

1898
ANNUAL

The Aultman & Taylor Machinery Co.



This is the cock that crowed in the morn,
With feathers deranged and look forlorn;
For scratch where he might and roam where he may,
He found not a grain his labor to pay,
Aultman-Taylor's thresher had been that way.

MANFIELD, OHIO.



Greeting.

1898



WE feel like grasping the callous and honest hand of every farmer and thresherman and say to him: Good cheer! The clouds have rolled by and there will be a bright horizon for you.

The interests of the farmers and threshermen and ours run so much in the same channel that we feel a sense of reciprocity towards them which makes us the best of comrades.

We have almost persuaded ourselves that good times are coming to stay. Wheat is King once more and our friends, the farmers and threshermen, are near the throne. This gives us good cheer. When our friends prosper they buy our machinery and we in return employ the mechanics who consume the farmers' surplus.

Fair dealing and good goods have made us a reputation of which we are proud. We need hardly assure you that we mean to maintain the lead we have gained by honest and fair means.

The "Best is the Cheapest" is our maxim and the secret of our success. A perusal of this annual will keep you on the alert of the progress in the art of Thresher, Clover Huller and Engine Building.

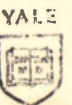
With many thanks for the very liberal patronage in the past, we are

Yours truly,

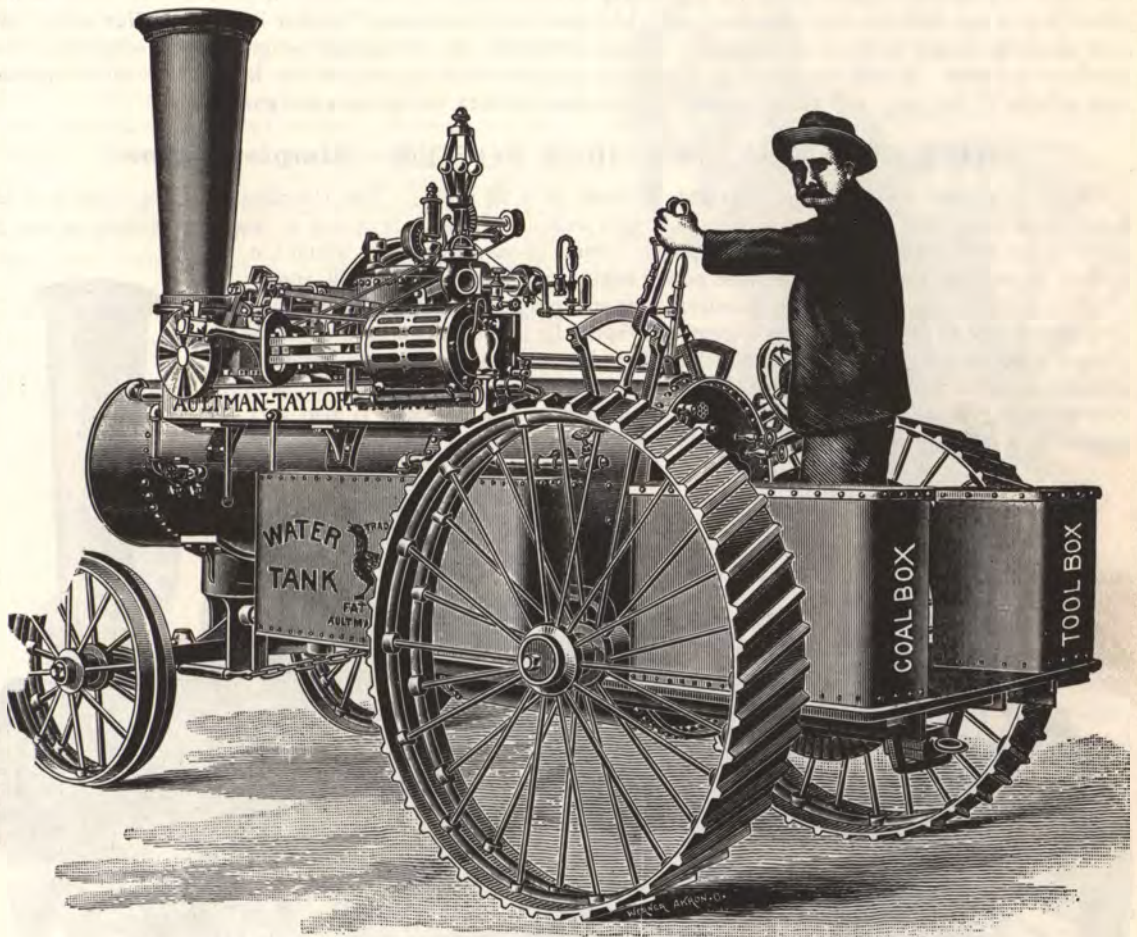
THE AULTMAN & TAYLOR MACHINERY CO.

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TRACTION ENGINES.



...s represents our Simple Coal and Wood Burning Traction Engines, the Eureka Jr., 8 horse power, ...a, 12 horse power, and Hercules, 16 horse power.

THE EUREKA JR.—(Simple Engine.)

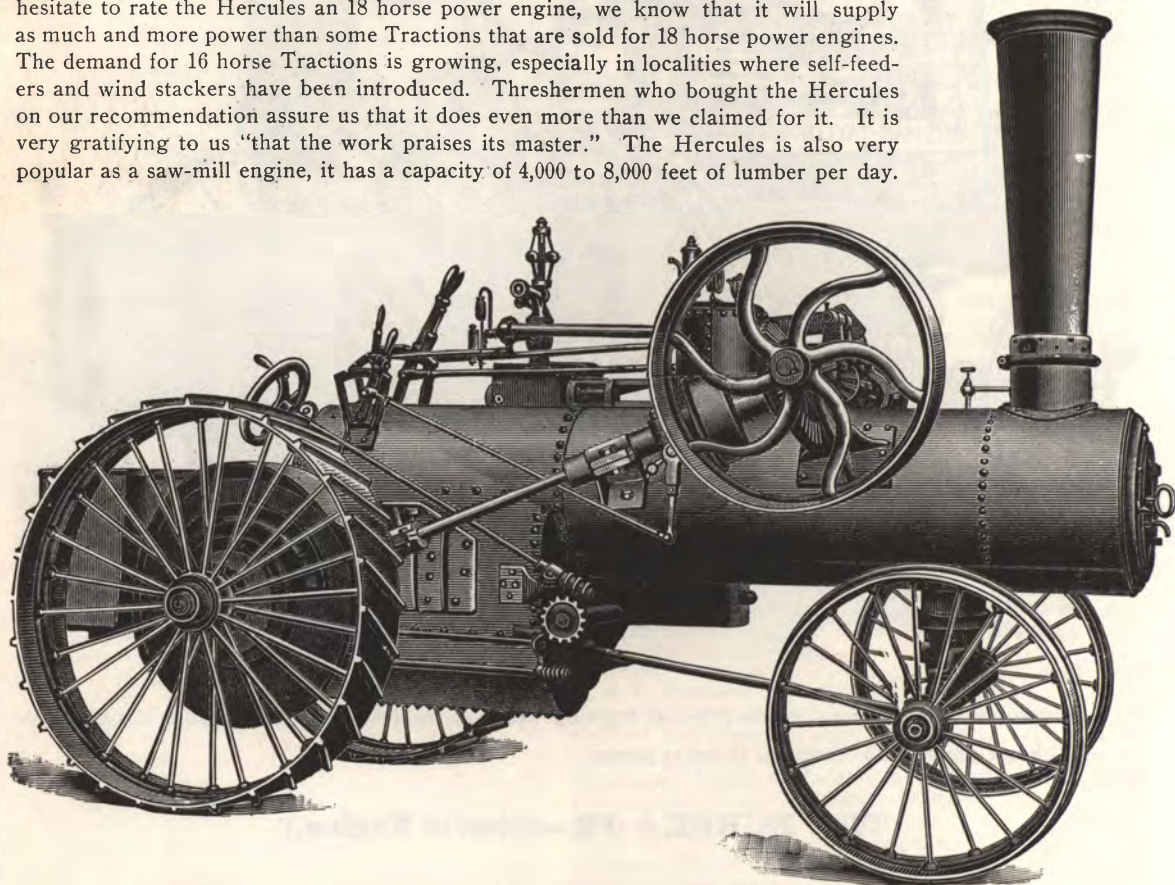
Size of Cylinder, 7x9; Boiler, 24x120; Firebox, 32x20x32. It has 30 flues, 2 in. x 66 in. The 8 horse power is called the "Eureka Jr.," and is a very popular engine in localities where medium machines are required and where the roads are too rough and too hilly to use heavy machinery. It is highly recommended for our medium and smaller sizes of Dixie Separator, for operating portable hay presses, corn shellers and feed mills. It is equipped with the Pat. "Woolf" valve gear and friction clutch.

THE EUREKA, 12 HORSE-POWER—(Simple Engine.)

Size of Cylinder, $7\frac{1}{2} \times 10\frac{1}{4}$; Boiler, $26\frac{1}{2} \times 126$; Firebox, $36 \times 22 \times 36$. It has 34 flues, 2 in. x 68 in. From 8 to 12 horse power seems to be a big leap, and some of our friends may ask: Why do you skip the 10 horse Traction? We can answer the question satisfactorily. Ten to fifteen years ago the 10 horse Traction was the most popular size, and thousands of Aultman-Taylor 10 horse Traction are still in operation throughout the country. It seems they never wear out. The 10 horse engine is all right and furnishes ample power for a medium separator with ordinary straw carrier and without any modern attachments. We are aware of the fact that there is a limited demand today for a 10 horse Traction and we can supply it with our 10 horse Compound, which you will find fully described under the head of "Compound Traction Engines." But when you need additional power to drive an automatic stacker, self-feeder or automatic weigher, we recommend the Eureka every time. It will furnish ample power for any separator ranging in size from thirty to thirty-four inch cylinder or for pony and picket saw mills, large corn shellers, hay presses and gang plows.

THE HERCULES, 16 HORSE-POWER—(Simple Engine.)

Size of Cylinder, 8×12 ; Boiler, 34×140 ; Firebox, $40 \times 28 \times 42\frac{1}{2}$. The Hercules is of the same type as the Eureka. It is well proportioned and the weight well distributed. It is not as hard on bridges as many other makes of Traction Engines of less power. Some of our competitors would not hesitate to rate the Hercules an 18 horse power engine, we know that it will supply as much and more power than some Traction engines that are sold for 18 horse power engines. The demand for 16 horse Traction engines is growing, especially in localities where self-feeders and wind stackers have been introduced. Threshermen who bought the Hercules on our recommendation assure us that it does even more than we claimed for it. It is very gratifying to us "that the work praises its master." The Hercules is also very popular as a saw-mill engine, it has a capacity of 4,000 to 8,000 feet of lumber per day.

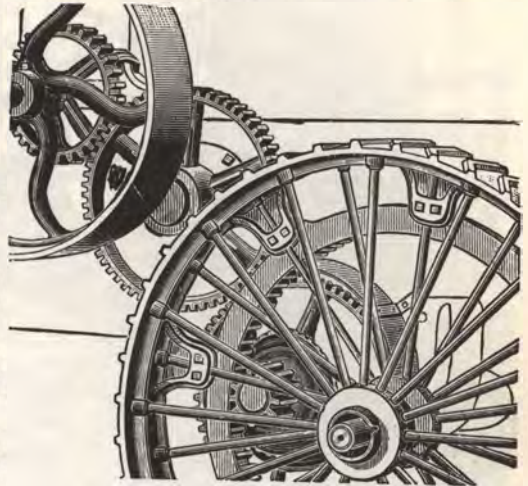


The above Cut shows RIGHT HAND or Traction Gear Side of our Traction Engine.

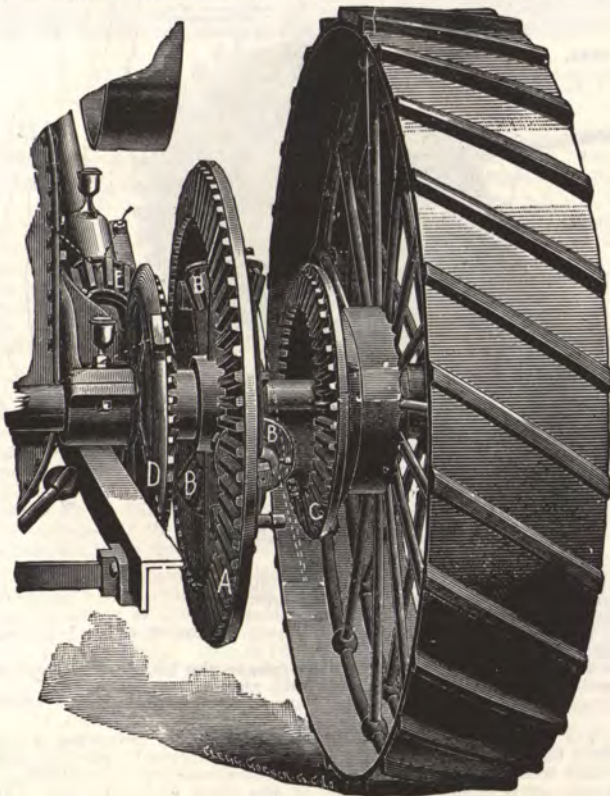
With this illustration we mean to demonstrate the superior construction of Aultman-Taylor Traction Engines. **The incline shaft** is our patent and you will not find it on any other make of Traction Engine. It is one of the most ingenious inventions and a radical departure from the primitive way of Traction Gearing, still adhered to by other builders. The incline shaft is a practical and sensible device, while the old time spur gear is a clumsy makeshift.

Comparative Merits of "Bevel" and "Spur Gears."

OUR COMPENSATING GEAR is of the bevel type and radically departs from the "spur gear" used on all other makes of Traction Engines. We control the patents on the incline shaft. The bevel gear possesses several very important advantages over the "spur gear." The "bevel gear" is almost noiseless while the "spur gear" is very noisy and gets to rattling as soon as the cogs have worn down some. Our bevel gear will last longer than any spur gear, because it is almost self-protecting. It does not come in contact with mud and dust, having no connection with the traction wheels, while the spur gear, being connected with the traction wheels, catches the bulk of the mud and dust that drops down from the traction wheels. Some of the "spur gear" engines are mounted on the boilers with the cylinder on front end. Such an arrangement places the band wheel in close proximity to the traction wheels. Mud and dust are oftentimes thrown from traction wheel onto fly wheel and from fly wheel are hurled with great force onto other parts of engine and into the face of the engineer. Engines so constructed will also throw grease from cranks into the faces and onto the clothing of engineers to such an extent that you can, almost without fail, tell the make of engine by the appearance of the operator's working clothes.



Method of Conveying Power on other Engines.

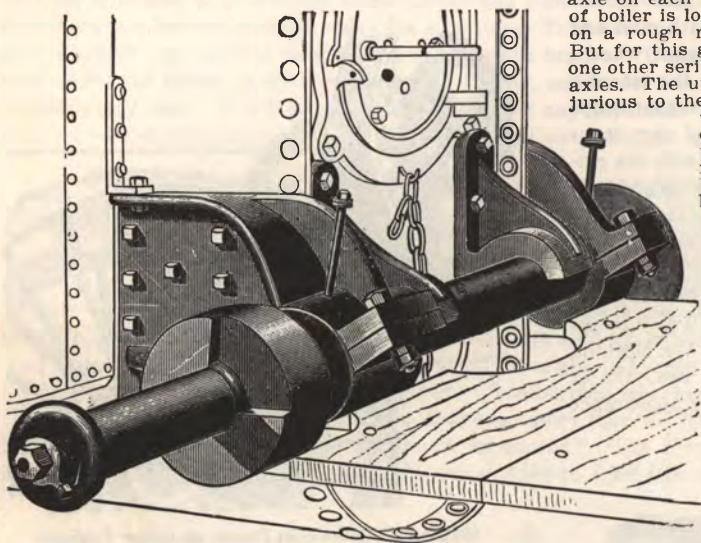


OUR COMPENSATING GEAR.

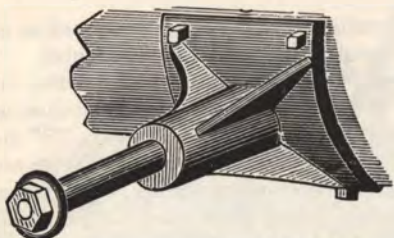
By means of the cut of our compensating gear you will readily understand its mechanism. "A" is the large bevel wheel, in which revolve three pinions "B" and which effect the connection with main drive or ground wheel. Pinions "B" mesh in small bevel wheels "C" and "D." Bevel wheel "C" is bolted to main drive wheel. "D" is keyed on the axle. Large bevel wheel "A" runs loose on the hub of bevel wheel "D," and being between wheels "D" and "C," it forms the connection between drive wheel and axle. Pinion "E" on incline shaft connects with bevel wheel "A" and transmits the power conveyed from the engine by the incline shaft. Please notice the compactness of our compensating gear. All wheels are perfectly bored by the aid of templets and babbitted in a special frame, so as to insure absolute fit and perfect mesh. As to comparative merits of straight and bevel gears, no intelligent operator will for a moment contend that the bevel gear is the most practical in this instance. One of the greatest triumphs of the bevel gear has just been brought to our notice through an article of Russell Stone. It is nothing less than the adoption of the "bevel gear" by the builders of the famous "Columbia Bicycles." They cast aside the chain and spocket, which is a combination type of the spur gear.

REAR AXLE.—Another very weak point on many Traction Engines is the location of their rear axles and the mode in which they are attached to the boiler. Some have them in front of fire box, others right under it. Neither location is correct as you will be ready to admit after a moment's thought. If in front of firebox, the engine is bound to rear on a heavy pull or going up an incline with, or sometimes even without a load, because the balance point is too far back and the bulk of the weight rests on the rear axle. When the roads are level and dry all traction engines will move along fairly well but threshermen can't always travel on pike roads and sometimes they get onto a mud road that is pretty muddy. Then the trouble begins—the hind wheels will bury themselves deeper and deeper and neighbor Jones with all hands waiting to have a stack or two of oats threshed out during the afternoon. It would make a deacon say some harsh words about the builders of such plagues. But not all tractions have this same fault. Some builders have endeavored to overcome the trouble, pictured in the foregoing lines by moving the rear axle further back, but their device for conveying locomotive power does not permit the location of the hind axle behind the firebox as on our engines, so they adopted the plan of bracketing a short

axle on each side of the firebox. The bulk of the weight of boiler is loaded onto these two short axles. Every jar on a rough road has a tendency to spread the wheels. But for this great fault the engine would pass. There is one other serious objection to the aforesaid location of the axles. The undue strain on the short axles is equally injurious to the firebox, for one must admit that when the wheels spread the firebox will be seriously damaged. Our hind axle brackets are near the rear edge of the firebox where the plate is doubled and riveted. The weight of our boiler and engine is well distributed onto both the front and rear axle.



Rear Axle Brackets on our Traction Engines.



Rear Axle Brackets on Some Other Engines.

THE AULTMAN & TAYLOR FRICTION CLUTCH.—

A glance at the cut above will reveal the neatness, simplicity and novelty of our clutch. Aultman-Taylor have always pursued an independent and a radical course, declining to follow the old rut. They have been path-finders and leaders in the Threshing Machine business for thirty years—that is why Aultman-Taylor Engines are the "Standard" by which all others are graded.

Simplicity, positive motion and durability are the three important points we claim for our Friction Clutch.

Simplicity, because it has less working and wearing parts than the band or pulley clutches.

Positive Motion, because it is always reliable and easily adjusted by any thresherman.

Durability, because a simple mechanism is less liable to break than a complicated one.

Our clutch is on the incline shaft and operates in the drum end of the bevel wheel on upper end of incline shaft. It is small and neat and very powerful, because its action is direct.

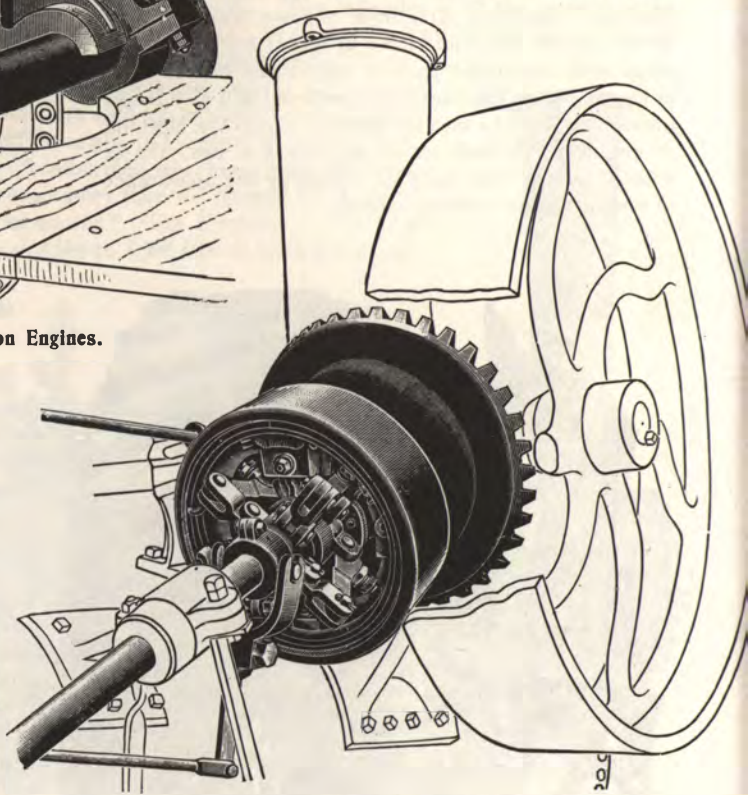
It is perfectly safe by reason of its positive motion, for when the lever is thrown so as to release the friction, the shoes or rubbers are drawn away from the drum and there cannot possibly be any danger of its taking hold, when it is not intended.

Everyone familiar with indirect actions in friction clutches, knows of the danger that attends their operation, and how unreliable their action is.

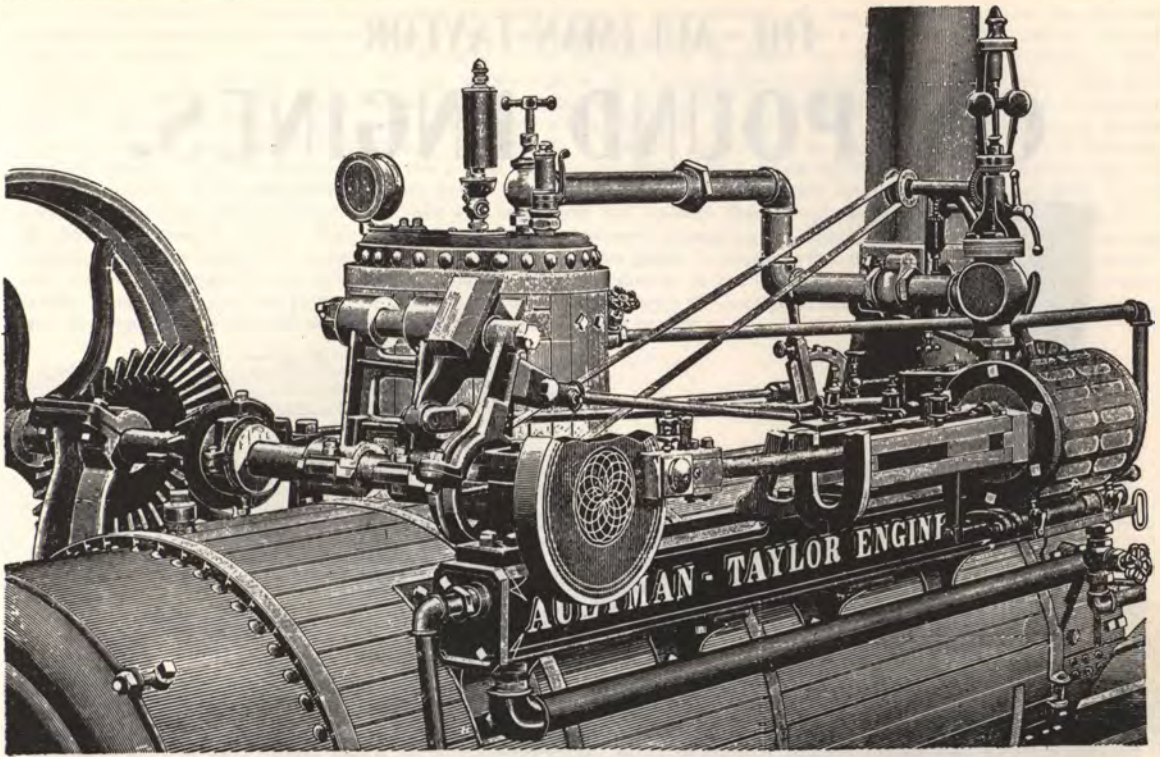
Another Safeguard and Advantage we possess, is in the movable bevel pinion on crank shaft; by throwing it out of gear the clutch is disconnected and stands still. The band wheel or pulley clutch runs continually whether you apply it or not—it cannot be set at rest like ours and must necessarily cost a great deal to keep it repaired.

The inside or vital parts of our clutch are well protected from the weather by the drum and covering. The bearings or wearing parts on our clutch are large and durable and when properly set and adjusted the clutch is positively proof against all resistance.

The parts are all interchangeable and easily repaired.



Cut of Friction Clutch.



THE WOOLF PATENT VALVE GEAR.

THE WOOLF PATENT VALVE GEAR—This is one of the most valuable modern patents. We now use it on all our Traction. Nearly 1200 Aultman-Taylor Traction have been equipped with it in the past four years. It is the simplest, most perfect, and most efficient valve motion now in use for handling a slide valve.

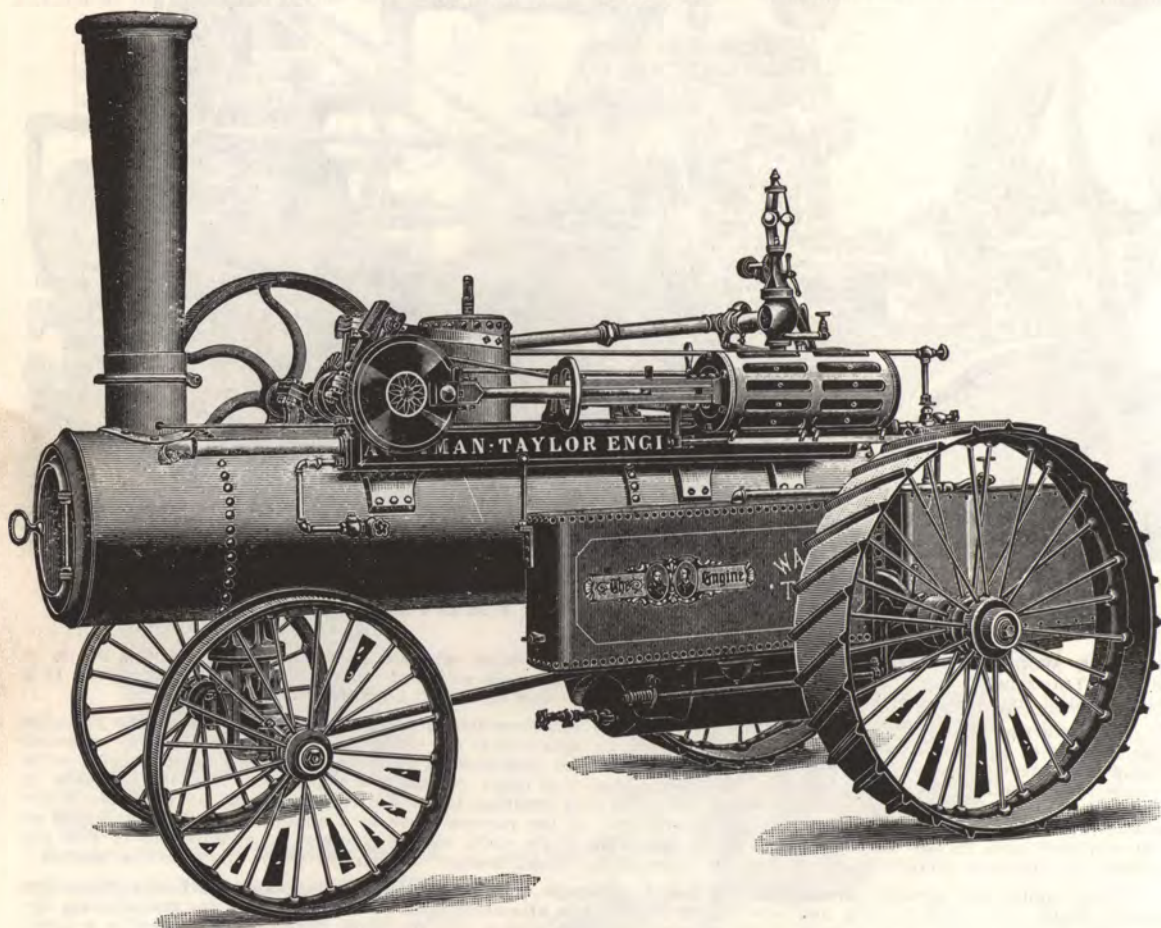
By referring to the above cut, it will be seen that but one eccentric is required to operate the engine in either the forward or backward motion. The eccentric is rigidly attached to the crank shaft by set screws. The eccentric strap is connected to the valve by a single rod without the intervention of a link, or other complicated contrivance. A projecting end of the eccentric strap is pivoted in a roller, placed in a guide, which is clearly shown in the cut. This guide so controls the motion of the strap and modifies the eccentric movement as to produce the results desired. The guide is connected by a "reach rod" to the reverse lever in a quadrant within easy reach of the engineer; and, by moving the reverse lever, the angle of the guide can be changed, so as either to reverse the engine, or simply to change the travel of the valve and thereby change the point at which the steam is "cut off."

This simple and substantial construction has a minimum number of joints, dispensing with the numerous small details of the link motion, and avoiding the difficulties attendant upon the use of any of the multifarious devices for shifting the eccentric as a means of reversing the engine. At the same time our valve gear is a great improvement over the best form of link motion, which is so often cited as a standard of comparison. It will provide an engine that will run better when hooked up than a link engine, as the lead is "constant;" that is, the lead does not vary with the travel of the valve as it does on the link motion as usually applied to Traction Engines. This valve gear gives a very desirable intermittent movement to the valve. At exactly the right time the valve gets a quick, full opening, in this way admitting steam promptly at the beginning of the piston's stroke. Then at the extreme of its throw, the valve comes to a complete and considerably prolonged pause, and then there is a correspondingly quick return to the point of cut off.

It is important to notice that our valve gear is not merely "a reverse," but in its use the quantity of steam admitted to the cylinder can be regulated by the reverse lever irrespective of the throttle. This is done by changing the angle of the guide and varying the point of cut off, so as to let in just enough steam to the cylinder to do the work, and no more, and thus derive the full benefit from the expansive force of the steam before the point of exhaust is reached. This is the equivalent of the familiar process by which the locomotive engineer notches up his lever, when his train is started, and in that way has a much smoother and smarter running engine than if he kept it "at full stroke" all the time.

A glance at the cuts will show the extreme simplicity of the whole mechanism. All small wearing parts are dispensed with. It is put up by us in such substantial form that it cannot get out of shape. In case it is necessary to take it down, it does not require any skilled labor to replace it, or to adjust the valve. It will be seen that the eccentric is placed with its center almost directly opposite to the crank pin, in such a position that when the engine is on either dead center, the roller, in which the strap is pivoted, will stand exactly over the center of the guide. The correct position of the eccentric is thus easily determined, and all that is necessary to do further is to alter the length of the eccentric rod so as to give equal lead at both ends of the valve. The valve is then "set" and requires no further adjustment.

THE AULTMAN-TAYLOR COMPOUND ENGINES.



THE "WOOLF" COMPOUND ENGINE, PATENTED,

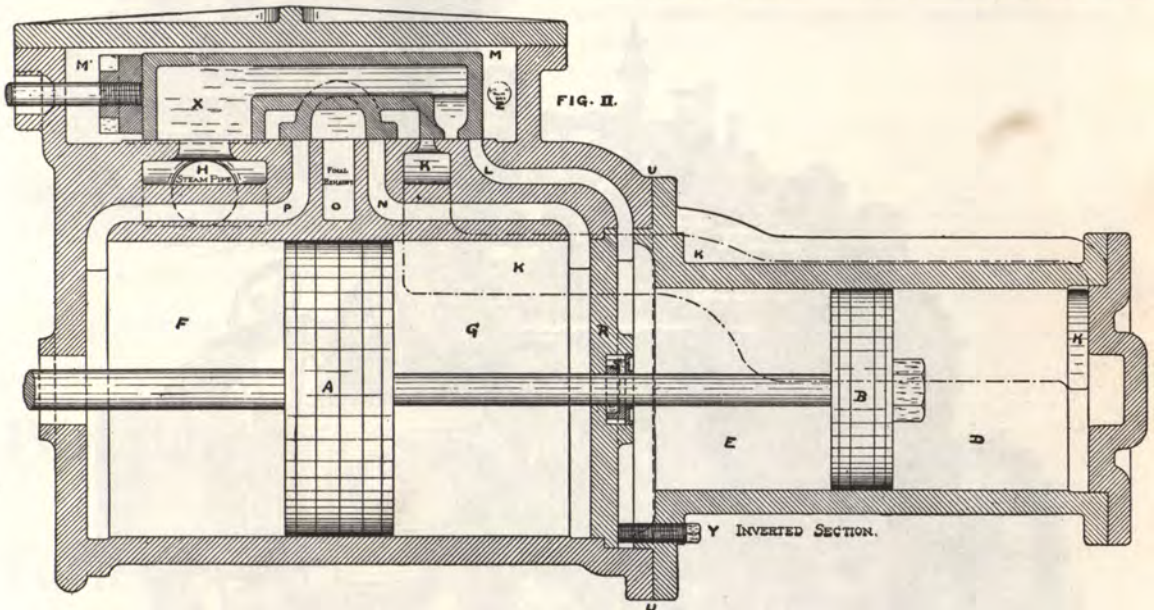
Used on our Various Sizes and Styles of Boilers.

The Compound Engine, to use a popular phrase, has come to stay. We have put out great numbers during the last two years and they are giving entire satisfaction. Ours are beyond the experimental stage; they fill the warranty in every particular.

We are perfectly well aware that other manufacturers, while recognizing the value of the Compound in a general way, have failed in its adaption to the peculiar conditions under which a farm engine must work. And we know that in some neighborhoods where these poorly designed and constructed engines were sold, the Compound has been brought into discredit. It would indeed be singular if the intelligent farmer should look with complacency on machines adding to his perplexities by their complicated mechanism, and which in order to show only a trifling improvement over the old time simple engine, required a great increase, almost a doubling, of the steam pressure formerly carried. This high pressure, always dangerous, entailing extra care, needlessly adds to the severe strains brought to bear on the boiler by extremes of temperature and the hard usage to which a traction engine is daily subjected.

Where others have so signally failed we take pride in asserting that our Compound will do all that can be expected of any engine with steam of the pressure ordinarily used by single cylinder farm engines, and further that we have without exception, been fully borne out in all the claims we made for our patent Compound Engine in our catalogues for 1895, 1896 and 1897.

By a reference to the cuts will be seen the neat compact arrangement of the cylinders. There is nothing added to the cares of the engineer beyond what is necessary in the operation of a single cylinder engine. There are no intricacies of construction so delicate as to require nice judgment for their proper adjustment. The Compound is to be handled exactly like the simple engine and without the exercise of any greater skill than was formerly necessary in the management of the familiar simple engine. It has demonstrated its ability to furnish from fifteen to thirty per cent. more power from any given size of boiler than is obtainable where a single cylinder is used under similar conditions. This result is brought about, first of all, by the possibility of deriving greater benefit from the expansion of the steam than is practicable in a single cylinder. It is well known that an engine could be so arranged that steam could be expanded in a single cylinder, until there would be little or no pressure remaining at the end of the stroke and seemingly the utmost theoretical economy be thereby attained. In practice, however, it has been discovered that this extreme expansion is largely neutralized by the resulting cylinder condensation in all cases. But what is more to the point, a single cylinder engine in which such expansion was even remotely approximated, would be entirely wanting in the uniformity of power so desirable for successful threshing. At this point the Compound comes in to supply the means of obtaining all practicable expansion, with its resultant economy, while delivering an entirely steady power.



THE "WOOLF" COMPOUND ENGINE.—PATENTED.

The sectional view of the cylinders shown will make clear the operation of the engine. It will be noticed that steam enters from the boiler at H below the valve and does not enter the valve chest M until it is exhausted from the smaller or "high pressure" cylinder. The valve has a cavity X through which the steam passes to the small cylinder E D alternately through the ports K and L. The ports P, O and N belonging to the larger cylinder F G will readily be seen to be identical with those in a simple engine.

Bearing in mind that the valves for both cylinders form part of a single casting and therefore move together, it will be easy to follow the different relative positions of the valve and valve seat, between the extremes of the travel of the valve, and to see distinctly how the distribution of steam to both cylinders is affected.

It is obvious that steam enters below the valve in its passage to the high pressure cylinder. This entering steam has access only to a limited area and tends to offset the pressure of the steam in the valve chest M which operates on the whole area or top of the valve.

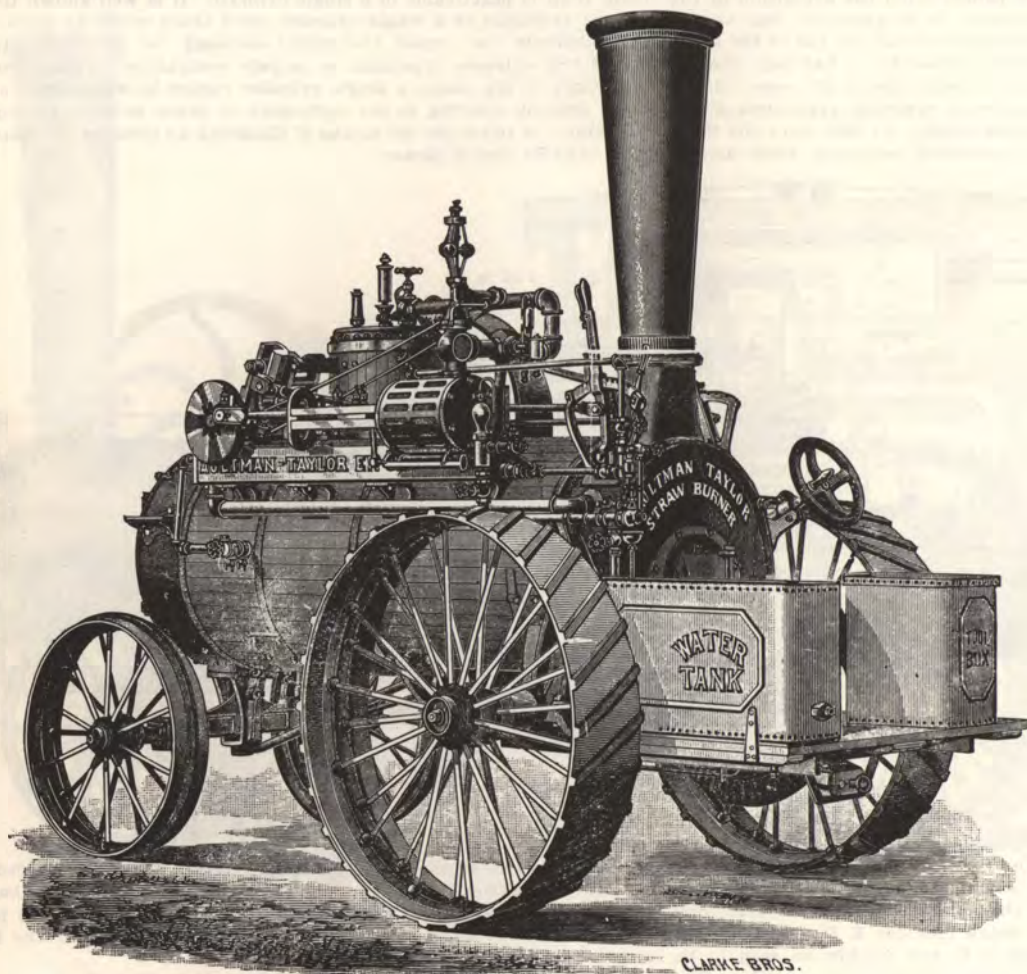
The proportions of the areas on each side are so related to the pressures while the engine is working that the valve is practically a balanced valve without any added mechanism whatever and the balance is continually varying to correspond with the pressure of steam delivered by the governor.

In this arrangement we have an ideal balanced valve. It does not depend on a nice adjustment of an independent and otherwise useless steam supply; or on the preservation from corrosion of delicate packing rings, but is ever ready for business without requiring any attention.

Provision is made for admitting steam from the boiler, at L, directly to the valve chest M in order to increase the power of the engine at starting. The sizes are as follows:

Cylinders 5½ and 8 x 9 —Eureka, Jr., Compound.....	10 Horse.
Cylinders 6 and 8½ x 10½ —Eureka, Compound.....	15 Horse.
Cylinders 6½ and 9½ x 12½ —Columbia and Hercules.....	20 Horse.

STRAW BURNERS.



NAME.	Horse Power	Cylinder.		Fly Wheel.			Boiler.	Combustion Flue.		Dome.		Flues.		
		Diam.	Length	Diam.	Face.	Revo.		Diam.	Length	Diam.	Length	Num.	Diam.	Length
Cyclone (Simple Engine).....	14	8	10 1/4	42x	8	192	38x118	22x	90	18x20		26	2 1/2x	90
Columbia Jr. (Simple Engine)..	16	8	12	48x10		200	42x118	24x103		18x20		28	2 1/2x103	
Columbia Jr. (Comp'd Engine)	20	6 1/2 & 9 1/2	12 1/4	48x10		200	42x118	24x103		18x20		28	2 1/2x103	

Our strawburners are of the return flue type. The boiler has one large fine flue and a proportionate number of smaller tubes. Strawburners are mostly in demand in the northwest, where fuel is scarce and expensive. Other fuel can be used in our strawburners to equally good advantage. A straw-feeding attachment is furnished with every engine. **General Construction of Engine and Traction** parts is of the same type as on our coal burners. Every boiler is carefully lagged with matched pine flooring—by the way, the best and most durable boiler lagging there is.

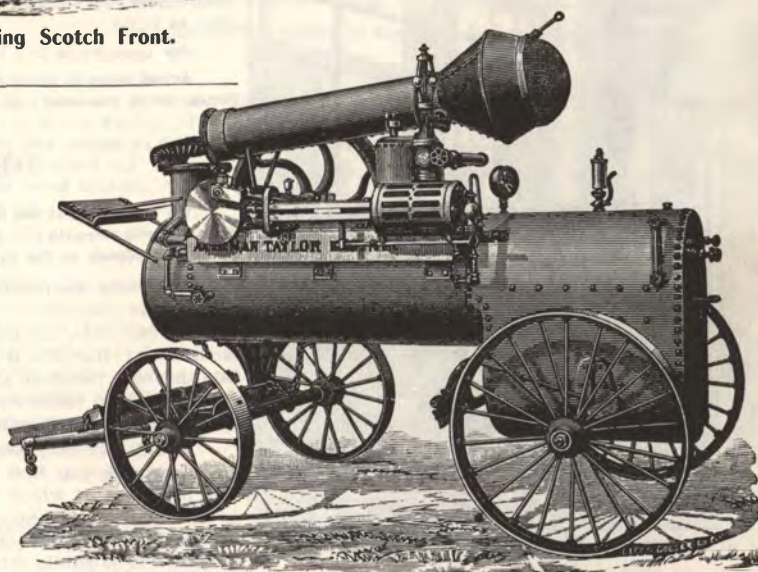


A. & T. Straw Burner showing Scotch Front.

SCOTCH FRONT.

Scotch Fronts will be put on all of our '98 straw burners. They further augment the almost perfect combustion of our return flue boiler. A belt guide or roller, to keep main drive belt from coming off on the inside and dropping into compensating gear, will be put on all strawburners.

Portable Farm Engines.



	H. Power	Cylinder		Fly Wheel			Boiler		Fire Box			Dome		Flues		
		Diam.	Length	Diam.	Face.	Revo.	Diam.	Length	Length	Width	Depth	Diam.	Height	Num.	Diam.	Length
Baby Elephant.....	6	5½ x 8		36 x 6	225		22½ x 102		30 x 18 x 27			12 x 13		23	2 x 60	
Standard, Jr.....	8	7 x 9		36 x 7	225		24 x 120		32 x 20 x 32			12 x 13		30	2 x 66	
Standard.....	10	7 x 10¼		44 x 8	175		26½ x 118		32 x 22 x 30½			14 x 16		34	2 x 68	
Samson, Jr.....	12	7½ x 10¼		40 x 8	192		26½ x 126		36 x 22 x 36			14 x 16		34	2 x 68	
Samson.....	16	8 x 12¼		48 x 10	165		30 x 139		40 x 25 x 37½			16 x 17		46	2 x 78	
Ajax.....	20	9 x 12¼		48 x 12	165		34 x 160		48 x 28 x 42			20 x 20		54	2 x 84	

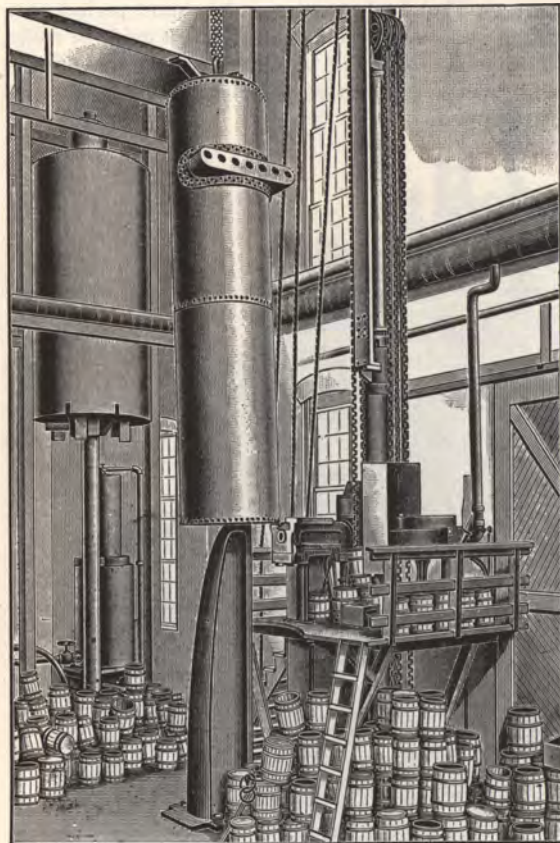
Aultman & Taylor farm engines are of the improved slide valve type and of "Wrought Iron Construction". You will find very little cast iron about an Aultman & Taylor Farm Engine. With ordinary care it will last a life time. The cost of maintaining an Aultman & Taylor engine in good repair is almost nothing. No other farm engine has such a reputation for durability.

BOILER CONSTRUCTION.

The boiler is to an engine what a stomach is to man—the most important organ. A poorly constructed boiler may show up all right at first, but it will not stand up very long under the severe strain farm engines are almost daily subjected to. It will interest our customers and prospective buyers, that we have one of the best equipped modern boiler shops in the world and perhaps the largest in this country.

The old form of boiler construction will not satisfy our largest steam users any longer—why should it satisfy you?

Science has developed the art of making iron and steel and ingenuity has devised new machinery for its elaboration.



One of the Hydraulic Riveters in our New Boiler Shops.

Modern boiler construction is of such great importance to large steam users (including our own government) that they will not purchase any boilers without specifying, "hydraulic flanging and riveting" and calking by compression air tools. There are not a half dozen boiler shops in the country equipped with modern machinery to comply with above specifications.

We are proud to state that the Aultman & Taylor Boilers Shops are up-to-date, and the most complete in the world.

Why this great outlay for costly hydraulic flanging and riveting machines, electric planers and boring machines, radical drills, etc.?

Because we are bound to give our customers the very best, most serviceable and most durable boilers possible to build.

Our capacity is five hundred horse power per day.

Actual sales in three months during the latter part of 1897 Twenty-seven thousand nine hundred and seventy-one horse-power.

DETAILS.

We use none but the best grade of open hearth flange steel with a tensile strength (U. S. Government Standard) of 53,000 to 60,000 pounds to the square inch.

The mills supplying us with steel plates are under contract to subject every plate to careful chemical and mechanical tests, adopted by the highest authorities on metallurgy. But this is not final. Every plate, while being sheared, punched and rolled, must pass the critical eye of our own inspector, and if any defects appear while undergoing the preparatory process, the plate is rejected.

RIVETS.—It may seem trifling to make special mention of rivets, but it is nevertheless true that the selection of rivets, of which there are many inferior qualities in the market, is almost as important as the selection of the Boiler Plates. Our rivets are well tempered and shaped and carefully selected.

FLUES.—We use only the best quality of flues, which are expanded in firebox tube sheet with copper ferrules, encircling the ends of flues. The copper being softer than iron, fills all crevices and ensures an absolutely tight joint. There are no leaky flues with this kind of construction.

FIREBOX is of good proportion and so constructed that the combustion is perfect and equally distributed over all the flues, making our boiler an easy steamer.

EXTENSION SMOKE BOX WITH BAFFLE PLATE.—All the Eureka and Hercules Traction engines have an extended smoke box with baffle plate. The Smoke Box is formed by an extension of the shell of Boiler.

In the Extension Smoke Box of all Traction Engine Boilers is an adjustable baffle plate, which effectively increases the draught and reduces back pressure to a minimum. The smoke escapes through a reduced space, and allows us to use a larger exhaust nozzle than most other builders of boilers.

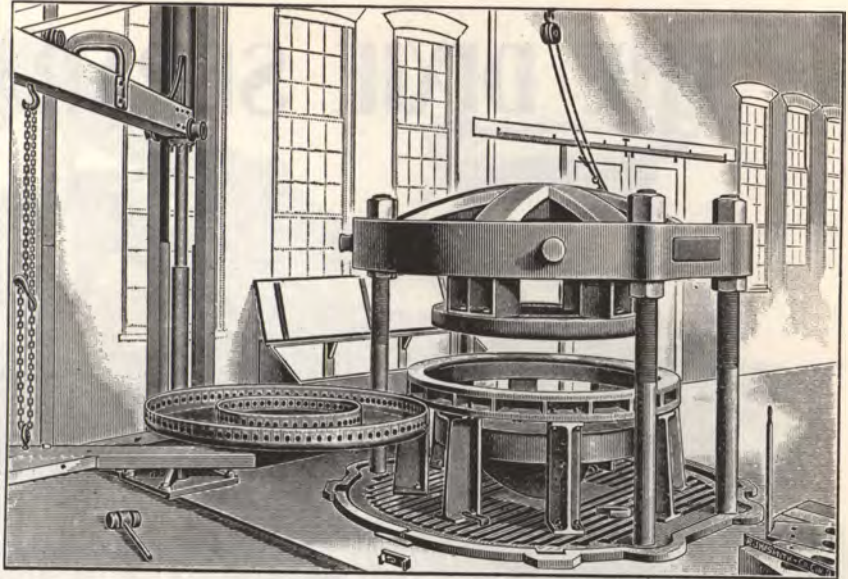
SMOKE STACK.—We have adopted the Diamond Spark Arrester to be used on all Traction engines.

DOUBLE RIVETING.—All longitudinal seams on our boilers are double riveted, according to the Government Marine Boiler Construction Rules.

HYDROSTATIC AND STEAM TESTS.—When completed, our boilers are subjected to two severe tests, cold water and steam pressure. By the use of a hydraulic pump, a pressure of 150 pounds per square inch is maintained on the boiler while all seams and rivets are being made tight. The steam test is made at a pressure of 150 pounds after the engine has been mounted onto the boiler, and this test is continued for six hours.

HIGH PRESSURE.—All of our portable boilers except 6-horse are constructed for high pressure, which means considerable of outlay for additional staybolts and labor, to say nothing about the greater cost of the high grade material necessary to stand a cold water pressure of 200 lbs., to which our boilers are tested before the engines are mounted on them.

CONSERVATIVE RATING.—If The Aultman & Taylor Machinery Co. were to rate the horse power of their farm engines by the same rule as most of their competitors, they would have to call their 8-horse a 10-horse, etc. We invite every prospective buyer, to compare the specifications of our engines and dimensions of our boilers with those of other buildings to verify our assertion that our rating is very conservative. Aultman & Taylor give good measure.



Hydraulic Flanger in our New Boiler Shops.

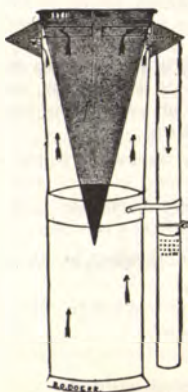
BRAKE TEST.—When an engine has been fired up, thoroughly adjusted and been run for several hours, a "Prony" brake test is made to ascertain its rating. These tests are made under the personal supervision of our Superintendent, and no engine is by him passed as fit for the sales room until it at least develops more than twice its rated capacity. We have the record of every test and can prove that our engines develop from 3 to 5 more horse power than double their rated capacity.

DETAILS.

BRASS CASTINGS AND FITTINGS.—Our customers are entitled to some information on the quality of brasses used on our engines—it is important that they understand the difference between a good looking brass fitting and a durable one. Our Brass Castings and Fittings are all made from our own patterns, of extra heavy weight. You will find that by actual weight our brasses are from 75 to 200 per cent. heavier than the usual "Trade Brasses." They contain just enough component alloys to give them the right temper, while "Trade Brasses" are cheapened by unusual and unreasonable proportions of alloys.

INJECTORS.—We have used the "U. S." successfully for many years—we test every one before we let it go out, and our customers are well pleased with them.

SIGHT FEED LUBRICATORS are a great improvement over the old fashioned Cylinder Oiler, provided you have an oil that is reliable.



COMPRESSION GREASE CUPS are a great convenience and very effective, if not neglected. We use them to best advantage and where they will do the most good.

SLIDE VALVES AND GUIDES are so constructed as to allow the taking up of any lost motion arising from wear. This is an important feature, as it will save our customers many a dollar that would otherwise go for repairs.

GOVERNORS.—One of the most important mechanisms about an engine is the Governor. A poor Governor is to an engine what a poor lung is to man. We could buy cheaper Governors than we use, but find that "the best is the cheapest" in the end and therefore stick to the old reliable Pickering.

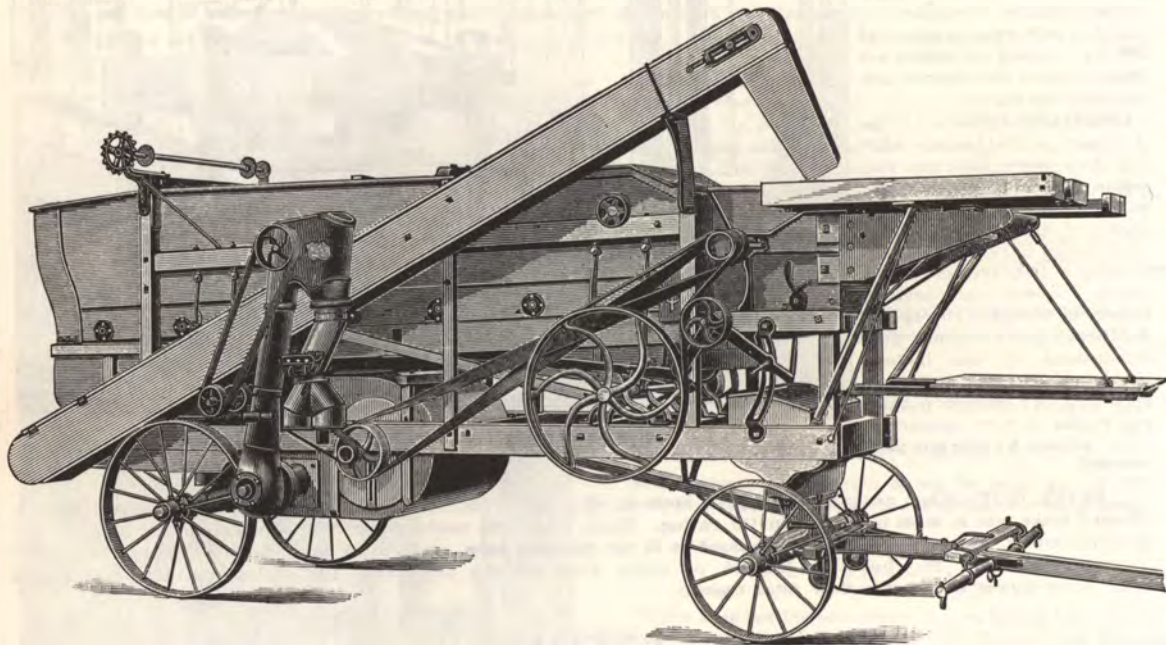
CROSSHEAD PUMP.—Ours is very simple and easily repaired by any operator. We have used it for many years and it has never given us any trouble.

BEVEL WHEEL ON UPPER INCLINE SHAFT was enlarged four years ago and proved so successful that we abandoned the smaller gear altogether. This change greatly increased the pulling capacity of our Tractions. The present Bevel Wheel has forty cogs, giving the engine fifteen and one-half turns to one of the drive wheels.

THE DIAMOND SPARK ARRESTER.

THE DIAMOND SPARK ARRESTER does not interfere with the draft and is so constructed that all sparks are carried by a counter current through a tube into a pall where water is kept. The inverted cone, as shown in cut, is made of steel wire cloth, which permits smoke and gas to escape, but no sparks. There is no possible chance to set fire to anything by sparks, and wherever used it has given perfect satisfaction. It is adapted to any steam engine that exhausts in the smoke stack, and is successfully used on Threshing Engines, Planing Mills, Saw Mills, Cotton Gins, etc.

THE DIXIE SEPARATOR.



SIZES.

17 in. Cylinder; 28 in. Separator; 16 foot Stacker.
20 in. Cylinder; 32 in. Separator; 16 foot Stacker.
23 in. Cylinder; 36 in. Separator; 18 foot Stacker.

27 in. Cylinder; 40 in. Separator; 18 foot Stacker.
30 in. Cylinder; 44 in. Separator; 20 foot Stacker.
32 in. Cylinder; 48 in. Separator; 20 foot Stacker.

The Dixie is the original "Starved Rooster" Separator, with its trade mark of a poor lean barnyard fowl, which inspired a philanthropist to the commiserating rhyme:

Poor Chick so lean,
No grain he has seen,
While following an A. & T. machine.

The name "Dixie" might suggest that this Separator was only intended for the Southern trade. This is not true, however. While the Dixie is a great favorite with southern threshermen who value it highly for its unequalled adaptability to all kinds of grain and seed, and because it will separate clean from the straw even under most unfavorable conditions, when most other machines fail, it is also popular in the East and West.

Name us another separator that will do equally perfect work in Wheat, Oats, Barley, Flax, Timothy, Millet, Peas, Beans and Corn, no matter what the condition of the straw.

It is not a complicated contrivance, but to the contrary, very simple in construction, easily adjusted and changed for the different kinds of grain and seed.

It never happens to an owner of a Dixie that he must yield part of his patron's crops to a competitor because his machine cannot handle it.

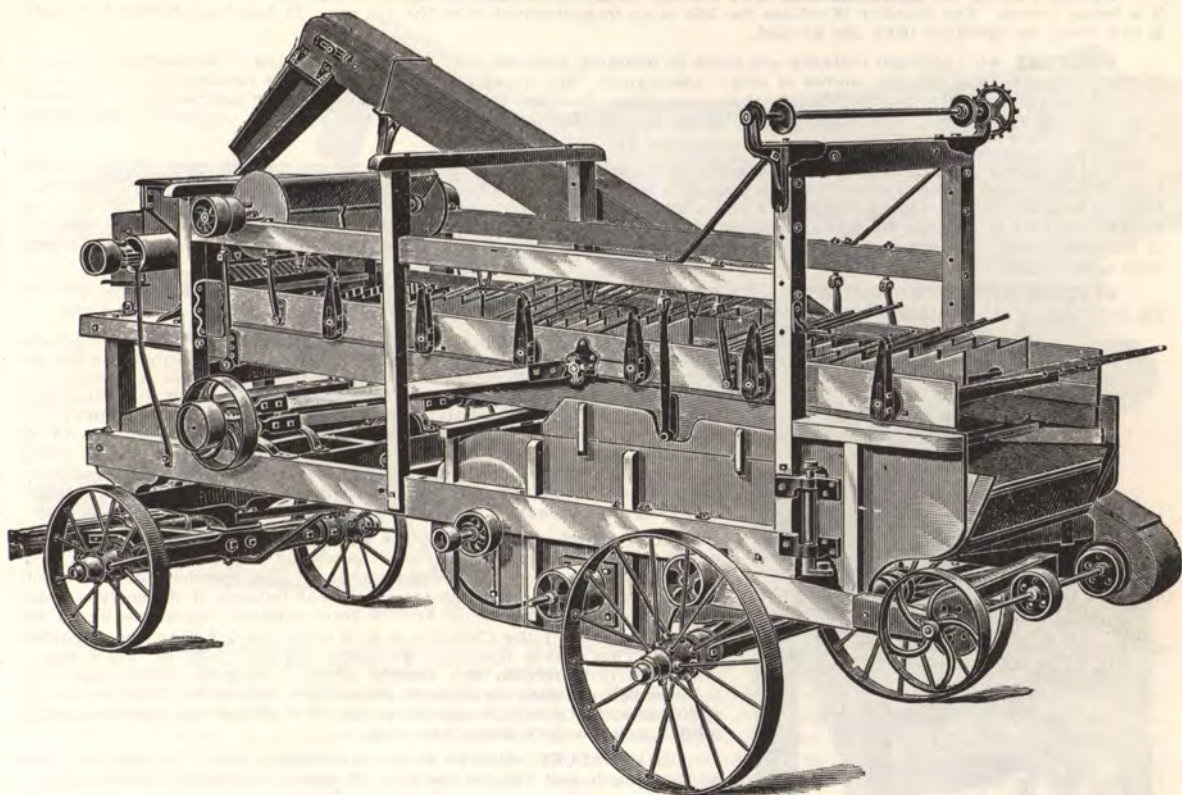
It costs less to maintain a Dixie Separator in good repair than it does any other make of Separator, because it is so simple.

With good care it will last twenty-five to thirty years and do good work.

It is made of the very best selected material, well put together by skilled mechanics and well painted.

The great popularity of the Dixie is indicated by the many sizes we build.

Read and study the specifications on the following pages and you must admit that this machine has genuine merits.



SECTIONAL VIEW DIXIE SEPARATOR.

SEPARATION.—All Dixies, except the two smallest sizes, have twelve-bar cylinders, made out of the best soft open hearth steel. The 17 x 28 and 20 x 32 have nine-bar cylinders. The cylinder spikes are of a special grade of steel, and all stamped with our trade mark, to protect our customers from imitations. The concaves are adjustable, by means of a ratchet, to suit the condition of the grain and straw. Behind the cylinder is the heavy sheet steel beater with three wings, which takes the straw from the cylinder and assists it in knocking out the grain and carrying the straw onto the upper shaker, and absolutely preventing choking, which is so annoying and the cause of so many breakages. It also acts as a dust conveyer, as it creates quite a blast, and carries the dust out of the rear end of the machine. Now look at our shaker; it is of the utmost importance, as it is one of the chief mechanisms of a grain separator. We have four to six breaks to the straw against one to three in other machines, thus affording a great advantage over all other makes of separators. The four larger Dixies have six, the 20 x 32 five and the 17 x 28 four rakes. All sizes have notched fishbacks in sections, forming two additional breaks, which cause a much thinner and speedier flow of the straw as it passes over the shakers. This adds very materially to the separation. It is the thorough shaking of the straw and the thin flow that saves the grain. The distance which the straw must travel in our machine while in constant agitation before passing out of it, allows it no opportunity to hide any grain and carry it on to the straw pile. Study this feature, it is of the utmost importance. In addition to the five breaks we put notched strips running lengthwise between the agitating fingers, so that no straw can possibly lodge on the shaker.

CLEANING.—The cleaning apparatus is next in importance. Ours is an overblast supplemented by a deflector. The function of the deflector is to divide the blast in such a manner as to distribute $1\frac{1}{2}$ inch of it between the sieve and chaffer on lower shaker. The object of this division is to separate the chaff from the grain before it reaches the sieve, thus preventing all clogging of sieves. It is an impossibility to clog our sieves. No other machine can boast of anything like it. Our front sieve adjuster is so arranged that one or more sieves can be used.

LOWER SHAKER OR GRAIN PAN.—It is very important that the motion of the Grain Pan is absolutely true, and this we accomplish by a peculiar construction of our crank shafts. The crank chairs are toward the outer ends, two on each side in opposite directions, so that the motion of the two outer and two middle pitmans is alternately. All sizes of Dixies have four pitmans. All our 98 Dixies have sheet steel Grain Pans.

OTHER POINTS OF EXCELLENCE.—The Stacker on our Dixie machines consists of two sections and folds when it is being moved. The Stacker Windlass for 1898 is an improvement over the old one. It has been lowered so that it can easily be operated from the ground.

STACKERS with straight delivery are much in demand, because they simplify threshing. Stackers with angle delivery are a failure and the source of much annoyance. The gearing that is necessary to revolve it is very heavy and clumsy and tends to shorten the life of the machine. Besides, it is always full of litter and requires constant attention. If you want a revolving stacker, pay a few dollars more and get the Galland Automatic Swinging Stacker.

Our Stackers on the Dixie fold over the top of the machine, which is a very handy way to carry them on the road. They come in two sections. Those in need of a short stacker for barn threshing, should order the new combination. It is a device that allows you to fold one section under without taking it off. The stacker web has two sets of buckles so that if a short stacker is wanted all you will have to do is to shorten the web and fold upper section of stacker under. Pulleys and shaft are already fixed on the lower section to allow you to use a short stacker with a very little loss of time.

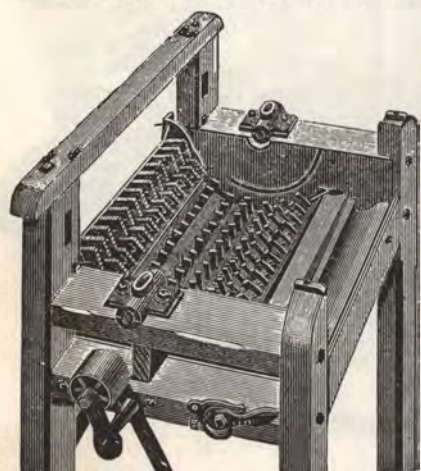
STACKER WEBS.—The two outside belts will be made of best 2-inch 3-ply rubber belting. Inside webs will be 1½-inch. The ends of stacker slats will be riveted to belt with two rivets, which will force web to run straight.

ALLONA'S CLOVER HULLING ATTACHMENTS FOR THE "DIXIE" SEPARATOR.—Threshermen in the mountainous sections of the South who cannot use double cylinder clover hullers and still need something with which to save the clover seed of their customers, will be delighted to learn that Aultman & Taylor build an attachment that answers the purpose admirably. It does not belong to the regular equipment of a Separator, and is extra. It must be mentioned in the order if it is wanted. Our price is very reasonable. No other Small Grain Separator has such an attachment. The attachment will almost earn the price of the entire outfit in a couple of seasons.

IRON SIDES.—All sizes of the Dixie have Iron Sides and Fronts, which is a big improvement over the wood front. Iron Fronts and Sides are not subject to the influences of the weather and will not warp. The Cylinder will remain in perfect balance if it receives ordinary attention. The fronts on the four smallest sizes are flared so that the mouth of the Cylinder is four inches wider than the Cylinder proper. This makes machines as easily fed as others of larger sizes, which all threshermen will readily admit is a great advantage. All belted machines have an out-arm or belt-arm to support Cylinder Shaft. Cylinder spikes are of a special grade of steel and are fastened with patent lock washers under the nuts.

GRAIN AUGER.—Can be driven from either side. A cast iron tube goes on each end for the purpose of attaching baggers or weighers. Each spout will have a hand hole in the top for the purpose of oiling journals and to afford easy access to bolts.

WAGON TRUCKS.—We have not used the wooden truck wheels for several years, but adopted instead a wrought metal wheel with steel spokes. We use none but the best grade of wheel and every one is carefully tested before accepted. The spokes are provided with shoulders or off-sets at both the tire and hub end, so as to prevent any slipping through. No danger of loose tire with our wheels.



No. 3.—Showing Hulling Attachment Ready for Work.

(Cylinder removed to get better view.)

SEED THRESHING.—All our machines are equipped, when so specified in the order, free of charge, with the necessary sieves for flax and timothy. By following instructions most perfect work in seeds can be done.

SHAFTS AND JOURNALS.—All Shafts are made of a superior grade of cold rolled steel. The bearing and key seats are cut to templates, assuring a fit to bearings that will reduce friction to a minimum and prevent heating; this is a very important point. Every thresherman fully appreciates the benefits of a true, cool running journal, as much as he detests a cheap, nasty, hot running box, which causes him sleepless nights and is so annoying to him and his patrons. We have an absolutely true form for every journal, in which they are babbitted with A1 Babbitt metal.

ELEVATOR.—Our elevators are all of the long pattern with short down spout. They are driven by the stacker shaft.

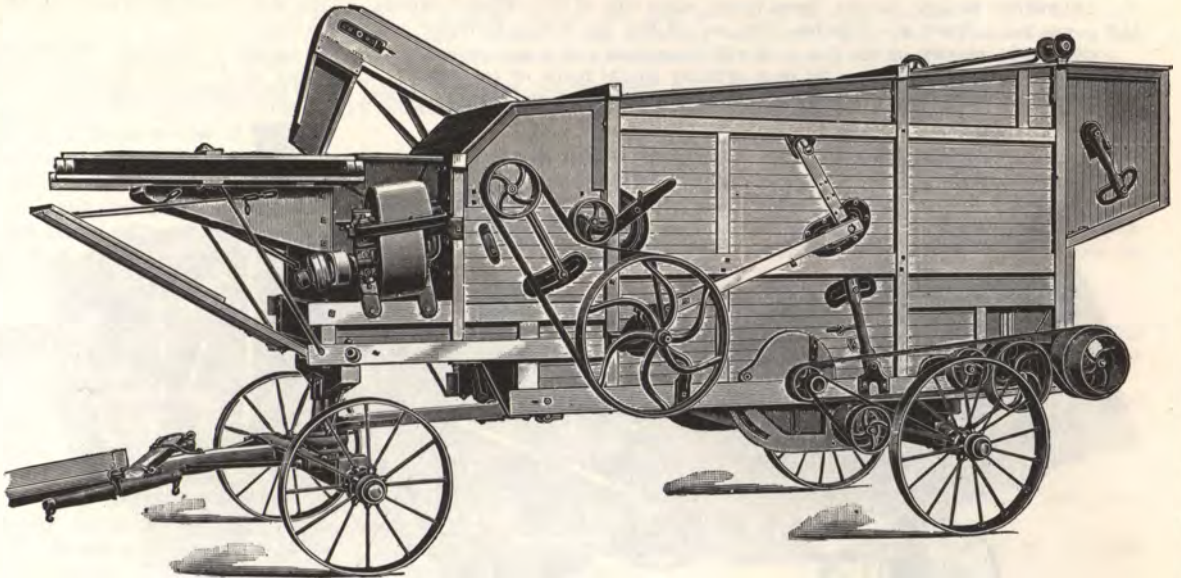
The buckets are of malleable iron and riveted to double belts. You couldn't choke our Elevator if you tried. At the upper end we provide sliding set boxes for taking up slack in Elevator belt.

ORCHARD GRASS.—Our Dixie as well as Columbia Separators, will handle orchard grass to best advantage. We furnish special sieve for it, when so specified in the order.

RICE THRESHING.—There are a great many experienced rice planters in the South who honestly believe there is but one reliable Rice Thresher, and that is the Aultman-Taylor. Most machines that have been recommended and sold for that purpose made deplorable failures of this class of threshing. We sent our superintendent to the rice districts of the South, to study the special wants of the rice planters. How well he solved the problem was only recently brought to our notice again by a letter received from one of the largest machine houses in the South, which frankly acknowledges that our Rice Separators are first among a very few that can be called good rice machines. The Dixie equipped for rice threshing is too well known to give further detailed description of it.

THE RICE THRFSHER WITH AUTOMATIC FEED ROLLS AND EXTENSION FRONT—In 1891 we built the first machine with Extension Front and Automatic Feed Rolls to satisfy a demand in certain sections of the South, where a peculiar species of rice called the golden rice, is cultivated. The plans were submitted by one of the oldest rice planters in Georgia, Mr. A. S. Barnwell, of Darien. How well his expectations were realized can be imagined by the fact that we built him another rice machine last season. Rice planters in need of similar machinery should send for our illustrated circular describing this machine. On small plantations the Dixie will answer the purpose; in fact, we recommend it.

THE COLUMBIA.



The 30 x 46 Columbia with Double Gear Side Gear.

The Columbia needs no introduction to the threshermen of this great country. It has conquered and has already earned the title "World Beater!" Its make-up suggests great strength and capacity. We would not advise a customer who has only small or ordinary jobs to thresh, to purchase a Columbia because he could not feed it fast enough to satisfy its enormous appetite for grain, but if you live among big wheat or oats farmers, you want the Columbia. It is calculated for fast and large work. Don't imagine that one who has a thousand or more bushels of grain to thrash cares to have any of it wasted any more than he who has only a few hundred. The Columbia is just as thorough as it is a speedy separator and its cleaning is perfect. So many machines calculated for fast work lack in the essential parts, as are:

1. Simplicity and proper proportions of the co-operative mechanisms.
2. A well-built and well-balanced cylinder.
3. A proper blast suited to the capacity of the machine.
4. Sufficient speed.
5. Adaptability to all kinds of grain and seeds in all conditions.
6. Workmanlike construction.

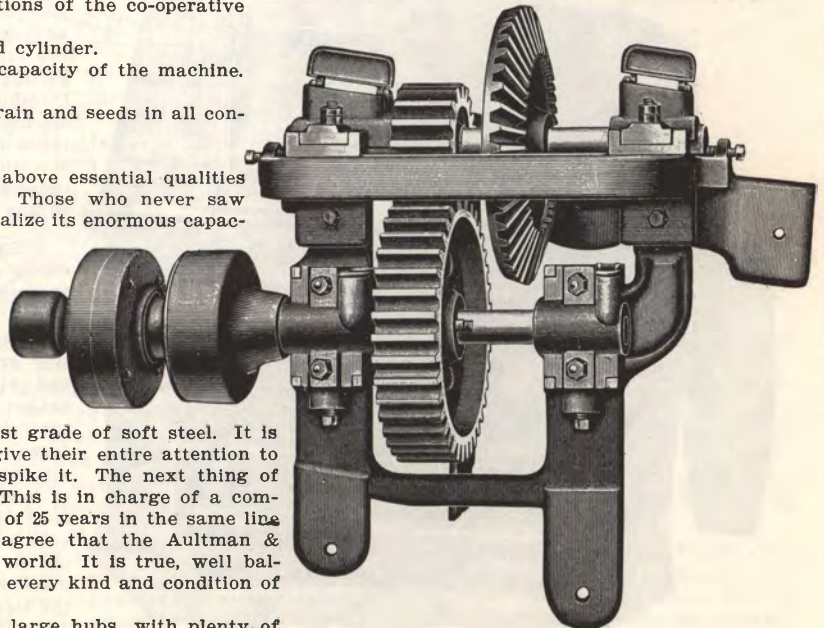
The Columbia possesses all the above essential qualities in the highest attainable measure. Those who never saw the Columbia operated can hardly realize its enormous capacity, and some are apt to make the mistake of buying a 42 x 64 when the 36 x 56 would more than fill their requirements.

But let us examine the Columbia in detail; it will interest you and convince you that we have not made any vague claims:

The Cylinder has twelve double bars, which are made out of the best grade of soft steel. It is laid off by skilled mechanics, who give their entire attention to this work. The same parties also spike it. The next thing of importance is the balancing of it. This is in charge of a competent man, who has an experience of 25 years in the same line of work. Nearly all threshermen agree that the Aultman & Taylor Cylinder is the best in the world. It is true, well balanced, and has the right weight for every kind and condition of grain and seed.

The heads are strong and have large hubs, with plenty of key surface.

CYLINDER SPIKES are of a grade of steel especially made for us. They have the right temper—not too hard nor too soft. The Columbia tooth has an extra heavy shank and is tightened with a patent lock washer, that

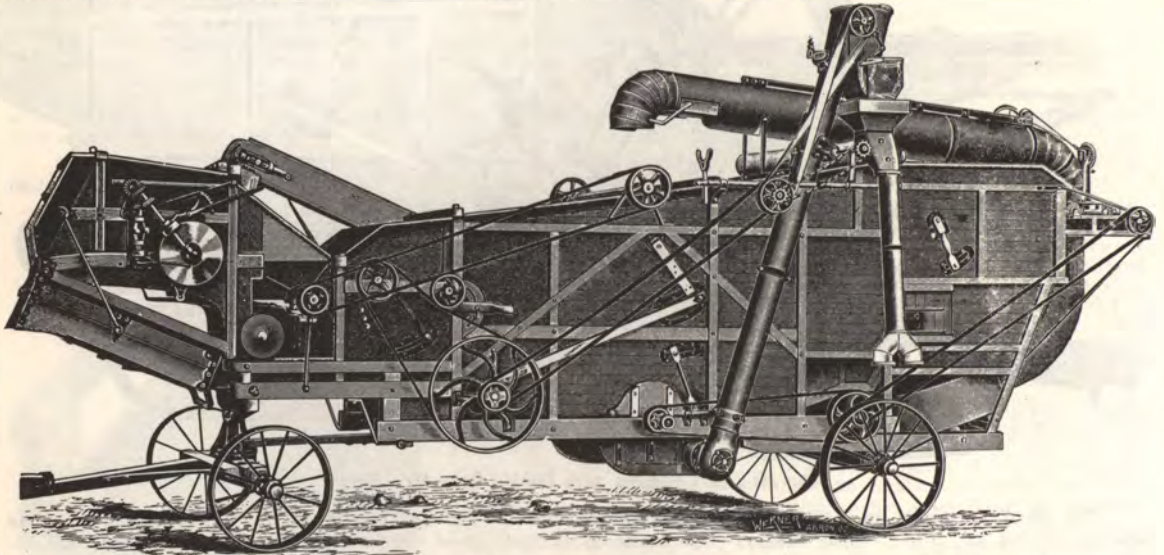


Double Gear Side Gear.

never releases its hold, and hence no trouble with loose teeth. Every Tooth bears our trade mark—none are genuine without it.

CYLINDER BOXES of the three larger sizes are of the "Pivot" pattern, which will adjust to Cylinder Shaft and never heat. They are 7 inches wide on all but the 30-inch Cylinder, which has 5-inch boxes.

CYLINDER SHAFT of the 30 x 46, 33 x 50 Columbias and larger sizes of Dixies is 2 inches in diameter. The 36 x 6 and 42 x 64 Columbias will have $2\frac{1}{4}$ inch cylinder shafts made of best quality machinery steel. Crank-shafts of the two large sizes of Columbia will be made of 2 inch charcoal iron, they will stand under any ordinary strain.

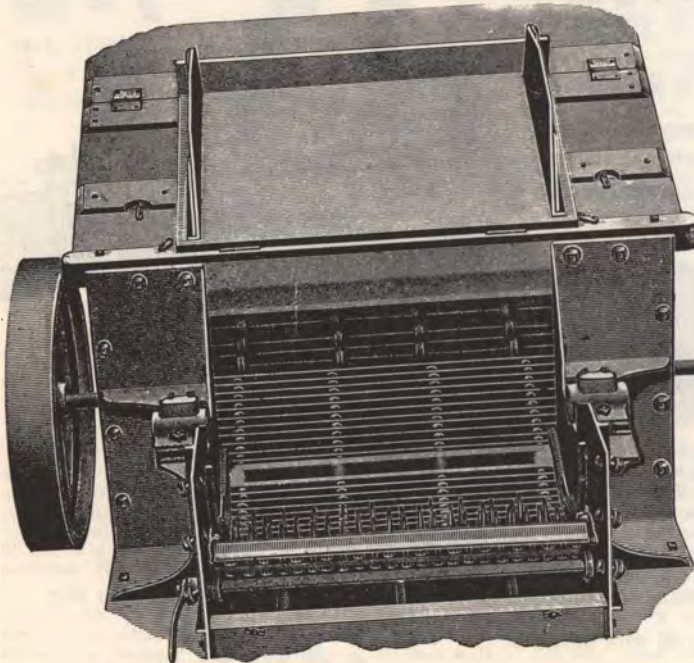


Columbia with Russell Wind Stacker and Parsons Self-Feeder Ready for the Road.

THE UPPER SHAKER.—It has an eight-inch throw and is provided with four breaks. There isn't another machine that has so many breaks or so great a throw. Some have as many as three breaks, the most have but two and a few only one. Just imagine four tosses to the straw as it passes from the cylinder and over the upper shaker out of the machine! Does it not strike you quite forcibly that we have an enormous advantage over our competitors, and that the farmer stands a much better show of getting the grain out of his straw when threshed on our Columbia than any other machine? But we have several more advantages and novel features we must call your attention to before we are through with the upper shaker, the most important mechanism in any machine.

EXTENSION TO UPPER SHAKER.—The object of it is to increase the separation and to create a double safe-guard against any waste of grain. The skeleton cut plainly illustrates the function of this extension. Any grain that may be carried to the rear end will drop to the bottom of the lower shaker, forward of the chaffer proper. The extension has a sheet steel bottom, running forward of lower shaker. It delivers the returning chaff and straw onto the bottom of lower shaker instead of onto chaffer, as most of machines do. Our arrangement is very much superior for cleaning, as it does not fill the sieves with pieces of straw. Other machines deliver onto the chaffer and crowd the sieves beyond their capacity.

STROKE OF SHAKER.—The eight-inch stroke of the shaker spreads the straw so thin that the grain has no opportunity to hide



Cut showing grate surface of our Columbia, which is greater than in any other machine and which explains the secret of the superior separating of this machine.

in it, but must drop onto the grain pan. When standing on the deck in middle of Separator, one can nearly always see through the straw onto the shaker, no matter how fast or carelessly the machine is fed. The incline of upper shaker towards rear end is sixteen inches; the rise and drop is three inches. Thus with four breaks and a dropping away from the straw, three inches at every backward motion of shaker and the retarding of the outgoing straw on an incline of sixteen inches, the function of separating is perfect and complete.

THE INDEPENDENT BREAK (Our Patent.) The last but not least and an entirely new feature, is the independent and contra or opposite motion of the fourth or rear break of the upper shaker, which tends to tear apart the straw at every stroke of shaker.

THE LOWER SHAKER.—The lower shaker or grain pan is made of a high grade of sheet steel and is wider than the upper, thereby allowing the sheeting to pass between the two shakers and thus preventing all litter.

THE PITMANS on outside which drive the upper shaker, have wood boxes at the upper end and broad cast iron boxes on lower or front end. Both are adjustable. The pitmans driving the under shaker have wood boxes at each end with adjustable parts for taking up wear or play. These are very important points. The boxes on crank shaft are provided with oil cups.

THE SHOE is end shake and of ample capacity, being four inches wider than upper shaker.

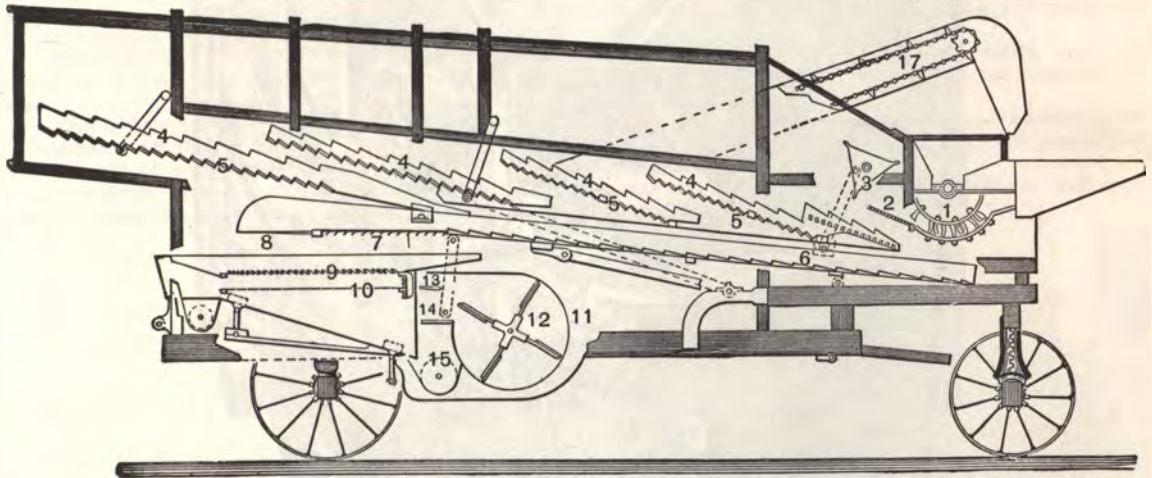
THE FAN has an overblast. It is provided with a regulator that can be set so as to throw the wind on any part of the sieves, as the occasion or the condition of the grain may require. This feature is invaluable. The Fan is driven from the cylinder shaft.

THE TRUCKS.—The Truck wheels are of the best pattern, with wrought iron tire and steel spokes. The spokes have shoulders at both ends so as to prevent any loosening or slipping through tire or hub, which is so common with an inferior metal wheel. The pedestal on front bolster allows the wheel to pass under the Separator. The trucks on the three largest sizes of Columbia will have 6-inch tire—the 30 x 46 has 4-inch wheels.

THE IRON FRONT.—The Columbia has one of the nicest and best arranged iron fronts you ever saw, absolutely true and well put together.

NOISELESS.—The Columbia is a very quiet running machine. You can hear only the hum of the cylinder, and that is music to the ear of every farmer and thresherman.

LOW DOWN.—The Columbia has a low down front; that is, foot board, feed board and cylinder are low down, which are great advantages.



To further illustrate the superiority of our Columbia, we produce the above numbered skeleton cut and shall explain some of its features, which are important factors in the excellent work this machine performs.

No. 1 is the Cylinder, which is 12 barred, with extra heavy teeth made by ourselves, of a special steel. Cylinder shaft is two inches in diameter and of an extra grade of steel.

No. 2. GRATE made of flat wrought strap iron, hinged on ears next to cylinder, so it can be raised and lowered.

No. 3 is a triangular filled wrought iron beater, that will not wrap or wind.

Nos. 4-4-4 are notched Fish Backs, ironed on the top edge and connected by open slat work in the bottom. In the 36 x 56 Columbia there are six of these Fish Backs in a set extending across the Separator, and four sets of these from the cylinder to the rear end, as you can see by above cut.

Nos. 5-5-5 are the open slat work running across the Separator on the lower edge of the fish backs. The four sets of fish backs and slatted work constitute the upper shaker. The first three sets move together—the rear one is reversed, moving forward, when the other three move backward, and vice versa. There is no flooring under the first three sets, and any grain or chaff that drops through the slats, drops at once to the lower shaker or grain pan. The rear set has a tight floor under them, so that the grain and chaff passing through them is carried forward and delivered upon the chaffers Nos. 7 and 8, which are a continuation of the lower shaker. The straw, in passing through the Separator, rides on top of the edges of fish backs 4-4-4 at least four inches above the

slat work. There is nothing between the straw and the slats to prevent the separation of the grain and chaff from the straw. Now the great throw of the upper shaker comes into play, hustling the straw out so fast that it has no chance to bunch. **The hustling of the straw in a thin stream over the edges of the fish backs, with the four breaks, caused by the four sets of fish backs, and elevating it to an incline of sixteen inches from the cylinder to the rear set of fish backs, gives us the perfect separation we claim and enables us to separate all the grain and even the chaff from the straw.**

No. 6 LOWER SHAKER OR GRAIN PAN is made of steel, pressed into steps, so as to force the grain and chaff out. This shaker runs clear through, and under the cylinder, thus commencing the separation at the cylinder.

Nos. 7 and 8. No. 7 is a lipped chaffer and No. 8 is set of fingers, which let the grain pass down to the sieves and carries and coarser stuff to the tailing auger.

No. 9 is a lipped chaffer over the sieve to work off the chaff and coarse stuff. Our Columbia is so perfect in separation that it takes all the chaff out of the straw, as well as the grain; therefore, we must use this chaffer over the regular sieve to properly handle the extra amount of chaff.

No. 10 is the sieve or riddle. The shoe has an end shake.

No. 11. Fan Box or Drum is made of sheet steel.

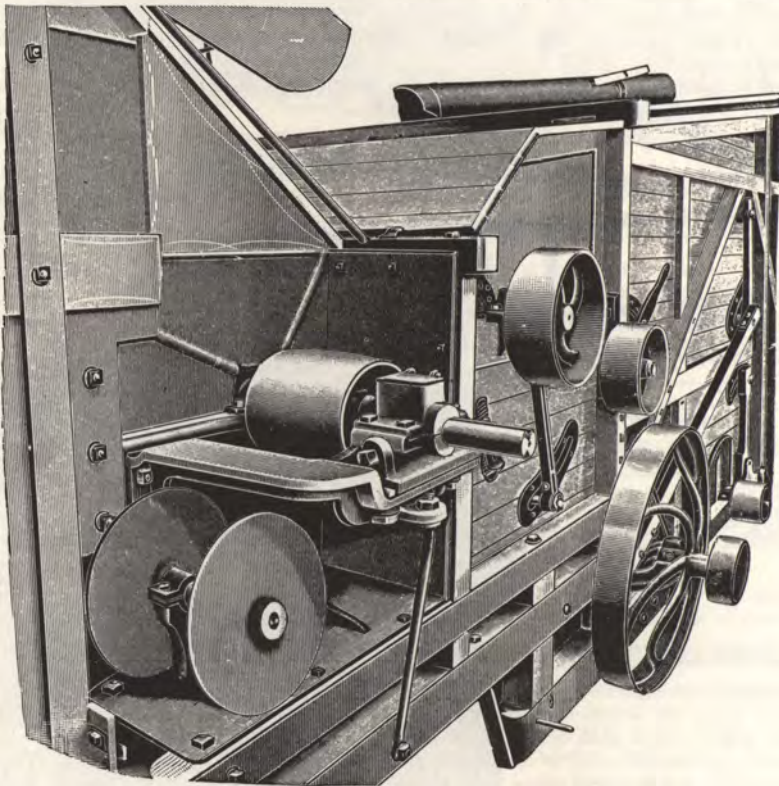
No. 12 is an Over Blast Fan. The grain drops down through the blast, where the dust is all blown out of it.

Nos. 13 and 14 are wind boards to regulate the blast.

No. 15 is a 9-inch Grain Auger.

No. 16 is a 6-inch Tailing Auger.

No. 17 is a Chain Elevator, dragging from the bottom.



Cut showing Side Arm and Pivot Boxes on Columbia.

The Columbia has a sheet iron apron and also a canvas on back of the beater, to prevent the shooting of grain through the Separator.

BELTS are of the best oak-tanned leather. Shaker belt for 56 and 64 inch Columbia is 6 inches wide—fan and stacker belts are 5 inches wide. The shaker belt for the 46 and 50 inch machines is 5 inches, and the fan and stacker belt is 4 inches wide, beater belt 4 inches, grain auger belt two and one-half inches on all sizes.

The weight of the 1898 Columbia has been materially reduced without in the least impairing its strength.

The upper shaker has been widened and its separating capacity increased 3% inches.

Pitman wrists and front hangers of lower shaker are made of malleable iron.

The "A. & T." Farmers' Friend Wind Stacker.

(BALL BEARING.)



The Columbia with Parsons' Self-Feeder and Wind Stacker.

While it is true that all the Wind Stacker Patents are owned by the Indiana Mfg. Co., our Farmers' Friend Stacker is strictly our own adaptation. It has been demonstrated beyond a question that our stacker is the most convenient and most perfect. Not a single failure among the many wind stackers put out by us last season, is the best record ever made by any type of Farmers' Friend Wind Stacker.

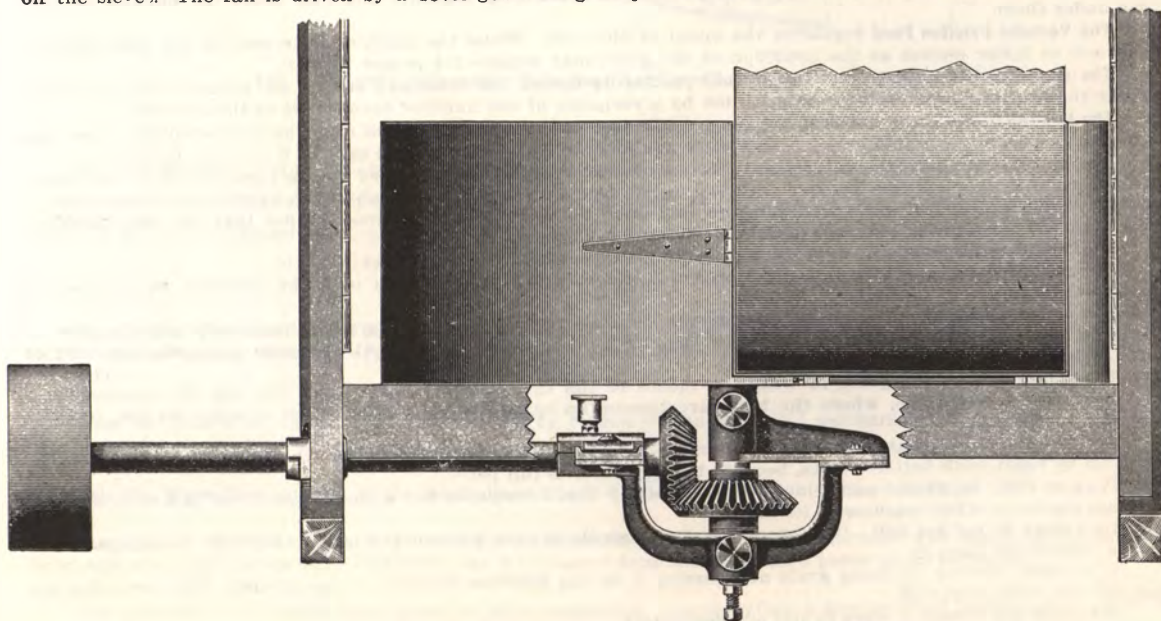
The Ball Bearing feature proved "a great hit." The saving of one to two horse power is highly appreciated by threshermen. It means quite a saving in fuel.

Its driving and oscillating mechanism is very simple. It is not exposed to chaff and dirt, and can be disengaged very quickly and at any time. There are no clumsy gears, which explains the surprisingly light weight of this stacker. The pipe is made of galvanized steel in 8-foot joints and will telescope to 12 feet, which will enable you to use it to good advantage in barns. It can be lengthened to 22 feet.

The elbow of chute and elbow joint are smooth and close fitting and do not blow out chaff, which is so very annoying on some wind stackers. The hood is so constructed as to drop the straw and chaff in the center of the stack.

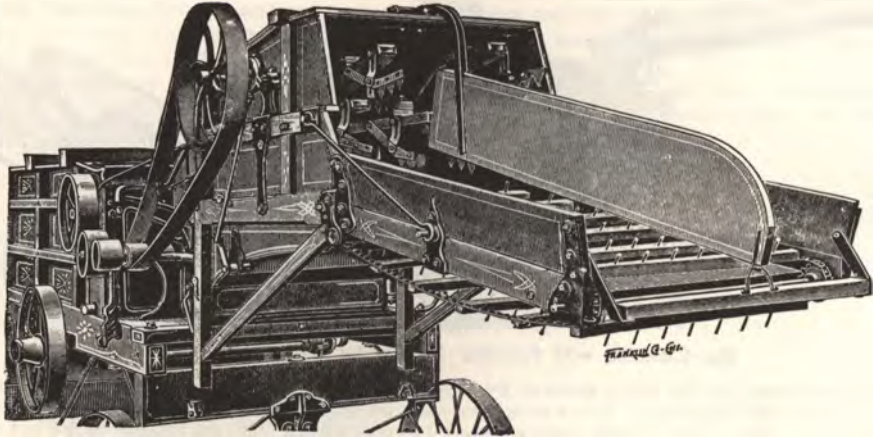
The folding device is very convenient and better adapted to barn threshing than any other. No hinges to be unfastened. All that is required to set stacker into position for the road is to telescope and swing the pipe around over the top of separator. To set it for work is just as simple.

The Drum attached high over the ground is under the rear end of the shoe and will therefore not suck grain off the sieves. The fan is driven by a bevel gear and gives perfect satisfaction.



Driving Mechanism of our Wind Stacker (Ball Bearing.)

The Parsons Band Cutter and Self-Feeder.



One of the most convenient accessories to a threshing outfit is the automatic feeder and band cutter. It relieves threshermen of the hardest task connected with his work. The demand for a first class device of this kind is naturally growing, especially in sections of large wheat or oats growing. We would not recommend a Self-Feeder to owners or purchasers of small separators (smaller than 30 inch) for the same reason that we would not advise a friend to buy a wind-mill for a cistern.

Those who own medium and large size machines and are looked to by their patrons for speedy work, will find the Self-Feeder a great convenience and relief.

The Parsons can be described in a very few words. It feeds as if it had brains.

There are a number of Self-Feeders in the market, but most of them fail when the bundles are not just so or not laid carefully on the carrier and even stroked before they are allowed to pass on.

The Parsons has wonderful assimilating faculties—it will take care of all that comes along in a manner that astonishes you and you will want to know how.

The Separating Device is one of the most important and meritorious. The teeth of the rake hold the bundle, while the knives and kickers above sever the bands and thoroughly separate and pull apart the bundles as they pass under them.

The Variable Friction Feed regulates the speed of the rake. While the machine is in motion you can adjust it to slower or faster motion as the condition of the grain may require for proper results.

The Governor is the most interesting and sensitive device of the Parsons. It can be adjusted to engage or release the feed while the machine is in motion by a variation of one hundred revolutions of the cylinder.

The Folding Device is the simplest and most convenient of any. There are no ropes and no windlass. One man can fold or adjust it for action very quickly. There are no loose parts to take care of when it is folded.

The grain is pitched on the carrier which passes under the knives attached to the bars driven by the crank shaft, driven about three times faster than the raddle below; the result is that every band is cut, the bundles evenly distributed and fed to the cylinder, and well upon the cylinder in the same manner that the best thresherman feeds his machine by raising the butts and bundles by hand.

The Divider Board assists the pitchers in getting the bundles to the cylinder straight.

In threshing loose grain, flax, timothy or clover, this board is thrown back over the machine, as is shown in cut showing the machine folded.

The Adjustable Friction enables the operator to regulate the speed of the carrier, thus regulating the flow of the grain to the cylinder. In all other Feeders the straw goes to the cylinders at the same rate, whether long or short, wet or dry.

The Carrier delivers the grain to within 16 inches of the cylinder, well up toward the top of cylinder, then passes on to the feed table, where the butts are thrown up by means of the steel plates attached to the cylinder end of the wood bars.

Loose straw can be handled as well as bundles, and many times more flax, clover or timothy straw can be fed than by hand, with better results, because the Separator is full fed.

It is so light in weight and simple in construction that it requires but a small amount of power to operate, and less than any other machine of its kind.

Its knives do not get dull. It is impossible for a bundle to pass without the band being cut. The grain is fed as the best feeder does it.

It is clean, holding all flying grain and passing it to the machine instead of the ground. The concaves are quickly and easily adjusted.

We build this Feeder in sizes to suit our Separators.

All 1898 Feeders will be equipped with a tightener for the drive belt.

The Galland Automatic Swinging Stacker.



The "Galland" Automatic Swinging Stacker, Showing Folding Device.

The independent automatic stacker has held its own in many localities against all later devices. It has many merits that recommend it to conservative threshermen and farmers. One of the most modern and practical types of independent stackers is the Galland.

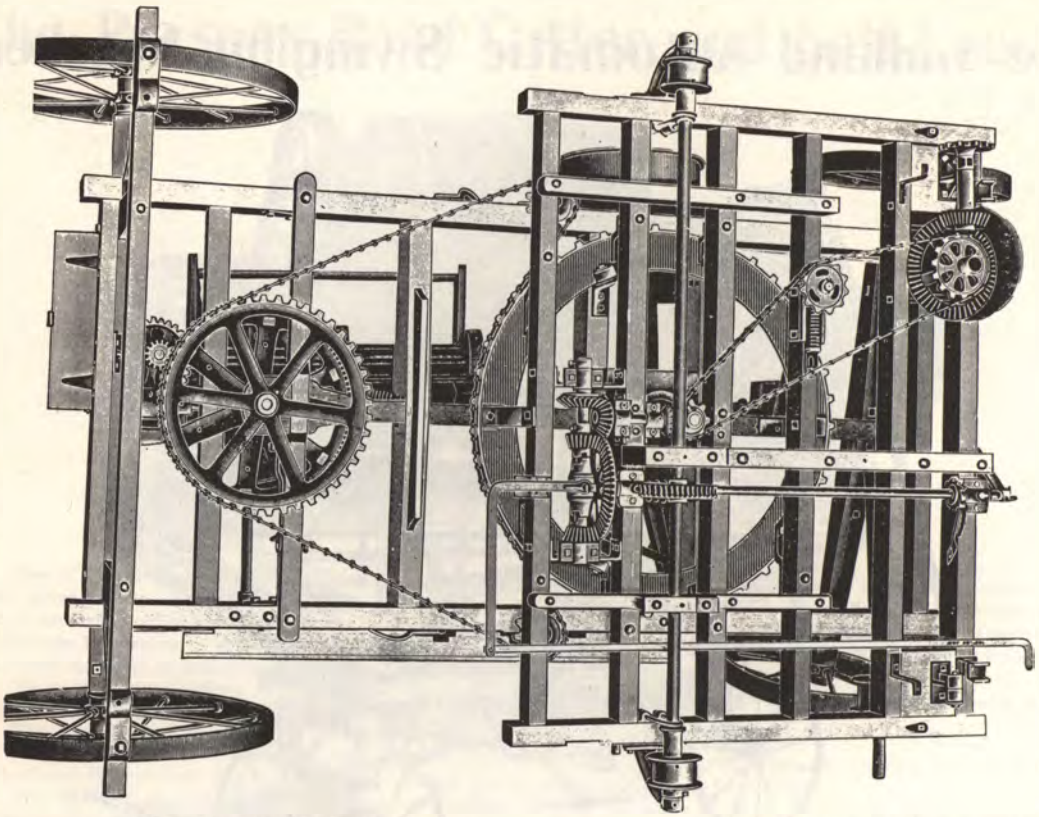
Simplicity of Construction and Its Operating Mechanism is one of the Galland's strongest points. It has nearly one-third less gearing and wearing parts than any other Stacker, which makes it the lightest running machine on the market.

Wear and Tear must necessarily be very light by reason of the simplified mechanism. The cost of repairs is very light as compared with other machines.

Only One Worm Gear running while the Galland Stacker is in operation, while other machines have two or more.

Combination Hoist.—It has a mitre gear for hoisting Stacker, which can be operated with steam or hand power, by means of a lever and clutch. This Hoist can be changed from steam to hand power and vice versa.

The Turntable is different from those on other machines; ours describes a quarter, half or full circle. This is important and a decided advantage. Other Stackers must be dug out of the litter and straw when you want to move, while you simply swing the Galland away from the stack, lower and fold it. Turntable is operated with link belt.



Sectional View "Galland" Swinging Stacker.

No Litter with the Galland and no extra hand necessary behind it, as is the case with all other Stackers, to pitch away the litter to prevent Stacker from being buried.

Our Graduated Spur Wheel enables you to build a stack at any angle with the Separator.

Our Trip and Reverse Lever is so arranged as to allow a stop at each end of the stack to assist in building the ends of stack straight. No other Stacker has this feature.

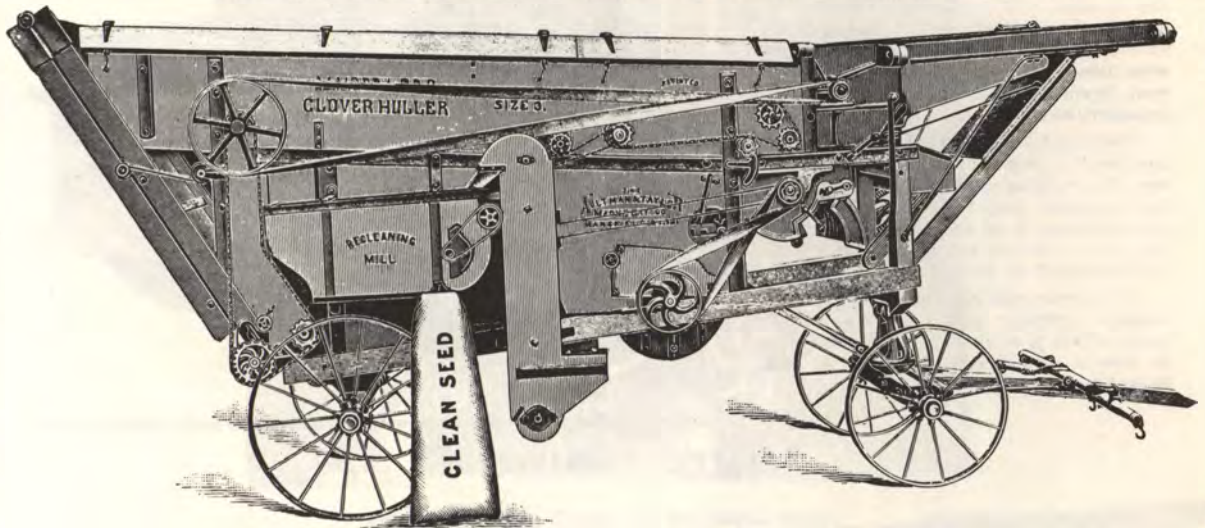
Our Folding Device is very convenient; it is lever attachment to rear section. It folds over.

Truck Wheels cut under main frame, thus allowing a very short turn. They are of wrought metal and of the same improved pattern as we use on our Separators.

Threshing Peas with our "Dixie" or "Columbia" Separator.

We have had many years' experience in Pea Threshing, and found that by removing all the concaves but one, and using only one row of teeth in it when the straw was dry, our separators would do excellent work in peas. The other concaves should be of wood. Wood does not break the peas as iron does. The cylinder should not make over 700 or 800 revolutions. In order to keep up the proper speed of shakers and fan, we provide a split pulley to clamp over the other pulleys. For sieves we use the Barley size. Sometimes we find it necessary to use a strip of sheet iron over the rear grate to prevent cracking of the peas.

The "Matchless" Double Cylinder Clover Huller.



Number.	Description of Clover and Alfalfa Hullers.
2	28 inch Upper Cylinder, 32-inch Hulling Cylinder.....
3	32-inch Upper Cylinder, 36-inch Hulling Cylinder.....
4	36-inch Upper Cylinder, 42-inch Hulling Cylinder.....
} With Wagon and Brake, 12-foot Folding Stacker and Re-Cleaner, Belt Machine Complete.	

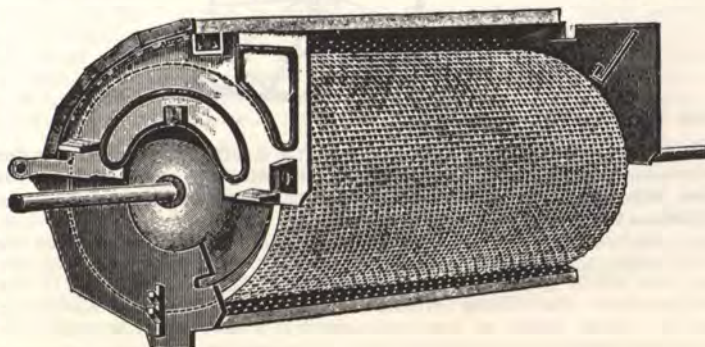
Next to a Grain Separator, the Clover Huller is of the greatest importance to the American farmer.

Instead of sending millions of dollars abroad for clover and other seeds, as we did until a few years ago, we are producing it ourselves. And why should we not? We have the best soil in the world for producing it and—what is just as important—the most perfect machines to save it.

The Matchless is all that its name implies. There are a few other types of hullers, older in years, but as unfit to compete with the Matchless as the canalboat is with the steamboat. We are able to prove this to your entire satisfaction.

There are two distinct types of cloverhullers which engage the attention of the prospective buyer. It is for his benefit that we compare them on their merits and it will not be difficult for him to make a selection. We proceed by pointing out the weak and bad points of the rasp huller, which for many years was a favorite with the farmers and threshermen, but which is now being relegated to the things of the past. Its days are counted, because it was found wanting in the most essential qualities of a perfect clover huller, namely: Separation and Cleaning.

Clover seed is much harder to separate and save than grain, because clover pods are soft and spongy, while a head of grain is hard. **No rasp cylinder has enough rubbing surface** to effect a perfect separation of the seed from the pods. If you set the concaves close in some conditions of seed (for instance when it is damp or musty), you will



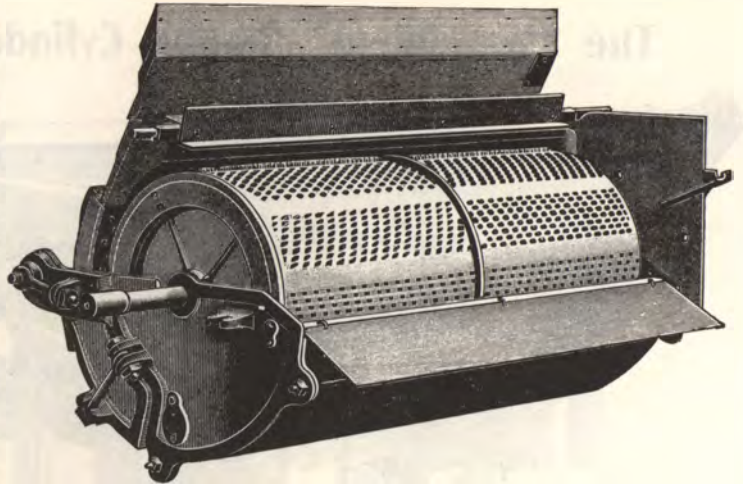
THE RASP—A Cylinder Construction that is Radically Wrong.

surely grind it and the creases of the rasp will fill up very rapidly. Some clover seed is very gummy and it acts on the rasp as a potato on a grater or a piece of soft metal drawn over a file—it fills up the creases. The rasp cylinder now has almost a smooth surface. The clover pods will roll over it unmolested. The builders of rasp hullers understand the weakness of their cylinder and were compelled to put a beater into their Separator. This, however, will not save the seed that passed over the cylinder in the pods. Now you follow the builders' advice and set the concaves wider. While you do not grind so much seed you waste more than before. In damp clover you grind and in dry clover you waste. The rasp is a total failure

in scarlet or crimson clover. This species, which is constantly growing in popularity with American farmers, is more oily than some of the others. The seed will hide in the creases, will accumulate rapidly, be ground up and soon render the cylinder utterly useless. **It stands to reason that the separation of the rasp cylinder even under the most favorable conditions of the seed must necessarily be very slow.**

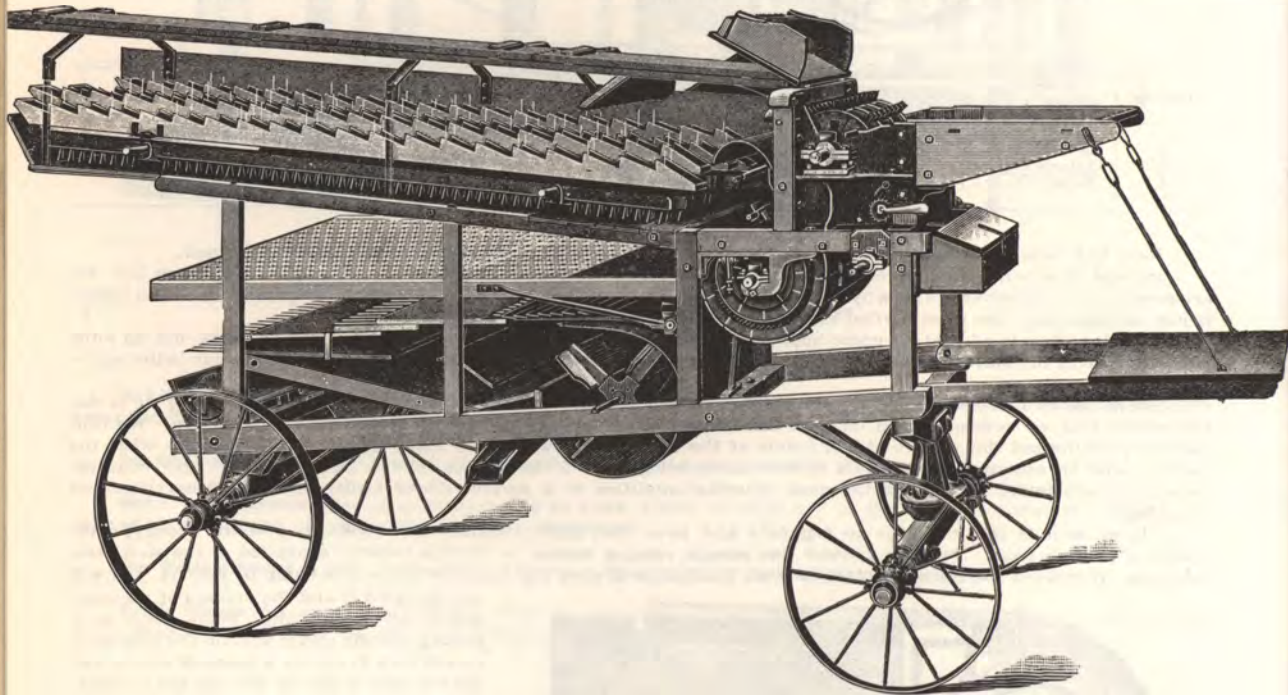
The principle of bradded cylinder is not new, but it is new as adapted to our Matchless. The rubbing cylinder is studded with four cornered steel nails or brads, which project about $\frac{1}{4}$ of an inch. The hulling concaves or staves are also studded with the same kind of brads.

The clover pods are thoroughly rubbed between cylinder and concaves, which meets within $\frac{1}{8}$ of an inch. **It is impossible for pods to pass through without all the seed having been separated.**



The Hulling Cylinder of the Matchless, which is Theoretically and Practically Correct.

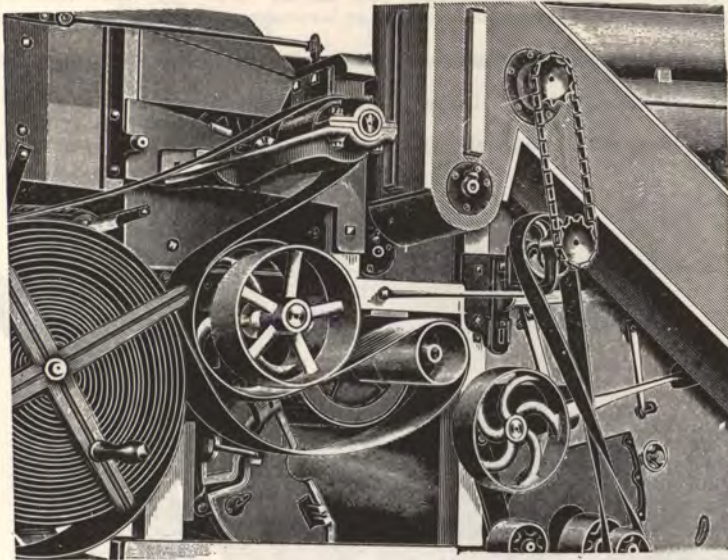
GENERAL CONSTRUCTION.



Interior View of "Matchless" Huller.

IRON FRONTS.—All sizes have iron fronts and sides, with 4 inch flare. That is, the mouth is four inches wider than the throat, which allows you to spread the straw well before it enters the cylinder. **The upper cylinder has pivot boxes and an out or sidearm on drive side, with a box outside of drive pulley, which, when properly oiled will absolutely prevent heating. Drive Belt can be put on without removing outarm.**

THE HULLING CYLINDER is undershot. It is covered with heavy sheet steel, through which steel brads are driven into hard wood staves. The brads are of a special grade of steel of even length. The rows of brads are carefully laid off. The brads seldom come out. The whole cylinder can be rebradded for \$5.00, which is fifty per cent. cheaper than the cost of renewing other cylinders. Our hulling cylinder can be turned end for end, thus giving double wear, an advantage no other Huller can offer. Some of our customers have used their Hullers four seasons without spending a cent for repairs, not even wearing out a single brad. No gumming, choking or clogging is possible with our cylinder—separation is perfect. It also has pivot boxes.



Outarm on Upper Cylinder of Matchless Huller.

CONCAVES for lower cylinder are reversible and also filled with steel brads. When brads become worn on front side you can turn the concaves end for end, which is equal to a new set of brads, or a saving of many dollars.

DROP CONCAVES are made in two sections—the front section is a little smaller than the rear one and can be lowered without disturbing the other. This is not only convenient, but very advantageous. No other Huller has a similar contrivance, and this feature alone should induce any thresherman to buy the Matchless.

HULLING AND CLEANING.—The clover, after being raked to the Hulling Cylinder, is fed in by a "Force Feed," a four-wing beater, which is driven from the front separator crank with a sprocket chain. This device is important. It distributes evenly and always insures good work in wet or dry clover. The thorough agitation and rubbing of the pods between the brads will deliver all the seed. The construction of our Rubbing Cylinder and Concaves prevents grinding.

OUR CHAFFER is made of No. 18 sheet steel, which will not bend or break like the chaffers in other makes of hullers. It has round perforations of sufficient size to let all the seed and chaff through and at the same time will keep the coarse stuff away from the riddles, giving the blast a better chance to act on the riddles. **This greatly increases the riddle capacity** and consequently the hulling capacity, because straw and stems will not go through to be carried up in the elevator and through the cylinders again, to be ground up. The Chaffer is not made fast to shoe as in other makes of hullers, but is hung and runs independent from shoe by means of a crank and pitmans. One set of cranks agitates the shoe and the chaffer. It does not obstruct the riddles—you can easily get at them. Shoe and chaffer are in perfect balance and run smooth. The seed, after passing through the Riddles, is elevated to the Re-Cleaning Mill (in a partly cleaned condition) by the seed elevator. Our mill does the best work of any in the world. By proper adjusting it can be made to do marketable cleaning the first operation. Nevertheless we equip every Huller with

A RE-CLEANER OF LARGE CAPACITY.—It is 41 inches long, 20 inches high and 10½ inches wide inside. The Re-Cleaner on No. 4 Huller is four inches wider and three inches longer. The Shoe of the Re-Cleaner is end shake and is provided with two Zinc Riddles with holes of proper size, and is so constructed as to readily admit the seed and clean it to perfection. There is a small spout underneath the Re-Cleaner attached to the bottom of the Fan, through which the cleaned seed passes into the bag, which is fastened to the spout by hooks. The Seed Spout Bottom is of wire screen, fine enough to take out sand and dirt, which is finer than clover seed. The Re-Cleaner Sieve is removable, same as sieves in Separator.

For scarlet seed we provide Zinc Sieves of proper mesh, for both main mill and Re-Cleaner.

SEPARATOR TROUGHS have an adjustable slatted device, by means of which conditions of clover can be suited. No other Huller has such an arrangement. **This accounts for the unequalled success of the Matchless in all kinds of clover.**

THE FAN DRUM has a wind shutter in lower half, below sill for increasing blast.

SHOE BELT will be 3 inches wide and will have a tightener.

FAN AND SEPARATOR BELTS will be 3 inches wide.

SHOE CRANK SHAFT will be made of steel.

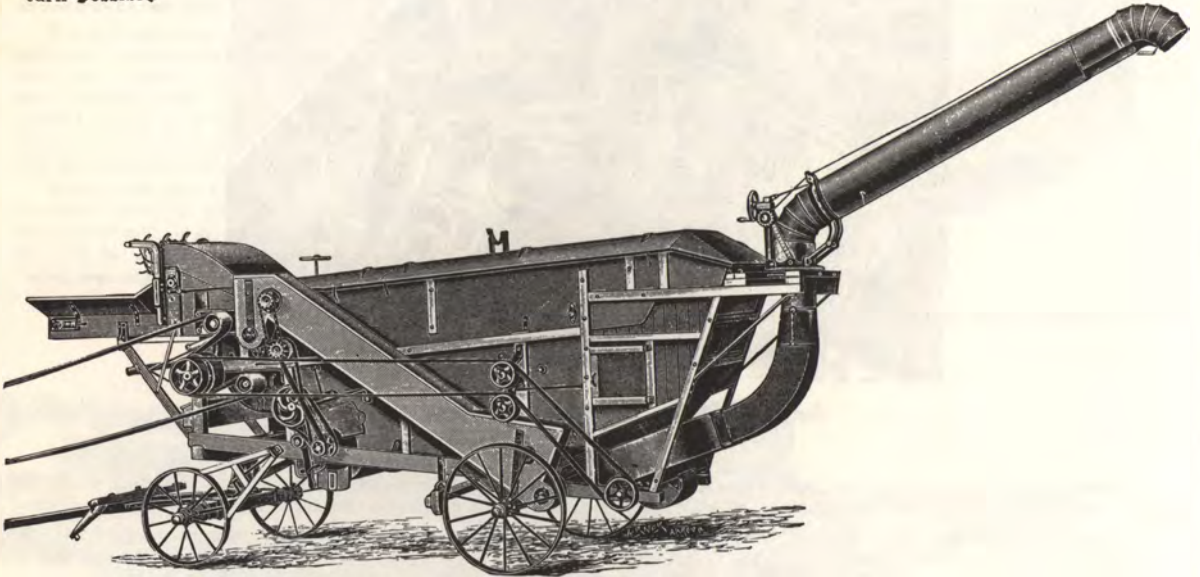
THE SEED ELEVATOR is constructed with cast pulleys at top and bottom, over which runs a belt of best rubber with Russia Iron Buckets, which are riveted on.

THE FOLDING STACKER is 12 feet long, the outer half folding under the inner half when not in use, the windlass being so situated that the stacker can be raised or lowered without getting on top of machine. It is driven by a Detachable Link Chain.

THE LEATHER BELTS used on the Matchless Hullers are made from selected stock, of the best oak-tanned leather.

MAIN BELT TIGHTENER PULLEY is 13 inches in diameter on all '98 Hullers and will be placed on front post of cylinder.

FRONT TRUCK is arranged with a pedestal that will allow it to turn around under huller and make the shortest turn possible.



Matchless Huller with Harvey Feeder and Ballbearing Wind Stacker.

The Harvey Self-Feeder for Clover Hullers.

It is now pretty well understood among threshermen, that the Harvey is the only practical automatic feeder for clover hullers. We have the exclusive shop-right, and the inventor, Mr. Harvey, is now in our employ. With his assistance the Feeder has been remodelled and it is now the most perfect device in the market. **Its simplicity** will recommend it to any thresherman. Being free from crank-shafts, your huller is not shaken or wrecked by vibration.

It is an Overshot Feeder and it is equipped with a device for retarding and spreading the straw before it goes into cylinder, that absolutely prevents slugging and crowding.

The Drag is made of No. 55 (extra heavy sprocket chain) instead of No. 45 as heretofore. It will have three chains instead of two as formerly.

The Slats are fastened with 4 rivets of $\frac{1}{4}$ inch iron—one each to outside and two to inside chain. **Slat**s cannot possibly go into cylinder unless 3 rivets are broken, which will hardly ever happen unnoticed.

We haven't had a single complaint since we adopted this form of construction.

Our New Revolving Retarder (Patent applied for) is being operated by an incline shaft and bevel gear, which can be adjusted the same as the spring fingers of old. The retarder has three chains instead of the three fingers formerly used. Every other link has a finger attached about four inches long. These chains revolve very slow and at all times there are from six to twelve of these fingers holding large tufts or bunches until they are torn apart and spread. Feeder Cylinder cannot possibly get hold of bunches or tufts as it was apt to do with the former device. **No choking or slugging in front of cylinder by weeds or long straw** is possible since the introduction of the new chain retarder.

Another improvement is a circular sheet iron guard in front end of feeder to keep the loose stuff from obstructing the free motion of drag and chains.

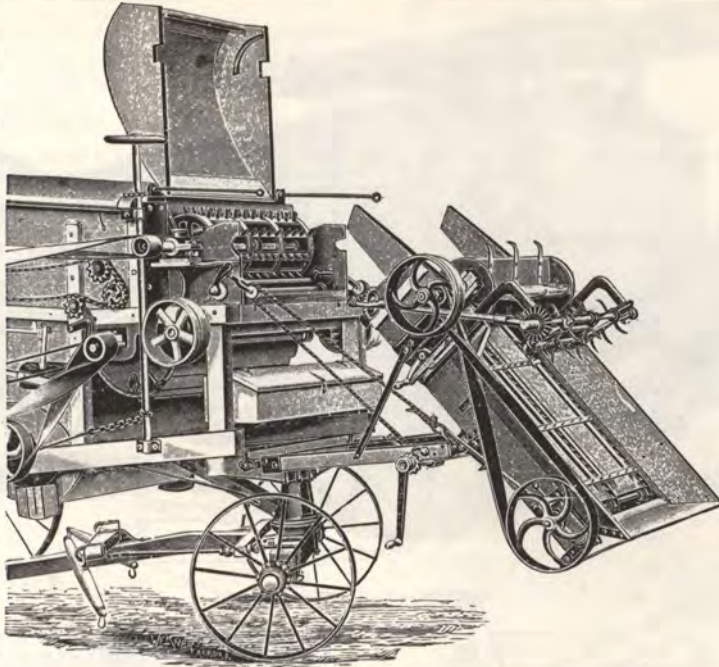
A clutch for starting or stopping while huller is in motion, is one of the great conveniences, which are appreciated by threshermen. This feature is very important, because any foreign object getting onto drag can be easily removed before getting into cylinder, by stopping feeder with this clutch.

A Picker with an undershot movement is placed above the drag. It has a steel shaft and cast iron heads, hard wood blades with bent wrought iron fingers, also balance wheel on picker which makes a positive drive.

The Folding Device is very simple and convenient. By means of a windlass the feeder can be dropped back, so as to allow free access to the cylinder and concaves, without removing feeder from machine. When feeder is attached to huller, it is on level with top of huller, making feeding very easy.

The purchase of a Harvey feeder is one of the very best investments a thresherman can make—it relieves him of the meanest task about a huller.

We are prepared to supply the Harvey for other makes of hullers, the Victor, Birdsell, Empire and Gaar-Scott.



Device for removing Harvey Feeder from its position.

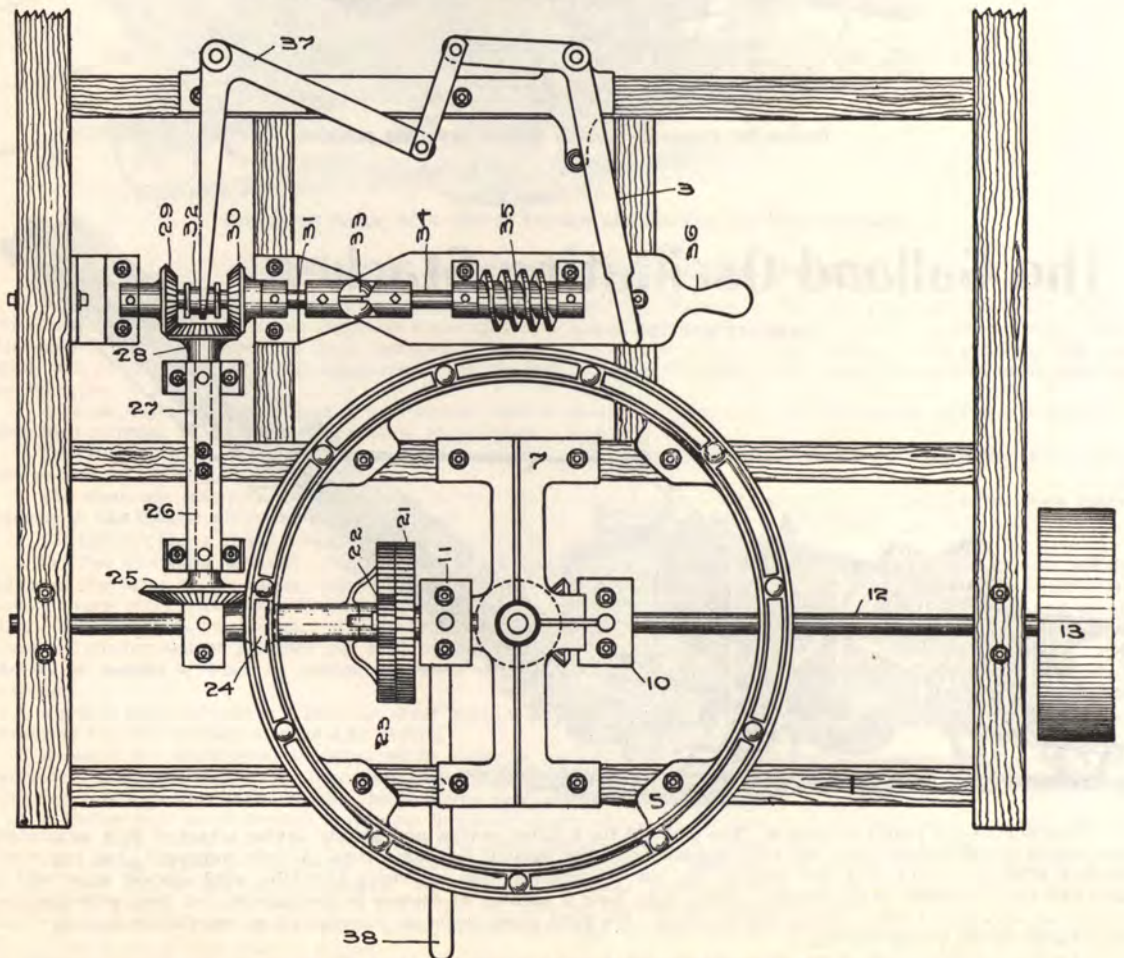
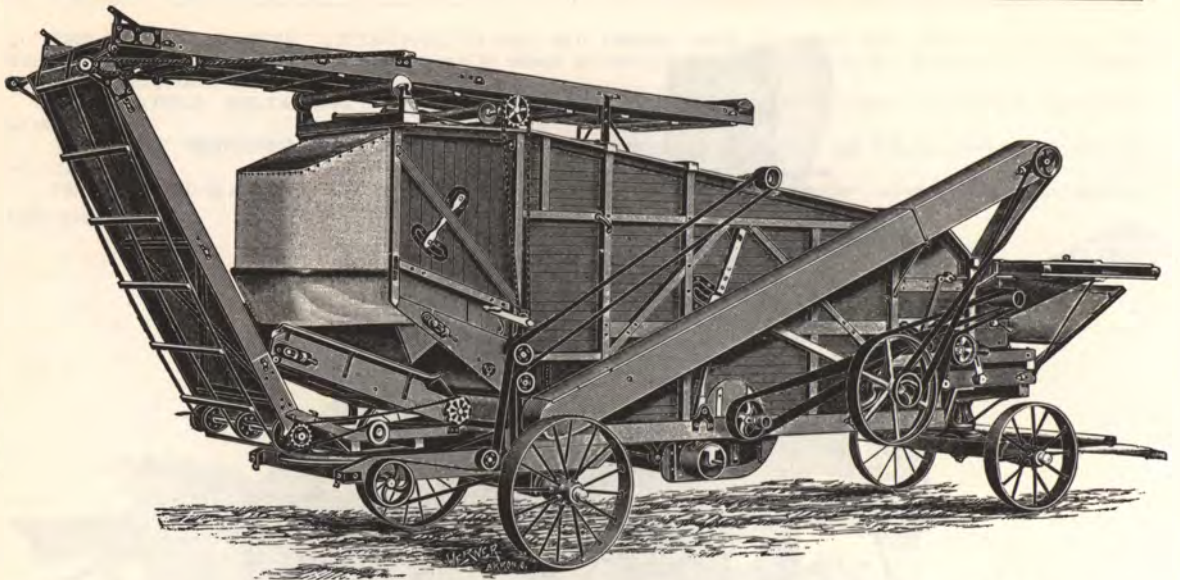
The Galland Oscillating Stacker.

(PATENT APPLIED FOR.)



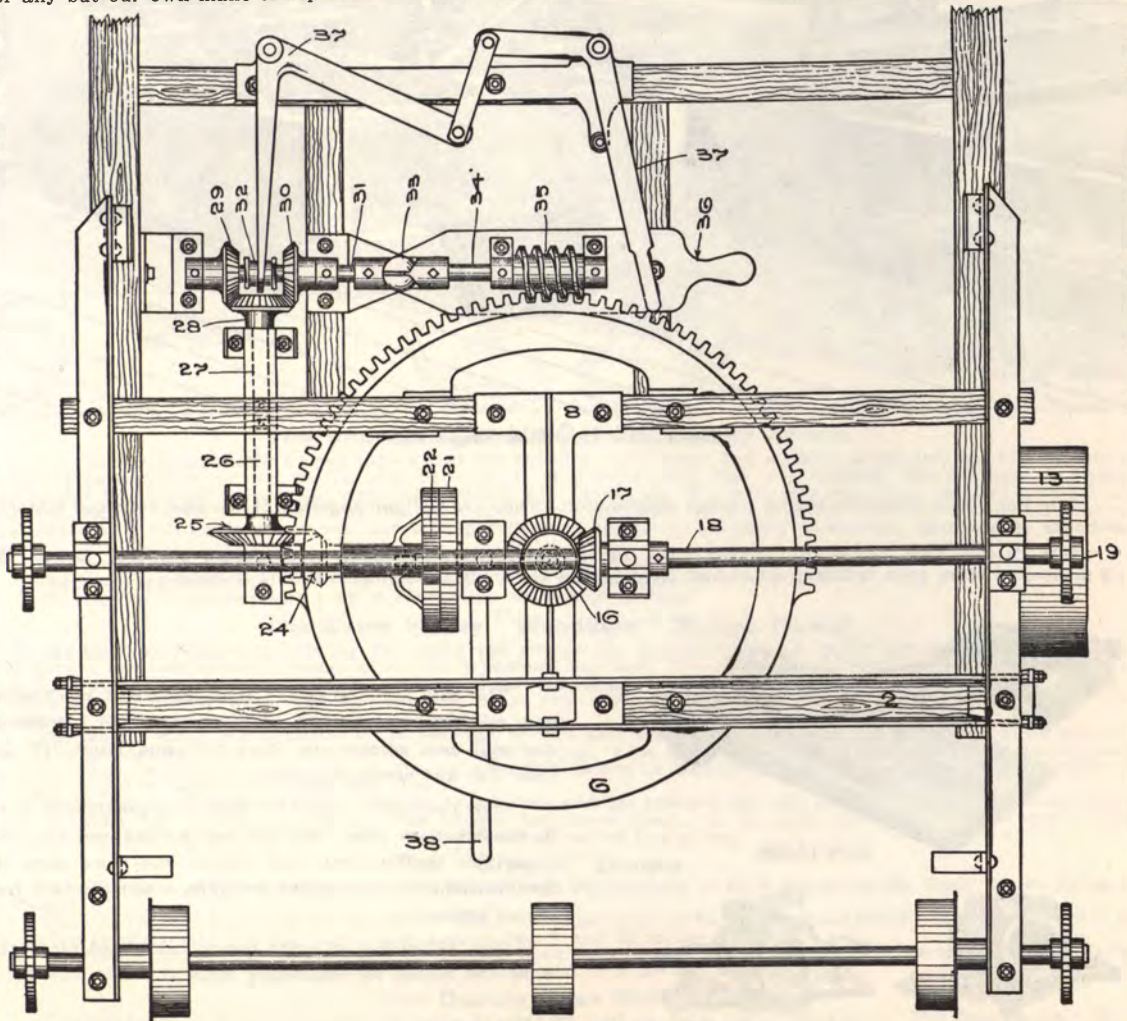
This is indeed a timely invention. The demand for a labor saving and simple device attached to a separator, that would accomplish all that the wind stacker does, has existed for some time. It was supposed that the wind stacker filled the want, but the demand for an attachment, less expensive than the wind stacker grew and it would be folly to ignore it any longer. There have been a number of devices in the market, but they were unsatisfactory on account of their clumsy construction. We take great pride in introducing an oscillating stacker, that will absolutely fill a long felt want.

After a careful study of the illustrations and detailed description, you will recognize the superior merits of the Galland.



Sectional Cut Oscillating Gear, Showing Lower Half.

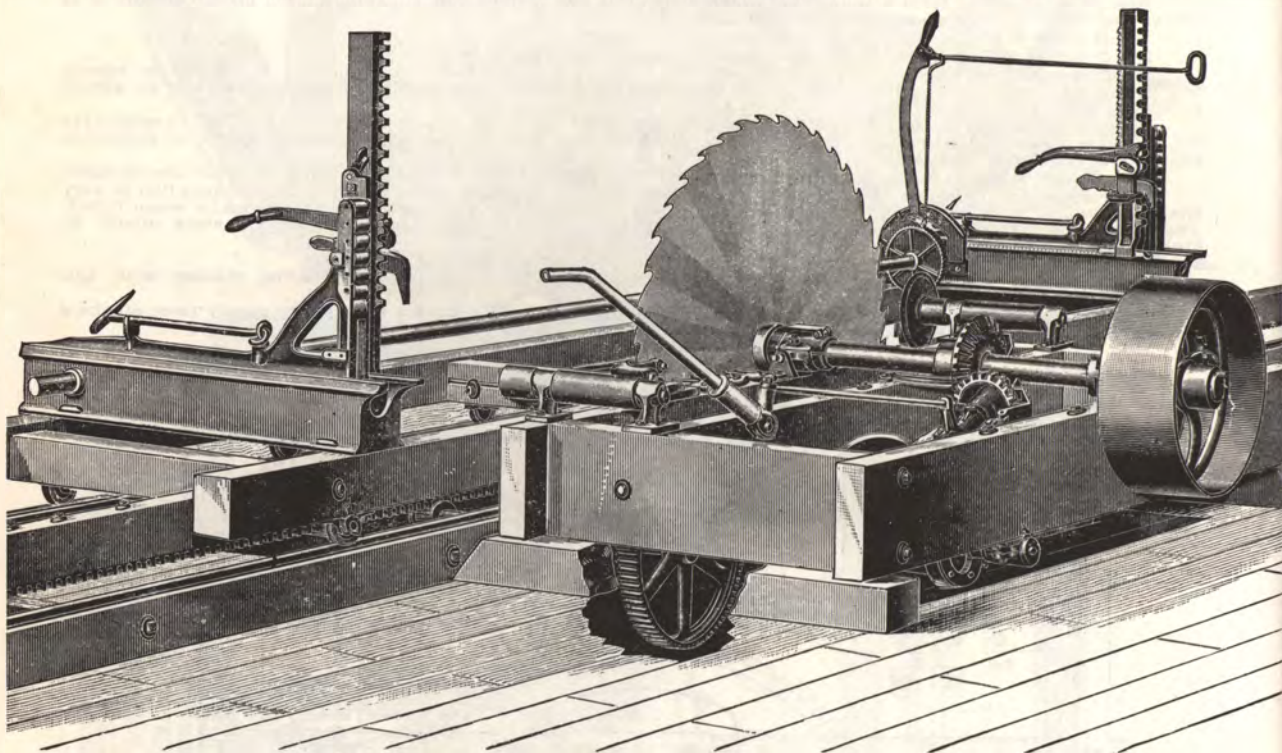
- No. 1 is bottom half of main frame.
 No. 2 is top half of main frame.
 No. 7 is chair-bracket for center gear and upright shaft.
 No. 8 is similar to No. 7, except that it telescopes No. 7 and forms the pivot-center for turntable No. 9, upright shaft No. 10, box for shaft No. 12.
 No. 11 is bracket with pin for gear No. 21, which runs loose.
 No. 13 is Drive Pulley.
 Nos. 14 and 15 is mitre gear, which drives gear 16 and 17 and shaft 18 with sprocket wheel 19. This drives the hopper web.
 Nos. 20, 21, 22 and 23 form a spur gear, which runs loose and is driven by engaging clutch on drive shaft 12 at the end of lever 38. This clutch engages spur pinion 20.
 No. 24 is Eevel pinion, which is attached to 23.
 No. 24 drives 25, 26, 28, 29, 30, 31, 32, 33, 34 and 35. These operate the turntable.
 No. 33 is a universal joint, attached to 36, which is adjustable to backward and forward movement to engage and disengage worm wheel of turntable. When disengaged turntable stops oscillating but stacker can be swung around by hand.
 All gearing from Nos. 20 to 35 can be stopped by throwing off clutch, attached to main shaft No. 12 with lever No. 38. This also stops the oscillation of stacker. With the throw-off lever 38, the automatic action of stacker is engaged or disengaged momentarily.
The Carrier which is 24 feet long from hopper, is supported by a rope from top of separator. No derrick used.
The Folding and Unfolding is all done by a windlass, which is operated from the ground—the operation is very simple, about the same as with an ordinary stacker. Over one-half of carrier rests on top of separator when folded. The Galland oscillates almost to right angle. It rises 21 feet from the ground and will build a stack almost as high as any wind-stacker.
Its weight is less than that of a wind-stacker.
It requires but very little more power than a common stacker. It is the only oscillating stacker with ball bearings.
 Orders should be given early, because we anticipate large sales. We are not prepared to supply these stackers for any but our own make of separators.



Upper Half Oscillating Gear.

PONY "F" SAW MILL.—IMPROVED.

SINGLE AND DOUBLE.



Front View Left-Hand Single Mill.

Our Pony Saw Mills are giving perfect satisfaction. They are well put together of the best seasoned material and very convenient.

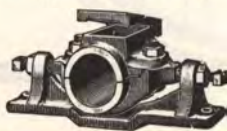
Our Patent Head Blocks and duplex dogs, Patent Saw Guide, adjustable and pivoted Mandrel Boxes are all devices of more than ordinary merit and have earned our mills a reputation second to none.



SAW GUIDE.



**PIVOTED BOX
NEXT TO PULLEY.**



**ADJUSTABLE BOX
NEXT TO SAW.**

The Saw Mandrel is the most important mechanism of a mill—ours is nearly 3 inches in diameter. Practical saw-mill men admire our Pony "E" and Pony "F" for their fine and strong mandrels.

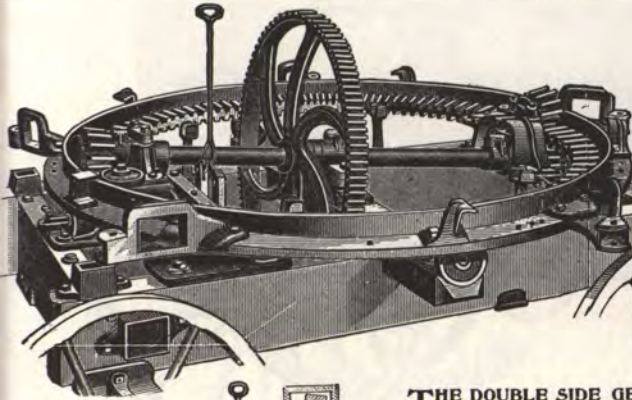
Our Pony "E" and "F" mills are practically alike in construction. The "E" mill has a cone and the "F" a variable friction feed. For further and more complete specifications see our special circulars, which we send free to any address.

Our "G" mill is an extra heavy, calculated for heavy work and suited for stationary mills.

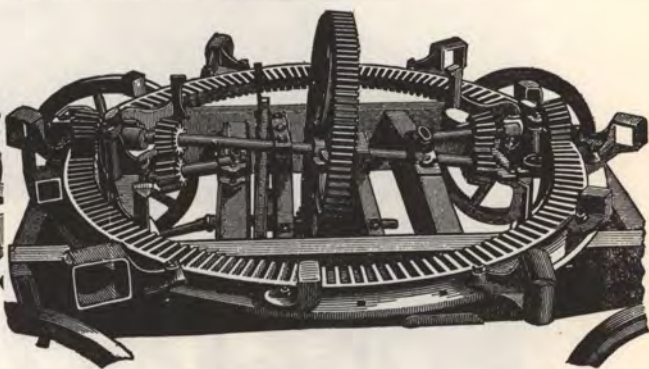
"AULTMAN-TAYLOR" HORSEPOWERS.

GENERAL CONSTRUCTION—All our horsepowers are mounted on four iron truck wheels, on which they remain when in operation. We offer our friends two patterns to select from, viz: Our Double Gear Woodbury, for all medium and small size threshers, and our "Dingee" pattern, for large threshers and heavy work.

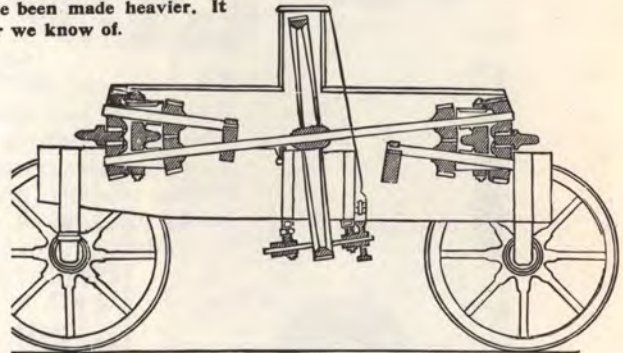
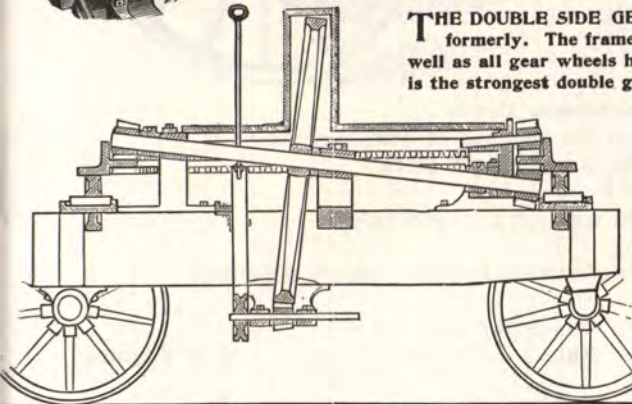
THE WOODBURY DOUBLE GEAR.



WOODBURY DINGEE PATTERN "EXTRA HEAVY."



THE DOUBLE SIDE GEAR is much stronger than formerly. The frame, the shafting and boxes, as well as all gear wheels have been made heavier. It is the strongest double gear we know of.



The Improved Double Gear Woodbury Power.

This power is favorably known throughout the country. For small and medium separators we can conscientiously recommend it to our friends and patrons. It is of light draft and very durable. We are now supplying repairs for Woodbury Powers that were built twenty-five years ago. We build two sizes, viz.: eight and ten horse, and the master wheel is so arranged that it will do for either size or it can be made twelve horse. By this means the owner of a ten horse power can, for \$9.00, purchase all the parts necessary to change his power to a twelve horse.

We furnish three speeds, viz.: 95 speed, 100 speed and 107 speed.

There are travellers under the master wheel. The rods turn against the horses.

We use the Woodbury side gear in connection with these powers.

The Extra Heavy "Woodbury" Dingee Power.

The principal difference between this style and our Double Gear Woodbury is in the number of master pinions. The Dingee has four master pinions, where the Woodbury has two. The Dingee is calculated for very heavy work and large machines. It stands **without contradiction that the Aultman-Taylor Dingee is the strongest Power built.**

The cogs of master wheel and pinion are $\frac{5}{8}$ of an inch longer than on the Woodbury Double Gear. The intermediate pinions also have the additional length.

The master wheel is reversible—When the cogs on one side are badly worn, you can turn the wheel around and thus get double wear out of it, which is a great saving. Line shaft is $\frac{1}{2}$ inch in diameter. Spur wheel shaft is two inches in diameter. Counter shafts are also two inches in diameter. Truck wheels are the best grade of wrought metal wheels with a three inch tire.

The axles on all Powers will be longer than before and the bolsters one inch higher, so as to give more clearance between the wheels and levers. The Dingee has three speed, viz: 95 speed, 100 speed and 107 speed. The rods turn against the horses. For heavy work you should select this power.

The "Oregon" Dingee.

This Power is of the same construction, but is made still heavier, to fill a demand in the Coast States for such a Power.

The line shaft is $\frac{1}{2}$ inches in diameter. The spur wheel shaft is $\frac{3}{4}$ inches in diameter. The counter shaft is $\frac{3}{4}$ inches in diameter. Counter shaft box is extra heavy and $\frac{5}{8}$ inches long.

The Oregon Dingee has three speeds for Double Gear Side Gear, i. e., 67-70 and 73. When this power is to be used with single gear side gears, speed should be changed to 95, 100 or 107 speed.

Our Double Gear Side Gear.

This gear will be put on all 30x46 Columbia Separators and on 30x44 and 32x48 Dixies. The Double Gear Side Gear has four wheels in two bevel and two square gear wheels. Bevel wheel has 54 cogs, the spur wheel has 55 cogs and the spur pinion 24 cogs.

HAVE ONLY THE BEST.
THE BEST IS CHEAPEST.

IDEAL THRESHER TANK.



Patented December 22, 1896.

The only desirable Tank for the use of Threshermen.
Made of the best quality of galvanized steel.
It will not water-log or leak.
It combines least weight with greatest strength.
Permits of short turning.
It has partition in center which prevents water sloshing
endwise.

Provided with detachable steel cover.
It will fit any wagon. Absolutely safe from running
gear.

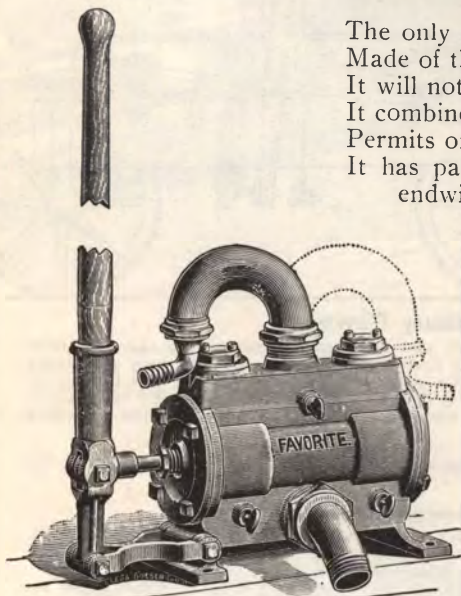
Tapped in bottom ready for use.
Easily exhausted to the last gallon.

No. 5, Capacity.....10 barrels No. 7, Capacity.....12 barrels

Furnished with or without trucks. Order by number only.

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The "Favorite" Tank Pump,
Capacity $2\frac{1}{2}$ barrels per minute.

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WEATHER FORECASTS FOR 1898.

JANUARY, 1898.—Cold, fair weather will prevail generally 1st and 2d, changing to warmer in the west about the 3rd and developing storms of rain and snow, during first regular storm period 3d to 6th. Full moon on 7th will prolong and intensify these storms, in their transit from west to east. A cold wave will follow in rear of storms. Warmer about the 10th and 11th, bringing minor storms of rain and snow. Second regular storm period, 15th to 17th, will develop storms of much force, influenced by moon's last quarter on the 15th. Minor storms on the 21st and 22d with new moon on the 22d to excite disturbance and bring rain and snow to many sections, followed by a cold wave. Last regular storm period, 25th to 29th, will be under the influence of Mercury and Vulcan, prolonged by moon's first quarter on the 29th. Violent rain and snow storms, turning to blizzards, will rage in the north and west, sleet and snow in northern central states and cold sleety rains far southward.

FEBRUARY, 1898.—This month will open clear and cold, moderating on the 2d and 3d, and developing minor storms of rain and snow in many sections, as the storm conditions travel eastward, closely followed by a cold wave. Full moon on the 6th will precipitate disturbance during the first regular storm period, 6th to 8th, and bring snow and cold rains, followed by raw and biting winds. Minor storms on the 13th and 14th will be hastened and excited by moon's last quarter on the 13th, and the disturbing conditions culminate progressively from west to east in storms of snow and rain, leaving very cold weather after storms have passed. The last regular storm period, 18th to 21st, will be aggravated by new moon on the 20th: heavy snows will prevail in the north, rain, lightning and thunder in the south, and a severe cold wave will follow in rear of storms. Warmer on the 24th and 25th, with minor storms brewing in the west, developing many fierce gales and storms of rain, turning to snow. A cold wave will follow closely behind storms. The month will end clear and cold.

MARCH, 1898.—March promises to be a tempestuous month. Many dangerous gales and storms of rain, snow and sleet will be prevalent, with lightning and thunder during storm periods in many sections. Earth's vernal equinox, Vulcan, Mercury and Venus are all disturbing factors. The month will open with moderate temperature and storms brewing in the north-west which will travel eastward 1st to 4th. A cold wave will follow close on storms. Full moon on the 8th will have a disturbing influence on minor storms 8th and 9th. Violent sleet and snow storms and blizzarding gales in the north, cold rains turning to sleet far southward. These disturbances will perhaps continue up to and during the second regular storm period, 12th to 16th. There will be extreme and sudden changes of temperature, hail storms, lightning and thunder, tornadoes, cyclones and perhaps earthquakes where conditions are favorable for them. Very cold after storms have passed. Warmer on the 19th and 20th, developing extremely severe storms. Sudden change to very cold, moderating on the 25th, for last regular storm period, 25th to 27th. The month will end cool and fair.

APRIL, 1898.—April opens warm, with minor storms in progress on the 1st and 2nd. Earth's vernal equinox continues to have a disturbing influence through this month which will insure copious rains during storm periods. The transition from winter to active spring conditions will have a tendency to bring many heavy rain storms. Fair and cool 3rd to 5th, when it will turn warm and develop storms during first regular storm period, 5th to 7th. Full moon on 6th will increase this disturbance and bring heavy rains in central and southern states, snow squalls north. Cool days and frosty nights in the north follow storms, turning warm on the 11th and developing minor local storms 12th and 13th. Cool, pleasant weather, 14th to 16th, turning much warmer on the 17th, bringing numerous heavy showers during second regular storm period 17th to 20th. New moon on the 20th and an equinox of Mercury on the 24th, will cause a spell of showery weather, continuing up to and past minor storm period 23d and 24th. Cooler after storms, changing to warmer on the 27th, and developing last regular storm period 28th to 30th.

MAY, 1898.—There is an unusual absence of disturbing causes this year during the month of May, so that while storminess will appear during all storm periods, it will not be of a dangerous character, and we may expect much charming weather. The opening days, 1st to 4th, promise to be bright and cool, with frosty mornings in the north, turning cloudy and warmer in the west about the 5th, with full moon on the 6th to strengthen minor storms on the 5th and 6th. Cooler and pleasant after storms. A warm wave will develop in the west and pass eastward during the first regular storm period, 9th to 12th, culminating in hard storms of rain, hail and thunder. Very cool nights, with touches of frost northward, where storms have passed. Warmer and frequent local showers 15th and 16th. Pleasant, cool weather 17th to 19th, becoming warmer on the 20th, with new moon on that day, to excite storms during second regular storm period, 21st to 23rd. Delightfully cool after storms. Minor storms on 27th and 28th, excited above normal by moon's first quarter on the 28th. The closing days of the month will be pleasant, with increasing warmth.

JUNE, 1898.—June opens warm, with storms brewing in the west, excited and prolonged by full moon on 4th, and becoming increasingly energetic as they travel from west to east, during the first regular storm period 1st to 4th. The prevailing temperature of the month will be very humid and oppressively warm, culminating in dangerous storms during all storm periods. It will probably be a very wet month. Minor storms on 8th and 9th, aggravated by Mercury and causing drizzling rains to continue for several days. The second regular storm period, 13th to 15th, will feel the disturbing influence of earth's summer solstice; storms are likely to arise each evening for several days, and whole nights of continuous lightning and thunder very probable. Minor storms of considerable energy 18th to 20th, hastened and excited by new moon on the 18th. Venus will be a disturbing factor during the last regular storm period, 25th to 28th, with Vulcan and moon's first quarter on the 26th to aggravate the disturbance. Many electrical storms will occur, severe hail storms in many places, wind storms and tornadoes probable in localities situated within the Missouri Valley.

JULY, 1898.—Very hot weather during the opening days of this month. Minor storms on the 2nd and 3rd will be excited above normal by full moon on the 3rd, causing scattering local cloudbursts of rain or hail, with electrical phenomena. Venus is an intense disturber this month. The first regular storm period, 6th to 8th, will bring many heavy storms of rain, hail and thunder-gusts, sudden changes of temperature; tornadoes are liable to occur. IF THE TORNADO-FUNNEL IS SEEN APPROACHING FROM THE SOUTH OR WEST, THE SOUTHWEST CORNER OF THE CELLAR IS THE SAFEST PLACE OF REFUGE. IF SEEN IN THE NORTH OR EAST, IT SEEN NOT BE FEARED; IT WILL MOVE AWAY. Minor on the 13th and 14th. New moon on the 18th will excite second regular storm period, 18th to 20th. Mercury is also a disturbing factor at this period, and will bring cloudiness and drizzling rains. Minor storms on the 24th and 25th. The last regular storm period, 29th to 31st, will bring typical summer showers in many places; in other localities there will be cloudiness and extreme heat, with little or no rainfall.

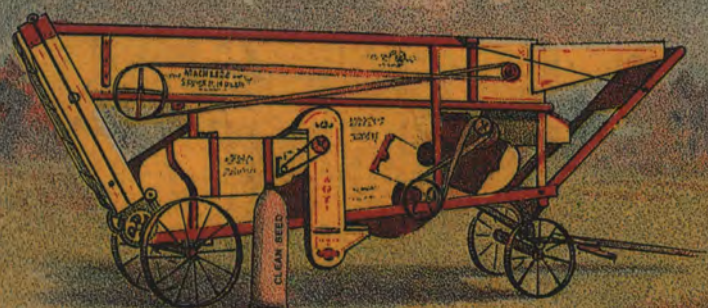
AUGUST, 1898.—During this month there will not be much precipitation, but all regular storm periods will be plainly marked by atmospheric changes. The month opens with full moon on the 1st, which may prolong the storms of the last days of July and bring a temporary abatement of heat. It will turn quite warm again, 4th and 5th, and threatening clouds, with thunder and bluster, will visit many sections, bringing heavy rains in isolated localities. This will cause some respite from summer heat, but dry, hot days quickly return and drouth will generally prevail. During the first regular storm period, 9th to 11th, black thunder clouds, with more or less rain, will develop, especially in the north and east. Minor storms on the 16th and 17th, perturbed by new moon on the 17th, may bring some showers. The last regular storm period, 21st to 23rd, will feel the disturbing influence of our approaching autumnal equinox, and West India cyclones and hurricanes will probably sweep our southern coast and eastern seaboard. Minor storms 27th and 28th. The month will end warm and pleasant.

SEPTEMBER, 1898.—This month opens cloudy and warm, with humid atmosphere. During the first regular storm period, 2nd to 4th, there will be drizzling rains, perhaps continuing for several days. Minor storms on the 8th and 9th, perturbed by moon's last quarter on the 7th. Cool, pleasant weather between storm periods. The second regular storm period, 14th to 17th, will be aggravated by new moon and Vulcan on the 15th and earth's autumnal equinox on the 22nd. Tropical hurricanes, originating far out at sea in the southern hemisphere, violent gales and high tides may strike our south Atlantic coast and travel northward, leaving a trail of wreck and ruin by wind and wave along our eastern seaboard. Violent gales on the lakes and local tornadoes in inland districts are liable to occur. Minor storms on 20th and 21st will be perturbed by moon's first quarter and earth's equinox on the 22nd. A decided change to cooler weather will quickly follow storms after they pass any given locality in transit eastward, bringing frosty nights in the north. The last regular storm period 25th to 27th. The month will end cool and pleasant.

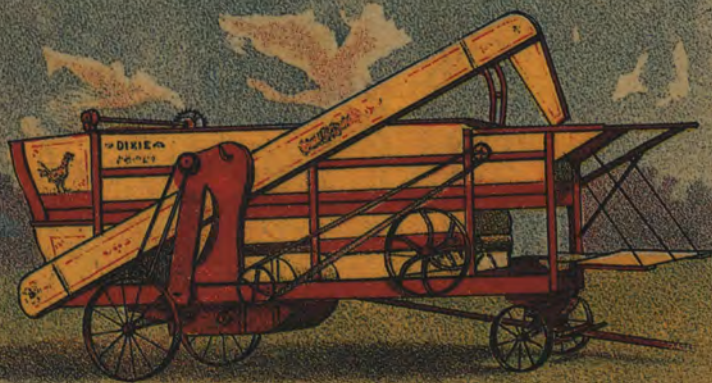
OCTOBER, 1898.—This month will open warm, with minor storms on the 2nd and 3rd. The first regular storm period, 6th to 8th, will have moon's last quarter on the 7th to increase and prolong the disturbance. Cool and pleasant 9th to 11th, growing quite warm on the 12th and 13th, developing minor storms of drizzling rain, turning to sleet and snow in the north. Cooler days and frosty nights follow storms. The second regular storm period, 18th to 20th, will be perturbed by Vulcan, Mercury and Venus. Very warm weather will develop storms of lightning, thunder and rain, suddenly turning to hail, sleet and snow in many parts. Extreme and sudden change of temperature. Heavy gales will sweep over the lake regions and along the sea-coasts. A cold wave with frost and freezing will follow storms. By the 24th and 25th it will turn warmer, and scattering autumnal storms will travel from west to east, and a bitter cold wave, for the season, will follow close on track of storms. Full moon on 29th will aggravate last regular storm period, 29th to 31st, and bring many dangerous atmospheric disturbances.

NOVEMBER, 1898.—Crisp, bright days and frosty nights will follow late October storms during the early days of this month. Warmer on the 5th and 6th, developing minor storms intensified and prolonged by moon's last quarter on the 6th. The first regular storm period, 9th to 12th, will feel the disturbing influence of Vulcan, Venus, Mars and new moon on the 13th, causing dangerous autumnal gales on lakes and seas, snow and rain in the north and central states, heavy rains, thunder storms, and tornadoes probable in southerly localities, winding up with a very cold wave and touch of early winter. The 16th and 17th will bring change to warmer, with probable return of storminess succeeded by cold, freezing weather. The second regular storm period, 21st to 23rd, will bring heavy storms, followed immediately by a cold wave. Minor storms on the 27th and 28th will be excited above normal by Mars, Mercury and full moon on the 27th; much cloudiness, frost, drizzle and sleet will be some of the characteristics of this period; snow and blizzards in the north and west, and rain and sleet and great cold will follow far southward.

DECEMBER, 1898.—Opens with storms in progress, 1st to 4th. Mercury and Mars are disturbing factors, and will cause continuous cloudiness, snow and frost north and west, mist and drizzling rains for several days in the south and central states. Minor storms on the 9th and 10th will feel the disturbing influence of earth's winter solstice; many heavy gales on lakes and seas. The second regular storm period, 13th to 16th, will be aggravated by new moon on the 13th and earth's solstice on the 21st; strong northeasterly gales will sweep the north Atlantic coast, heavy rains of a tropical character will visit southern extremes, turning to snow as the storms travel northward, causing western and northern blizzards, followed by great cold. Minor storms 20th and 21st will be intensified by moon's first quarter on the 19th and earth's solstice on the 21st; much storminess will prevail. The last regular storm period, 25th to 27th, will be perturbed by full moon on the 27th, bringing heavy gales, snow and ice and a general cold wave everywhere.



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