advantage over any other wheel we have used. You can show this to any person requiring a water wheel, and we shall be most happy to give particulars.

We remain, yours very truly,
FORD & TAYLOR.

The above wheels worked under 4 feet heads.

WELLAND VALE WORKS,
St. Catharines, October 15, 1870.

Mr. A. D. Cole, Toronto,

DEAR SIR,—In answer to your enquiry as to the exact results of the test between the Leffel Wheel and Cole's Samson Turbine, at Messrs. Tuttle, Date & Rodden's factory in this town, in August and September last, I have pleasure in handing you the following:

The wheels were put in side by side, and so arranged that thorough test might be made. On TRIAL we found Cole's Samson Turbine to use 193 inches less water (about ½) and at the same time to

give more power, driving exactly the same machinery. In this test the Leffel Wheel used 743 inches of water, and the Samson 550 inches. According to the terms of agreement, another Samson Wheel was ordered to use the same amount of water as the beaten Leffel, and when it was put in we found it to give 30 per cent. more power than the Leffel which it replaced.

I have, therefore, no hesitation in saying, that Cole's Samson Turbine is decidedly the best wheel I know of, either for economy or power, and will be happy to recommend it to any one requiring the Best Water Wheel.

(Signed) ELI PERRY,
Supt. of Works.

QUEBEC LUNATIC ASYLUM,
October 10, 1860.

This is to certify that Mr. A. D. Cole put one of his 2 feet Samson Water Wheels in this Asylum, for raising the water to the tanks of the establishment. It has answered admirably, has abundant power with a fall of 30 inches to raise the water to the height of 45 feet. It has now been in operation nearly three years.

J. DOUGLAS, M.D.
C. FREMONT, M.D.

G. WAKSHAIN, Warden.

MONTMORENCI SAW MILLS,
Province of Quebec.

I hereby certify, that we have one of A. D. Cole's 3 feet Samson Water Wheels at work in our establishment, and that it gives ENTIRE SATISFACTION. It was put in to replace a 21 feet Over Shot Wheel, and from its steady motion we find it more advantageous. It is working under 24 feet head, and, without using the whole power, it drives a slabbing gate and gang, edging saw, two butting saws, and a log hauler.

J. DEAN, Manager.

TORONTO, January 4, 1870.

MR. A. D. COLE, Toronto,

DEAR SIR,—We have pleasure in certifying that we have been using for nearly three years FOUR of Mr. Cole's SAMSON TURBINE WATER WHEELS (manufactured by you), at work in our mills. Two at Streetsville, one at Meadowvale, and one at Pine Grove, all of which GIVE PERFECT SATISFACTION. They yield a much larger per centage of power, in proportion to the water used, than any other wheel we know of, and in fact we consider it the BEST WATER WHEEL we know of. You are at liberty to refer intending purchasers to us.

Yours truly,
(Signed) GOODERHAM & WORTS.

MR. A. D. COLE, Toronto.

SIR,—We have used EIGHT of Cole's Water Wheels in our saw mill at Port Severn, for the past two seasons, and they have given us EVERY SATISFACTION. Two of these wheels have been running under BACK WATER for a considerable part of the time, and it DOES NOT EFFECT THEM in any other way than by diminishing the head. We would have pleasure in recommending them to any parties who may require Water Wheels.

Yours, &c.,
(Signed) ALEX. CHRISTIE.

DON PAPER MILLS,
Toronto, January 5, 1871.

MR. A. D. COLE,

DEAR SIR,—We have pleasure in certifying that we have now at work FOUR of MR. COLE'S SAMSON WATER WHEELS in our three mills. We are well satisfied with their performance, and are now about getting more Samson Wheels into a new mill we are now building.

Yours truly,
(Signed) JOHN TAYLOR & BRO.

St. Mary's, Oct. 5th, 1870.

MR. A. D. COLE, Toronto,

GENT,—Yours of Sept. 9th was duly received. Instead of sending \$150 and 4 months note for balance, as you requested, I now send you per express \$300, the full amount of the contract. With regard to the wheel, I am well satisfied that it is the best wheel I have ever used in twenty-five years steady working with water wheels of different kinds.

Yours respectfully,
(Signed) JOSEPH IREDALE.

Weston, September 20th, 1870.

MR. A. D. COLE, Toronto,

DEAR SIR,—We have much pleasure in testifying that we are not only PERFECTLY SATISFIED but HIGHLY PLEASED with the working of the two Samson Turbine Water Wheels (A. D. Cole's Patent), which you put in for us last summer. Using much less water than we formerly did, we now have nearly double the power, and that at such a small first cost, and absolutely nothing for running expenses, that the extra work performed by the mill has cleared all expenses in a few months running. And we consider the Samson Turbine decidedly the BEST WATER WHEEL MANUFACTURED IN AMERICA.

Yours truly,
(Signed) R. & T. McDUGALL.

showing the working veloc

Ft. of head.	1	1 1/2	2	2 1/2	3
2	145	96	72	58	
3	176	118	88	70	
4	203	136	101	81	
5	228	151	114	91	
6	250	168	124	90	
7	269	180	134	108	
8	288	192	144	114	
9	305	203	152	122	
10	322	212	161	129	
11	338	226	169	135	
12	353	235	176	141	
13	367	245	183	147	
14	378	252	189	153	
15	392	263	197	159	
16	406	271	203	163	
17	419	279	208	167	
18	432	288	212	172	
19	444	296	222	177	
20	455	305	229	183	
21	466	311	233	187	
22	476	318	238	192	
23	488	325	242	196	
24	499	332	247	200	
25	509	339	253	203	
26	520	345	259	206	
27	530	352	264	209	
28	540	359	270	213	
29	550	366	275	217	
30	560	373	280	222	
31	570	380	284	226	
32	579	386	289	230	
33	588	391	294	234	
34	596	398	298	238	
35	605	404	302	241	
36	616	410	306	245	
37	628	415	310	249	
38	638	421	315	251	
39	647	426	319	254	
40	653	432	323	258	
41	658	437	327	261	
42	664	442	331	265	
43	671	447	335	268	
44	679	452	339	271	
45	686	457	343	274	
46	694	462	347	277	
47	703	467	350	280	
48	709	472	354	283	
49	716	477	358	286	
50	723	482	361	289	

TABLE No. 1.

Showing the working velocity of these wheels under different heads.

Ft. of head.	1	1½	2	2½	3	3½	4	4½	5	5½	6	7	8
2	145	96	72	58	48	41	36	32	29	26	24	20	18
3	176	118	88	70	59	50	44	39	35	32	29	25	22
4	203	136	101	81	67	58	51	45	40	37	34	29	25
5	228	151	114	91	75	64	57	50	45	41	38	32	28
6	250	168	124	99	83	71	62	55	50	45	42	35	31
7	269	180	134	108	89	77	67	60	54	49	45	38	33
8	288	192	144	114	96	83	72	64	58	53	48	41	36
9	305	203	152	122	102	88	76	68	61	56	51	44	38
10	322	212	161	129	107	92	80	71	64	59	53	46	40
11	338	226	169	135	112	97	84	75	67	62	56	48	42
12	353	235	176	141	118	101	88	79	70	64	59	50	44
13	367	245	183	147	122	105	91	82	73	67	61	52	46
14	378	252	189	153	126	109	94	84	75	69	63	54	48
15	392	263	197	159	131	113	98	88	78	72	66	56	50
16	406	271	203	163	135	117	101	91	81	74	68	58	51
17	419	279	208	167	140	120	104	93	84	76	70	60	53
18	432	288	216	172	144	124	108	96	86	78	72	62	54
19	444	296	222	177	148	127	111	99	88	80	73	64	56
20	455	303	229	183	151	130	115	101	91	83	75	65	57
21	466	311	233	187	155	134	118	104	93	85	77	67	58
22	475	318	238	192	159	137	122	106	95	87	79	68	60
23	488	325	242	196	163	140	124	109	97	89	81	70	61
24	499	332	247	200	167	143	120	111	99	91	83	71	62
25	509	339	253	203	171	146	129	113	102	93	85	73	63
26	520	345	259	206	174	149	131	115	104	95	87	74	64
27	530	352	264	209	178	152	134	117	106	96	89	76	65
28	540	359	270	213	182	154	137	120	108	98	90	77	67
29	550	366	275	217	185	157	140	123	110	99	91	79	68
30	560	373	280	222	187	160	142	125	112	101	93	80	69
31	570	380	284	226	189	163	144	127	114	103	94	82	70
32	579	386	289	230	192	165	146	129	116	105	96	83	72
33	588	391	294	234	196	168	147	131	118	107	98	84	73
34	596	398	298	238	198	170	149	133	119	108	99	85	74
35	605	404	302	241	201	173	151	135	122	109	102	86	75
36	616	410	306	245	204	175	153	136	124	111	104	87	76
37	628	415	310	249	207	177	155	138	126	113	105	88	77
38	638	421	315	251	210	179	157	140	128	114	106	90	78
39	647	426	319	254	213	182	159	141	129	116	107	91	79
40	653	432	323	258	216	185	161	143	130	117	108	92	80
41	658	437	327	261	218	187	163	145	131	119	109	93	81
42	664	442	331	265	221	189	165	147	132	120	110	95	83
43	671	447	335	268	223	191	168	149	134	122	112	96	84
44	679	452	339	271	224	194	170	151	136	123	113	97	85
45	686	457	343	274	229	197	172	153	137	124	114	98	86
46	694	462	347	277	231	199	174	154	139	126	115	99	87
47	703	467	350	280	234	200	175	156	140	128	117	100	88
48	709	472	354	283	236	202	177	158	142	129	118	101	89
49	716	477	358	286	238	204	179	159	143	130	119	102	90
50	723	482	361	289	241	206	181	160	145	131	120	103	91

Table No. 2.
Showing square inches
of water required to
give a single horse
power under differ-
ent heads.Fall in
feet.

Inches of water.	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
83.00	11.31	13.75	16.00	17.88	19.59	21.16	22.62	24.00	25.31	26.53	27.71	28.84	29.93	30.98	32.00	32.98	33.94	34.87	35.77	36.66	37.52	38.36	39.19	40.00	40.79	41.56	42.33	43.08	43.71	44.54	45.25	45.95	46.64	47.32	48.00	48.66	49.31	49.75	50.39	51.22	51.84	52.45	53.06	53.66	54.25	54.84	55.42	56.00	56.56

TABLE
No 3.
Showing the
speed of
water. Feet
per second.Inches of
water.

11.31
13.75
16.00
17.88
19.59
21.16
22.62
24.00
25.31
26.53
27.71
28.84
29.93
30.98
32.00
32.98
33.94
34.87
35.77
36.66
37.52
38.36
39.19
40.00
40.79
41.56
42.33
43.08
43.71
44.54
45.25
45.95
46.64
47.32
48.00
48.66
49.31
49.75
50.39
51.22
51.84
52.45
53.06
53.66
54.25
54.84
55.42
56.00
56.56

TABLE No. 4.
Showing amount of water used on each
Wheel.

Size of Wheel.	Cubic Inches Water.
Feet.	Inches, Inches.
1	10 to 20
1½	25 " 40
2	40 " 70
2½	70 " 110
3	110 " 150
3½	150 " 225
4	225 " 310
4½	310 " 400
5	400 " 500
5½	500 " 650
6	650 " 800
7	800 " 1,000
8	1,000 " 1,300

Explanation of Table of Velocity.—Find the diameter of the wheel in feet, top line; the head or fall in feet in the left hand column, and in a line with each will be found the number of revolutions of the wheel per minute.



I have now every facility for the manufacture of Saw and Grist mill machinery of every description. My patterns are of the newest description with all the latest improvements. All orders will receive prompt attention.



STUMP MACHINE.

The above cut represents my Stump Machine set up for work.

NOTICE

TO

PURCHASERS OF THRESHING MACHINES, MOWERS, AND
REAPERS, FOR 1872.

In order to prevent disappointment for the season of 1872, I would particularly impress on my friends and patrons, the absolute necessity of giving their orders early. At Harvest time great numbers of Machines are being despatched by rail, and the consequence of the extreme pressure of work on the Railway Companies, often is, hurried loading and insufficient packing, causing delay and breakage, and consequent heavy losses to the Farmers who are expecting their Machines. All this may be avoided and Machines obtained in readiness for Harvest if the Farmers and other users of Machines will send their orders or give them to the Agents without delay, and allow the Machines to be sent in good time.

Early orders will ensure the safe delivery of well made and well seasoned Machines made before the pressure of Harvest time, and prevent loss and disappointment when the Machines are required for use.

The delivery of all Implements and Machines properly addressed to the carrier must be considered as delivery to the purchaser.

"In the present active and enlightened state of the world, people will supply themselves from the best sources, and the true policy of all producers, whether raw materials or manufactured articles, is not vainly to endeavor to keep other vendors out of the market, but to conquer them in it by the quality and cheapness of their articles."—D. WEBSTER, 1824.

A WORD OF ADVICE!

TO THE PURCHASER.

Many good Machines fail to work altogether satisfactorily for the want of a little common care and prudence. **KEEP YOUR KNIVES ALWAYS SHARP.** You would not attempt to mow or cradle with a scythe all battered and bruised and the reasons are just as good why you should not attempt to do so with your machine. **YOU CANNOT DO GOOD WORK, EITHER IN MOWING OR REAPING WITH A DULL KNIFE.**

Keep your knives sharp by grinding them on a grindstone (not filing) every ten or twelve acres in mowing, and as often as dull in reaping.

Use only good **OLIVE, LARD, OR SPERM OIL**; oiling frequently those parts that run the fastest until your machine gets free and

smooth, and in no case allow your boxes to cut out for want of a little oil. The common FISH or "MACHINE OIL," as it is called, has very little lubricating quality, and is not fit to use on any kind of Machinery, as it clogs up your boxes and forms a sticky mass of grease and dirt upon the gearing which prevents the free working of your machine.

In some kinds of grass your knives will become COATED WITH GUM to such an extent that they will hardly vibrate, if indeed they do not at times, stop altogether. THIS SHOULD NEVER BE PERMITTED. Oil your knife and the inside of your guards occasionally, and it will generally keep them free from gum; or keep a pail of water in the field, and wet them when you stop to oil your machine, and when softened in this way it passes off easily.

IN REAPING, be careful to set your rakes evenly, not one dragging the table heavily and the others too high. Set the cam around in short grain, so that the rakes pass over the cutter-bar before commencing to raise and keep the rakes as low as it will do to run them.

IN LODGED AND SHORT GRAIN, set the machine to cut as low as you can and not dull your knives.

By a proper arrangement of the machine you can make a perfectly clean cut in lodged or short grain if the bottom is good.

Always elevate the hind end of the platform sufficiently to give a free discharge of the bundles. The sickle knife, when dull, should be taken out and ground on the under side (bevelling) on a stone.

It is just as essential that a Sickle Knife should be kept sharp as a Smooth Edge.

USE GOOD OIL, KEEP YOUR MACHINE CLEAN, YOUR KNIVES SHARP, THE NUT TIGHT, AND EVERYTHING IN ITS PROPER PLACE, and you can depend upon having a DURABLE, GOOD WORKING MACHINE.

Bear in mind that a machine kept in good order will run easier, do better work, last much longer, and is every way more satisfactory to the manufacturer and purchaser.

I HAVE TAKEN UNUSUAL PAINS in procuring material for the present season, and have spared neither time nor expense in carrying out the details to make a better machine than has been made heretofore, and I feel confident that if my patrons use common prudence in their use, that my machines will not only maintain their present high standard, but must take rank far in advance of any other make or style of machine.

Instructions for Attaching Self-Raker to Dodge's Combined Machine.

FOR REAPING.

Attach drag bar to forward arm of machine; put it in outside hole. The platform is attached to the drag bar in the same manner as for hand raker. To do this easily, the drag bar and platform should be blocked up about six inches from the ground. The frame, or wrought iron foot, is fastened to the inside shoe of the platform by means of bolts which fasten the shoe to the platform, which are long enough to take the rake frame or foot and the table support. The table support is a wrought iron arm, about eighteen inches long, provided with a chain sixteen inches long. This table support must be put on the top of the rake frame or foot with the *straight side* down. After placing the rake frame or foot on the shoe bolts, with the forward end of the rake frame on the top of the drag bar stand, the small bolts that fasten the frame to the drag bar should be put in their places with the heads down. Put the nuts on, to prevent the bolts from dropping out; do not screw them fast until the shoe bolts are first made secure. Before proceeding further with the rake, the table support should be attached to the machine by means of the chain provided for the same, and the grain wheel put in its place on the outside of the table. There are holes provided in the table to fasten the grain wheel, so as to cut the stubble at any desired height, from three to twelve inches. The rake heads can now be put on the iron arms. Should the rake teeth pass too near the guards on the outer end of rake head, they can easily be adjusted, by unscrewing the bolts that fasten the rake head to the iron arm, and place a washer or a piece of leather between the iron and wood at the inside bolt, to raise the teeth on the outer end, or at the outside bolt, to lower the teeth. The rake teeth at the outer end of the rake head should pass from one-half to two inches above the guards. Now the shoe must be bolted to drag bar stand, with a bolt that is provided. There is a board provided to shield the drag bar stand and shoe, that is to be bolted to the drag bar stand with one bolt. The shifter is now to be put in its place. Take off the lever from the shaft; pass the shaft through the hole in the tongue socket from the off side, with the arm down. Fasten the lever to the shaft again. Now take the chain that is attached to the switch arm; pass it through the slot in the drag bar board, and hook the same to a rod that is attached to a shifter arm, leaving the switch free to be raised above the rake arm, or to drop below the same, at the will of the driver. The lever chain should not be very slack when the switch is down. To put on the driving chain, you will place the chain on the axle pulley, and take off the bevel pinion. Place the pinion pulley inside the chain; now put the pinion in its place, (after oiling the bearing,) and secure the pinion. The rake cam should be oiled every two hours. The rollers should be oiled often, where the drag bar stand, by means of the frame, and in proper tension, well lubricated for grease. A good substitute



Abell's Patent Improved Horse-Power Threshing Machine.

NOW THE STANDARD MACHINE OF THE DAY.

