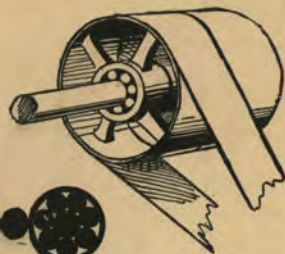
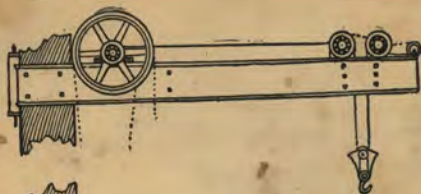


ROLLER & BALL BEARINGS

ON THE

FARM.





.. OF THE ..

Rolling Bearing *over the* Grinding Bearing

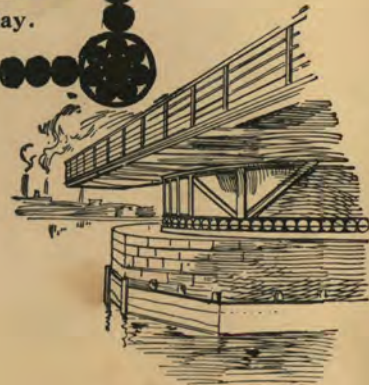
IS the victory of a right principle over unreasoning prejudice. Roller and ball bearings as applied to harvesting machines attracted profound attention when they were introduced by us in 1892—yet some doubted. Today the measure of their by the general anti-friction rolling forms of heavy shafting, powerful ponderous swinging bridges now turn lightly on balls and rollers, while Deering roller and ball bearing harvesting machines, embodying the best ideas that mechanical skill and mature experience can suggest, are rolling from victory unto victory, concluding the peaceful conquest of two continents.



As Deering Roller Bearings
appeared to competitors in 1892.



As Deering Roller Bearings appear to competitors today.



ROLLER

AND

BALL BEARINGS ON THE FARM



N express train is rushing like the wind over the glistening rails. Despite its ponderous weight and bewildering speed, it moves without a tremor, and so silently that the passengers in their berths wonder whether it moves or no. Suddenly a sickening odor fills the air, and an instant later a journal begins to whistle, then to shriek, and finally to hiss in red-hot anger. That is friction.

A nation is at peace with all the world; its granaries full, its people prosperous. Here, it seems, is surely perfect peace. But one man is impetuous; a supposed discourtesy becomes the theme for angry retort, then for feud, and finally, the nation is embroiled in devastating war. That, too, is friction.

Friction is to a machine what anger is to the mind. It burns and destroys. It is the enemy of progress, the thief of energy, the everlasting bar to peace or length of life. Friction means waste, whether it be in machines or governments; and he who finds a means of avoiding it, does grandly benefit his fellow man.

PLAIN FACTS ABOUT ROLLER AND BALL BEARINGS.

Roller bearings and ball bearings prevent friction by changing the sliding contact between the axle or shaft and the journal box in which it bears, to rolling contact. The contact of a railway train to the rails is rolling contact. If the wheels were locked so that they slid instead of rolled, we would have an exact parallel to the sliding contact of the friction bearings in the old-fashioned machines.

Ball bearings are used with perfect success in wood carving machines making as high as 30,000 revolutions a minute, and similar machines where there is only moderate strain and weight. In the bicycle, of course, they find a conspicuous field of usefulness. Roller bearings are used instead of ball bearings where any considerable weight and strain are present. They have met with great success in carriages, street cars, rolling mills, and in heavy shafting of all kinds. But in harvesting machines, which must be drawn by the limited power of horses, they find their greatest field of usefulness. Here the draft saved is of such importance that it completely overshadows the difference in price between the Deering and the cheap machines.

In the great Deering plant, described on pages 20 and 21, roller bearings are used freely to economize power. The huge "tumbling barrels," with as high as 3,000 pounds of castings pitching and jerking inside of them, revolve ten or twelve hours a day, for 300 days in the year, on roller bearings. The massive lifting cranes in the gray iron foundry, which lift about one thousand times a day weights from a half ton to two tons, and keep at it day after day, have been running on the same roller bearings for two years. The hundreds of trucks used in transferring materials run on roller bearings. These bearings make it possible for one man to push a ton of steel where two or more men were needed before the roller bearings were applied. Roller and ball bearings save power, coal bills and money for us; and they will save power, horse bills and money for you.



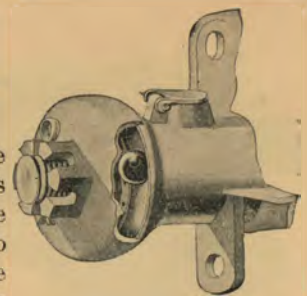
**Tumbling Barrels in Deering Gray Iron Foundry.
Running on Roller Bearings.**

Roller and Ball Bearings *****



ROLLER bearings are used in parts of our machines where there is the greatest weight and strain, and ball bearings at the ends of bevel gear shafts where washers are ordinarily used, to take up end thrust. Each form of bearing is perfectly adapted to draft-saving in the place it occupies. These bearings save

draft by changing the ordinary *sliding* contact of the axle in its bearing to *rolling* contact. Repeated tests show that roller and ball bearings reduce draft **about one-third**. They not only make the machines draw one-third lighter, but make them last fully one-third longer by reducing the strain on the machine and the wear on the moving parts. Machines without these bearings require vastly more power, the difference being all worse than wasted in wrenching and scraping and wearing the machine to pieces.



Ball bearing at end of bevel gear shafts.

Notice the size of the steel rollers and steel balls used in Deering machines.

The small, short rollers used by an imitating competitor are worse than none at all, because they do not present sufficient surface of contact to keep the great load placed upon them



Exact size of rollers used in gears of Deering Ideal Mowers of all patterns.

from crushing and bruising both the rollers and the journal box. Deering machines throughout are **made proportionate** in strength to the maximum weight and strain to be encountered.

The roller bearings in Deering machines are made of a fine grade of steel, hard enough to withstand the severest strains, without being brittle. They are placed in the



Exact size of rollers in bearings of main wheel of Deering Pony Binder.

journals in a scientific way, being held freely in a frame or "cage," so that it is impossible for them to get out of line or to "crosswind," their position and construction entirely avoiding friction between the rollers and the frame. A form of roller bearing is just being adopted by one manufacturer, who finds it necessary to attempt to imitate us, which is worse than no roller bearing. A multitude of short rollers, inadequate to endure the strain placed upon them, bear in holes drilled in a solid metal frame. This makes what is really a score of friction bearings, all requiring oil, all likely to "gum up," and all increasing friction.

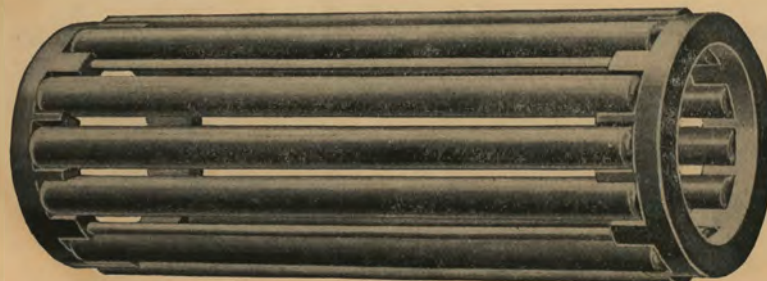


Exact size of rollers in bearings of main shaft of Ideal Mowers and cross shaft of Pony and Improved Steel Binders.

It will pay a prospective purchaser to study carefully the Deering roller bearing machines and compare them both with machines having



Exact size of balls used in all ball bearings of Deering machines.



Complete Roller Bearing in Detail. (Reduced by Photograph.)

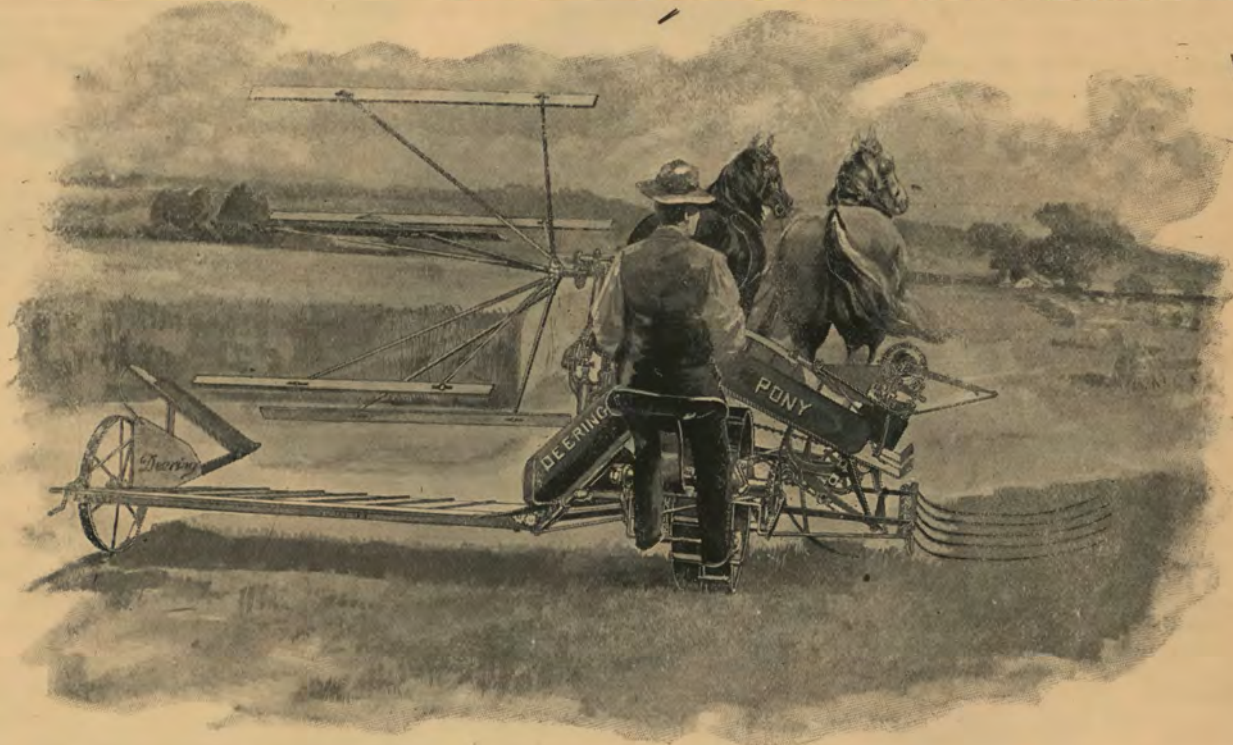
the imitations of roller bearings and those that have not yet reached even the imitating stage in progress. These roller and ball bearings are found in our Pony Binder, Improved Steel Binder, Ideal Mower, Ideal Giant Mower and Ideal One-Horse Mower. They can be replaced at a nominal cost after years of wear, saving the great expense of new shafts or gears

THE DEERING PONY BINDER

THE Deering Pony binder, with roller and ball bearings, is the result in steel of twenty years of mental labor on the part of a large force of mechanical experts. It is a little bunch of hard mechanical facts hammered into a dead certainty. It is the product, in steel and malleables, brass, canvas and wood, of the most highly developed mental machinery, tried in vast and varied fields of experience. It is the little king of the harvest field. Although placed in every conceivable tight place in the world's harvest fields, it has always come out victorious, wearing the laurels awarded by progressive farmers, exacting government experts and college professors in every grain-raising nation under the sun.

Some of its leading features of superiority are the following:

1. Roller and ball bearings, making it the lightest draft binder on earth.
2. Elevator extension, making the machine practically open-end for the longest, and closed-



DEERING PONY BINDER, with Roller and Ball Bearings. (5 and 6 ft. cut.)

end for medium and short grain; and, whether the grain be long or short, shielding and protecting the heads from threshing out on the gears.

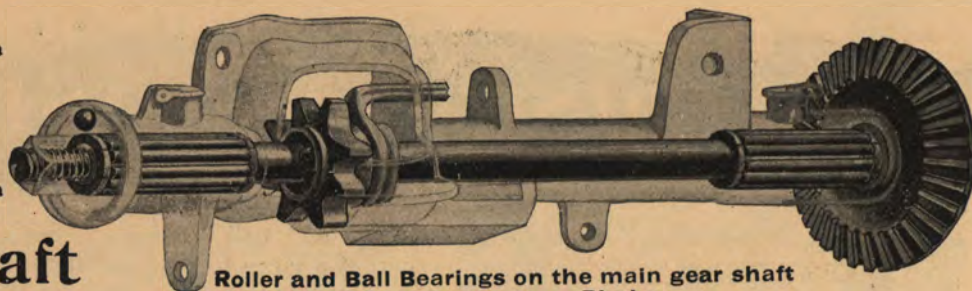
3. Reel and cutting apparatus so arranged that the machine shaves the ground as clean as can be done by a mower, picking up down or short grain that any other machine would lose.

4. Binding apparatus that makes a tight round bundle of any size desired, using less twine than any competing machine.

5. Jointed platform that makes it unnecessary to load the machine on trucks for transportation over roads or through narrow ways.

6. Low center of gravity, which makes it possible to cut on steep hillsides without upsetting. This feature, together with its light weight and light draft, makes it the ideal machine for hilly land.

A Chapter on Light Draft



Roller and Ball Bearings on the main gear shaft of the Deering Pony Binder.

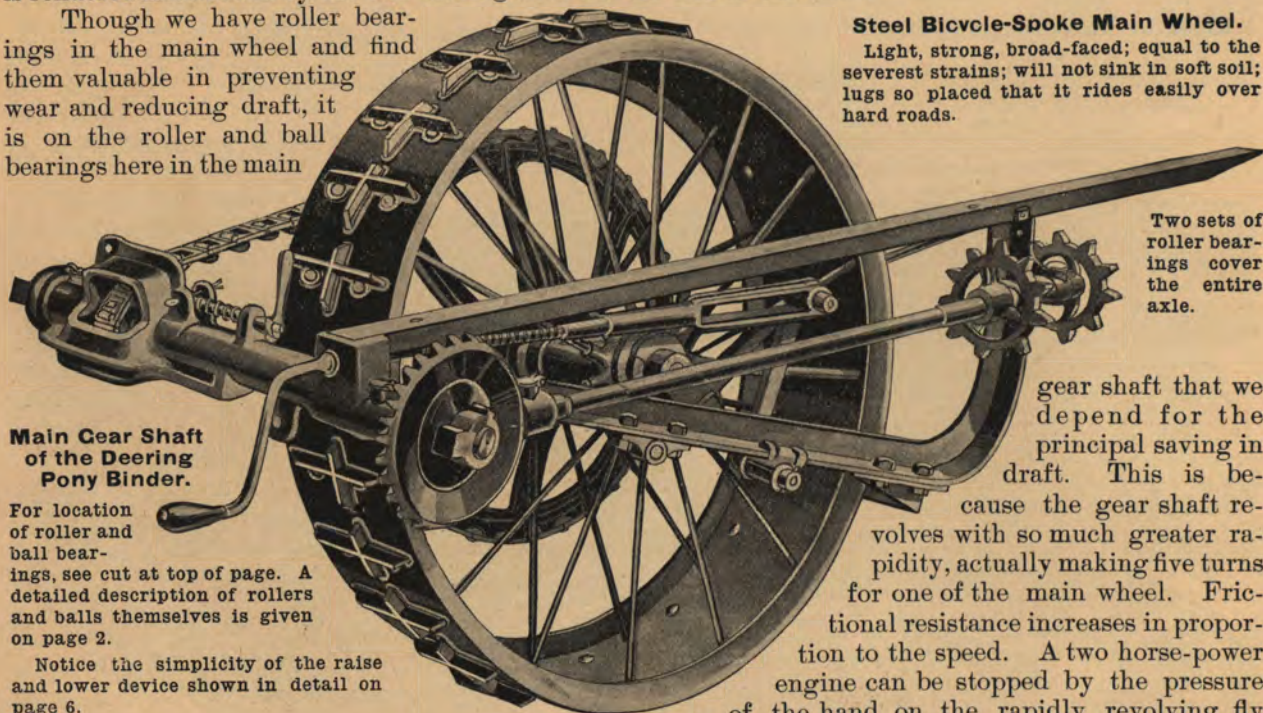


THE above cut clearly shows exactly how the roller and ball bearings are placed on the main gear shaft or cross shaft of the Pony Binder. As the shaft revolves, its entire weight and pull are supported on two series of roller bearings, with a ball bearing instead of a washer at the sprocket end of the shaft. It will be seen that by this construction the contact of this shaft with the bearing in which it turns is changed to **rolling contact** by the rollers, and that even the end-thrust caused by the pull of the bevel gear is rendered frictionless by the ball bearing shown at the end of the shaft.

Though we have roller bearings in the main wheel and find them valuable in preventing wear and reducing draft, it is on the roller and ball bearings here in the main

Steel Bicycle-Spoke Main Wheel.

Light, strong, broad-faced; equal to the severest strains; will not sink in soft soil; lugs so placed that it rides easily over hard roads.



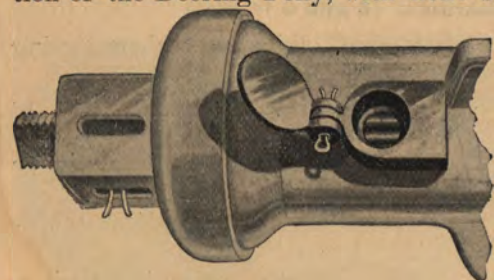
Main Gear Shaft of the Deering Pony Binder.

For location of roller and ball bearings, see cut at top of page. A detailed description of rollers and balls themselves is given on page 2.

Notice the simplicity of the raise and lower device shown in detail on page 6.

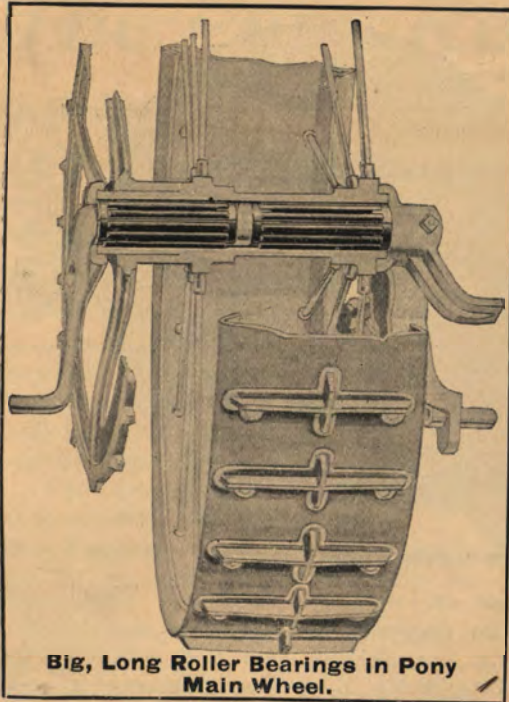
gear shaft that we depend for the principal saving in draft. This is because the gear shaft revolves with so much greater rapidity, actually making five turns for one of the main wheel. Frictional resistance increases in proportion to the speed. A two horse-power engine can be stopped by the pressure of the hand on the rapidly revolving fly wheel. Notwithstanding this mechanical truism, one of our competitors is making a binder in imitation of the Deering Pony, with little stubby roller bearings in the main wheel, and neither ball nor roller bearings in the main gear shaft. And yet it has required three years for this "pioneer" to reach even this stage of futile imitation. It is safe to say that the roller bearings in that competing main wheel are there, not to save draft, but to give salesmen an opportunity of claiming "something as good as the Deering."

Look into the oil holes. When competing agents claim roller bearings, look into the oil holes and satisfy yourself. The accompanying picture shows what you will see by looking into the oil holes of the main gear shaft of the Deering Pony and Improved Steel binders or main shaft and gear shaft of all of our Ideal mowers.



Look into the oil holes of the main gear shaft and main wheel for the roller bearings.

The Pony Main Wheel

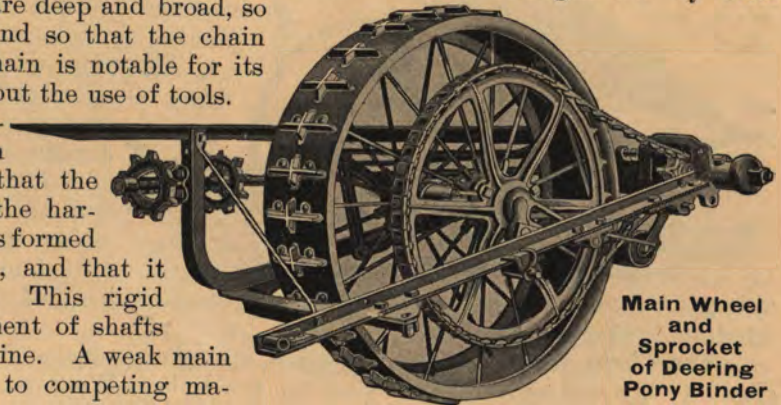


ROLLER BEARINGS in the main wheel of the Pony Binder are there for two purposes: first to save draft, and second to prevent wear and lengthen the life of parts that would be expensive to replace. The rollers are very large and long enough so that two sets of them cover the whole axle of both main wheel and main sprocket wheel. Although the weight resting on these bearings is never over 900 pounds, the rollers are made large enough to withstand the pressure of several tons. By improving the "cage" or frame which holds these rollers, we have made assurance against twisting or "cross-winding" doubly sure. The rollers, while securely held in absolute line with the axle, are held *freely*, so that there is no friction at the ends of the rollers themselves.

The *Pony Main Wheel* is made of steel and built on the bicycle pattern, and has been thoroughly tested for several years past. It is light and strong, equal to the greatest strain to which a harvester wheel is subject, even on the most rugged farms, broad of face, so that it will not sink into the soil, and possessed of such traction that it cannot

slip. The sprocket wheel is securely keyed onto the hub and further strengthened by steel braces. The teeth of the sprocket are deep and broad, so that they are not likely to break, and so that the chain cannot possibly slip. The sprocket chain is notable for its large links, which are removable without the use of tools.

By consulting the accompanying cut, as well as the large cut in the center of page 4, it will be seen that the frame which supports the weight of the harvester and transfers it to the main axle is formed entirely of heavy bars of angle steel, and that it is firmly braced in every direction. This rigid under-carriage insures perfect alignment of shafts and gears throughout the whole machine. A weak main frame is what causes half the trouble to competing ma-



Cutting 8-ft. broadcast cane with a Pony Binder, at Newton, Kansas.

chines, and nothing but spending sufficient money to provide a strong steel frame will ever remedy the difficulty.

Sensible Oilers are found on the Pony main wheel. The oil is injected into two spring-lid oil cups which retain it and feed it, drop by drop, into the bearings. All the oil applied is well used, because it must lubricate the full length of the bearing before it can escape.

The Pony main wheel is worthy of careful study. It will bear the closest scrutiny, and be bowling merrily along when the clumsy wheels of competing machines sleep serenely on scrap piles.

Raise and Lower Devices



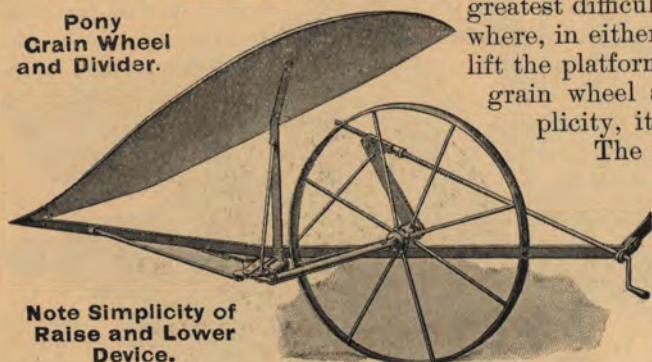
DISTINGUISHING feature of the Deering Pony Binder is the ease with which it is instantly adjusted to meet the many varying lengths and

conditions of grain.

The **raise and lower device** of the main wheel is as perfect as it is simple. The weight of the machine is hung on compensating levers operated by a simple screw-crank. These levers are so placed that the wheel is under the center of gravity of the harvester, and always a uniform distance from the gearing it drives.

At the **grain wheel** a few turns of a screw-crank raise or lower the platform. This crank is self-locking. It enables the operator to raise or lower the platform without effort, and for this reason stands in sharp contrast with competing devices where the platform is raised only with the greatest difficulty from one notch to another of a standard, and where, in either raising or lowering, the operator is forced to lift the platform by main strength. In fact, the whole Deering grain wheel and outside divider is conspicuous for its simplicity, its light weight, its strength, and its beauty.

Pony Grain Wheel and Divider.



Note Simplicity of Raise and Lower Device.

ably with clumsy levers on competing machines, which half drag the driver from his seat when he attempts to operate them.

The **Chain Tightener** is hung on a spring of sufficient tension to hold the chain, and sufficient elasticity to avoid all strain or wear on the links. Wear is also prevented by using a sheave instead of the friction-causing shoe found on competing machines.

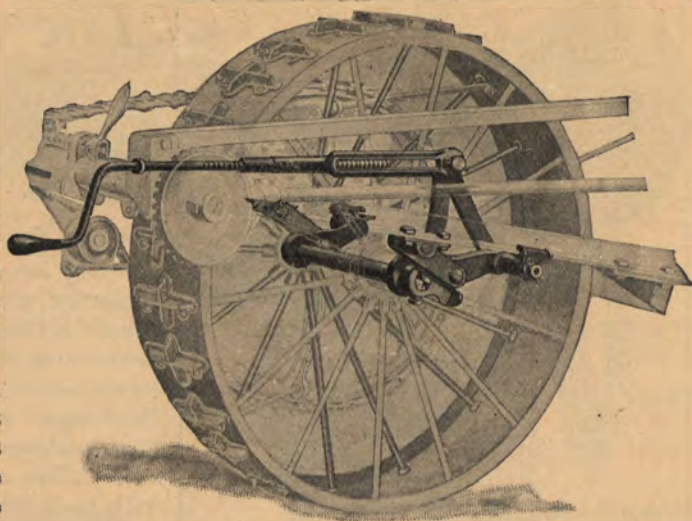
The devices for raising, lowering, and tilting are operated easily and smoothly, and without jar to the machine. They are so arranged that in any position the weight of the machine is balanced on the main wheel.

Thoughtful scrutiny of these various features which have been merely touched upon develops beyond cavil one all-important fact:—

that the general design of Deering machines from the ground up is correct; correct from the standpoint of the mechanical engineer because of the correlation of parts, harmony of motion and proper distribution of weight; correct from the standpoint of the farmer, because it operates so silently, can be handled so easily and lasts so long.



Canvas-Tightener Spring of Pony Platform.



Raise and Lower Device, Pony Main Wheel.

The raise and lower devices just described enable the operator to bring the platform very close to the ground without tilting, or to raise it high above stumps, stones, or similar obstructions.

Tilting Lever. Close to the driver's hand is a tilting lever, by means of which he can swing the platform through a wide range of tilt, almost without effort. It compares favor-



Spring-Controlled Chain Tightener.

The Pony Reel



It is not often that perfect beauty and symmetry are combined with superlative utility; but such is the case with the Pony reel. It is strong as it is graceful, efficient as it is symmetrical, convenient as it is

effective. Though it takes but one hand of the driver to operate it—and that hand may be a woman's—it does more thorough work than any reel that ever required two brawny arms to adjust.

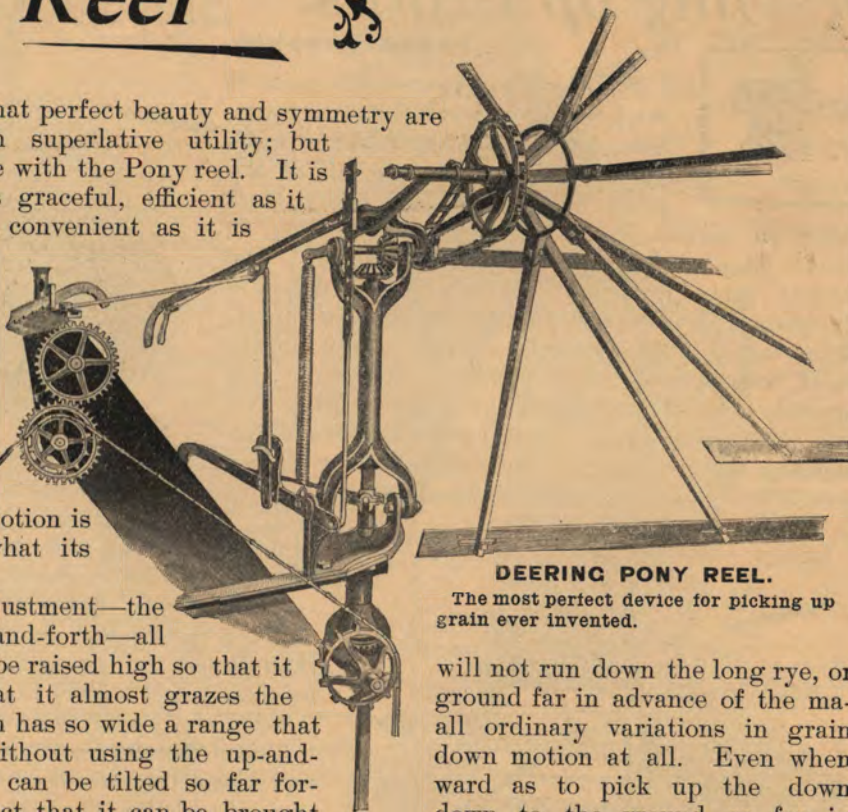
The Deering Pony reel is positively driven by the front drive chain. Its rotary motion is equally uniform, no matter what its position.

It has two directions of adjustment—the up-and-down and the back-and-forth—all done by a single lever. It can be raised high so that it can be brought down so that it almost grazes the chine. Its fore and aft motion has so wide a range that can be met almost instantly without using the up-and-raised to its highest position it can be tilted so far for grain. It is owing to the fact that it can be brought advance of the machine that this reel successfully picks up down grain that lies *away* from the machine where other binders are compelled to carry the swath and attempt to save such grain by going back over the field in a reverse direction.

The Pony reel is balanced by a spring, so that its weight is scarcely felt in operating the lever. Competing machines with clumsy reels weighing twice as much as the Pony reel compel the driver to struggle with its entire weight. Few drivers will expend this amount of trouble unless they own the grain and not always then. The Deering reel is operated frequently because it is easy to adjust it.

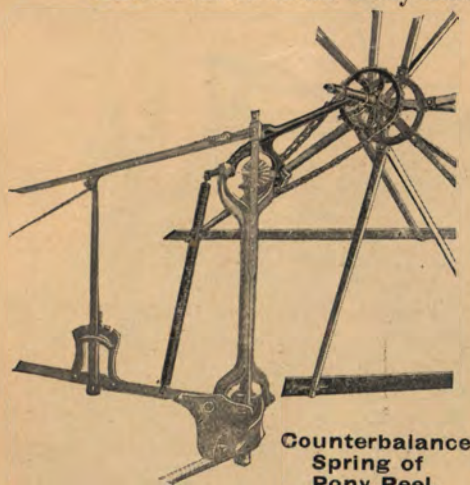
The elevators of the Pony Binder extend seven inches in front of the knives. This effectually prevents the clogging at the inner end of the knife which is so annoying on the cheap, narrow elevator machines. (See cut page 16.)

When the European agricultural commissioners to our World's Fair visited the vast wheat fields of our Northwest they pointed to the knee-high stubble, and held up their hands in holy horror at what seemed to them a frightful waste of valuable straw and grain. For their own harvest fields they demanded binders that could shave the ground to the very roots of the grain. The fact that both the Deering Binders could do this created a demand for these machines among European farmers which it has required our utmost exertions to supply. As the value of American land increases and a market for straw develops, and farmers are beginning to see the importance of realizing every possible penny from every individual field, the value of this feature of the Pony Binder is becoming more and more evident.



DEERING PONY REEL.

The most perfect device for picking up grain ever invented.



**Counterbalance
Spring of
Pony Reel.**

Reeling up Profits.



NY binder will cut and elevate most of the grain when conditions are favorable; but the Deering is the only one that will cut and elevate all of the grain, no matter how badly it is

down, no matter in which direction it lies, no matter how short or how long it may be. The perfect means for bringing the platform down to the ground plays a part in this vital point of superiority, but the Deering reel, nimble as the human hand, is to be credited with the major share in this proud honor. The grain saved by the Deering that other binders would lose, would pay a handsome dividend on the investment. Indeed, the five or ten per cent. of the grain thus saved may make all the



Pony Reel, forward and down for lying grain.

difference between loss and gain to the farmer on his entire crop. These are times of small margins in farming as well as manufacturing, and profit is only secured by looking after the small economies and stopping up the small leaks.

For heavy, down grain the reel is locked well up (not low down) and swung far forward. The reel fans then graze the ground far enough in advance of the machine to get hold of the heads of the grain, even though it lies directly away from the machine.

For short grain the reel is locked in the lowest notch, and drawn back so that the fans almost graze first the ground and then the guards. In both prostrate and very short grain the platform is lowered and tilted, so that the guards almost touch the ground and the knives cut the grain almost at its roots.

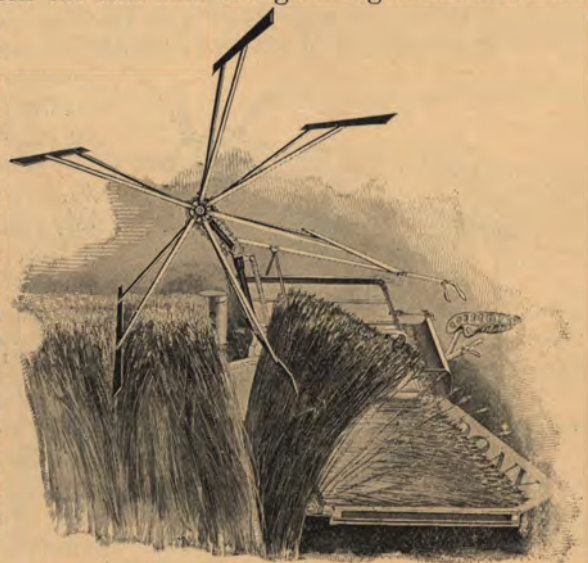
For very tall grain the reel is locked in the highest notch and drawn back into a position nearly vertical. In this position the fans hold the grain against the knives



Pony Reel, back and down for short grain.

and lay it gently backward onto the platform, when cut. In parts of the country where straw is not valued, the platform can be raised twenty inches above the ground, leaving the stubble in much the condition that a header would leave it, and yet handing the farmer his grain in neatly bound bundles.

Cutting Apparatus. The Deering Pony Binder cuts the grain. It does not tear it up by the roots. The tempered steel knives—made in our own knife works—are deeply serrated in such a way that the cutting edge is always like the sharpest of saws. The knives are held so firmly against the guard plates that it is impossible for them to become clogged. The platform canvas moves so close to the guards that rubbish cannot collect on top of the guards and obstruct the cutting apparatus. The platform is so firmly joined to the harvester frame, and so rigidly braced, that it cannot sag or warp. Are not these points well worth considering?



Pony Reel, high up for very long grain.

Elevators that Elevate.



FORTUNES have been wasted in attempting to devise means of binding grain without elevating it. Other fortunes have been wasted and firms wrecked in the attempt to elevate it with but one apron. Still other fortunes are now being wasted in an attempt to force the grain up to the deck with an apron and a half. These fortunes were squandered in an attempt to do two things—to save elevating resistance for the farmer, and to save the cost of rollers and canvas to the manufacturer. The first saving—elevating resistance—we have accomplished by means of the low, gentle slope elevators of the Pony; while the second saving we prefer not to make, because it must be done at the expense of the farmer.

The Deering Pony Elevators are made with the view to giving the farmer the best possible service under the greatest variety of conditions, over the greatest possible term of years.

The Elevator Extension well typifies this aim. It is a long sheet steel slide at the rear of the elevator, which can be drawn out where very long grain is encountered, or shoved in for medium or short grain. This extension makes the Pony—

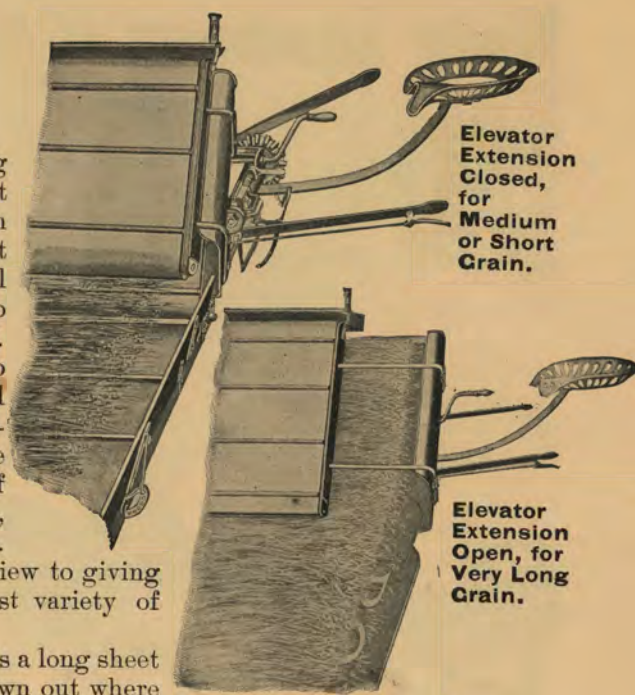
Open-Elevator for very long grain, and Closed-Elevator for medium and short grain,

and, in all conditions of grain, shields the heads from threshing out in the gears. The platform is widened for very long grain by dropping back the hinged headboard, and the deck is widened by means of a hinged steel deck extension.

Low, Gentle Slope Elevators. The grain is elevated only 24 inches above the platform by the low, easy slope elevators of the Pony Binder, instead of being dragged up a steep incline of from three to four feet, as on some competing machines. The accompanying cut made from a photograph shows the elevators of the 1896 Pony Binder. The elevator rollers are unusually large, permitting the canvases to be run looser than on machines with small rollers, and thus increasing their capacity as well as saving draft. The lower elevator does the carrying, and it **carries the grain clear up to**

the deck. We do not believe in making the lower elevator only half an elevator and attempting to “force” the grain the rest of the way by pressing down upon it with the slats of the upper elevator.

Most of the Deering elevator gudgeons run in brass bushings, and the bearings at either end are easily oiled through dustproof oil holes. The elevators are staunch and reliable and made for the purpose of delivering every straw cut to the binder in good shape for binding. The elevator canvases are made from the best duck obtainable. The slats and straps are most firmly secured. Repair bills for elevator parts will never worry the purchaser of a Deering Pony Binder.

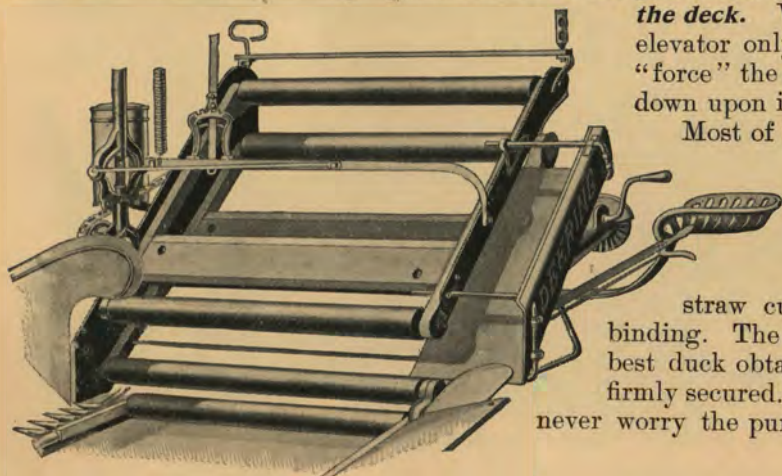


Elevator Extension Closed, for Medium or Short Grain.

Elevator Extension Open, for Very Long Grain.



Anti-Friction Bushings on Deering Elevator Rollers.



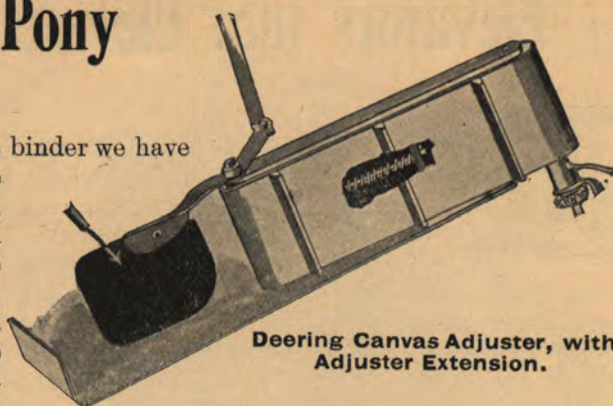
The Deering Pony Elevators.

Binder Attachment of the Pony

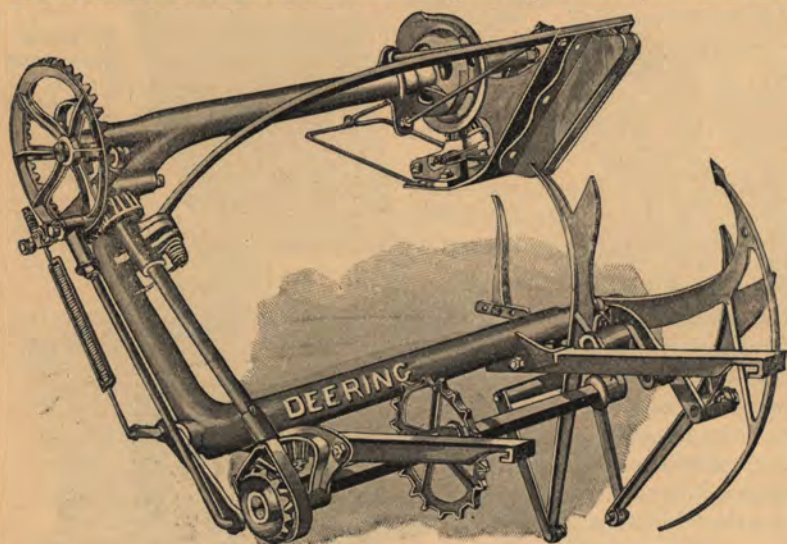


SINCE we gave the world its first twine binder we have labored without ceasing to improve and perfect the binding mechanism, our special aim being to simplify, and to lighten both the weight and the frictional resistance of every part.

As creators of the first twine binder, we feel a pardonable pride in our achievements, and like the winner of a championship, we are constantly spurred on to keep far in advance of all competition. Our friends tell us that we have grandly succeeded in this



Deering Canvas Adjuster, with Adjuster Extension.



The Thinking Part of the Pony Binder.

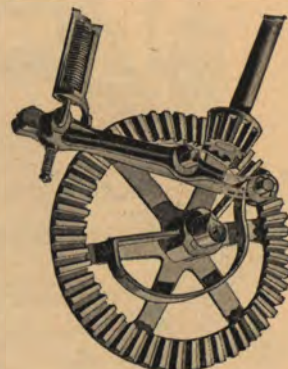
The Deering Binder Attachment is the lightest and simplest. The action of part with part is direct and positive. It is constructed almost entirely of steel and malleable iron, with anti-friction bushings wherever they can be wisely applied.

The Instantaneous Trip is of great value, as it sets the binder in motion the instant sufficient grain, for the size of bundle desired, has been collected by the packers. The slow trip on competing machines is responsible for most of the clogging in their binders, especially in heavy grain.

In competitive trials in this country and Europe the Pony Binder has won the distinction of tying the heaviest bundles with the shortest bands. This is due, first, to the fact that the bundles are firmly packed, wisp by wisp, before the band is passed around them; second, because the bundles formed are nearly round; third, because the mechanism gives the bundle an extra squeeze just as the knot is being tied, the knotter using the resulting slack in the twine in forming the knot, instead of drawing its slack from the twine can and throwing it away in waste ends. A detailed description of the Deering knotter is given on pages 17 and 18.



The Deering Knotter



Instantaneous Trip.

The Good Things Summed Up



THE Deering Pony Binder is a compact combination of all the features which make a harvester and binder what it should be. It is a sensible **left hand cut** machine. Efforts have been made

by manufacturers, and will be made again, to delude the farming public into the adoption of right hand binders, just as efforts have been made in the past to force the sale of other mechanical curiosities.

The **left hand cut** binders have been universally adopted in America, first, because the most frequently used levers are at the driver's right hand; second, because farmers are accustomed to hitch the wildest horse on the right hand, or off side, and this on the right hand machine throws the wild horse next the reel and causes trouble; third, it is extremely inconvenient to get into and out of the seat of a right hand machine, as one has to mount with the left hand and foot; fourth, it is almost impossible to use a whip with a long lash on a right hand machine without getting the lash tangled in the reel. Drivers are accustomed to the left hand machine, horses have been trained to it, repairs are carried in stock for it, local mechanics know how to repair it, and, most important of all, it will be impossible to use the proposed right hand machine in the same field with the universally used left hand machine. For some portions of Europe right hand machines have to be furnished because of the use of oxen as draft animals. Manufacturers who have the effrontery to seek to compel the American farmer to submit to inconvenience and actual loss, do it only in order that they, the manufacturers, may save the expense of two sets of models and molds for the two kinds of machines. This is their real reason, though not the one mentioned in their catalogues. The American farmer has too much independence to submit to such an imposition.

In addition to being a left hand machine, the Deering Pony Binder has the following striking features of excellence: Light weight—Roller and ball bearings—Light draft—Low center of gravity—Jointed platform—Steel bicycle-spoke main wheel—Convenient and effective levers—Unequaled spring-balanced reel, operated with a single lever—Gentle-slope elevators—Elevator extension—Endless belt adjuster—Simple, positive knotter, with stationary cordholder disc—Folding-finger bundle carrier.



PONY BINDER.

Owned by Illinois State University, Urbana, Ill.
(Cut 140 Acres in 1895.)



THE DEERING PONY BINDER. 5 and 6 ft. cut.

Deering Jointed Platform.

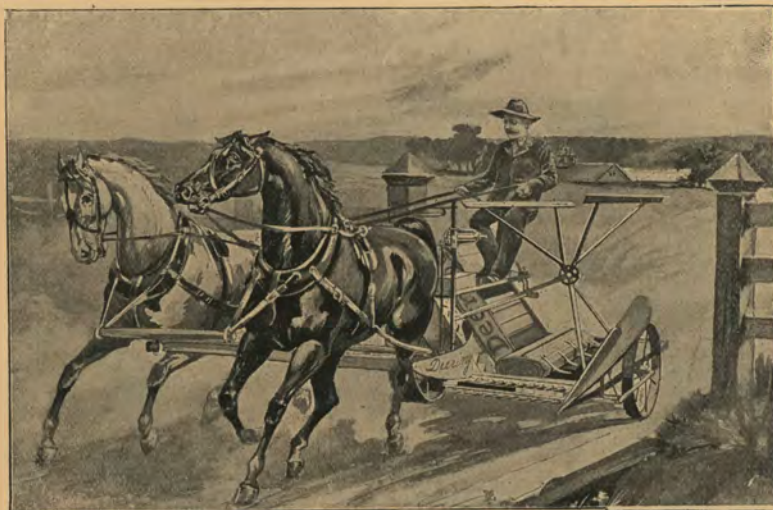


Rear Joint.



IN both the Pony and the Improved Steel Binders will be found the now famous Deering Jointed Platform. This device makes the Deering binders easy to transport, easy to store, and permits them to be driven on narrow roads, across narrow bridges, through ordinary gates and, indeed, anywhere that a hay wagon can go. It is as simple as it is practical. The platform is divided near the inner end, and when the operator wishes to fold it he removes two bolts, draws out the knife, shoves the outer end under the inner, fastens it with a single bolt, and drives off. The tongue does not have to be removed, and it is not even necessary to unhitch the team. The reel can either be deposited on the shortened platform, or hung on the projecting end of the packer-shaft. To get the binder ready for operation the process is simply reversed.

There is no heavy lifting, no bruised shoulders and no uncoupling of tongue. The machine when folded travels on its own broad wheels instead of the narrow wheels of a truck, which sink deep into sand or soft ground. Danger of tipping on a hill-



Deering Improved Steel Binder, with Jointed Platform Folded.

side road is very much decreased, and the driver sits in the same comfortable seat exactly as if he were cutting.

Six harvests have demonstrated the strength and rigidity of the platform. The front coupling is a heavy steel pin, fitting snugly into a long malleable socket, and bolted into place with one bolt through the cutter bar. The rear joint is a long overlapping steel plate held in place by one bolt.

Construction of Platforms. The platforms on both Deering binders are conspicuous for their great strength, rigidity, and lightness in weight. The floor of the platform is made of hardwood, tongued-and-grooved, and riveted to the steel framework. The wood gives a rigidity that can never be attained with the sheet iron of cheaper machines, and, unlike sheet iron, it can neither dent nor rust. The front of the platform slopes upward toward the guards. A thin sheet of steel covers this part of the platform and makes it slip easily over the ground in case the platform is run down so low that it strikes the ground.



Cutter Bar Joint.



Deering Pony Binder, with Platform Folded.

Deering Improved Steel Binder

WITH ROLLER AND BALL BEARINGS.



THIS doughty veteran of several harvests has been renewed and quickened by the application of a very practical "elixir of life" in the shape of roller and ball bearings, and he now is quite as fleet of foot as his younger brother in the Deering family—the Pony. In the race for harvest honors, these two machines have distanced all competitors and now run neck-and-neck, some onlookers favoring one, some the other. For the life of us we don't know which of the two will win—nor do we care, for both are worthy of highest honors. Both have the right kind of stuff in them, and both hold World's records as well as World's Fair records.

The Deering Improved Steel Binder has been called a "poem in steel," and a very practical poem at that. It is a poem that tells the whole story of the creation and development of the modern art of harvesting, from the first primitive binder to the present day perfection as embodied in the



**THE DEERING IMPROVED STEEL BINDER. 5, 6 and 7 ft. cut.
With Roller and Ball Bearings and Jointed Platform.**

graceful lines and well-braced strength of the 1896 pattern. This machine is in direct line of descent from its great-grandfather, the pioneer binder of the world, and it does honor to its illustrious parentage.

Because of its great strength, its durability, its capacity for hard, continuous service, and its ease of operation, this machine has ever been the favorite among the "bonanza" farmers of North and South America. Indeed, it is no uncommon sight in the Dakotas or in the Argentine Republic to witness cavalcades of from twenty to fifty or even more of these machines marching through the ripened grain on farm after farm, while only here and there samples of cheaper machines are seen struggling alone.

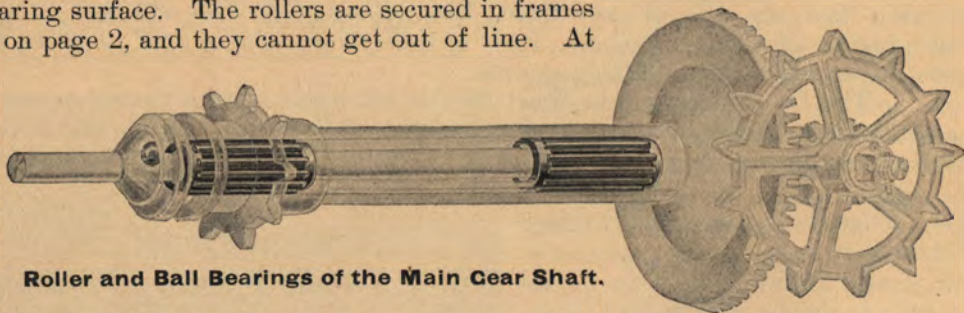
The Deering Improved Steel Binder, like its hardy little brother, the Pony, has everywhere earned the reputation of being *trustworthy*—a machine that can be depended upon to perform the task given it without breakage or delays.

Roller and Ball Bearings *****



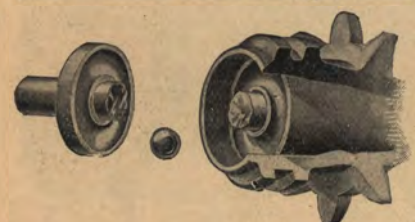
IN extending our roller and ball bearing system to our Improved Steel Binder, we are only making another formal acknowledgment of the widespread demand for these bearings—a demand which will before many years make it as impossible to dispose of binders and mowers without such bearings as it now would be to sell the old-fashioned parallel-bearing bicycles. We particularly wish to call attention to the manner in which these “rolling” bearings are applied to the main gear shaft of the machine. As will be seen by the illustration, the roller bearings cover a large proportion of the length of the shaft, giving a long bearing surface. The rollers are secured in frames or cages, as described on page 2, and they cannot get out of line. At the end of the shaft

will be found a ball bearing which entirely neutralizes the pull of the pinion on the bevel gear at the other end of the shaft. Both the balls and the rollers used in



Roller and Ball Bearings of the Main Gear Shaft.

this machine are very large and able to withstand a pressure many times as great as any that will ever be placed upon them. The facilities for oiling the bearings of this shaft will be appreciated by all. Spring lids to the oil cups prevent dust or dirt from getting into the bearings. Owing to the use of roller and ball bearings, less oil is required than would be on the old-fashioned friction bearings.



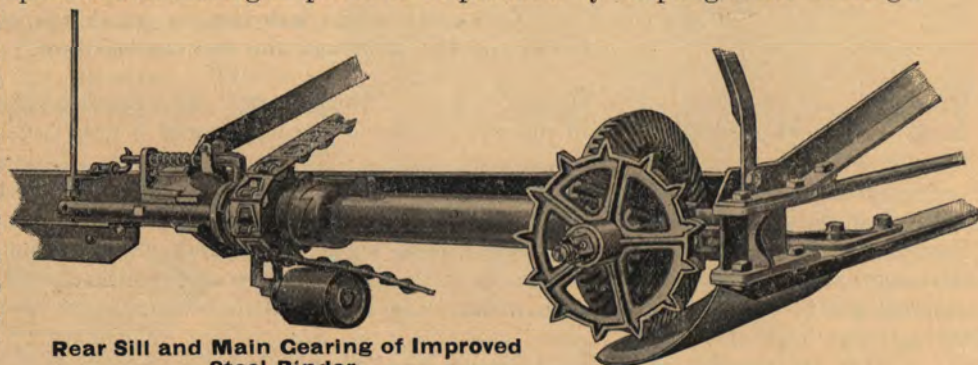
Ball Bearing at End of Gear Shaft.

The *American Machinist* (New York), one of the highest mechanical authorities of the country, says editorially in its issue of October 17, 1895, after describing the marvelous saving of power accomplished by roller bearings in the rolling mill of Messrs. Brown & Sharpe:

“There is here shown such an enormous advantage in the use of roller bearings as to make the plain statement of the facts of the case seem like a fairy tale, but we can vouch for its accuracy in every particular. It shows what a very great advantage may be gained by roller bearings.”

Mr. Geo. B. Woodruff, assistant superintendent, and Mr. T. W. R. McCabe, master mechanic, of the Wm. L. Gilbert Clock Co., of Winsted, Conn., state that the adoption of roller bearings had effected a saving in power which enabled them to run their whole factory with a water wheel which had not before been adequate; and that the Strong Mfg. Co. of the same city accomplished a net saving in power of 40 per cent. by adopting roller bearings.

REAR SILL AND MAIN GEARS. A glance at the cut will disclose the admirable construction of the rear sill and main gearing of this harvester. The ends of the main trusses are firmly bolted to the cross-sill. The gears are unusually large and well match-



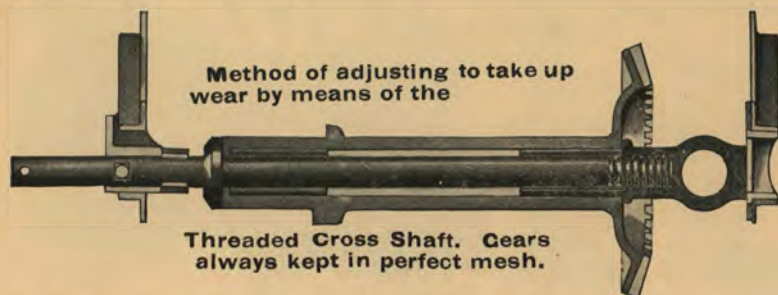
Rear Sill and Main Gearing of Improved Steel Binder.

ed, and can be adjusted so as to be in perfect mesh (see next page). The clutch for throwing in and out of gear is admirable in that the spring holds it firmly in gear automatically and yet is released instantly on turning the crank.

A Chapter on Long Life.



WE realize that even the best steel will wear in time, and that when a part of a machine is worn out it is expensive to replace. For that reason we make every possible provision against wear in the first place by the use of roller and ball and anti-friction bearings to prevent wear, and in the next place we provide adjustments by means of which the relation of part to part can be changed sufficiently to take up wear where wear is unavoidable. This is true all through our machines, but particularly true in the main gears of our Improved Steel Binder.



Method of adjusting to take up wear by means of the

Threaded Cross Shaft. Gears always kept in perfect mesh.

These gears can be kept constantly in perfect mesh, provision being made to adjust for all possible wear. The main bevel gear is adjusted by means of a thread at the outer end of the main gear shaft on which it turns. The farmer simply removes a nut and gives the shaft a quarter, half, three-quarters or full turn, or as many turns as he deems necessary, and replaces the nut. The crank shaft sprocket is

kept in mesh with this gear by means of a threaded nut, as shown in the second picture. Harvesters without such adjustments for taking up natural wear may work satisfactorily the first harvest or two, but the instant gears get out of mesh trouble and repair expenses will begin to pile up and cause annoyance and loss of money and time.



Removable Oil Cup.

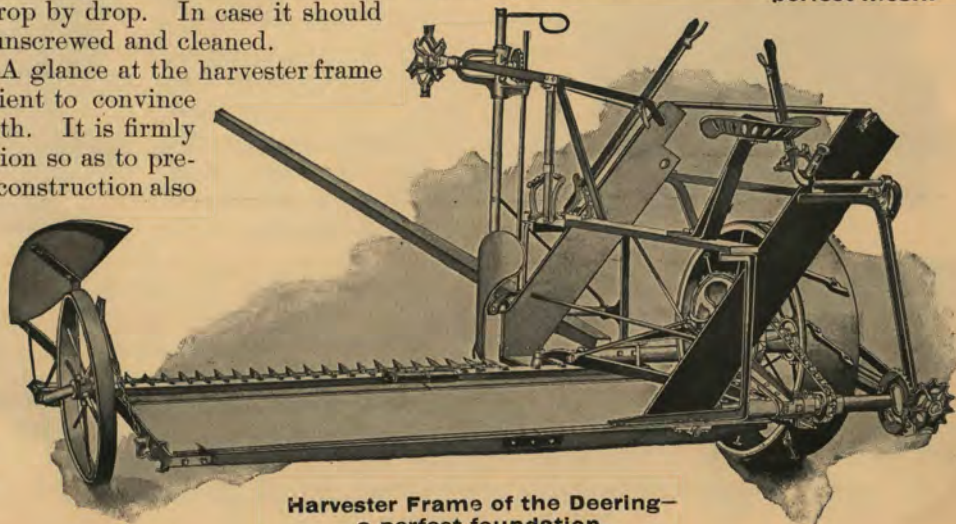
Replacing Worn Parts. Not only is the Deering Improved Steel Binder notable for means of adjusting to take up wear, but the various parts are so made that they can easily be replaced when worn or broken, without tearing the whole machine to pieces.

Facilities for Oiling. A spring-capped oil cup conveniently placed makes oiling the main gears an easy matter, and at the same time provides against dirt and dust finding its way into the bearing. Oiling the roller and ball bearings on the main shaft is equally well provided for. On the main wheel a large oil cup is screwed into the hub. This cup feeds the oil into the roller bearings, drop by drop. In case it should get clogged it can be unscrewed and cleaned.

Main Frame. A glance at the harvester frame of this binder is sufficient to convince one of its great strength. It is firmly braced in every direction so as to prevent twisting. By this construction also the pull of the tongue is virtually distributed throughout the whole harvester frame. This staunch foundation gives the whole machine a solidity and durability not approached by any competing machine.



Threaded Nut for keeping Crank Shaft Sprocket in perfect mesh.



Harvester Frame of the Deering—a perfect foundation.

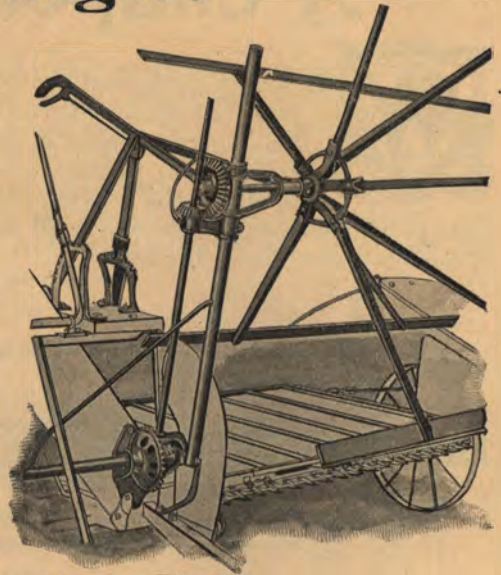
Cutting and Elevating...



It was said of somebody that he succeeded well in life because he had made a wise selection of grandparents. Similarly, a bundle is made or spoiled before the knives even sever the growing stalks—by the reel.

The reel on the Deering Improved Steel Binder can be swung forward so that it reaches out far in advance of the machine and picks up the prostrate grain, or it can be brought back and lowered down so that it alternately almost grazes first the ground and then the guards, feeding the shortest grain into the knives and then laying it over onto the platform canvas. When the grain stands tall and straight the reel can be raised so that it quietly dips into

the grain and divides it into proper "mouthfuls" for the knives. All these varying positions, and forty or fifty in between, are accomplished by the driver's hand easily pressing *one lever*. **The Deering Reel.**



Elevators extend seven inches in front of the knife.

is no possibility of clogging. The slats are tacked onto the canvas most securely, and the straps—made of best oak-tanned leather—are both sewed and riveted onto the double-hemmed edge of the canvas.

The Elevators are broad and capacious. The rollers are unusually large, giving great expansive ability to the throat and permitting the canvases to be run comparatively loose. The canvas used is of a superior quality, and the slats are firmly secured. In



Clean, neat bundles made by the Deering Canvas Adjuster Belt.

elevating, the grain is carried clear up to the deck in the embrace of the upper and lower canvases acting together, instead of being hauled half way up by the lower canvas and "pounded" up the rest of the way by the "force" of the upper canvas, as is done on a competing machine. The elevators extend seven inches in front of the knives, effectually preventing clogging at the inner end of the platform.

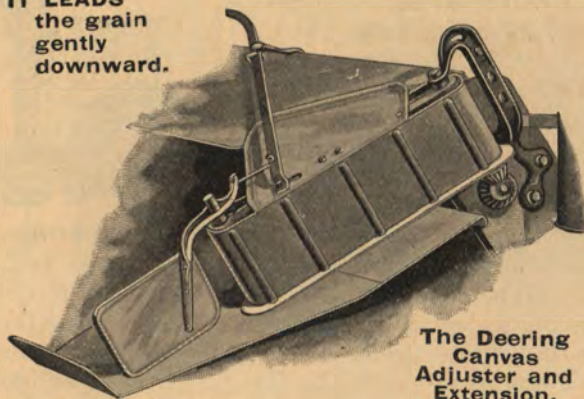
Adjuster and Extension. The Deering Adjuster and Extension (shown in detail on next page) are unequaled in their ability to form a neat, economical bundle. The Adjuster utilizes all the power applied in *leading* the lagging butts down to position. It runs on very large rollers, which make its action easy and lengthen the life



Ragged bundles made by the slam-banging vibrating butter board.

of the canvas. An admirable spring device keeps the canvas automatically at the proper tension, no matter whether it be wet or dry.

**IT LEADS
the grain
gently
downward.**



**The Deering
Canvas
Adjuster and
Extension.**

Making the Bundles



AS manufacturers we lose money every time one of our binders gets out of order. Every "professional visit" that we have to make hurts both our reputation and our pocket. Therefore it is to our interest to make our binders so simple that they are not likely to get out of order and that when they do get out of order the farmer can correct the trouble himself without annoying delays.

The Deering Binder Attachment is a marvel of simplicity—a few strong, easily understood parts

compose it. These parts act smoothly and positively. They are not likely to get out of order, but if they do, they are so simple and so easily understood that the farmer himself can usually correct the difficulty in a few minutes.

The malleable iron packers are moved by a big steel shaft running in anti-friction bearings.

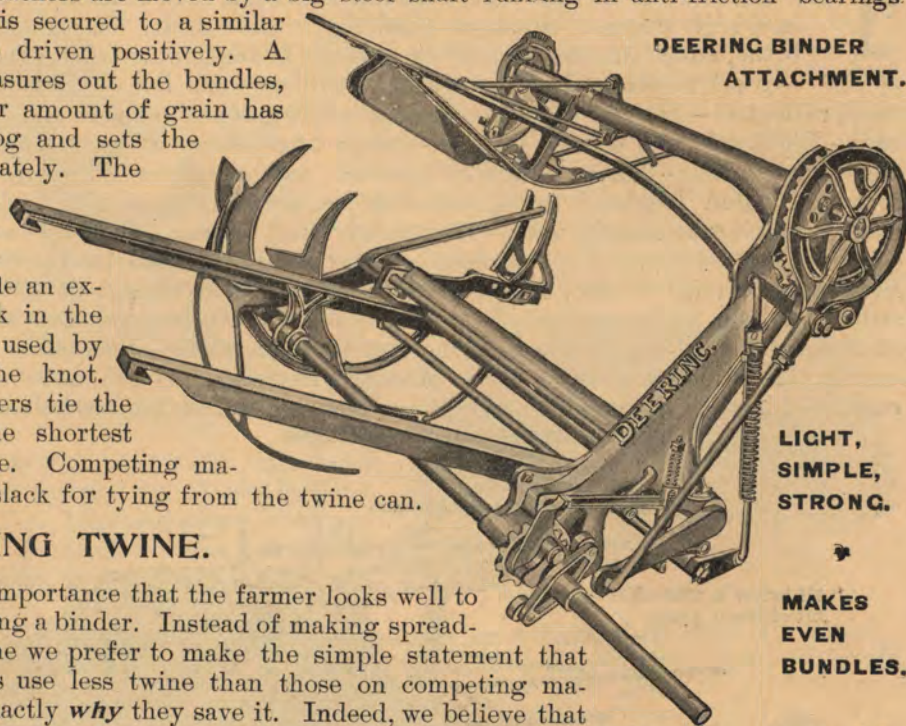
The malleable iron needle is secured to a similar shaft and both shafts are driven positively. A long, delicate deck-trip measures out the bundles, and the instant the proper amount of grain has collected, it releases the dog and sets the binder in motion immediately. The

needle circles the grain with twine and, just as the knot is to be tied, the compressors give the bundle an extra squeeze, leaving a slack in the twine which is promptly used by the knotter in forming the knot. This is why Deering binders tie the heaviest bundles with the shortest bands, and thus save twine. Competing machines draw the necessary slack for tying from the twine can.

SAVING TWINE.

It is of the utmost importance that the farmer looks well to the knotter before purchasing a binder. Instead of making spread-eagle claims of saving twine we prefer to make the simple statement that the knotters on our binders use less twine than those on competing machines, and then to show exactly *why* they save it. Indeed, we believe that many of our competitors cast reflections on the intelligence of the American farmer—possibly without intending it—when they shout their claims at him like a vendor of patent medicines, and say not a word on what feature they base their claims. All manufacturers of binders claim "the simplest knotter" and "the greatest economy in twine;" but we believe we are the only ones who dare go into the mechanical details of the knotter itself. We tell our reasons and confidently trust the intelligence of our patrons for the rest. As we said at the top of this page, we lose money and reputation every time we are called upon to visit and repair a binder. A glance at the immense factory shown in the center of this book, and a review of the position which we hold as the greatest manufacturers of harvesting machines in the world, will pretty clearly indicate whether our "losses" in this respect have been considerable or not.

**DEERING BINDER
ATTACHMENT.**



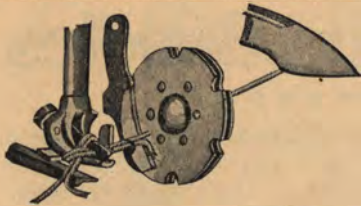
**LIGHT,
SIMPLE,
STRONG.**

**MAKES
EVEN
BUNDLES.**

**IT IS SAFE
TO TIE TO THE
DEERING.**

**Its Knotter ties
Safe Knots with
no waste of
binder twine.**

**SAFE BIND,
SAFE FIND.**



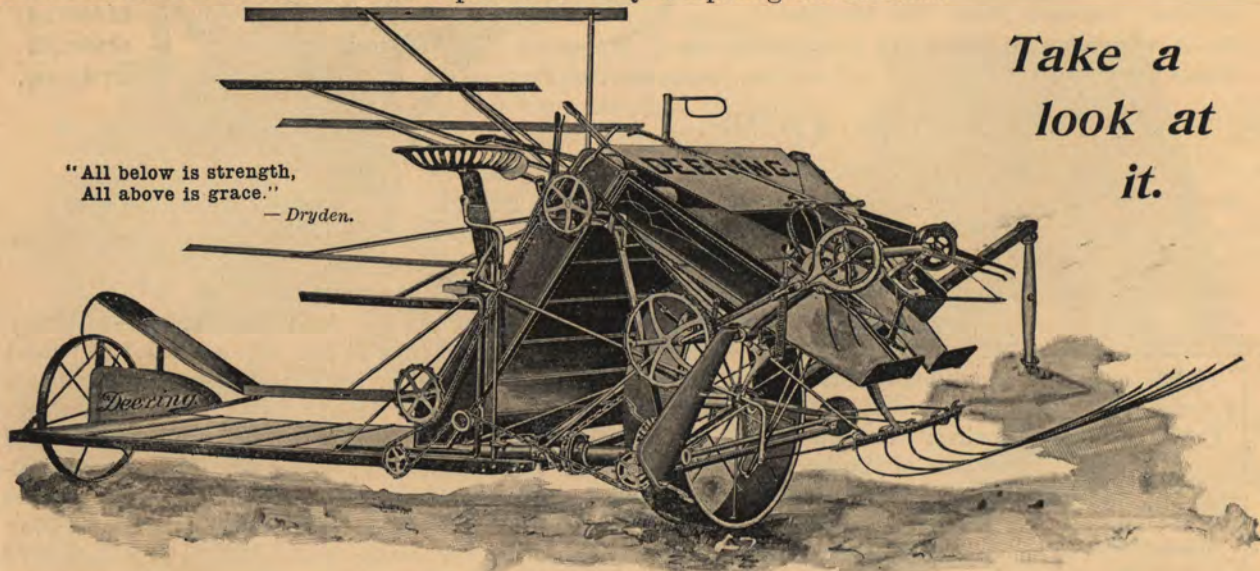
Stationary Cord-Holder Disc. is tied just as you would tie one in a fishline. The **Positively Driven.** bill-hook with its opening jaws corresponds to the thumb and finger around which the knot is tied, while the cord-holder disc answers to the other hand. When the knot is tied it is stripped off the bill-hook by the mechanism of the knotter instead of being jerked off by the force of discharging the bundle. Twine is saved by our stationary cord-holder disc, which avoids the long, double waste ends left by the swinging discs on the cheap machines. Twine is also saved by the "extra squeeze" to the bundle described before. Repair expenses are saved by the simplicity and strength of the whole binder attachment.

SUMMARY.

THE DEERING IMPROVED STEEL BINDER is recommended as embodying in a high degree: Strength, durability, light draft, simplicity, economy of twine, labor, time and repair expenses. It has double-truss steel main frame—Steel, bicycle spoke main wheel, with heavy oak felloe—Hardwood platform faced with steel—Light strong steel and malleable grain wheel with anti-friction bushings—Light effective outside divider—Large broad inner divider—Famous Deering cutting apparatus—Large rollers on platform and elevators—Elevators that extend seven inches in front of the guards—Adjustments at main gear shaft and crank shaft for taking up natural wear—Horizontal-thrust pitman—The lightest and strongest binder attachment—Packers which pack bundles gradually and perfectly—Long, sensitive deck-trip—Perfect canvas adjuster and extension—Large deck capacity unobstructed by the ordinary post—Knotter that saves twine because of its simplicity and its stationary cord-holder disc—Twine can in plain sight—Unequaled steel folding-finger bundle carrier. It is known to the trade as stronger, more symmetrical, more simple and more capable of continued hard work without interruptions than any competing binder made.



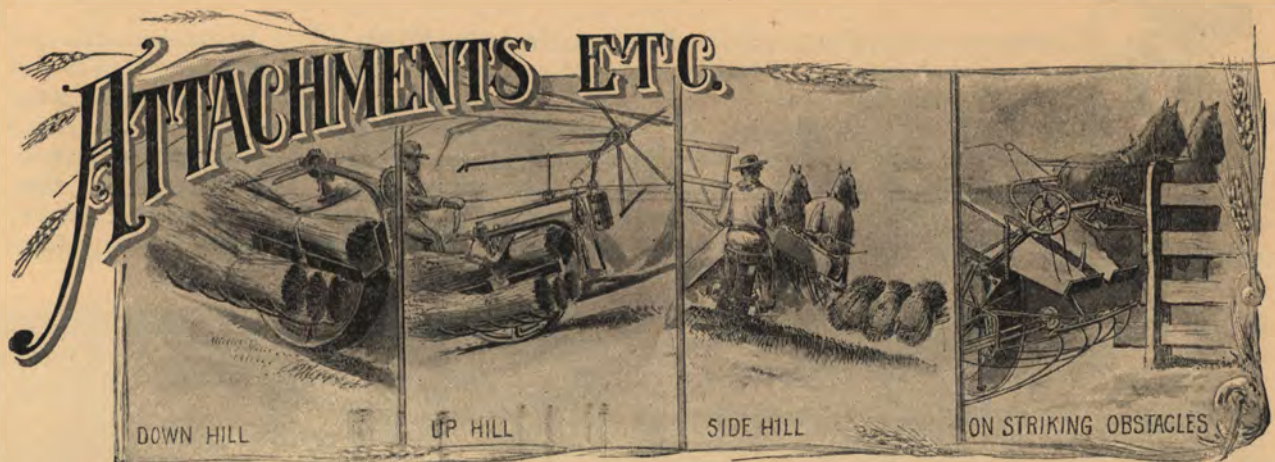
Drawing on the Formed Knot.



"All below is strength,
All above is grace."
— Dryden.

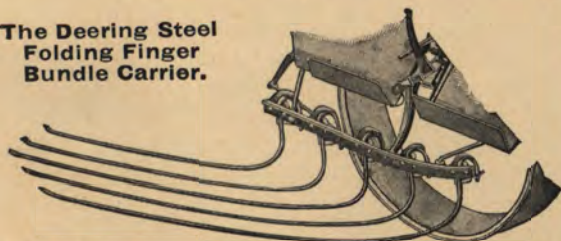
*Take a
look at
it.*

THE DEERING IMPROVED STEEL BINDER. 5, 6 and 7 ft. out, with Roller and Ball Bearings and Jointed Platform.



THE **DEERING BUNDLE CARRIER** more than saves the labor of one man every day it is operated. It is the only one that will do equally perfect work whether the machine is traveling up-hill or down, or along either slope of the hill. It is the only one which is both dumped and returned by a double-crank foot lever. It is the only one which protects itself perfectly against injury from striking obstacles. Its fingers are made of tempered spring steel, so that they have sufficient rigidity to carry any required load of bundles, and at the same time are sufficiently flexible to prevent breakage. The United States courts have decided that this bundle carrier is ours and ours alone, and that to us belong all the ground patents covering falling tooth carriers

The Deering Steel Folding Finger Bundle Carrier.



having swinging fingers; most plainly warning all would-be imitators to "keep hands off."

DEERING FLAX CARRIER, for flax, buckwheat and seed grasses which the farmer wishes to lay in neat gavels unbound. This carrier has large capacity, and, owing to the perfection of the reel, cutting apparatus and elevators of Deering harvesters, the crop is laid evenly on the deck. The carrier is dumped by means of a convenient foot lever.

DEERING BINDER COVER. A serious "rust and rotting tax" can be avoided by the use of the Deering binder cover. It is made of heavy tent-canvas and is so shaped that it covers and protects the machine above and at all sides and sheds the water like the roof of a house.



The Deering Flax Carrier.



Waterproof Binder Cover.

Deering Bundle Carriers, Flax Carriers and Canvas Covers are made for both Improved Steel and Pony Binders, and are sold at a slight additional cost, as extras. In ordering, always state which machine you have and the year you bought it.

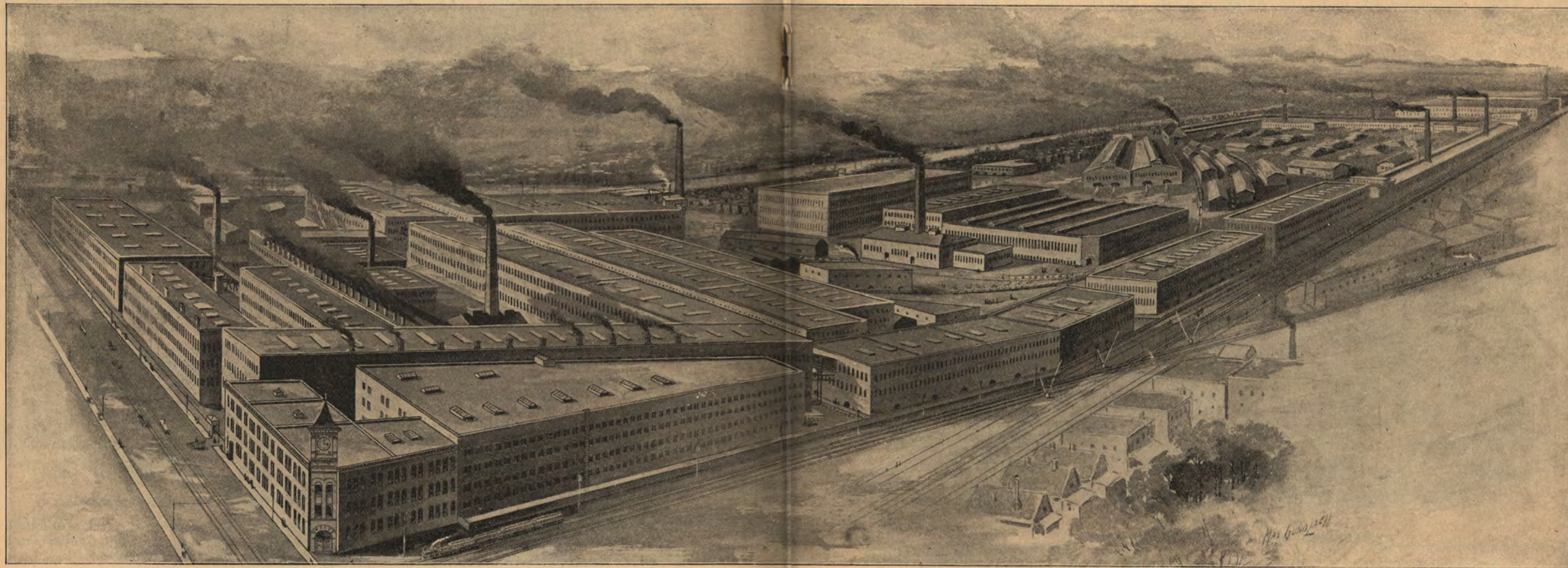
DEERING HARVESTER OIL. So thoroughly did this oil meet the demands of our customers last year, that, though it was not put on the market till very late in the season, we sold thousands of gallons of it. The oil furnished in 1896 will be even better in quality than that furnished last year. Deering Harvester Oil is a superior red engine oil free from gum, grit or deleterious acids. It is not affected by extremes of heat and cold, but flows in all temperatures. It adheres to the whole bearing in a continuous sheet of oil no matter how hot the weather. It is so perfect a lubricant that we use it in our own factory, alike for the heaviest engines and the most delicate lathes and electrical apparatus.





Y comparing the picture of the Deering Harvester Works given below, with the one we printed last year, it will be seen that we have increased our immense 115x178 feet mower room from one to three stories. The success of the roller and ball bearing Ideal Mowers did that for us. A glance at the center of the picture will reveal a 3-story fiber warehouse, 100x180 feet in size, that last year was only 90x100 feet. The unprecedented demand for Deering twine—"New twine from New mills"—did *that*. If instead of merely looking at the picture you could make a tour of inspection of this immense plant, you would see new machinery, enlarged capacity, and an increased working force

machines are made in the Deering Knife and Sickle works; the wood-work on Deering machines is made from air seasoned hardwood, in the 3-story Deering Lumber and Planing mills; the canvases are made in the Deering Canvas department, and we do not even trust the nuts and bolts on our machines to outsiders, but make them ourselves. Deering Binder twine is made in the two huge mills in this same plant, shown on page 27. In every process of manufacture the utmost pains are taken to turn out every part flawless and perfect. The duplication of parts is so exact that repairs are made with the least possible trouble. By the use of the latest and most highly perfected machinery; by the purchase of the highest grades of materials; by the most careful inspection of raw



DEERING HARVESTER WORKS, CHICAGO. The largest manufactory of Harvesting Machines and Binder Twine in the world. Covers 51 acres, employs over 3,000 shop hands, and has the capacity of one Harvesting Machine and twenty miles of Binder Twine every minute.

on every hand. The immense increase in the demand for Deering harvesting machines in every country on the globe, due to roller and ball bearings, did *that* for us, and if this rate of progress keeps up our plant will have to be increased in another year from its present vast area of 51 acres, or, like the new mower department, our future progress will have to be skyward.

Deering machines are honestly and thoroughly well made from the best materials, and made complete in this one plant. Deering gray iron castings are made in the huge Deering Gray Iron foundries; Deering malleable iron castings are made and annealed in the famous Deering Malleable Iron foundries; Deering knives, sickles, ledger plates, and cutting apparatus complete for all

material and frequent and persistent inspection of every process of manufacture, we are enabled to furnish our patrons with machines that will give them genuine and complete and lasting satisfaction.

The Deering Harvester works is truly a wonderful plant—a roaring, rumbling city of brick and steel, trembling with the pulsations of its ten mighty engines, with their 5,000 horse-power. Each department is a forest of flapping belts, a maze of whirring wheels, a bedlam, almost, of clanking forges and ponderous machines.

And yet, so completely is it all systematized, so perfect is the discipline and so intelligently do the men perform their stated tasks that there is no confusion, no waste of time or energy.

DEERING CORN HARVESTER.



WE have every reason to feel gratified with the record made by the Deering Corn Harvester in the last harvest. It proved itself to be the most efficient corn harvester on the market, and by far the lightest in draft. It is absolutely the only corn harvester that has no side draft.

When the corn is cut it falls backward upon the binding table, where it is bound and discharged much on the principle of a grain binder. Lightness of draft and absence of side draft are due to the simplicity and light weight of the whole machine, and also to the fact that the heavy stalks do not have to be slid on their butts as is done on the so-called vertical



DEERING CORN HARVESTER AND BINDER.

machines. The machine runs on a 38-inch main and a broad 38-inch outside wheel, which give ample traction and make easy riding and easy pulling. No corn can be too long or heavy for this machine, while it can handle corn as short and small as can be handled by competing machines which fail in long and heavy corn.

Though much gratified at the performance of this machine in 1895, we have not rested content, but have devoted much time and experiment on improvements based on observations in hundreds of fields in the autumn, and we have thus been able to perfect a number of improvements on the 1896 machine which will be most welcome to corn raisers everywhere.

Now that a successful corn harvester has been devised, it will not be many years before the corn crop is handled much the same as wheat. That the Deering Corn Harvester is competent to play its part in this revolution is evidenced by the commendatory letters received from hundreds of farmers who used the machine last year. We have space only to give extracts from a few of them.

ENDORSED BY THE MICHIGAN STATE AGRICULTURAL COLLEGE.

The Michigan State Agricultural College made a public test of the Deering Corn Harvester to which competing machines had been invited and some actually shipped to the trial field. The excellent showing made led to the purchase of the Deering Corn Harvester by the Board of Managers and the following letter from Prof. Smith, the Director of the institution:

AGRICULTURAL COLLEGE, MICH., Sept. 11, 1895.

DEERING HARVESTER CO., CHICAGO, ILL.

GENTLEMEN—It is the aim of the Agricultural Department of this college to give the students every possible opportunity to observe the practical working of the best modern agricultural machinery. As we have large silos to fill, and were in need of a corn harvester, I invited the McCormick, Buckeye, Osborne and Deering people to bring their machines to the college farm for a public trial for the benefit of the students and others that might attend. I guaranteed a perfectly fair and impartial test, being under obligations to no one in the matter, and desiring alone to be able to select the machine doing the best work for purchase. The agents for the Osborne and Buckeye machines had none in stock and could not procure one in time for the trial. The McCormick harvester was delivered to the college team in Lansing on the sixth, and was sent for and withdrawn on the seventh.

A public trial of the Deering machine was held on the ninth instant on the college farm in the presence of the students and a large number of intelligent and interested farmers. The machine was driven by an employe of the college, who was not acquainted with that class of machinery, and was drawn by a small team weighing 2,200 pounds.

Four dynametrical tests were made with results as follows, Nos. 1 and 3 being made on a slight upgrade, and 2 and 4 on a level but in heavier corn:

Speed in miles, per hour.	Draft, pounds.	Equal to acres in ten hours.
1.....2.97	325	13.7
2.....3.288	280	14.94
3.....3.126	300	14.43
4.....3.09	310	14.24
Average...3.106	303¾	14.32¾

For comparison it may be stated these drafts are nearly identical with those of a plow in light loamy oat stubble with a furrow one foot wide and seven inches deep.

It is but fair to add that at some unknown point in the above tests a No. 9 wire was caught by the cutter and wound about the knife, which must have increased the draft.

The work was in all respects satisfactory, the draft light, little if any side draft when the machine was driven straight with the row, and the mechanical construction strong and durable.

In view of the above facts and our imminent need of the machine, I recommended its purchase to the Board, who have this day purchased one of your machines.

Yours respectfully,

CLINTON D. SMITH,

Director and Professor of Agriculture.



Victorious Deering Corn Harvester, at public field trial held by the Director of Michigan State Agricultural College.

NEWSPAPER OPINIONS.

Beloit, Wis., *Free Press*: One thing that commends this machine is that it cuts clean and does not break off the ear—a trouble that has been hard to overcome.

Xenia, O., *Daily Gazette*: A *Gazette* man had the pleasure of seeing it work, and he cannot but think that it about fills the bill. The test was so satisfactory that three of them were sold to farmers on the spot.

Westfield, Ind., *Commercial*: A machine perfect in every part, cutting and binding corn, big and little, doing its work easily and rapidly, never choking or causing delays, cutting and binding evenly. There is no side draft. This machine will prove worth its weight in gold to the farmers.

Cassopolis, Mich., *National Democrat*: The machine certainly seems very practical, simple, and not likely to get out of order, and where a farmer has a large quantity of corn, we should think its purchase would prove profitable.

Rockville, Ind., *Parke County Journal*: The farmers generally in the vicinity of Marshall pronounced the Deering a success, as did also a representative of the Osborne Corn Harvester.

Wabash, Ind., *Times*: It is certainly a great success, and is one of the best labor savers that a farmer can purchase.

Rushville, Ill., *Daily Citizen*: Two horses handled the machine with apparent ease, and, up to the time we left, the machine had not missed a single bundle. The corn was very heavy, lodged and tangled.

Hannibal, Mo., *Courier-Post*: Both machines did excellent work, but the contest was decided in favor of the Deering.

Shelbyville, Ill., *Daily Union*: The machine worked like a charm in spite of the fact that the corn was down, twisted and tangled. It was a great success.

FIELD TRIAL AT ALBION, ILL.

ALBION, ILL., September 11, 1895. *Deering Harvester Co.*:

We have witnessed the operation of the Deering Corn Harvester and Binder on the place of Mr. Jesse Bunting, and have seen this machine cut, convey, and bind drilled corn from ten to thirteen feet high; cutting row after row and binding and discharging every bundle without breaking a band.

This machine will certainly handle corn in condition to cut after handling Mr. Bunting's corn in its present condition and very heavy growth.

Yours truly,

JOHN W. BROWN, ISAAC DYBALL, L. E. BUNTING, TOM HALL, T. H. EDWARDS, C. S. HODGSON, E. S. HODGSON, C. F. HOOVER, JAMES W. WEST, CHAS. ROBERTSON, GEO. G. SPILLER, JAMES WEBB, JESSE BUNTING, T. J. KILLOUGH, superintendent Edwards County Poor Farm.

TESTIMONIALS.

FULLY EQUAL TO GRAIN BINDERS.

WINCHESTER, IND., September 11, 1895.—I am very much pleased. Your corn harvester cuts and binds the corn in grand shape, fully equal to the grain binder.

RESTOR THORNBURG.

ONE-THIRD LIGHTER IN DRAFT.

DAYTON, MICH., September 14, 1895.—Your corn harvester does good work, and is very light in draft. It is from one-third to one-half lighter than the ——— which I witnessed the other day. JOHN LEITER.

GOOD WORK UNDER DIFFICULT CONDITIONS.

BLOOMINGTON, ILL., September 9, 1895.—It has exceeded my highest anticipation, doing good work in the grassiest corn I ever raised, and also in heavy drilled corn that will make 80 bushels to the acre.

T. A. BESSE.

A DOCTOR RECOMMENDS IT.

ST. PHILLIPS, IND., September 10, 1895.—Your corn harvester works very satisfactorily, cutting and binding corn averaging from 12 to 14 feet in height. I take pleasure in recommending the Deering to any one wishing a corn harvester.

S. C. HENDERSON, M. D.

IT PADDLES THROUGH THE MUD.

MINOOKA, ILL., August 30, 1895.—We have had heavy rains and the fields are very muddy. My corn is heavy and all heights, but I am pleased to inform you that your corn harvester cuts and binds everything in its path, and runs easy with two horses.

ERVAN DEMPSEY.

TELEGRAM FROM ALBION, MICH.

ALBION, MICH., August 28, 1895.—Started Deering Corn Harvester to-day in heavy corn. Works first class, and is very easy draft. Sold two to-day. Farmers object to work ——— harvester on account of its heavy draft and tilting up. The Deering runs from one-third to one-half lighter than the ———.

JOY & OWEN.

STARTS IT HIMSELF.

NORRIS CITY, ILL., Sept. 20, 1895.—I started my Deering Corn Harvester myself without any help. I ran it in 10-foot dry corn, some of it down and tangled, as well as in tall, heavy corn. It does good work and is easily operated.

LOWRY AUSTIN.

FOUR ACRES IN THREE HOURS WITH TWO HORSES.

WEEPING WATER, NEB., September 14, 1895.—We started in very heavy corn near town and went from there to corn not so heavy on my farm, doing satisfactory work at each place. We cut and bound four acres of corn in three hours with one pair of horses on land that was very soft.

C. P. GILBERT.



Cutting 13-foot Corn, Albion, Ill.

IN HEAVY, WEEDY DRILLED CORN.

HADLEY, MICH., September 16, 1895.—Your corn harvester works to my entire satisfaction. My corn is heavy, drilled and full of pigeon grass and pumpkin vines. My team handled the machine as easily as they do a 5-foot mower. I cut a piece for my neighbor, E. R. Vilas, of about seven acres on very soft mucky ground. The corn was drilled and very, very heavy. I cut it all in five hours.

FRED. G. SELBY.

75 ACRES WITH ONE MACHINE.

QUINCY, ILL., October 8, 1895.—My team weighs about 1,100 pounds each, and these two horses cut about 75 acres of heavy corn this season. I cut for several parties, all of whom were pleased with the work done. One man, who had purchased a ——— corn harvester, said that the Deering ran one-third lighter than his, and that if he had not bought the ——— he would certainly buy a Deering.

THOMAS RICHARDSON.

FROM ONE OF IOWA'S MOST PROMINENT AGRICULTURISTS.

Hon. A. V. Stout, of Parkersburg, proprietor of the Pleasant Hill Farm, repeatedly delegate to National Farmers' Congress, commissioner from Iowa to the World's Fair and trustee of the State Agricultural College at Ames, says of the Deering Corn Harvester: "After having cut and bound a large harvest of corn I can say with full assurance that the harvesting of corn can now be done with the Deering Corn Harvester with as much certainty and ease as the cutting and binding of wheat and oats. I cannot help but think that this will contribute in the future to the average corn raisers' revenue in a large degree."



DEERING IDEAL REAPER, 5 ft. cut.

OBSERVANT farmers of both Europe and America have come to look upon the Deering Ideal Reaper as being the highest type of non-binding harvesters made, in lightness of draft, high adjustability, convenience of operation and transportation and perfection of work done in the field. It is the ideal machine for harvesting flax, buckwheat, and timothy and other seed grasses which the farmer wishes to lay in neat gavel to dry out.

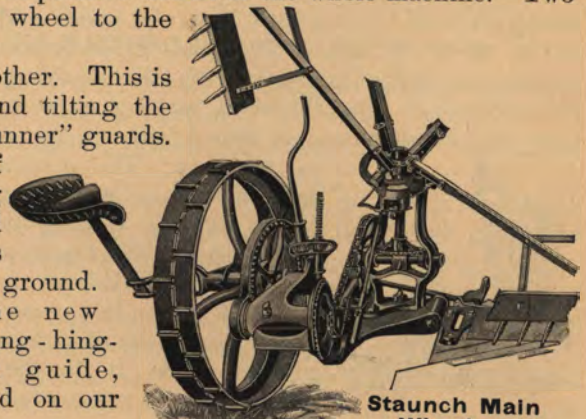
Light draft is accomplished by the simplicity and positive action of the whole machine. Two pairs of gears transfer the power from the big drive wheel to the cutting apparatus, and a third operates the rakes.

This reaper can cut a closer stubble than any other. This is accomplished by the devices for raising, lowering and tilting the platform, as well as by the popular Deering "sled-runner" guards.

The platform can be brought within three inches of the ground without tilting and it can be so tilted that the guards slide on the ground. Observe the new shielded spring-hinged pitman-head guide, similar to that used on our mowers (page 32).

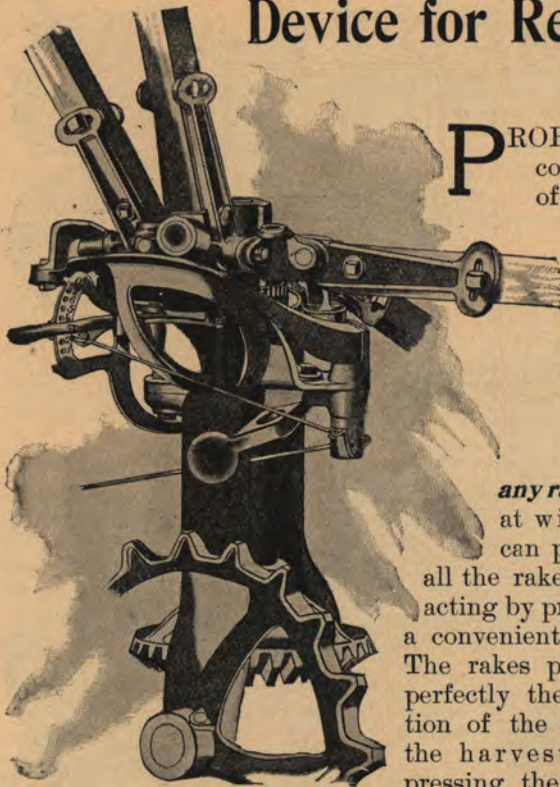


Grain Wheel and Outer Divider.



Staunch Main Wheel and Simple Gears.

Device for Regulating Motion of Rakes.



Device for Regulating Motion of Rakes.

PROBABLY no feature of our reaper has received wider commendation than our device for regulating the motion of the rakes. By means of this device the operator, without leaving the seat, moves a convenient thumb latch so that

1. No rake acts.
2. Every second rake acts.
3. Every third rake acts.
4. Every fourth rake acts.
5. Every fifth rake acts.
6. Every sixth rake acts.
7. Every seventh rake acts.

In any of the above positions the driver can make

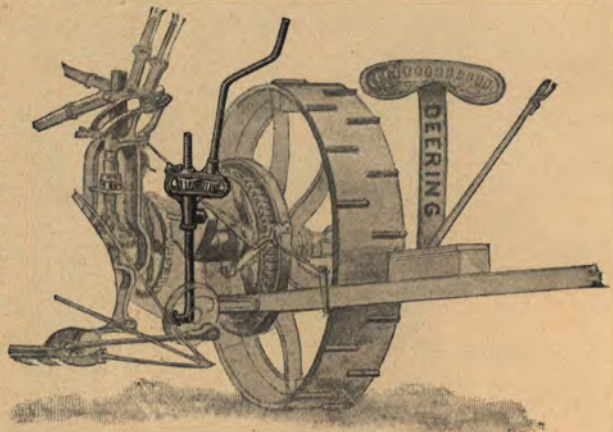
any rake act at will, or can prevent all the rakes from acting by pressing a convenient lever. The rakes perform perfectly the function of the reel of the harvester in pressing the grain against the knives, and then drop verti-

cally down and sweep the table clean, dropping the grain behind the machine in neat gavels.

For "swathing" or handling crops not to be bound, the driver simply draws out a pin, turns the swathing switch, and puts the pin in place again. Perfect strength is achieved by using superior qualities of steel, malleable iron and brass in the metal parts of the machine, seasoned second-growth hickory for the rakes, and strong, well seasoned whitewood for the table.

TRANSPORTATION. No reaper even approaches the Deering Ideal for convenience and ease of transportation. The table is simply raised and a coupling rod hooked into the rake stand and secured to the table by a nut on the under side. The small wheel is then slipped onto a fixed transportation axle that is always with the machine. The machine thus folded rides smoothly over the road, making a track no wider than the ordinary wagon, the driver riding comfortably on the seat. The machine can be narrowed so as to pass through a 6-foot way by folding the seat up to the side of the machine.

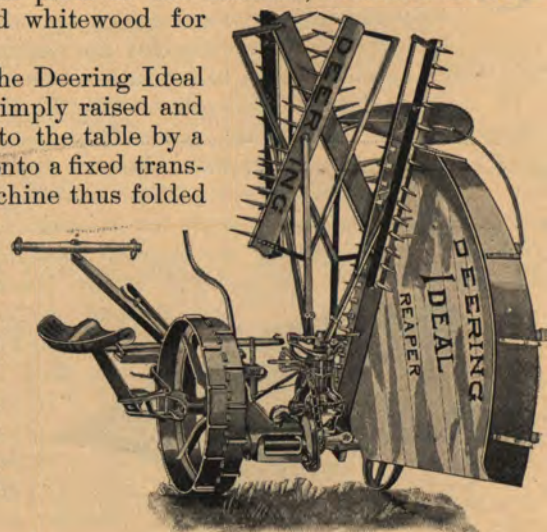
The Ideal Reaper is complete in itself, and its owner does not have to buy a lot of unhandy attachments to make it do the work for which a reaper is intended.



Main Wheel Raise and Lower Crank.



Hinge and Fixed Transportation Axle.



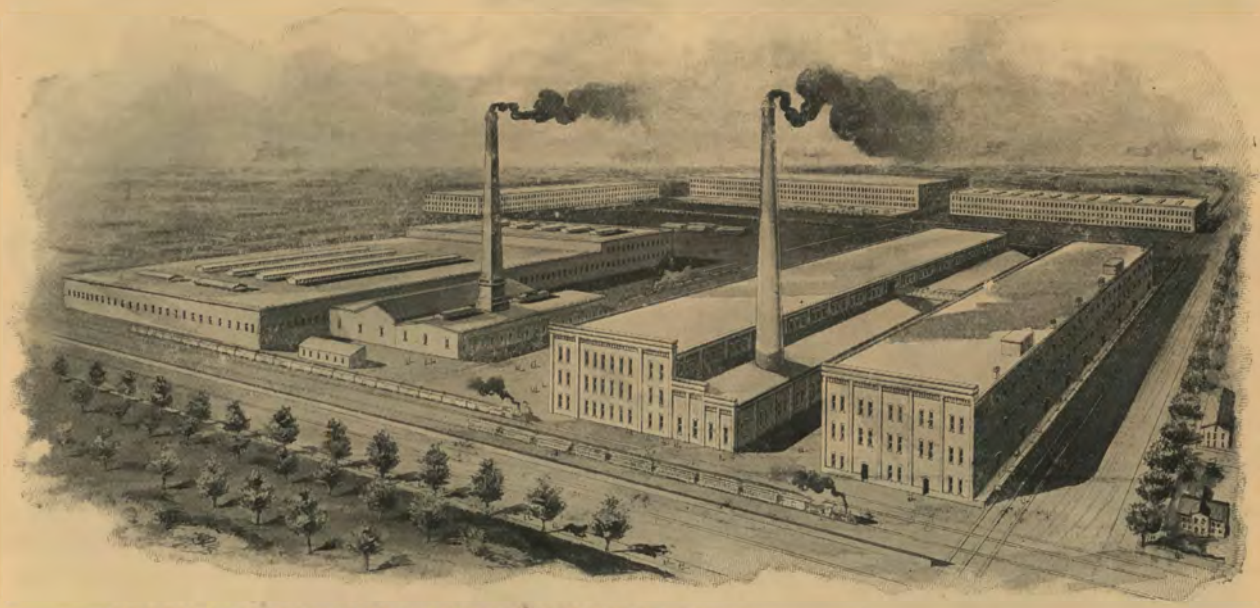
The Ideal Reaper, folded.

DEERING BINDER TWINE.



THE Deering Harvester Company is the largest single manufacturer of binder twine in the world. Its two immense mills with their 1,006 spindles turn out 55 tons of finished twine every day they work full force. This means a capacity of over 16,500 tons a year, or one-fourth of the country's annual needs. It also means that our mills turn out the best twine made anywhere, at the rate of twenty miles a minute! The Deering twine mills shown in the cut, with their fiber and shipping warehouses, constitute in themselves a plant as large as the whole "harvester works" of some of our competitors, and employ more hands. All these buildings are contained in the Deering Harvester works, shown in the middle of this book.

This plant has been "built on honor," every brick of it. It owes its existence to the fact that farmers *know* that twine bearing the Deering tag is what the tag says it is. In a year like last, when many makers of twine were forced to the utmost straits by the mass of old and damaged twine that



DEERING TWINE MILLS AND WAREHOUSES—The Largest Twine Plant in the World.

was dumped upon the market by the failure of the twine trust, we did the biggest twine business in our history, running both mills full force up to the last day of harvest. We were compelled to do this to supply the demand for good, reliable twine, leaving the demand for cheap twine to take care of itself.

As makers of binders, it is to our selfish interest to make twine as good as it can be made. Binders do better work with good twine than they do with poor, and we would be stupid indeed to think of saving money by making poor twine, only to lose it ten times over in the reputation of our binders!

The outside "cordage mills," from whom most of our competitors buy their twine, have no such responsibility, and the quality of the twine turned out by them most clearly shows this fact.

Deering twine is most carefully and scientifically made, with the best machinery, by the best methods, and under the most thorough inspection. It is honest in length, quality, weight, evenness and twist, and it does honest service in the harvest fields.

How Deering Twine is Made.



Scene in preparing room of Deering Twine Mill No. 2.

hanks of fiber are "scutched" in a machine that looks like a huge winnower. This removes all the dirt and pulls out the dead ends and short strands.

From the scutchers the fiber goes to the "breakers," passing first between heavy fluted rollers, and then being spread out, carded and combed, so that it leaves the machine in a series of endless, wavy streams. These in turn are fed through a series of six machines called "haulers" or drawing frames, each of which combs and cards the fiber into thinner, smoother, finer ribbons than the one before. Each machine separates the fiber into a number of slivers or ribbons, and these are combined and fed backward into



EW processes of manufacture are more interesting than the processes which convert bales of raw Manila and Sisal hemp into the beautiful Deering Binder twine. The bales of fiber, packed in plaited rushes or sewed in coarse burlaps, marked all over with foreign hieroglyphics and smelling of the hold of sea vessels, come to our two big fiber warehouses by ship loads and carloads. A constant procession of men with push carts transfer these bales from warehouse to mill. The bales are opened, and the rough



Spinners in Mill No. 1.

the next machine, which, in turn, separates the slivers and combines them again, to be fed in reverse order into the machine following. After leaving the six drawing frames the streams of fiber are sent to the finisher, which combines them, and then separates them into a large number of shining bands, and these pour out from between its polished rollers in golden ribbons, ready for spinning.

It will be noticed that there are eight preparing processes. At each of these an inspector is on hand to reject anything that is not up to the Deering standard, *i. e.*, perfection. Makers of cheap twine are content with three or four preparing



Spinners in Deering Twine Mill No. 2.

processes, leaving inspection largely to the farmer in the harvest field.

Spinning is, perhaps, the most impressive process, because of the bewildering extent of the spinning plant. Over one thousand spindles, revolving over 1,550 turns a minute, whirr and hum with a deafening sound, each spindle making over 100 feet of twine a minute, or 12 miles a day.

The spun twine is wound onto spools, each spool containing about fourteen pounds of twine. These spools are loaded onto roller-bearing carts, which are wheeled away to the balling room.

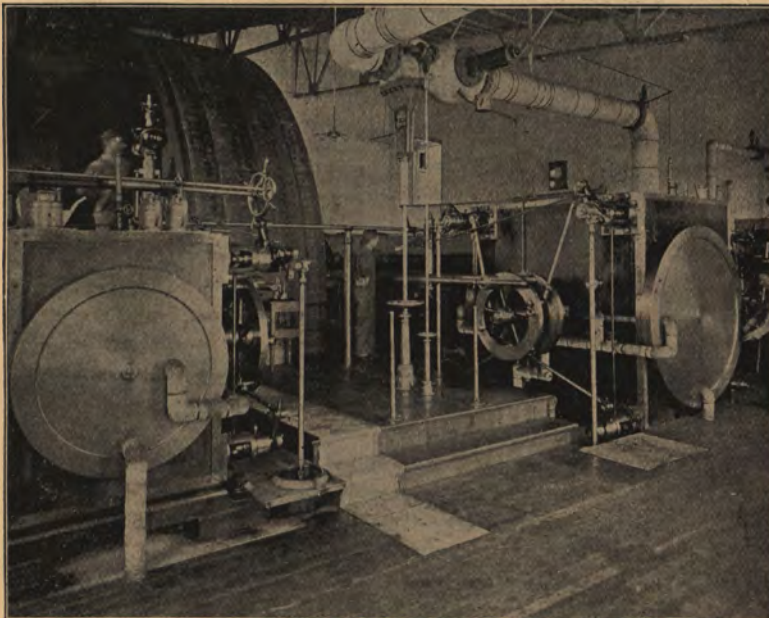
When the carts of spools arrive at the balling room they are again carefully inspected before being distributed to the multitudes of balling machines. The balling machines are highly perfected, so that they subject the twine to a constant tension of 50 pounds, sufficient to break it should a weak place appear. In addition to this constant test for strength there are special machines for testing length, strength and twist. A complete record of the tests of these machines is kept, and these figures are averaged each evening. It is our constant aim to be exact in weight and length, and when we err to err on the right side, giving more feet to the pound of better twine than is furnished by any other manufacturer on the market.



Part of "balling room" of Mill No. 1.

FAMOUS WORLD'S FAIR ENGINE.

The Allis engine which runs our new twine mill is fully half again as large and powerful as the great Corliss of Centennial Exposition fame! It is a combination of the two largest engines at the



2,500 HORSE-POWER ALLIS ENGINE—one of the largest in the world.

World's Fair, at Chicago in 1893—the one in Machinery hall, furnishing the towering 30-foot belt wheel and the main shaft, while the other, which ran the Intramural railway, contributes the engine proper. It is exceeded in size by no other in America and is equaled by but one. The belt wheel of this engine is 30 feet in diameter, weighs 150,000 pounds, and revolves at the rate of over a mile a minute. It operates nine miles of belting and 2,500 feet of shafting. The entire engine weighs approximately 500,000 pounds.

As visitors to our factory stand almost spellbound gazing at this mighty engine of peace, they then for the first time form some conception of the magnitude of our twine business.

THE DEERING IDEAL MOWER



DEERING IDEAL MOWER, 4½ and 5 foot cut, with Roller and Ball Bearings.

NOTWITHSTANDING our immense capacity and the fact that we ran our mower shops full force, part of the time night and day, we were unable to keep pace last year with the demand for our mowers. Nothing has done this but the transcendent merit of the Deering Ideal Mowers, with their roller and ball bearings. Among intelligent farmers to-day all mowers are measured in proportion to how near they approach the Deering Ideal, and any farmer who has ever seen the Ideal would laugh at the idea of buying any competing machine, except at a cut price. The demand for these mowers was so great that we kept our shops running continuously till the end of harvest in order to keep up the supply. This year we will be in better shape, owing to the increased facilities offered by our new three-story mower building.

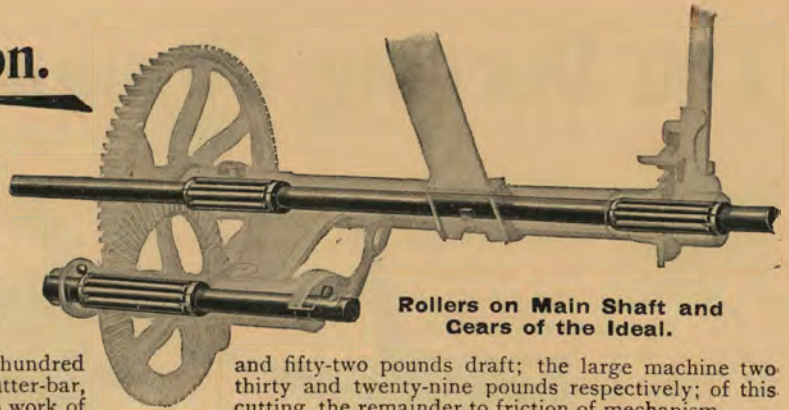
The Deering Ideal Mowers excel all others in light draft, owing to their **roller and ball bearings**, direct-thrust pitman, perfect spring-lift, floating cutting apparatus, etc. They are the only mowers that can be driven at a slow walk in the heaviest crops, or can be started after a dead stop in any crop without backing. They are the only mowers that cannot clog in any crop and which have provision for preventing the cutter bar from sagging back after years of wear. As described on page 35, even the widest cut Deering Ideal Mowers with their roller and ball bearings run lighter than the narrow-cut competing mowers without such bearings.

Preventing Friction.



ONE of our competitors claims a World's Fair diploma in which appears the following words referring to the field trial of their 5 and 7 foot mowers:

The smaller machine averaged one hundred hundred and one, or, per foot of length of cutter-bar, resistance to traction ten pounds was due to work of



Rollers on Main Shaft and Gears of the Ideal.

and fifty-two pounds draft; the large machine two thirty and twenty-nine pounds respectively; of this cutting, the remainder to friction of mechanism.

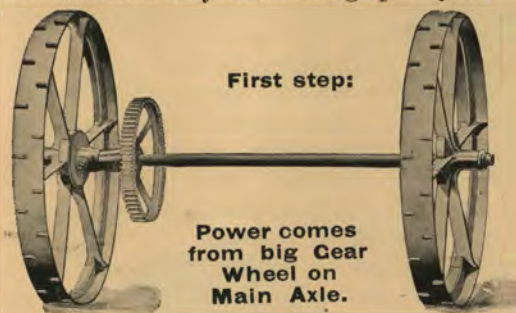
Nineteen and twenty pounds resistance for every foot of bar "*due to friction of mechanism*"—to grinding the machine to pieces while only ten pounds are used in doing the work for which the mower was sold! Twice as much power wasted as usefully employed! Is there any wonder that farmers prefer the frictionless Deering Ideal Mower which registered a draft in the official World's Fair trial of only 85 $\frac{2}{3}$ pounds while cutting a full 5-foot swath or 17 pounds per foot of bar? In other words the Deering Ideal Mower, with roller and ball bearings, *requires altogether* two pounds less power per foot of bar than the competing mower absolutely *wastes!*



Ball Bearing at end of Bevel Gear Shaft.

Roller and ball bearings are in the Deering Ideal Mowers to prevent that wasteful "friction of mechanism" and thus not only saving a sinful waste of power, but lengthening the life of the machine and saving repair expenses by preventing wear. As shown in the cut, roller bearings are found in the bearings of the main axle as well as in the main gear shaft, with ball bearings on both main gear shaft and crank shaft to take up end-thrust. In this way we prevent friction in all the moving parts that convey to the pitman the power exerted by the horses. How friction is prevented and power saved at the pitman is shown on next page.

Roller Bearings are so efficient in reducing the frictional resistance of mechanism that they are used not only in shafting, pulleys, and stationary machinery in factories, but are being introduced into street cars and other rolling stock. The Interstate Consolidated Street Railway Co., of Attleboro, Mass., after exhaustive experiments, is having its line furnished with a new equipment of cars with roller bearings in their journals. The electric motors which run the cars are also furnished with roller bearings. If roller bearings are important enough to be adopted by street railway companies where the electrical power is practically unlimited, how much more important they must be to farmers where the power available is limited to the number of horses they can afford to buy and feed!



Two pairs of simple gears on the Ideal Mowers do the work done by three pairs of gears on competing machines. This simplicity saves both friction and repair expenses. The accompanying cuts show the three steps in the transfer of the power to the knives: First, from the main shaft to the gear shaft by means of the big gear wheel keyed onto the main axle and meshing into the broad pinion of the gear shaft; second, from the gear shaft to the crank shaft by means of the main bevel-gear meshing into the bevel pinion at the rear end of the crank shaft; third, the operation of the pitman and knives by the vertical crank wheel at the front end of the crank shaft.



Simple Gears of Ideal Mower.

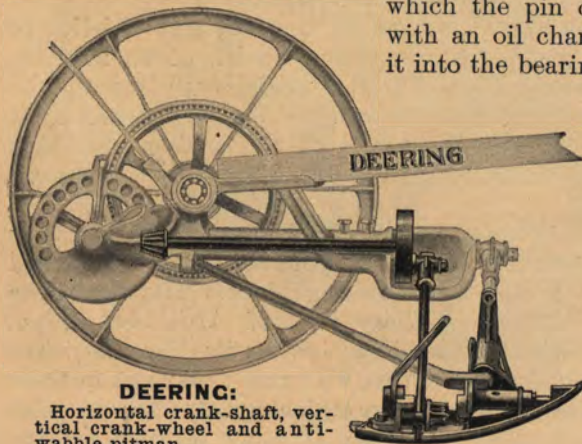
The Deering Pitman



HERE'S no such thing as a good mower with a poor pitman, because if the that's the end of a mower is and those can read it

full well. On the Deering Pitman is written, in language plain as life, "efficiency," "light draft."

The Deering Pitman is composed of *two simple parts*. The pitman proper is a long shaft of drop forged steel with a tempered steel hook, which engages a case-hardened eye in the knife-head. The pitman head, at the other end of the shaft is one piece of hard brass. It is secured to the shaft by a long, deep screw-thread, which presents a total surface of resistance of seven square inches. This coupling gives perfect freedom of motion and at the same time holds securely. *It never wears out.* The brass pitman-head has a polished milled eye, into which the pin of the crank wheel bears. This bearing is provided with an oil chamber filled with wool, which retains the oil and feeds it into the bearing as it is needed. *This pitman box never heats.*



DEERING:

Horizontal crank-shaft, vertical crank-wheel and anti-wobble pitman.

This single feature adds years of life and usefulness to the machine, increases cutting power, decreases wear and draft and places the Ideal mower in a class by itself.



COMPETITOR:

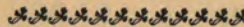
Slanting crank-shaft, slanting crank wheel and zig-zagging pitman.

Knife Connection. The Deering Pitman is held in the hardened eye of the knife-head by a spring-hinged pitman-head guide. It can be connected or separated by the simple pressure of the thumb and finger, and yet is held so firmly that there is no possibility of its working out.

The annoying and expensive trouble of breaking knife heads and pitman heads on competing machines would not be so frequent if they had this admirable connection.



The knife comes out easily.



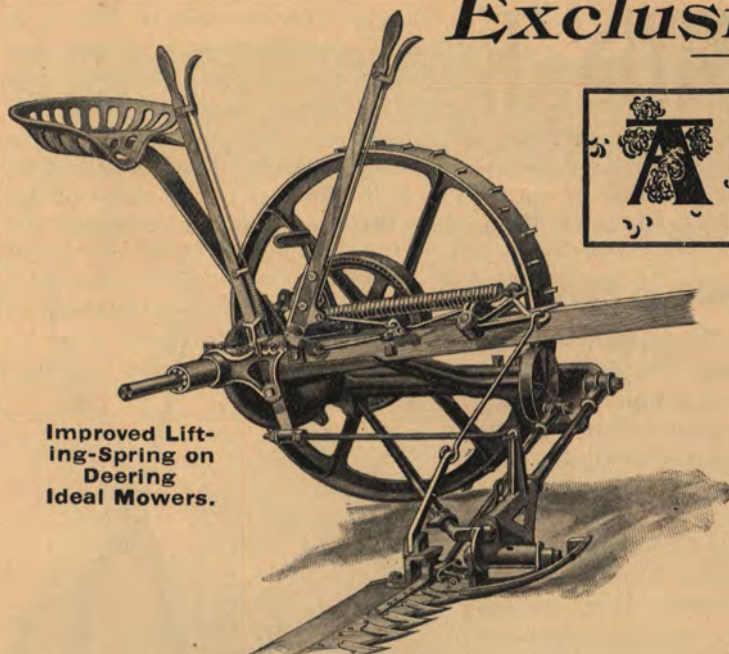
FAMOUS DEERING ANTI-WABBLE PITMAN.

It moves back and forth in the same plane like the connecting-rod of a locomotive. It is made of but two simple pieces and has no wobble-joints or other toggery, because it needs none.

Why the Deering Pitman Does Not Wobble

Note that the crank-shaft is nearly *horizontal*. Instead of sloping steeply from the top of the main axle, as on some other machines, it lies *below* the main axle. A horizontal crank shaft makes a vertical crank wheel—something which only the Deering mowers have—and a vertical crank wheel means that the pitman moves silently and smoothly backward and forth in the same line like the connecting rod of an engine instead of jerking and wobbling and jarring the machine to pieces.

Exclusive Features



Improved Lift-ing-Spring on Deering Ideal Mowers.



LIFTING SPRING is to a mower what the biceps muscle is to the arm. It is therefore with a degree of pride that we call the attention of our friends to our new perfection of this important device.

It is so constructed and attached that it neutralizes the weight of the bar at both ends, decreasing draft and entirely destroying side draft even on the widest bars. Thanks to it, the bar floats easily in and out of the unevennesses of the ground, getting **all the grass**.

Its leverage is so arranged that lifting by means of either hand-lever or foot-lever is easy, and the pull on the levers uniform

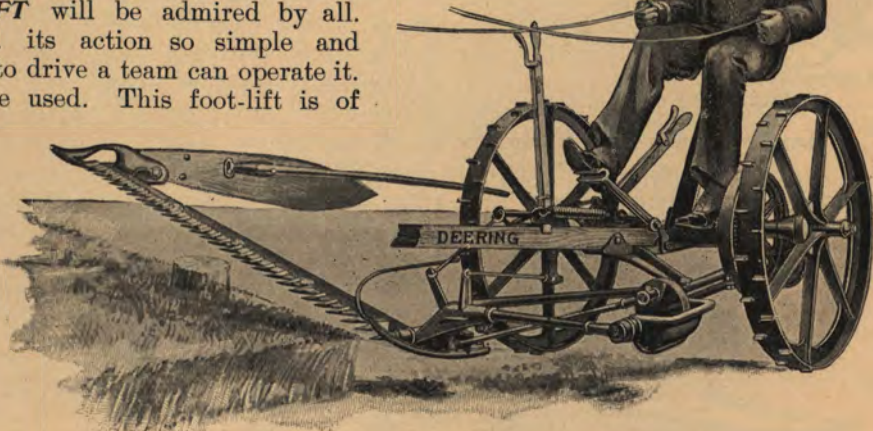
no matter whether the bar is high or low.

OUR NEW FOOT-LIFT will be admired by all. Its leverage is so long and its action so simple and easy that any boy old enough to drive a team can operate it. The hand-lever need never be used. This foot-lift is of special value in raising the bar when turning a corner, when the driver needs both hands to manage the team.

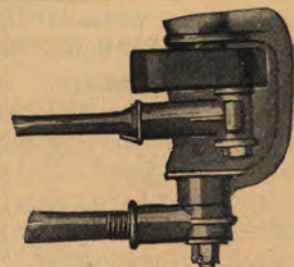
ADJUSTABLE DRAG BAR.

We have realized from the first that the best steel will wear, and have therefore devised a sensible means of providing against this wear. It makes it easy to bring the cutter-bar forward into line when the wear of years has caused it to sag back. The operator simply unscrews the nut at the head of the bar, gives the threaded cap as many turns as he deems necessary and replaces the nut. This simple device adds years to the life of the machine. No competing machine has a device for keeping the bar in line. The result is that after two or three years of service their bar falls back, to stay there, irretrievably. The bar once out of line the mower is practically useless, as the knives are out of register, alternately cutting into the guards in front and crashing back against the knife-back, increasing draft, wasting the hay and racking the whole machine to pieces. All this is prevented on all Deering Mowers by the adjustable drag bar.

This heavy drag bar also guards the pitman against damage from obstacles, as his shield did the warrior of old. Many competing machines have delicate wooden pitmans with nothing to protect them from menacing stumps and stones. The Deering adjustable drag-bar serves a wise double purpose; to the mower it is a life insurance policy and an accident policy as well.



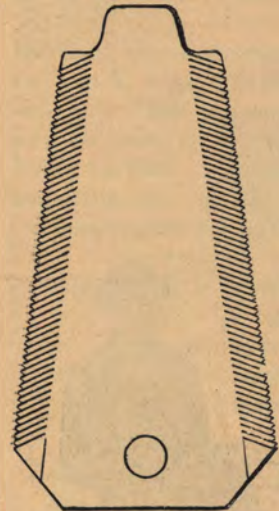
Improved Foot-Lift on Deering Ideal Mowers.



Threaded End of Adjustable Drag Bar.

CUTTING APPARATUS

made to float in and out of unevennesses of the land and how provision is made for preventing the bar from sagging back when worn. The Deering cutting apparatus itself is just as perfect as the parts that lead up to it. It is so devised as to give a perfect "shear cut." The knife answers to one blade of the shears and the ledger plate to the other, the spring steel clip holding the two shear-blades together.



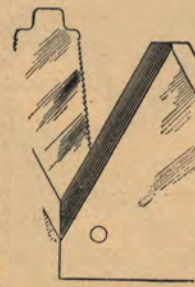
Serrated Ledger Plate.
(Exact Size.)

Serrated Ledger Plates.

By serrating the ledger plates we give the cutting apparatus double efficiency. The teeth or serrations act on the principle of the reel of a harvester. They hold the grasses against the knives until cut. They thus insure a clean cut, even in the stubborn, hair-like grasses, by preventing the grasses from bending forward and sliding under the bar, uncut. These serrations also prevent fine grasses from working back into the cutting apparatus and clogging the knives.

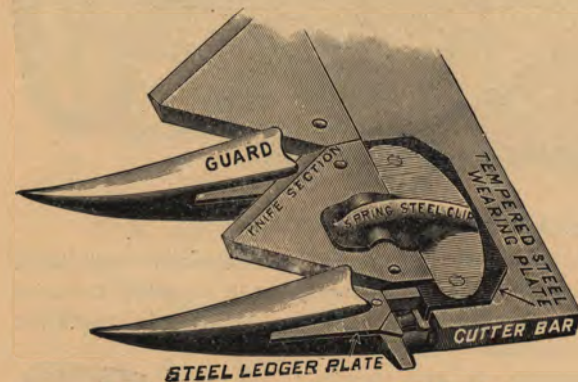
The action of serrated ledger plates is well illustrated by cutting a match in two with a pair of shears. If the shears are dull the match will slip forward uncut. Now imagine one blade of the shears to be serrated. Would it be possible for the match to slip forward? Hardly.

Deering Ideal Mowers are the only ones that can start without backing in any kind of crop; the only mowers that cannot be clogged by heavy grass or dead undergrass. The superiority of these mowers in this



A SHEAR CUT.

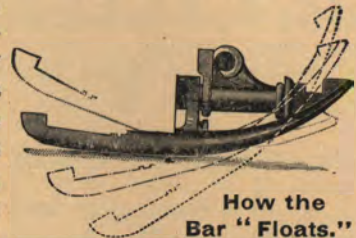
Knife and ledger plate pass each other like blades of shears.



DEERING CUTTING APPARATUS.

respect is due, first to the serrated ledger-plates described above, and, second, to the fact that there is no lost motion

in the gears. By consulting the previous pages it will be seen that the power exerted by the team is transferred to the pitman and thence to the knives without lost motion. The knives start the instant the wheels start. This important feature is overlooked by manufacturers of chain-drive mowers, which always have to be backed for a "running start" because of the unavoidable slack in the drive chain.



How the Bar "Floats."

"Floating Bar." Because of the perfect manner in which Deering mowers follow the unevennesses of the ground the cutter bars are described by the farmers as "floating" along. This floating principle is due to the two hinges at the inner shoe, to the hinging of the drag bar at its upper end, and to the construction of the pitman—all of which give perfect freedom of motion. This floating principle saves tons of hay in the lifetime of the machine.

All Deering Ideal Mowers are easily folded for traveling on the road. The bar is raised to a position almost vertical and automatically held there by a latch lock



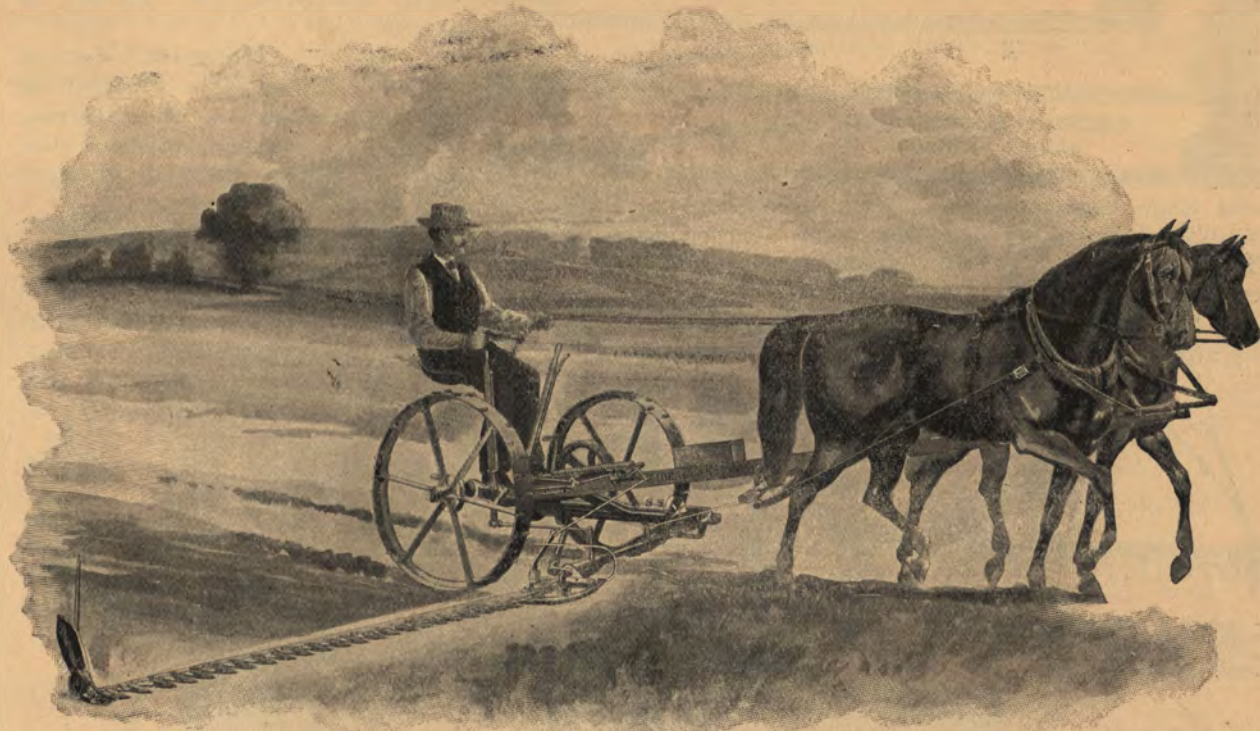
Convenient to Fold.

the IDEAL GIANT

THIS mower is simply the Ideal Mower made larger all over in proportion to its greater length of bar—6 and 7 feet.

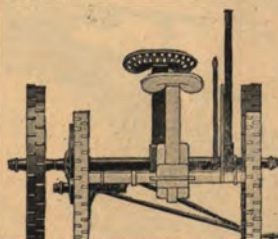
It has the same roller and ball bearings, horizontal crank-shaft, vertical crank-wheel, anti-wobble pitman, improved lifting spring and foot-lift, adjustable drag bar, shear-cutting knives and serrated ledger plates, as the Ideal described on the previous pages. Though wide of cut it is lighter in draft than the ordinary narrow-cut machine not provided with roller and ball bearings.

A wide-cut mower, when it is light of draft and strong in proportion to its length of bar is a matter of great economy. Every foot added to the bar naturally decreases the distance the team will



DEERING IDEAL GIANT MOWER, 6 and 7 ft. cut, with Roller and Ball Bearings.

have to travel and the number of corners to be turned, in cutting a given piece of land. For instance a mower cutting a $4\frac{1}{2}$ foot swath travels 9,680 feet, or 1.83 miles in cutting an acre; a 5-foot mower 8,712 feet, or 1.65 miles; a 6-foot mower, 7,260 feet, or 1.37 miles, while a 7-foot mower travels only 6,223 feet or about 1.17 miles. The 7-foot Ideal Giant will travel just as fast with the same ease to the team as a 5-foot competing mower. While an ordinary 5-foot mower is cutting ten acres the Deering 7-foot Ideal Giant will cut 14 acres at the same cost for driver and team.



Big frame and tall wheels of Deering Ideal Giant, compared with small frame and wheels of cheaper wide-cut mowers.

the seed off to one side, out of the way of the team on the following round. The machine did not choke down once on the job, though on account of the raker I had to drive slowest where the clover was heaviest. Enclosed please find check in payment for the machine.

A CASE IN POINT.

ISLAND, ILL., September 1, 1895.

DEERING HARVESTER CO., CHICAGO:

My Ideal Giant Mower is fully up to the representations made when I bought it. Though a six-foot cut it runs a good one-half horse lighter than my old ball-joint — 4-foot cut. I am especially pleased with it because I can stop and start in any kind of grass without backing. I have just finished cutting 40 acres of very heavy seed clover. I attached a sheet iron platform to the mower, and, by driving very slowly, a man walking behind could rake

CHAS. C. APPELEGATE.

More Exclusive Features.



In the *Ideal Giant Mower* the cutter bar is what is known as a "beaded" bar—that is, it has ridges or beads which give to it great rigidity, so that when it is raised it does not bend or bow. This is extremely important. Competing mowers without beaded bars whip up and down and bend, causing the knives to cut into the guards above or jam down



against the ledger plates and wearing plates, wearing the parts severely, increasing draft materially and very greatly destroying the efficiency of the machine.

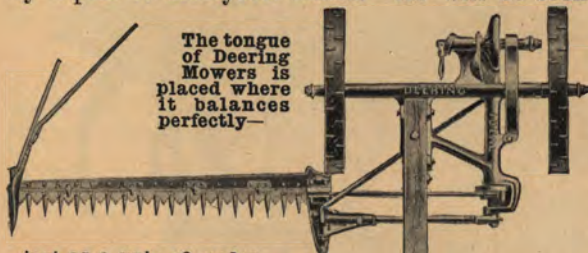
Big Steel Hinge-pin. Instead of the one or two little bolts used on competing machines, the Deering mowers have a large drop-forged steel hinge pin. The size and strength

and large bearing surface of this pin gives unequalled strength to the coupling between cutter bar and frame, and prevents cramping of the hinge. This big hinge-pin is found on all Deering mowers, but its importance increases with the length of bar.



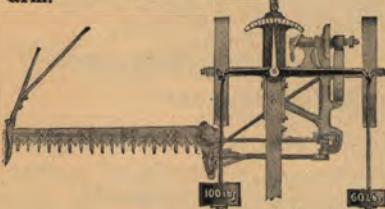
The Beads.

Balance of Tongue. The balance of the tongue of all Deering *Ideal Mowers* is well illustrated by a pair of steelyard scales. As will be seen by the cut, 60 pounds on the long arm of the scale will counterbalance 100 pounds on the short arm. Similarly, the weight and resistance of the cutter bar perfectly balances the lesser resistance of the outer wheel, because the tongue or fulcrum is so placed that the heavier resistance will be on the shorter arm. This construction explains the absence of side-



The tongue of Deering Mowers is placed where it balances perfectly—

—just as a pair of scales balance, with the heaviest weight on the shortest arm.

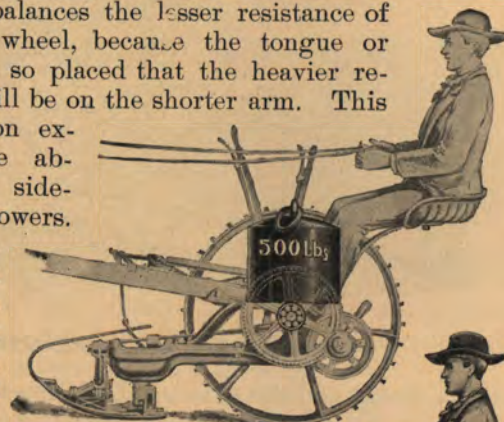


draft on the Deering mowers.

Save Repair Bills.

Roller and ball bearings on the Deering *Ideal Mowers* of all sizes not only save draft, but they prevent wear. There is practically 500 pounds of weight and strain on a mower axle.

This weight, instead of bearing down on top of the axle and tending to wear and grind the axle and journal-box, is distributed throughout the bearing by the rollers. So that, even if these rollers had the sliding contact of the friction bearings, they would prevent wear. But rolling as they do they reduce friction and wear to a point where they amount to very little. Roller bearings save repair bills. With nearly 100,000 roller bearing mowers in the field we have scarcely any demand for repairs involving parts of the mechanism protected by roller and ball bearings.



Roller bearings distribute the weight and strain evenly throughout the whole bearing instead of grinding off the axle.



How Roller Bearings Prevent Wear.

Deering Ideal One-Horse Mower.



IN response to a widespread demand, we offer for 1896 and future years the Deering Ideal Mower, reduced in proportions and weight and length of bar to a one-horse size. This machine is made with $3\frac{1}{2}$ and 4 foot bars. It has all the features of the larger machine, including roller and ball bearings, horizontal crank shaft, vertical crank wheel, straight drive pitman, adjustable drag bar, simple knife connection, shear-cutting knives, and serrated ledger plates.

It is no toy, but a thoroughly practical harvesting machine, capable of handling any crop that any large mower can handle. It shaves the ground clean, and for that reason is widely used as a lawn mower in parks, cemeteries, lawns, etc.

Any child old enough to drive a pony can operate it without difficulty, as the levers are convenient and easy of operation.

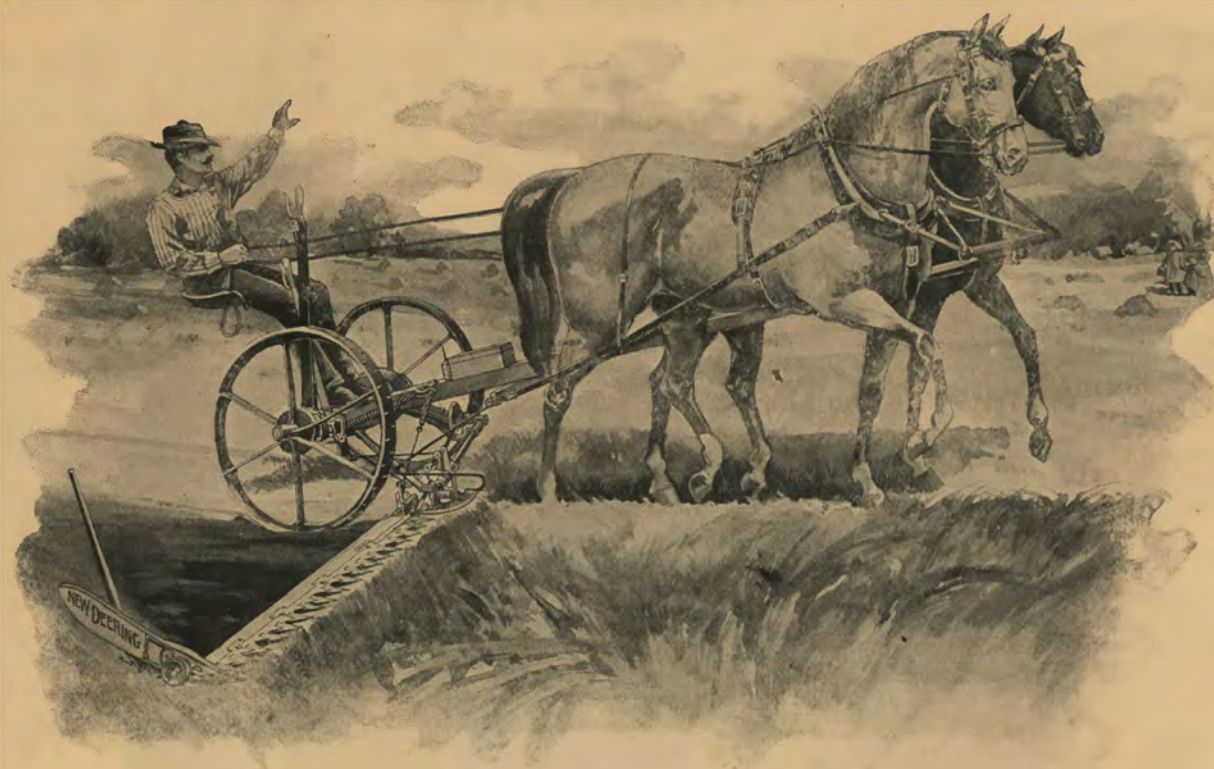


DEERING IDEAL ONE-HORSE MOWER. $3\frac{1}{2}$ and 4 ft. cut.

DEERING IDEAL MOWERS IN GENERAL—Summary. Deering Ideal Mowers are, first of all, the only mowers with roller and ball bearings. They are further distinguished from all others in the following features: High wheels—Broad tread—Horizontal crank shaft—Vertical crank wheel—Anti-wobble pitman—Improved lifting-spring and foot-lift—Adjustable drag bar—Shear-cut knives—Serrated ledger plates—Large steel hinge pins—Adjustable wheel at outer shoe to raise bars for cutting weeds, etc.

These mowers are also distinguished for their graceful outlines, their light weight combined with increased strength, their remarkable lightness in draft, their undoubted economy of crop, time, labor and repair bills.

The New Deering Mower.



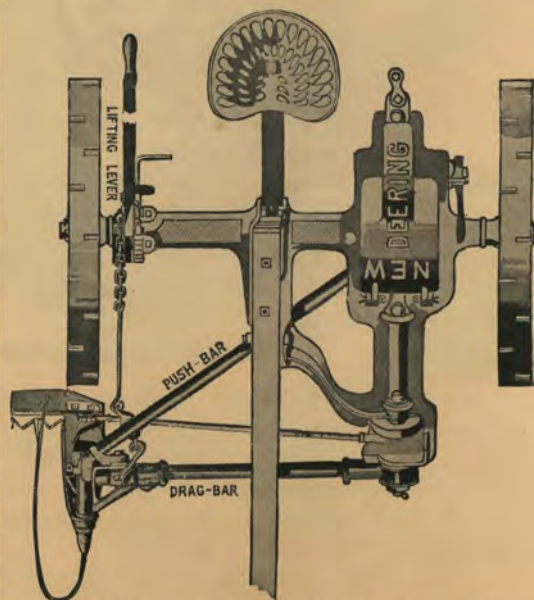
THE NEW DEERING MOWER, 4½, 4¾ and 5 ft. cut.

BEFORE we revolutionized the whole mower trade by the introduction of our line of roller bearing Ideal Mowers, the New Deering was universally conceded to be the best mower made. This machine is still so popular, and still contains so many points of excellence not enjoyed by competing machines, that we are continuing its manufacture.

Outside of our Ideal Mowers, the New Deering is the lightest draft mower made, having made an average draft record of 110 pounds for the 5-foot machine at the World's Fair field trials, as against 152 pounds (see page 31) for the lightest competing machine of the same width.

It is wonderfully strong. Its gears are broad-faced and heavy, and they never wear out. Its frame is one solid casting, with bearings cast in the frame, making alignment of parts absolutely perfect and uniform.

It is durable, not alone on account of its strength, but also because of the provisions for preventing wear as long as possible, and providing for it when unavoidable wear becomes evident. It has the Deering adjustable drag bar, described on page 33, which adds years of life to the machine.



Perfectly Braced, Unequaled in Strength.

THE DEERING HAY RAKES



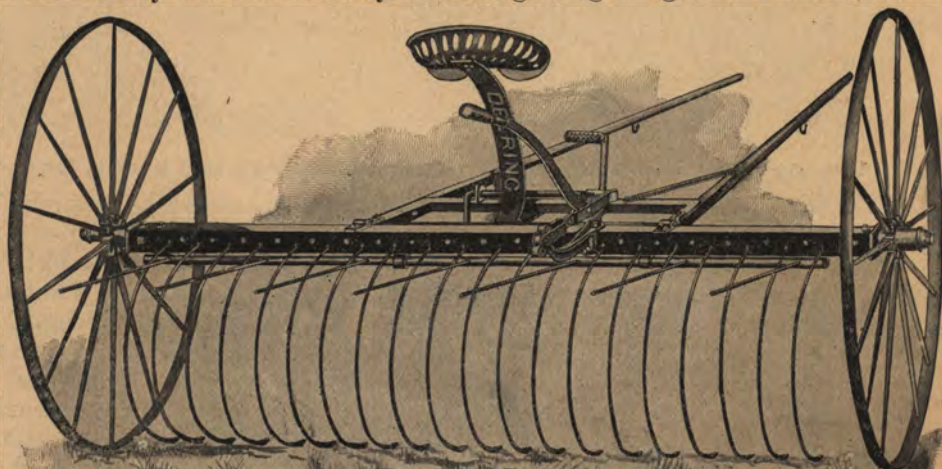
WHEN, two years ago, we undertook the manufacture of hay rakes, we did it because we believed that there was a genuine demand for a better line of hay rakes than then existed. The unprecedented demand for Deering Rakes—far exceeding our utmost ability to supply—has proved that we were right. When a hay-raiser cuts his crop with Deering Mowers and gathers it with Deering Rakes, he can feel certain that he has realized every dollar there was in that crop and that he has saved, by the use of the proper tools, a percentage on the crop which pays big dividends on the money invested on the Deering machines.

Deering Hay Rakes are made in two styles—hand-dump and horse-dump—and in various sizes. They are ingenious in construction, economical in operation, light, durable and simple.

Deering Rake Teeth are made of oil-tempered crucible steel. They are secured independently to the steel rake-head by means of strong, malleable clips, each held with a single bolt. The teeth hang independently of each other, but are in perfect line, because they are all held against the even steel surface of the rake-head as shown in the cut. The Deering rake tooth is flattened at the point, so that it glides under the hay and catches every bit of it, grazing the ground without scratching it. Its double coil gives it great elasticity and prevents breakage.

Adjustment of Teeth.

Both styles of Deering Rakes have simple and quickly operated devices for regulating distance of the teeth from the ground. They can be made to slide over the ground, taking up the hay no matter how light the swath or short the stubble; or, where the ground is rough, the teeth can be made to rake as high as desired.



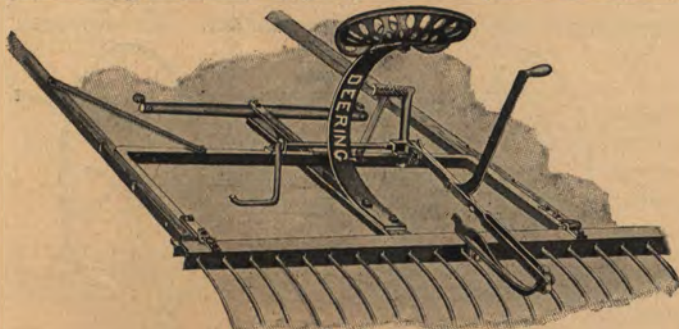
Deering Lock-Lever, Hand or Foot Dump Hay Rake.

Rake Heads. The rake head is made of angle steel, so formed that its greatest strength is in opposition to the greatest strain. This head is light, strong and rigid.

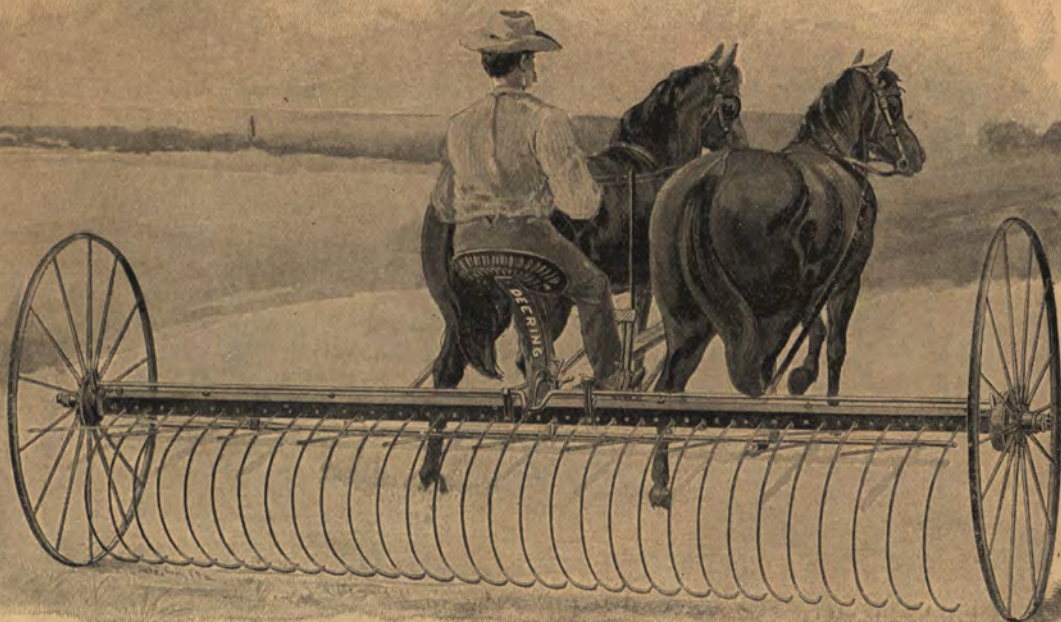
Transportation Lock. Both our hand-dump and horse-dump rakes have convenient devices for locking the teeth high up for transportation over the road. The old-fashioned way of twisting a

tooth over the seat, or tying the rake up with a piece of string, is done away with forever.

HAND-DUMP RAKE. This is the most perfect lock-lever rake in existence. The lock-lever device holds the rake firmly in place automatically, yet the balance is so perfect that a slight pressure on either hand lever or foot lever dumps the rake instantly. The foot lever on this rake can be used to the exclusion of the hand lever if the driver prefers. It both dumps and returns the rake, and it is the only one that does.



Perfect Lock-Lever and Hand and Foot Dump.



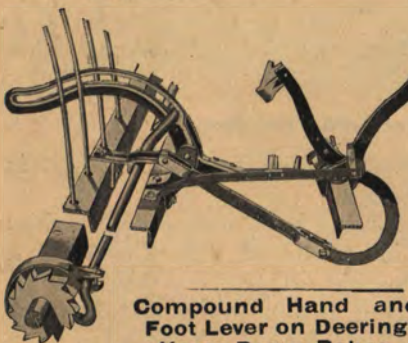
Deering Horse-Dump Hay Rake, with Combined Pole and Shafts, for one or two horses.

DEERING HORSE-DUMP RAKE. Like the hand-dump rake, this rake is made entirely of steel. Dumping is done by the motion of the wheels, by means of a long dump-rod which engages ratchets at both wheels. This dump-rod is tripped by means of a most convenient foot trip-lever, so hung that a touch of the foot throws the dump-rod into motion. When the rake dumps, the long hand-lever remains stationary as on other rakes. In dumping, back into place instantly.

Bunching Trip. By means of an ingenious pawl, this rake can be put in shape for bunching windrows in such a way that the rake stays up while passing over a bunch until released by touching the ratchet with the foot.

Combined Pole and Shafts. All Deering rakes have the combined pole and shafts, by means of which the rake can be used either with one or two horses as preferred.

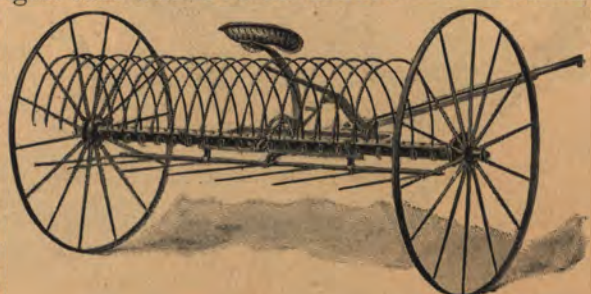
Rake Wheels. We call special attention to our steel wheels. The spokes are oval, so that they resist the greatest lateral strain without breaking. They are hot-pressed into both the hub and rim, making in effect one solid piece of steel. They are as light as wood wheels and the strongest rake wheels on the market. Wood wheels are, however, furnished if desired.



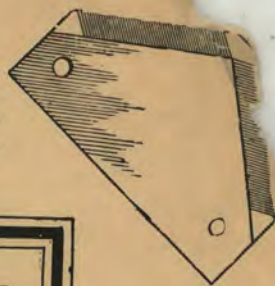
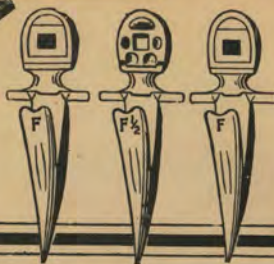
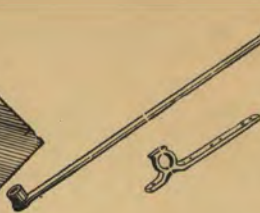
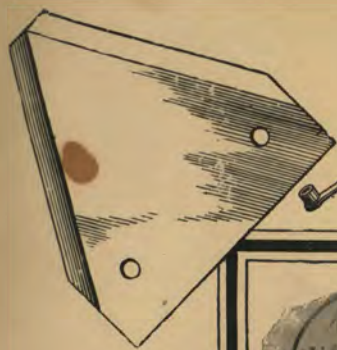
Compound Hand and Foot Lever on Deering Horse-Dump Rakes.

Cleaner Bars. The cleaners are made of fine steel. They are permanently secured to the heavy tubular cleaner. There are no nuts to come loose or get lost. The rods are so placed that they clean the teeth perfectly. They cannot spring up or break.

Sizes. Deering Rakes, as above described, are made in sizes adapted to raking a double swath of standard widths of mowers, viz.: 8½ feet, 20 teeth; 8½ feet, 26 teeth; 10½ feet, 26 teeth; 12 feet, 30 teeth.



Dumps Easily. Clears Perfectly.



DEERING KNIVES AND SECTIONS are made in the Deering knife works from the best cutlery steel for the purpose. Each piece is made with the knowledge that upon its excellence depends the success and reputation of a Deering machine. *Beware of counterfeits*, made of inferior metal, badly tempered. Insist that the agent give reasonable proof that the knives, etc., were bought from us and not from makers of bogus extras.



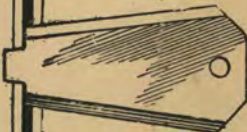
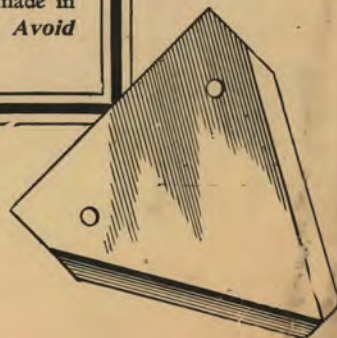
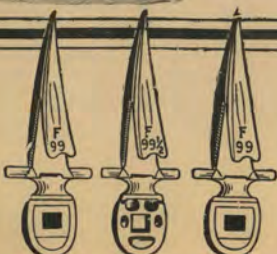
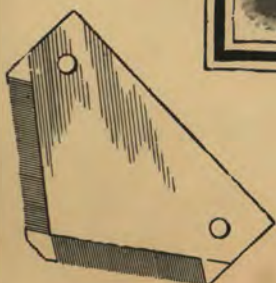
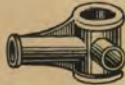
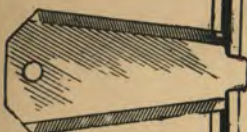
DEERING MALLEABLE IRON EXTRAS, such as guards for mowers, reapers and binders, etc., are made in the immense Deering malleable iron foundries. They are guaranteed to fit, and to be of exactly the same material and finish as the part furnished with the machine originally. The manufacture and sale of counterfeit and bogus guards bearing our number and name, is an offense punishable under the patent laws.



DEERING DROP FORGINGS, such as knife heads, pitmans and connections, etc., are made in the great Deering drop-forge department from the best materials, and under the most rigid inspection. Every piece is a perfect duplicate of every other piece of the same number. There are dangerous counterfeits on the market. Make the agent prove that his repairs are originals, bought from us direct.



DEERING BRASS CASTINGS, such as pitman boxes and bushings for shafts and gudgeons, on Deering binders, reapers and mowers, are made in the Deering brass foundry. *Avoid imitations.*





For sale by