ROLLER BEARINGS AND LIGHT DRAFT

ROLLER AND BALL BEARINGS AND LIGHT DRAFT

OHIO STATE UNIVERSITY,
COLUMBUS, OHIO.

PROF. THOMAS F. HUNT,
Professor of Agriculture:

"The Ohio State University has been using your Deering Pony Binder, your Ideal Mower and your Ideal One-Horse Mower, all of which are furnished with ball bearings. I commend them for ease of draft, easy handling, and for the thorough execution of the work they are designed to do."

ILLINOIS STATE UNIVERSITY,
URBANA AND CHAMPAIGN, ILL.

PROF. EUGENE DAVENPORT,
Dean of the Agric'l Experiment Station:

"I congratulate you on having adapted the principle of the roller and ball bearings to farm machinery. It will mark a substantial step in advance for the construction of many wearing parts."

CORNELL UNIVERSITY,
ITHACA, N. Y.

PROF. I. P. ROBERTS, Director of Agricultural Experiment Station:

"On general principles, ball bearing machinery of all kinds should reduce friction I can see no reason why ball bearings as applied to your machines should be an exception to the general principle. Anything you can do to lighten the draft of farm machinery will certainly be a great relief to both the farmer and his work-animals."

UNIVERSITY OF MISSOURI,
COLUMBIA, MO.

PROF. C. M. CONNER, Ass't in Agriculture and Manager Missouri Experiment Station Farm:

"We have given your Ideal Mower a trial at the Experiment Station grounds and find that it gives satisfaction in every detail, the ball and roller bearings giving it its light draft. The ease with which it is handled by both man and team gives it preference over all others."

UNIVERSITY OF NEBRASKA,
LINCOLN, NEB.

PROF. C. R. RICHARDS, Dir'tor of the School of Mechanic Arts:

"The bearing is certainly a very excellent example of up-to-date machine construction."

W. Va. University, Morgantown, W.Va.

WM. S. ALDRICH, Professor Dep't of Mechanical Engineering:

"Roller and Ball Bearings are certainly destined to occupy a very prominent place in machinery of all kinds in the near future. The change is coming. When it does come, agricultural machinery will profit by it quite as much as, if not more than, any other."

HOHENHEIM ACADEMY,
HOHENHEIM, GERMANY.

Report of Official field trial committee signed by PROFS. VASSLER, STREBEL, BRAEUNINGER and MUTH:

"The Pony Binder .... is light of draft, made of the very best material, solidly built, handy of adjustment for cutting different stubbles, size of bundles and tightness of binding. The binding apparatus is very simple, and the absolute certainty of its work is commendable."

OTHER OPINIONS.

So. Dakota Agricultural College and Experiment Station, Brookings, So. Dak.—"I have examined your bearing quite carefully. There is no doubt that it is a great improvement over the old style of bearing."
LEE E. WOLGEMUTH,
Head of Dep't of Mechanical Engineering.

Arkansas Valley Experiment Station, Rocky Ford, Colo.—"I have examined the Ideal Mower with the Roller and Ball Bearings, and watched it working, and pronounce it a great success."
P. K. BLIMM, Supt.

Texas Agricultural Experiment Station, College Station, Texas. "I have been favorably impressed with your roller and ball bearings." J. H. CONNELL, Dir'tor.

Washington Agricultural College, Experiment Station and School of Science, Pullman, Wash.—"I am very much interested in your effort to reduce draft on farm machinery, and believe that your ball and roller bearings will very materially assist in that matter."
O. L. WALLER, Supt.

PURDUE UNIVERSITY,
LAFAYETTE, IND.

PROF. W. C. LATTA, Dean of the School of Agriculture:

"I beg to express the belief that roller and ball bearings upon farm implements will prove a most important factor in reducing draft. I am convinced that they are feasible for many, if not most, kinds of farm implements."

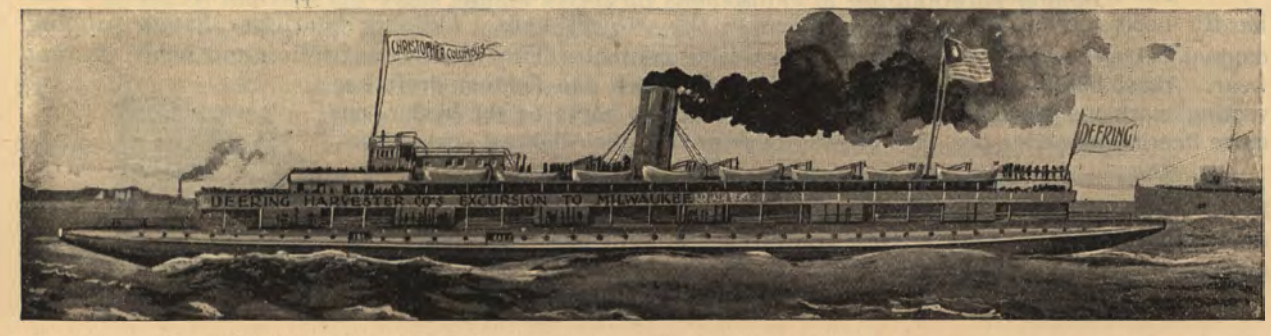
ROLLER BEARINGS AND LIGHT DRAFT

THE cool, blue waters of Lake Michigan never carried a happier, more contented crowd than on two joyous Mondays last August, when the Deering Harvester Company celebrated its banner year by giving its 3,500 shop employes an excursion to Milwaukee on the huge whaleback steamship Christopher Columbus. As each married man was given two tickets, there were 5,000 people who enjoyed the Deering hospitality—2,500 each Monday. Every soul of the party felt a conscious pride as he looked back on the record of the year. And well he might! For the year 1895–6 saw made, sold and delivered more Deering machines and twine than any previous year—more by 1,000 carloads! It saw the most **glorious triumph of ROLLER AND BALL BEARINGS that the mind could conceive.** It saw the Deering shops running under high pressure from August to August without a moment's shut-down, while shops of every competitor lay idle through the summer and fall, and some of them well into the winter. It saw the Deering force of shop hands increased and new buildings erected, while every competing plant cut down its working force. That year saw a quiet but resistless revolution in farm mechanics which will never cease till every farm has its every machine running on the labor-saving "Deering" bearings. Nothing can stop it.

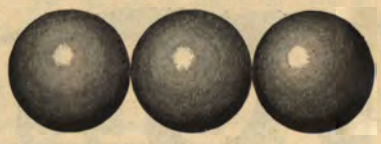
The second ship load contained, among others, the employes of the Deering twine mills. And they had reason to be just as proud of their year's record as their brothers from the machine shops and foundries. For they had made in the year just past **one-third of the whole amount of twine made and sold in the United States.**

This great army of working people from the Deering shops and twine mills had had no vacation the summer previous, having closed their labors on the 1895 output one Saturday night—and started in the following Monday on machines and twine for 1896.

While the political pot was boiling last fall and competing concerns were idly waiting, or still more idly bewailing, the "uncertainty of the times," in the newspapers, the great Deering works were hammering away on the 1897 output, strong in the confidence that, no matter what political party prevailed, there would be grain to cut in 1897, and that Deering machines and twine would be demanded to handle it. Though this great plant has a capacity of one finished machine and thirty miles of binder twine every working minute, there was the feeling that the manufacturing minutes were precious, and not one dared be wasted if the demand for Deering goods in the coming season were to be supplied.



ROLLING VERSUS SCRAPING



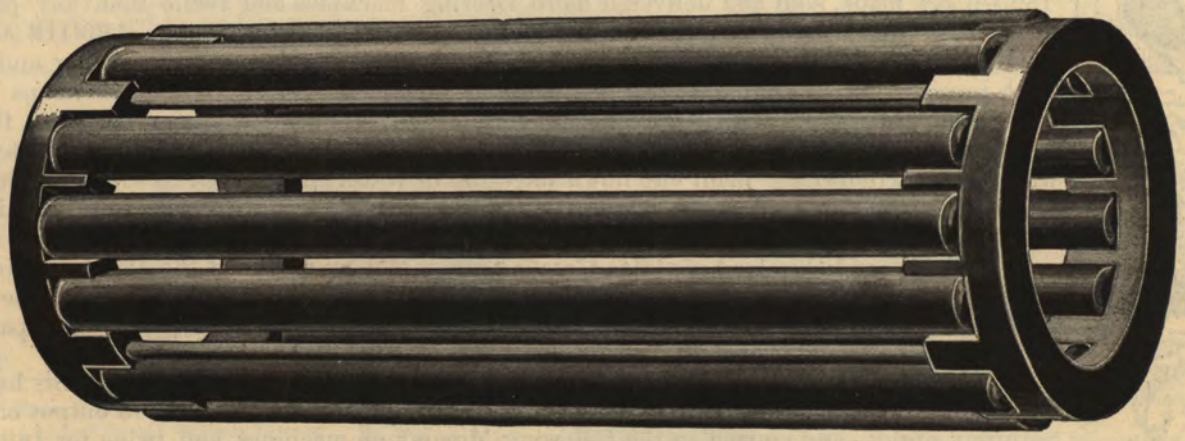
Exact size of balls used in all ball bearings of Deering machines.

IN OUR 1894 ANNUAL CATALOGUE we made the following statement:

> With the bicycle as a guide, we were the first to apply such bearings to harvesting machines in a practical way. Remember the date—the year of our Lord 1892. As it is impossible to patent the application of a principle, **we shall, no doubt, be imitated.** Not only this, but, judging from the past, there will be certain unscrupulous people who in time will claim to have been the original inventors of this device.

The first part of this prediction—the imitating—has been verified, though it may be several years yet before these people have the effrontery to claim the device as their own. Give them time.

That their "roller bearings" are worse than no roller bearings will be seen by the comparison given on page 4 of this book.



Exact Size of **DEERING ROLLER BEARING.**

Deering Roller and Ball Bearings are put into the machines to prevent friction, save draft and decrease wear. They are honest in size. They will support ten times the weight and strain that will ever be placed upon them.

The rollers are held in line with the shaft and apart from each other by means of the patented Deering roller bearing "cage," or frame, as shown in the cut. **There is no friction at the ends of the rollers as there must be where the rollers fit into holes drilled in the end plates, as on the machines of imitators.**

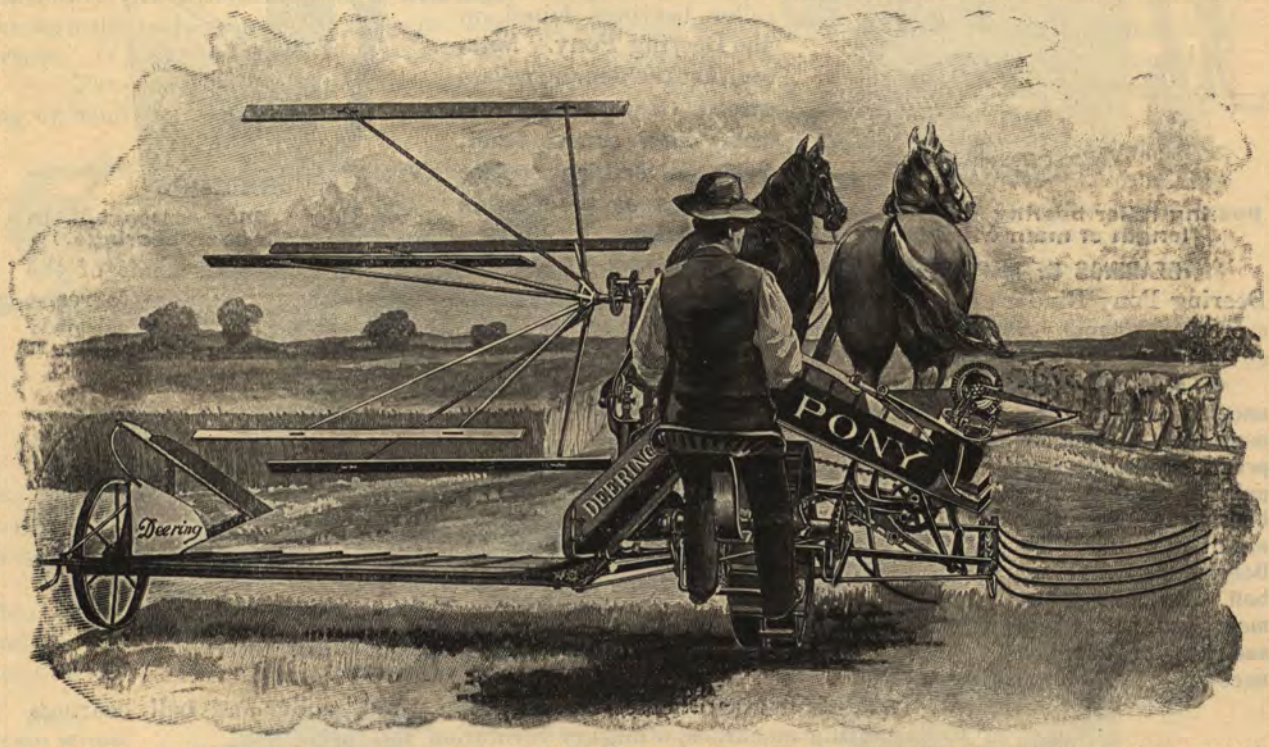
The tremendous value of the Deering roller and ball bearings is now so well known that it seems hardly necessary to devote much space to the subject here. Deering bearings change rubbing contact between shaft and journal box to rolling contact. They overcome friction and hence prevent wear. **These bearings make Deering machines absolutely the lightest draft harvesting machines in the world. They save at least one horse on the binder, and make Deering mowers more than one-third lighter than their lightest competitors.**

Wear is almost wholly prevented; what little there is falls on the rollers and balls themselves, and these can be replaced at the cost of a few cents, giving the farmer practically a new machine.

Rolling versus Rubbing.

DEERING PONY BINDER WITH ROLLER AND BALL BEARINGS

FIVE harvests have passed since we placed the Deering Pony Binder on the market. In that time this little machine has well-nigh revolutionized the machine business of the world. It was the first machine to demonstrate the fact that it was possible to make a low elevator machine that would handle any crop which could be handled by the highest of the high elevator machines. It was the first, and is still the only machine to combine strength with lightness successfully. It was the first machine, and is still the only machine, that can properly be called a two-horse binder. The Deering binder was the first, and is still the only binder with roller and ball bearings, and the only make of machine with successful, practical roller bearings. It was the first, and is still the only binder with an adjustable device, which gives the farmer all of the advantages of the open-end elevator, and none of its many disadvantages.



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

In short, the Deering Pony Binder excels all competitors in the following points:

1. **LIGHT DRAFT,** due to roller and ball bearings, light weight, and simplicity.

2. **DURABILITY,** due to the use of superior materials and to the friction-preventing roller and ball bearings which lengthen the life of the machine by preventing wear.

3. **ECONOMY,** due to saving of draft wasted in wearing out the bearings of competing machines; saving of horse power; saving of grain usually wasted; saving of twine, time, and repairs.

4. **ABILITY** to handle crops that baffle competing machines — due to construction of platform and reel, which pick up lodged grain; to expansiveness of elevators, and adjustability of binder.

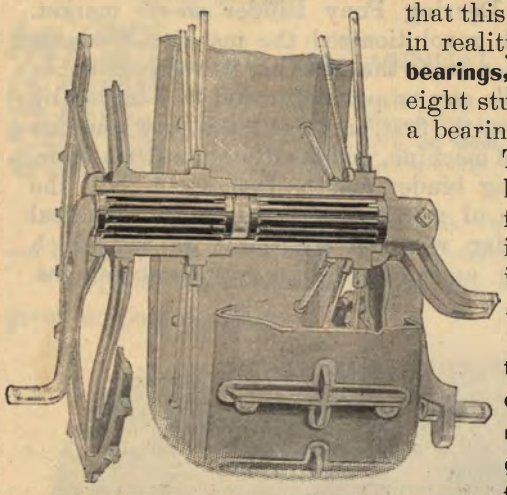
5. **CONVENIENCE OF OPERATION.** All the levers are handy. One single lever operates the reel. From his seat the driver can see into and under and over the machine as he drives along.

6. **CONVENIENCE OF TRANSPORTATION,** due to the famous Deering Jointed Platform. (See p. 12.)

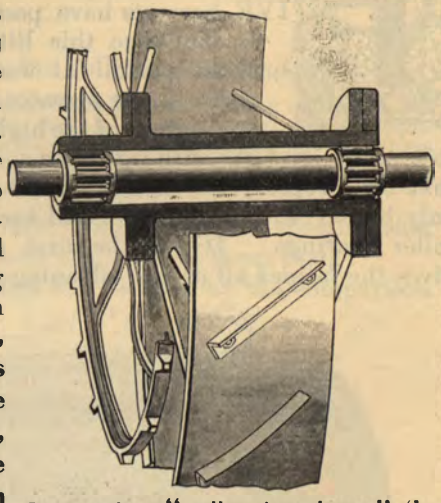
BEARINGS

AS STATED on page 2, the Deering is the only binder that has real, genuine, draft-saving roller bearings. The fact that imitators have arisen demonstrates the importance of roller bearings. The fact that the imitations are valueless in themselves is simply a repetition of history.

COMPARE the two styles of bearings here shown, and decide whether you care to pay any attention to the people who claim to have "something just as good for less money." Notice particularly that this imitation roller bearing is in reality **sixteen friction producing bearings,** because each one of the eight stubby little rollers turns in a bearing bored in the end plate. The competing machine has therefore thirty-two friction producing bearings in its main wheel instead of the two long roller bearings found on the Deering Pony. **Note, too, that the Deering rollers extend clear through the main wheel and sprocket, giving a bearing surface four times as great as on the imitation.**



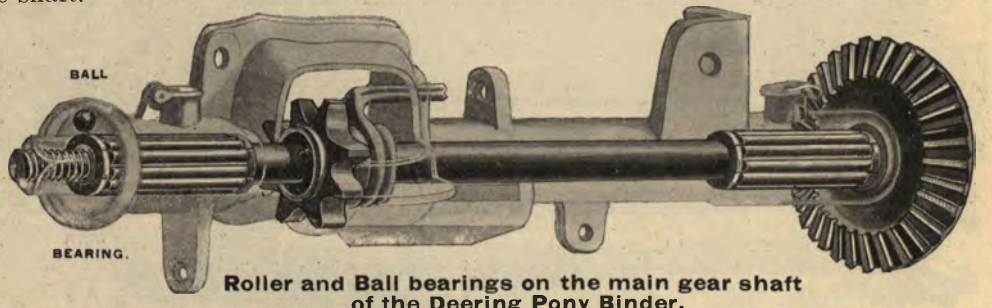
Deering roller bearing protects entire length of main wheel axle.



Competing "roller bearings." (In reality 32 friction-bearings.)

BEARINGS OF MAIN GEAR SHAFT. The entire weight and stress of the main gear shaft of the Deering Pony Binder are supported on roller bearings of sufficient length and thickness to resist a pressure of many tons. A ball bearing at the end of the shaft takes up the pull of the bevel gear at the other end of the shaft.

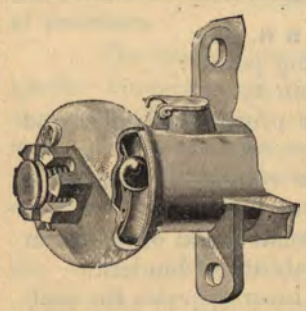
Frictional resistance and wear on this main shaft are reduced practically to the zero point by these Deering bearings. No other machine than the Deering has roller or ball bearings at its main gear shaft, where such bearings are most needed.



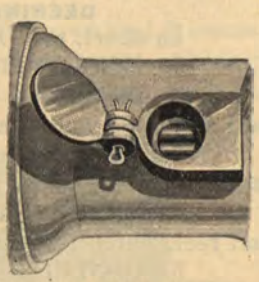
Roller and Ball bearings on the main gear shaft of the Deering Pony Binder.

Since 1892, when we first demonstrated that it was possible to apply roller and ball bearings to harvesting machines, a mighty revolution has been wrought in farm machines. Farmers, always quick to see the value of an invention, are now demanding "Deering bearings" for their cultivators, rotary plows and farm wagons, and the time is fast approaching when it will be impossible to sell to a farmer any implement depending on horse-draft, without "Deering bearings."

If any competing agent claims such bearings for his machine or denies their existence in the Deering, look in the oil holes of the main gear shafts of both machines and treat him accordingly

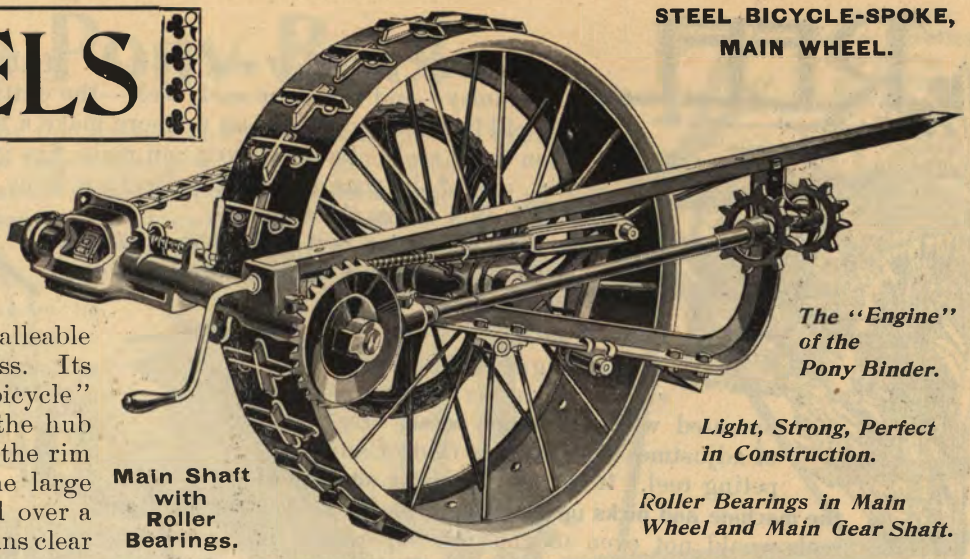


Ball bearing at end of bevel gear shaft.



"Look into the oil holes."

WHEELS



STEEL BICYCLE-SPOKE, MAIN WHEEL.

The "Engine" of the Pony Binder.

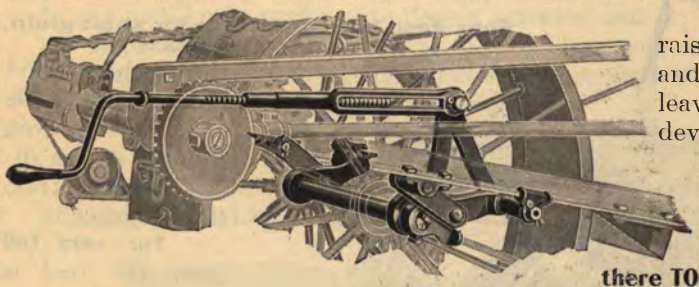
Light, Strong, Perfect in Construction.

Roller Bearings in Main Wheel and Main Gear Shaft.

Main Shaft with Roller Bearings.

THERE'S a business-like air about the Pony main wheel. It is made of steel throughout except its hub, which is made of malleable iron, for extra toughness. Its twenty-four steel "bicycle" spokes are headed into the hub and similarly secured to the rim through the lugs. The large sprocket wheel is fitted over a continuous sleeve that runs clear through the main wheel. It is firmly bolted to the main wheel hub and further secured by means of braces. It is as firmly fixed to the main wheel as though it were a part of it, and yet is easily removable.

The rim of the main wheel is extra wide, with edges beveled inward so as to prevent its picking up sand and gravel.



Raise and Lower Device, Main Wheel.

RAISE AND LOWER DEVICES. The devices for raising and lowering most binders are so clumsy and inconvenient of operation that most operators leave them severely alone. The beauty of these devices on the Deering Pony Binder is that they are so easy of operation that the most careless of drivers will make the adjustments whenever the occasion arises.

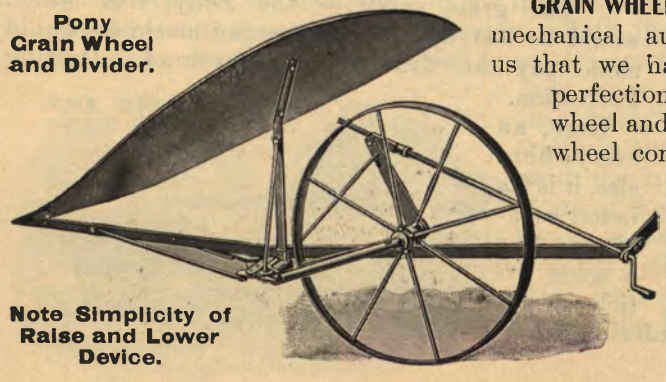
In other words, the Deering devices are there TO BE USED, and not merely to talk about.

The raise-and-lower mechanism at the main wheel elevates and depresses the machine easily and smoothly, the weight being equalized by compensating levers. The device at the grain wheel is similar in principle. The weight of the machine in neither case rests directly on the raising mechanism, as it does on competing machines.

CHAIN TIGHTENER. The main drive chain is kept at a uniform tension by means of this admirable spring-controlled chain tightener. It prevents any lost motion and contributes to the positive and noiseless action of the whole machine.

Spring Controlled Chain Tightener.

Pony Grain Wheel and Divider.



Note Simplicity of Raise and Lower Device.

GRAIN WHEEL. Competent mechanical authorities tell us that we have arrived at perfection in our grain wheel and divider. The wheel consists of eight steel spokes, cold-pressed into the malleable hub and broad-faced steel rim. The dividers are extremely simple, and the whole mechanism, as shown in the cut, weighs but little over half as much as the clumsy arrangements on many binders. This is one of the reasons why the Deering Pony Binder has no side draft.

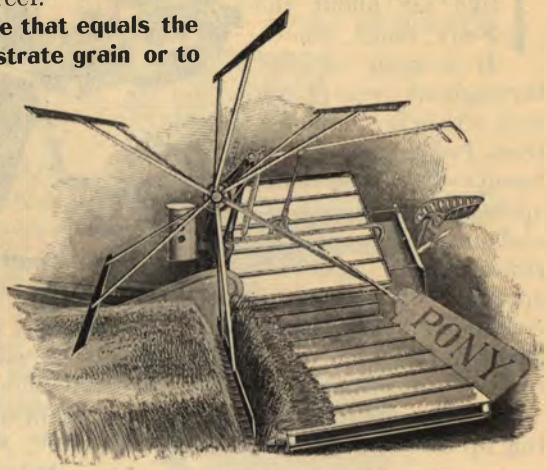
REEL

A BINDER feeds itself with its reel. If the reel be awkward and clumsy—and there are such reels—the cutting, elevating and binding will be slovenly. You can no more make a neat, economical bundle when your reel is bad than you can make figs grow on thistles.

In fact, one of the reasons that the Deering Pony Binder has defeated all of its rivals is that it has the best reel.

There is no competing reel made that equals the Deering in its ability to pick up prostrate grain or to handle the extremes of long and short grain.

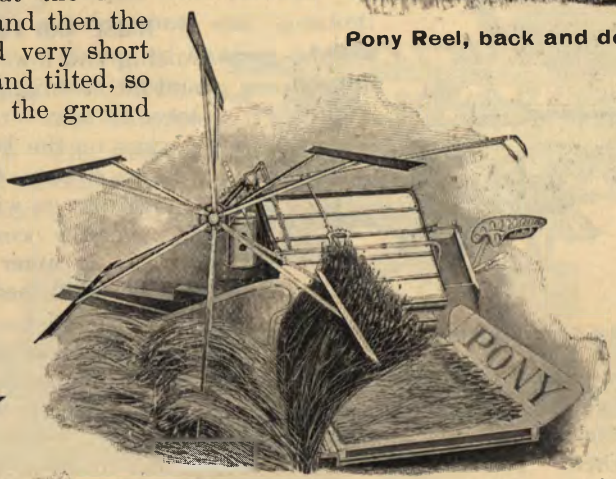
It is graceful in outline, unsurpassed in strength, and is operated with **one single lever.** Its range of adjustment far exceeds that of any competing reel. **It reaches far out in advance of the machine and picks up prostrate grain** that other reels would not even touch. Its superiority is especially marked in grain that lies **AWAY** from the machine.



Pony Reel, back and down for short grain.

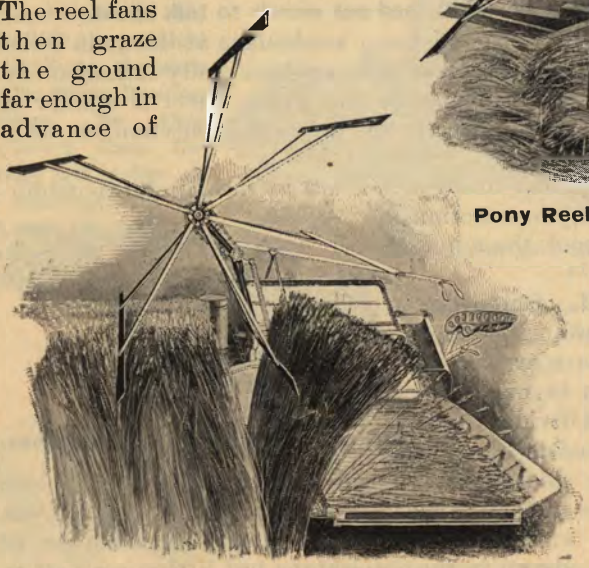
For short grain the reel is locked in the lowest notch, and drawn back so that the fans almost graze first the ground and then the guards. In both prostrate and very short grain the platform is lowered and tilted, so that the guards almost touch the ground and the knives cut the grain almost at its roots.

For 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.



Pony Reel, forward and down for lying grain.

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 and lay it gently back onto the platform when cut.



Pony Reel, high up for very long grain.

The grain saved by the Pony reel which would be lost by reels on cheaper machines would alone pay the difference in favor of "Deering Perfection."

Here, as everywhere else, it is far better economy to buy a good article made and backed by a reliable house than to get an inferior article, because its first cost is a "cheap" one.

See next page for details of construction.

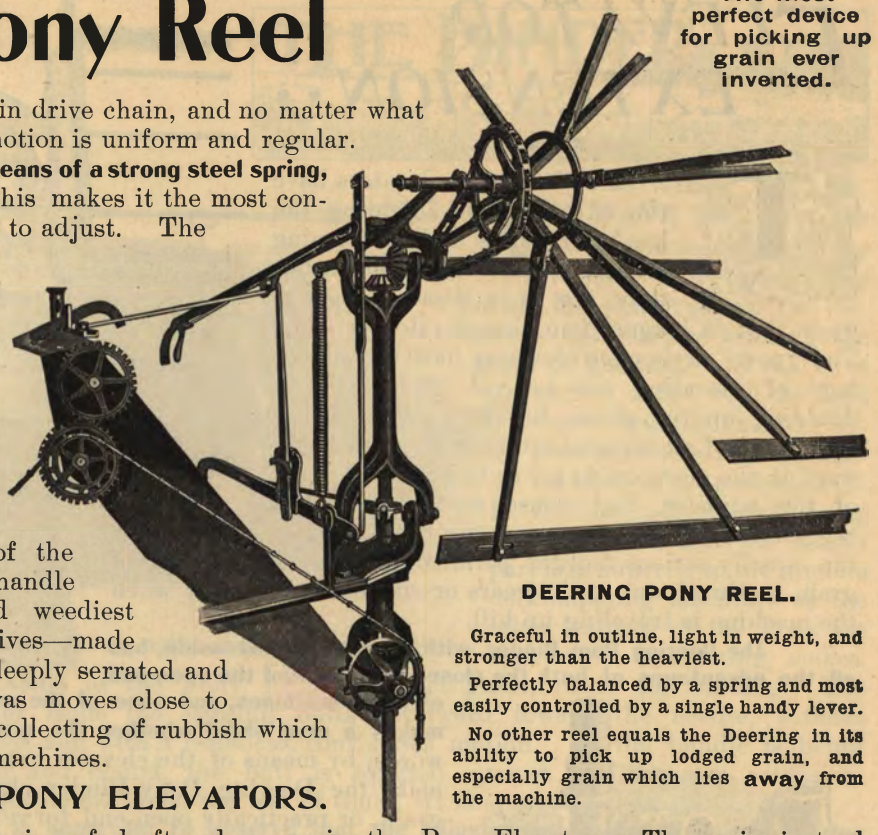
The Pony Reel

The most perfect device for picking up grain ever invented.

Is positively driven by the main drive chain, and no matter what its position or tilt, its rotary motion is uniform and regular.

It is perfectly balanced by means of a strong steel spring, which neutralizes its weight. This makes it the most convenient and easiest of all reels to adjust. The Deering reel will be adjusted for varying conditions of grain when reels of competing machines will not be touched. The grain thus saved by a Deering binder which would be wasted by any competing machine will pay a handsome dividend on the cost of the Deering.

THE CUTTING APPARATUS of the Deering Pony is calculated to handle successfully the heaviest and weediest grain. The tempered steel knives—made in our own knife works—are deeply serrated and are **self-sharpening.** The canvas moves close to the guards, thus avoiding the collecting of rubbish which is so annoying on competing machines.



DEERING PONY REEL.

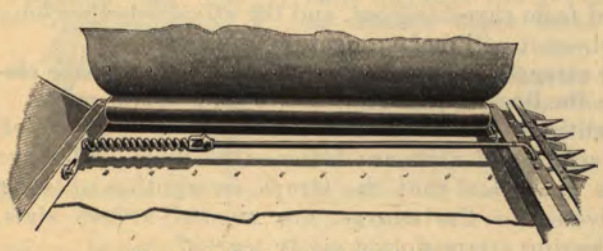
Graceful in outline, light in weight, and stronger than the heaviest.

Perfectly balanced by a spring and most easily controlled by a single handy lever.

No other reel equals the Deering in its ability to pick up lodged grain, and especially grain which lies **away** from the machine.

PONY ELEVATORS.

There is a tremendous saving of draft and power in the Pony Elevators. The grain, instead of being hoisted up a steep incline 3 or 4 feet high, is led up an easy slope only 24 inches above the platform. When you stop to consider that, in cutting an acre of grain, many tons of straw are handled, the value of this saving in lifting or elevating will be apparent.



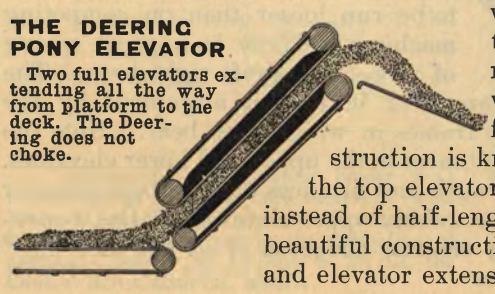
Canvas-Tightener Spring.

Manufacturers of harvesters have tried and are still trying all sorts of experiments to avoid this **lifting,** but these experiments, by whatever name called, are all on the scrap pile, while the Deering Pony Binder is recognized as the little king of the world's harvest fields.

CANVAS IS EXPENSIVE, and manufacturers have resorted to all sorts of makeshifts to save themselves expense for this item. Some tried to do away with the elevator altogether, and some tried to get along with a single elevator canvas. Both these attempts have been given up as total failures. Some manufacturers have resorted to an elevator and a half, carrying the grain quite properly half way up to the deck between two aprons and then attempting to "force" it the balance of the way by ripping and rasping and squeezing it with the upper elevator only. Another form of the "elevator and a half" construction is known as the "open elevator," the top elevator being half-**width** this time, instead of half-length. See next page for the beautiful construction of the Deering elevators and elevator extension.

THE DEERING PONY ELEVATOR

Two full elevators extending all the way from platform to the deck. The Deering does not choke.

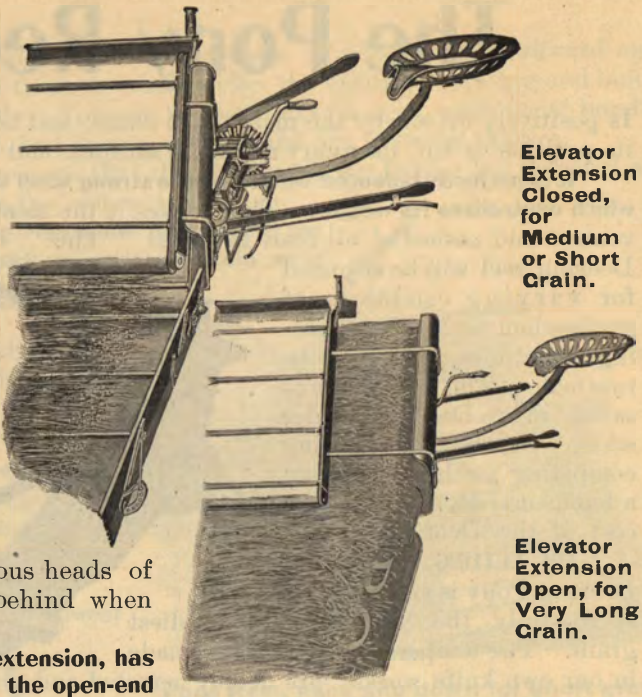


COMPETITOR.

An elevator and a half. It chokes and clogs.

ELEVATOR EXTENSION

THE old style closed elevators have the advantage of shielding the heads of grain and of forming a neat, square butted sheaf, but they are at a disadvantage in grain that is longer than the elevator is wide. The "new" style open elevators have the advantage of elevating the longest grain without doubling up the straw; but they have the disadvantage of allowing short grain to work backward in the elevators so far as to be out of reach of the adjuster, and consequently making a ragged bundle tied too near the butts, besides the equally serious fault of permitting the precious heads of grain to thresh out in the gears or dribble out behind when the machine is traveling up hill.



Elevator Extension Closed, for Medium or Short Grain.

Elevator Extension Open, for Very Long Grain.

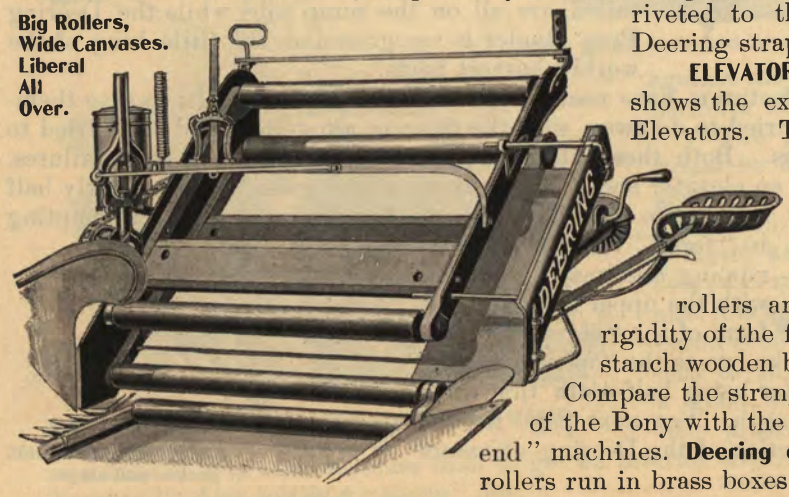
The Deering Pony Binder, with its elevator extension, has all the advantages of both the closed elevator and the open-end elevator machines, and none of the many disadvantages of either. It makes a neat sheaf whether the grain be long or short. In other words, by means of the elevator extension the operator can quickly make the Deering Pony Binder closed-end, for medium or short grain, or practically open-end, for very long grain. This is done by merely moving the adjustable sheet steel slide in or out. Whether this slide be open or closed the grain is prevented from dribbling, the heads protected from threshing out, and the straw, whether long or short, is held where it will make a neat bundle.

Anti-Friction Bushings on Deering Elevator Rollers.

The elevator extension, instead of taking the place of wide elevator canvases, is given in ADDITION to wide canvases. The Deering policy has ever been a liberal policy.

DEERING CANVASES are noted for the high quality of the cotton duck used, the care with which they are finished, and the security with which the straps and slats are fastened to them. Observe that the slats are secured by staples only two inches apart, and that the straps, in addition to being riveted to the canvas, are riveted to two slats. Deering straps do not easily tear off.

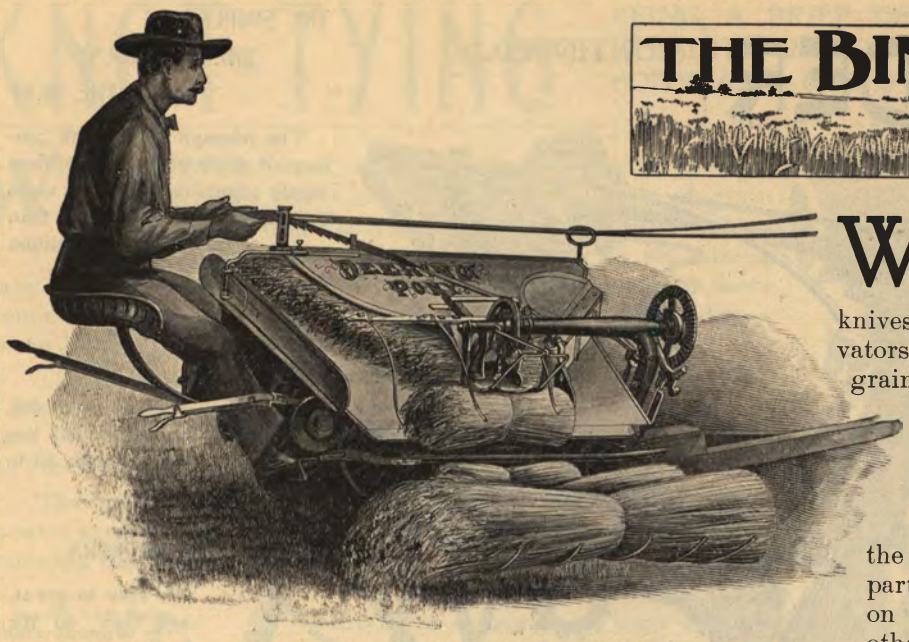
Big Rollers, Wide Canvases. Liberal All Over.



The Deering Pony Elevators.

ELEVATOR ROLLERS. The accompanying cut shows the exact proportions of the Deering Pony Elevators. The rollers are larger than on the cheap binders, the extra size giving the canvases a firm hold and permitting them to be run looser than on competing machines. There is a great saving of power and draft right here. The rollers are kept in perfect alignment by the rigidity of the frames in which they bear. Note the stanch wooden braces in the upper and lower elevators. Compare the strength and firmness of the upper elevator of the Pony with the wabbly upper elevators of the "open-end" machines. **Deering elevator gudgeons** of all but the "idle" rollers run in brass boxes

THE BINDER



Changes made by the Adjuster Alone without Shifting the Binder.

WE HAVE seen that the steps which lead up to the binder — the reel, the knives, the platform, and the elevators — all combine to bring the grain to the binder in the most perfect shape, with the least waste and the smallest expenditure of power. A careful study of the matchless little Pony in the field will bring the conviction that the binder part is as superior to the binders on competing machines as the other features of the Pony are superior to competing makes.

THE ADJUSTER AND EXTENSION of the Pony form a perfect gavel, ready for binding. The adjuster leads the lagging butts downward toward the needle, without violence, and with a resistless, continuous motion. As the bundle is being packed and bound, the butt is squared against the adjuster extension. This device has stood the test of time. It is appreciated by all.

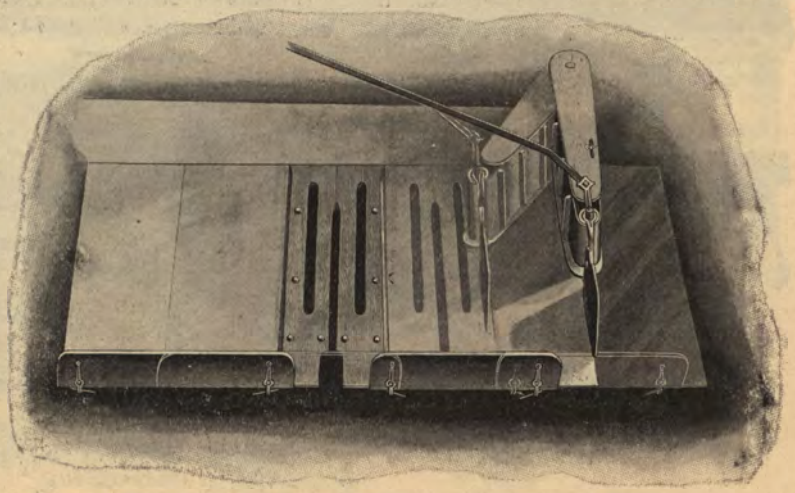
Instantaneous Trip.
See Next Page.

It is important to observe that the adjuster and the binder on the Deering Pony shift independently of each other. On binders where they are made to shift together you get only half the range of motion. More important still, **on binders where these parts shift together, you are compelled to shift a heavy binder every time you want to make even the slightest adjustment for varying lengths of grain in the same swath.**

On the Deering Pony Binder the shift of the adjuster is so great that the binder lever need not be touched at all for ordinary variations of grain. The result is that even the most indolent drivers will shift the Deering adjuster so as to tie every bundle where it should be tied, while half the bundles leave competing machines insecurely held by the twine band. In this particular, as well as in every other, the few dollars difference between the cost of the Deering and any of the cheap machines will be the best invested dollars a farmer can lay out.

* * *

When the first Deering binder was manufactured, it was the only successful twine binder in existence. There are other makes of binders nowadays; but in the estimation of practical farmers, the Deering is STILL the ONLY SUCCESSFUL binder.



Range of Shift of Deering Adjuster and Binder.

The BINDER (CONTINUED.)

THE SIMPLEST
THE STRONGEST
THE BEST

The triumph of the 19th century art of binder-making! More highly adjustable, and at the same time more supremely simple, than the best that competition has to offer.

INSTANTANEOUS TRIP

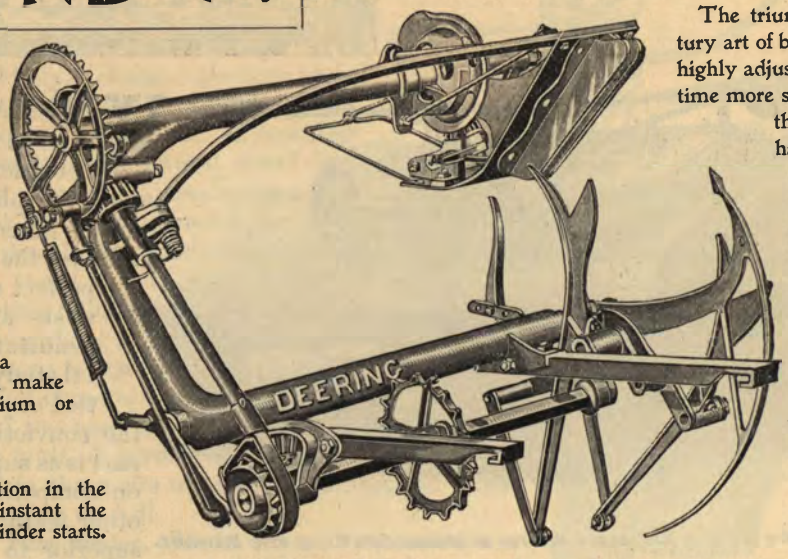
Sets the binder in motion the instant the desired amount of grain has collected. Adjustable for any desired size of bundle, large or small.

COMPRESSOR SPRING

Compresses the grain in a business-like way, and a few turns of the wrench make the bundles tight, medium or loose, as desired.

POSITIVELY DRIVEN

There is no lost motion in the Deering binder. The instant the mechanism is tripped the binder starts.



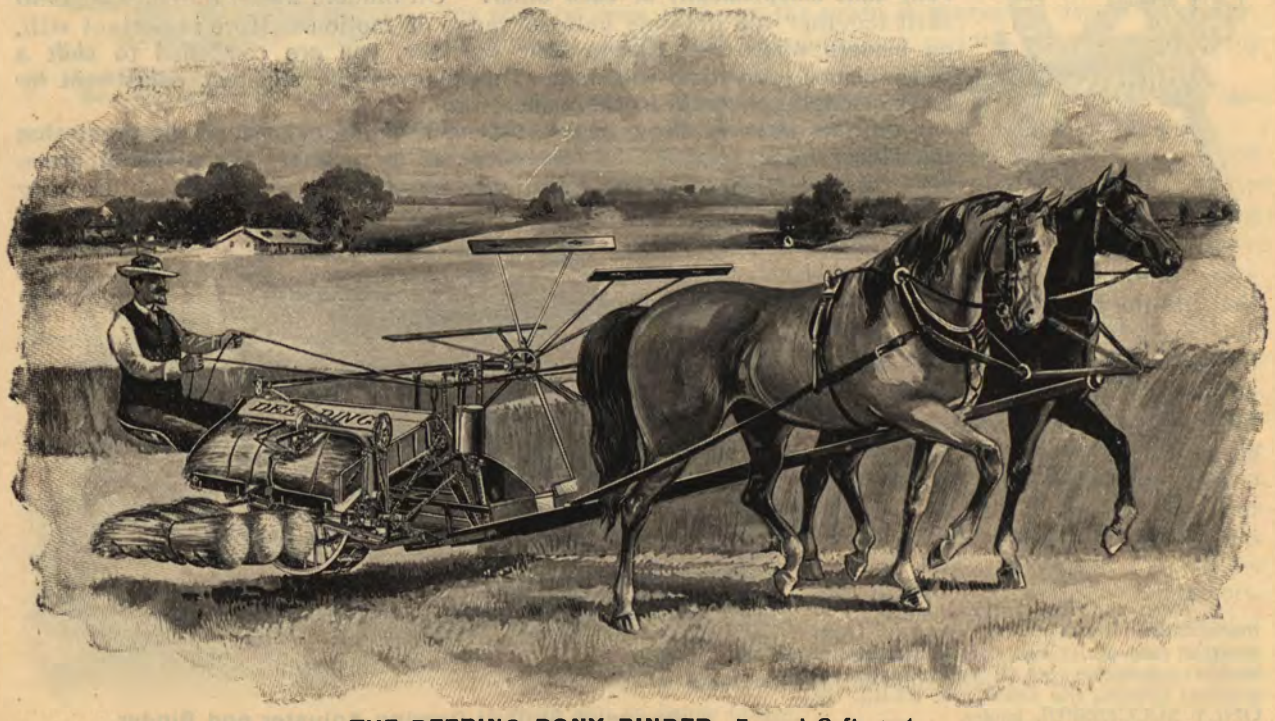
THE NEEDLE

Is easy to thread, and that's all you ever have to do to it.

THE PACKERS

Are easy to get at, and they do the business.

THE FIRST TWINE BINDER ever made was a Deering, and every experienced farmer will testify that the Deering binder still stands easily "first" among them all. It is the embodiment, in steel and malleable iron, of the best mechanical thought of this half the century. Part works with part with certainty, ease, precision and comparative silence. The binder attachment of the Deering Pony is light in weight, simple in construction, highly perfected in design, correct in mechanical principle.



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

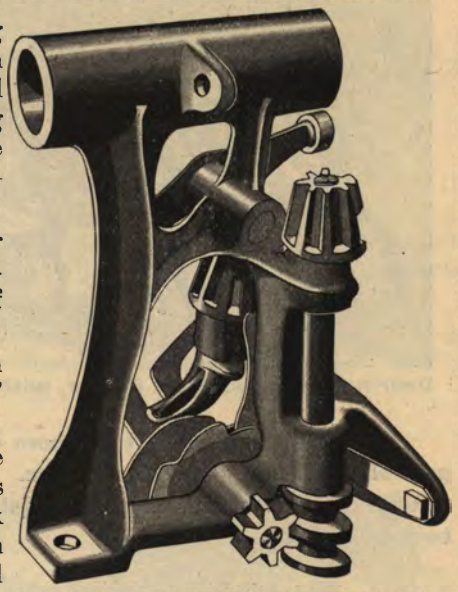
KNOT-TYING

BEING A BRIEF DESCRIPTION OF THE KNOTTER USED ON BOTH THE DEERING PONY AND IMPROVED STEEL BINDERS.

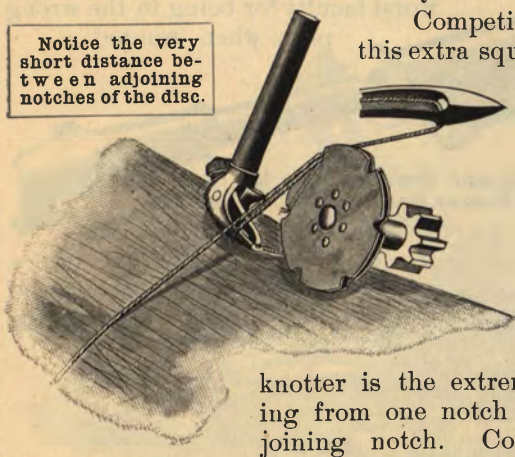
WE POSITIVELY and confidently assert that the Deering binders require less twine to bind a given piece of grain than any competing machines. We have made repeated and exhaustive tests, and we know what we are talking about. If there were in the market a successful machine more economical of twine than the Deering, we would not lose a day—not an hour—till we secured the right to use it for our own.

The Deering binder saves twine; first, because of the manner in which the bundle is formed and packed by the binder attachment, and second, because of the construction and operation of the knotting device.

The bundle is packed, wisp by wisp, as it forms. It is given an extra squeeze after the twine encircles it. This "extra squeeze" furnishes the slack twine necessary to tie the knot.



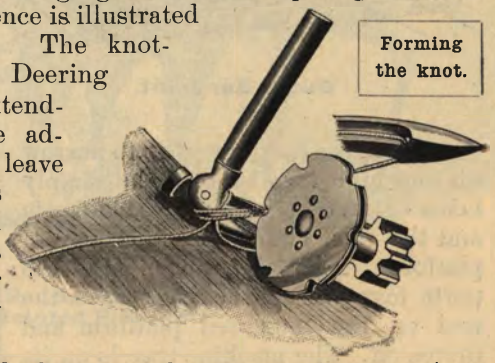
THE DEERING KNOTTER.



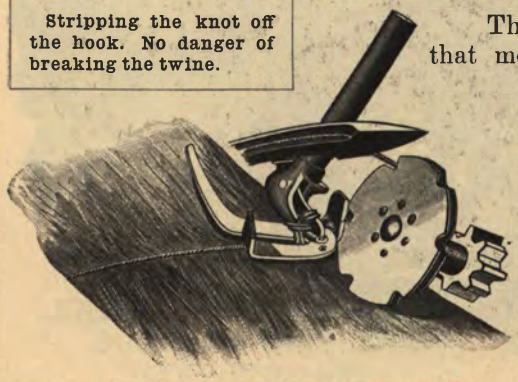
Notice the very short distance between adjoining notches of the disc.

Competing machines do not give this extra squeeze, and their bundles are looser and the slack for tying is drawn from the twine can and wasted.

Notice that the cord-holder disc on the Deering knotter is stationary. This form of disc saves the twine that the movement of the swinging discs on competing knotters wastes. The difference is illustrated by the knot-ends. The knot-end left by the Deering knotter is the extremely short piece extending from one notch of the disc to the adjoining notch. Competing machines leave waste-ends represented by a double strand of twine clear across their disc or half way around the circumference of a cup-shaped disc. There is a great saving in the Deering way. It does not require many inches to the bundle to make a big showing in a day's cutting. Because twine is cheap is no reason why it should be wasted.



Forming the knot.



Stripping the knot off the hook. No danger of breaking the twine.

The Deering binders do better work with good twine (and that means Deering twine) than they do with poor twine. But they can use as poor twine as any, because the compression of the bundle is done independently of the twine, and because the formed knot is drawn off the hook by the mechanism of the knotter instead of being jerked off by the discharge of the bundle.

Again we assert, the Deering binding and knotting devices, found on both the Improved Steel and Pony Binders, are more economical of twine than similar devices on any other machines. This economy is partly due to the simplicity of the parts—a simplicity which insures strength and freedom from breakage.

DEERING
JOINTED PLATFORM

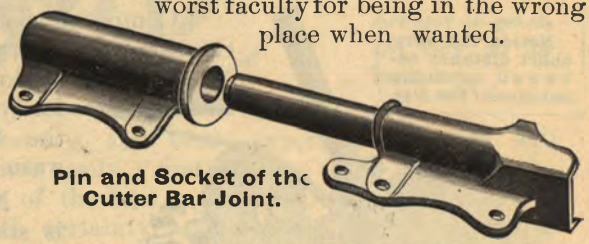
On Both Pony and Improved Steel Binders.

Deering Improved Steel Binder, with Jointed Platform Folded.

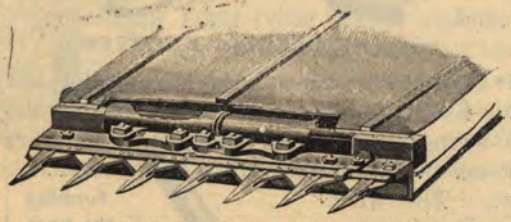
BY THIS invention, patented and controlled by us, the binder-truck nuisance is forever done away with.

Everything necessary to transport the machine is always with it: always in the right place at the right time. Every farmer who has used a binder-truck will appreciate what this means; for of all things in the world a binder-truck seems to have the worst faculty for being in the wrong place when wanted.

The joint is so formed that there is absolutely no possibility of its sagging out of place. The joint is the strongest part of the strongest harvester platform ever built by anybody.



Pin and Socket of the Cutter Bar Joint.



Cutter Bar Joint.

In the front a heavy steel pin fits snugly into a malleable socket and is securely bolted into place. At the rear a long drop-forged band holds the parts together with equal security.

When the farmer wishes to narrow his machine for the road he simply takes out two bolts, removes the knife and the reel, slides the outer end of platform under the inner, bolts the parts together at the back, lays the reel on the narrowed platform and drives off. The machine travels on its own broad wheels, with the weight resting where it was intended to rest, and where there is even less strain than in cutting. There is more strain on a competing harvester in an hour's ride on a truck than in much cutting.

Rear Joint.

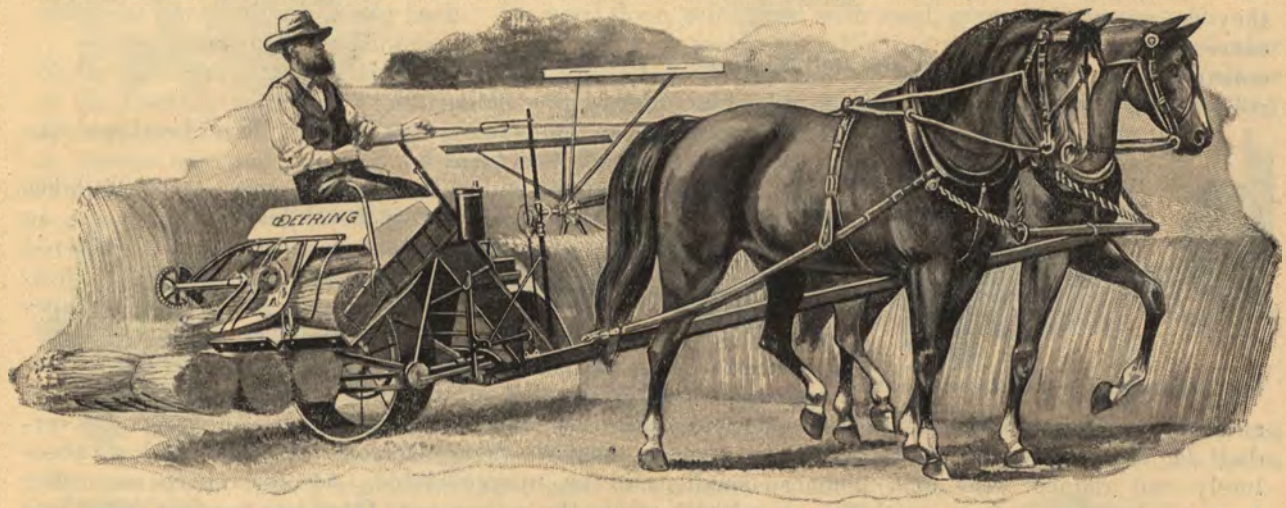
Deering Pony Binder with Jointed Platform Folded.

DEERING IMPROVED STEEL BINDER

WITH ROLLER AND BALL BEARINGS

FROM the day that the first Deering Improved Steel Binder was manufactured this machine has enjoyed widespread popularity. In fact, its whole career has been a series of sweeping victories over the cheaper machines patterned after it. Its popularity has grown steadily, and this growth received a new, a tremendous impetus when we fitted it with roller and ball bearings.

It is a machine that has proved its ability to handle the toughest harvests, and to do this day after day, week after week, season after season. It has great capacity, unequaled strength, and the ability to cope with the most difficult conditions to be met with in America's harvest fields.



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

Its name—"Steel Binder" means just what it says. It means **steel,** good tough steel and not cast iron. It means steel, throughout the machine, wherever steel can be used; and this fact explains its light weight and light draft.

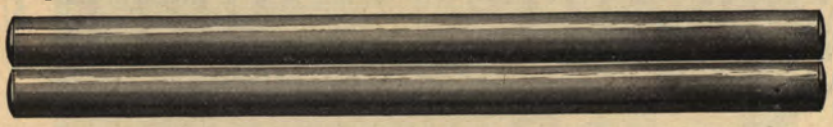
Before it had roller and ball bearings it registered a draft of only 303 lbs., against 356 lbs. for its lightest competitor, in the official World's Fair field trials; and this draft has since been wonderfully lightened by the application of the famous Deering roller and ball bearings.

The Deering Improved Steel Binder eclipses its competitors in

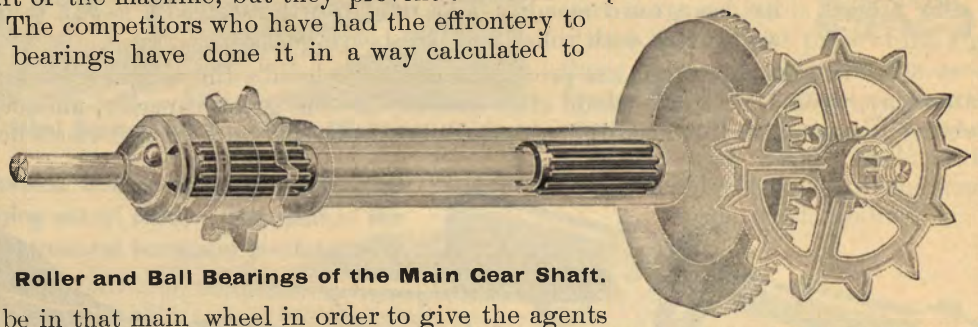
LIGHT DRAFT,
DURABILITY,
CONVENIENCE,
SIMPLICITY,
STRENGTH,
CAPACITY,
SAVING OF GRAIN,
SAVING OF TWINE,
SAVING OF REPAIRS.

ROLLER BEARINGS....

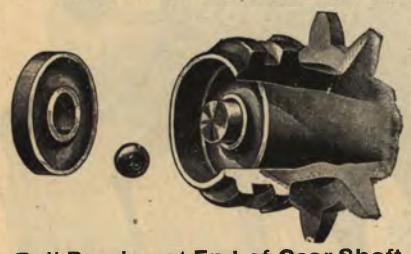
ROLLER AND BALL BEARINGS are applied to the Improved Steel Binder with the view to effecting the greatest possible reduction in draft. They are applied to the machine with a view to overcoming friction and preventing wear. They are, therefore, applied to the rear shaft within the hollow gear-sleeve which turns on it. They are put here because this gear-sleeve revolves at a rapid rate and at the same time bears the working stress of the machine. Two sets of rollers, the size shown herewith, are placed in this bearing, as shown in the cut below. These rollers not only very greatly reduce the draft of the machine, but they prevent the wear of parts that would be otherwise expensive to replace. The competitors who have had the effrontery to imitate Deering roller bearings have done it in a way calculated to excite ridicule. One has simply placed two little stubby rollers in the main wheel of the machine, and there they do no good, because of their faulty construction. These rollers may be said to be in that main wheel in order to give the agents for that machine an opportunity to claim "roller bearings like the Deering." (See cut on page 4.)



Exact Size of Rollers in Bearing of Main Gear Shaft.



Roller and Ball Bearings of the Main Gear Shaft.



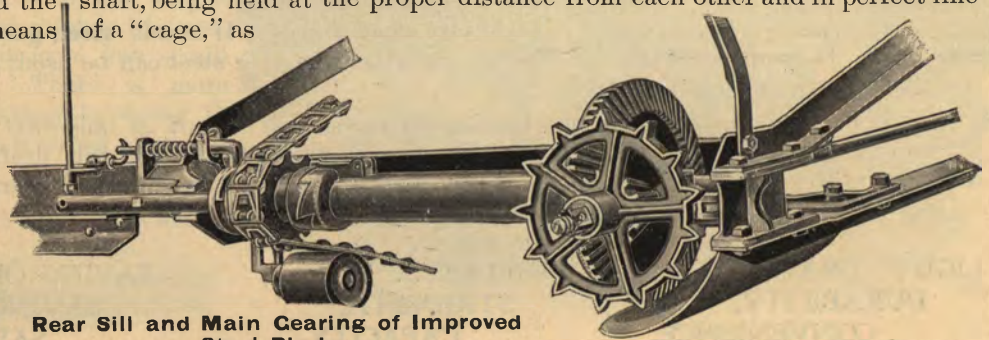
Ball Bearing at End of Gear Shaft.

A ball bearing at the end of the Deering main gear shaft takes up the natural end-thrust due to the bevel-gear and prevents an annoying wearing-out of washers at this place, so often encountered on competing machines. The ball used in this bearing is five-eighths of an inch in diameter, and is made from the same superior grade of steel as the balls in bicycle bearings.

Since issuing our last annual catalogue, we have received correspondence from every part of the world on the subject of roller and ball bearings as applied to every conceivable form of machine or vehicle, and the universal verdict is that **where rollers or balls are properly applied** they overcome friction almost absolutely and reduce wear to a point so small as to be unappreciable. **Adverse reports** on roller bearings have come from machines or vehicles where the rollers were **fitted into bearings drilled into end plates,** that soon fill with dirt, the complaint being that the friction at the ends of the rollers was greater than the friction of the old plain bearing. The rollers of the Deering roller bearing do not encounter this friction at the ends because they do not bear in holes drilled in an end plate, but simply lie loosely around the shaft, being held at the proper distance from each other and in perfect line with the shaft by means of a "cage," as shown on page 2.

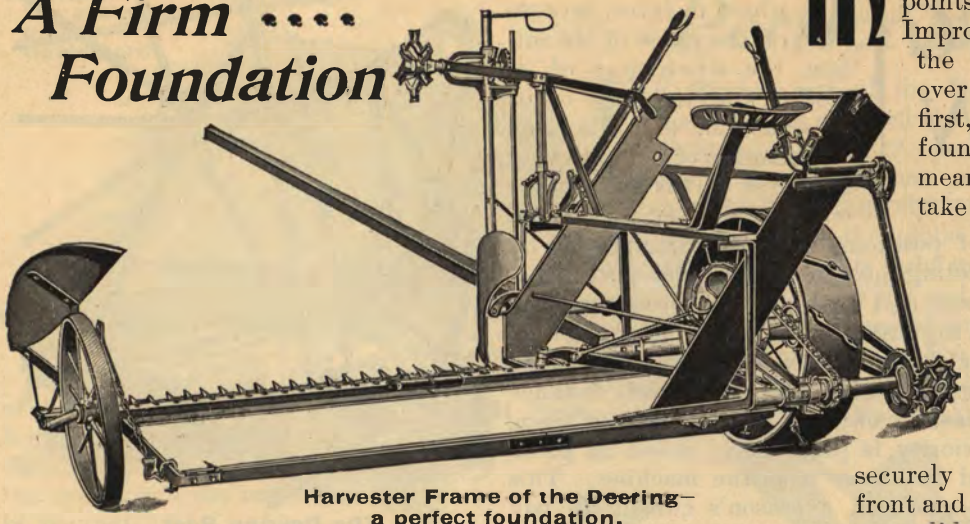
MAIN GEAR SHAFT.

The main gear shaft in which these roller and ball bearings lie is as handsome a piece of machine work as is often seen.



Rear Sill and Main Gearing of Improved Steel Binder.

A Firm Foundation

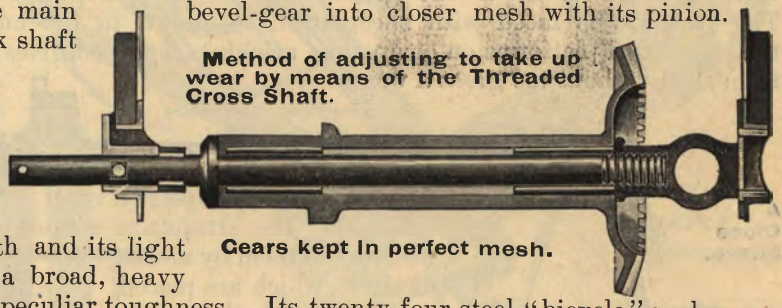


Harvester Frame of the Deering—a perfect foundation.

MAIN FRAME AND GEARS. Two points for which the Deering Improved Steel Binder has the greatest advantage over its competitors are, first, the strength of its foundation, and second, its means for adjustment to take up natural wear.

The harvester frame of this machine affords a perfect foundation. Almost the entire weight rests on two heavy steel trusses, perfectly braced in every direction, and so securely joined to the sills at front and rear as to be practically one solid frame of steel. Equally perfect is the method of securing the platform to this harvester frame. The Deering platform cannot twist out of shape or sag back. Its wood floor, reinforced with steel, gives it rigid strength.

No competing machine possesses an adequate means for adjusting to take up the natural wear on its main gear shaft. By providing an adjustment of this kind we add years of life and usefulness to the Deering Improved Steel Binder. The main gear shaft is threaded, so that by giving it any desired number of turns it forces the main bevel-gear into closer mesh with its pinion. A similar adjustment keeps the crank shaft in mesh.



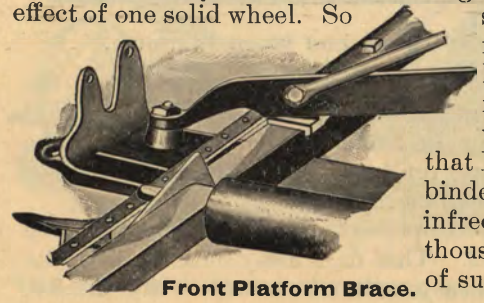
Method of adjusting to take up wear by means of the Threaded Cross Shaft.

Gears kept in perfect mesh.

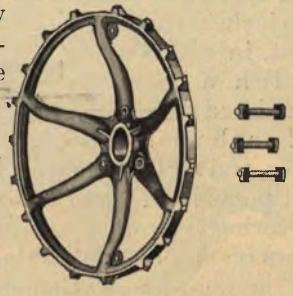
Threaded Nut for keeping Crank Shaft Sprocket in perfect mesh.

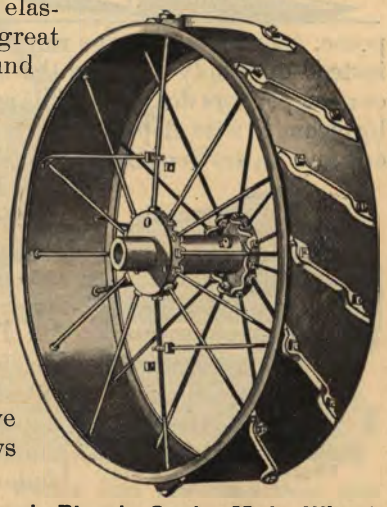
DEERING MAIN WHEEL.

The main wheel of the Deering Improved Steel Binder is noted for its unusual size, its great strength and its light weight. Its rim is a broad, heavy strip of rolled steel of peculiar toughness. Its twenty-four steel "bicycle" spokes are pressed into the hub and headed on the lugs on the outside of the rim. This wheel is at once rigid, and at the same time possesses sufficient elasticity to avoid breaking on striking an obstacle. The great width of face permits the machine to travel on soft ground without sinking in. The sprocket wheel is very large, possesses great strength, and while easily separated from the main wheel in case of breakage, is so firmly secured to it as to give it the effect of one solid wheel. So stanch is the Deering main wheel that Deering binders not infrequently run three, four and five thousand miles over the uneven furrows of successive harvest fields.



Front Platform Brace.

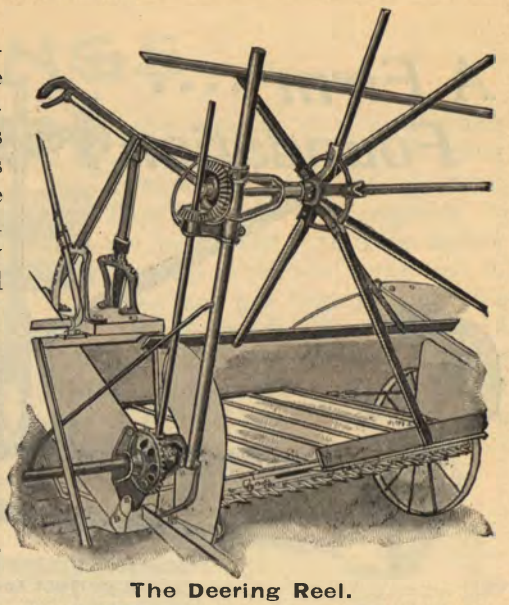




Stanch Bicycle Spoke Main Wheel.

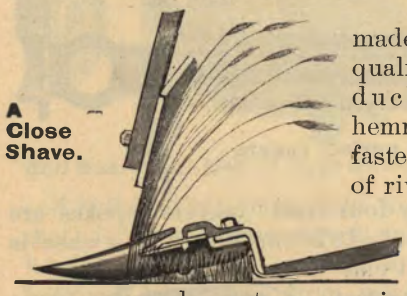
SAVING GRAIN

THE DEERING REEL is everywhere in favor, because of the grace of its outline, the evenness of its motion, the simplicity of its construction, and its rare combination of strength with lightness. It is operated by one single lever, and placed into a greater variety of positions than are accomplished by two levers on any competing machine. The reel post has a wide range of motion back and forth, and the great variation between the lowest and highest notches on this post gives all the desired range up and down. This reel is especially fitted to pick up prostrate grain, because of the great distance **in advance of the machine,** to which it can be made to graze the ground. Its superiority is particularly noted in grain which is prostrate, and lies **away** from the machine. This reel will save enough grain in a season's cutting to pay a good dividend on the cost of the machine.



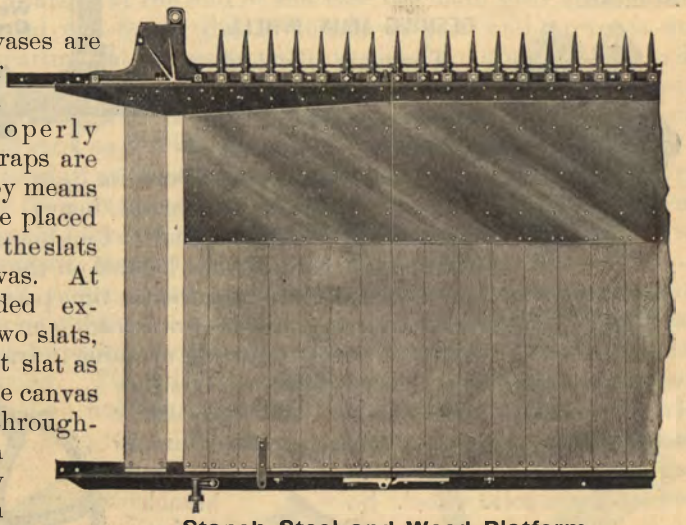
The Deering Reel.

DEERING PLATFORM. The platform of the Deering Improved Steel Binder is formed with the view to cutting as close to the ground as desired. The devices for raising, lowering, and tilting, are so perfected that the platform can be made to almost graze the ground without having a steep pitch or slant. In connection with the reel, this low position of the platform will be found to be of the greatest service in handling very short or badly prostrate grain. The platform is faced with sheet steel, as shown in the cut. It is lighter and stronger than the sheet-steel platforms on competing machines, as wood gives a rigidity which cannot be obtained from steel without too great a weight.



A Close Shave.

Deering canvases are made of a superior quality of cotton duck and properly hemmed. The straps are fastened to them by means of rivets, which are placed through both the slats and the canvas. At a great added expense, we use long straps running back over two slats, instead of simply riveting the strap to the first slat as our competitors do. The slats are secured to the canvas by means of wire staples about two inches apart throughout the entire length of the slat, in addition to which a heavy rivet is placed at each end of each slat. Deering canvases, and all that pertains to them, are made with the view to giving the longest possible life, and hence the least expense for repairs.



Stanch Steel and Wood Platform.

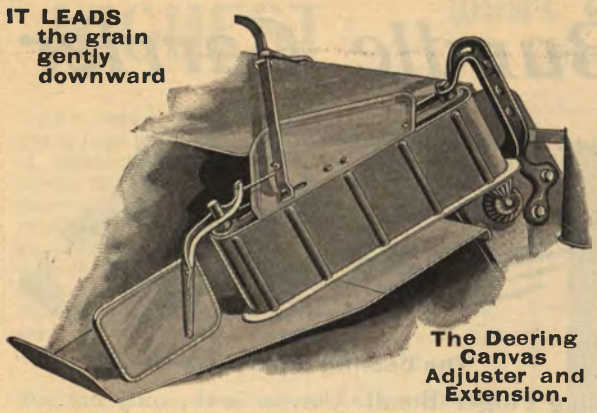
Elevators extend seven inches in front of the knife.

Deering elevators extend further in front of the knives than the elevators on any other machine, thus preventing the clogging at the inner end of the platform, so common on cheap machines.

DEERING JOINTED PLATFORM. The Improved Steel Binder has the jointed platform described on page 12. This does away entirely with the binder truck nuisance, and makes it an easy matter to transport this binder.

Perfect Bundles

IT LEADS the grain gently downward



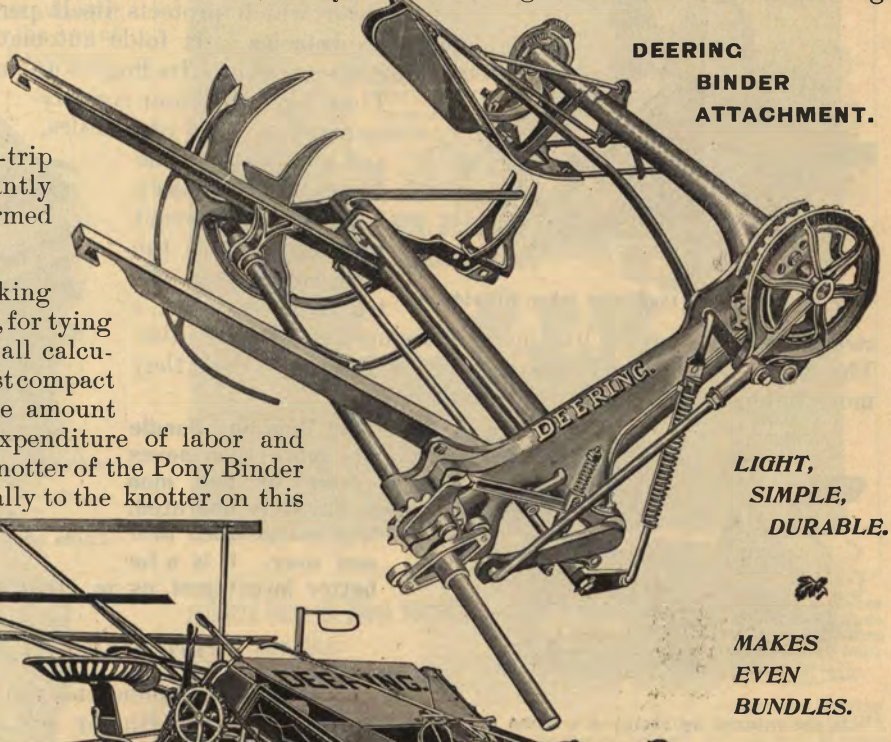
The Deering Canvas Adjuster and Extension.

THE Binder part of the Deering Improved Steel machine has received the highest commendation. Graceful in outline, positive in operation, adequate in strength, it has proved itself amply able to cope with all the difficulties of all the harvest fields of every nation on the globe. It possesses unusual strength in spite of its light weight, and has a wider range of adjustment for size and compactness of sheaves and for handling extremes of long and short grain than any competing machine on the market. The Deering adjuster can be drawn back to within 6 inches of the needle when the binder is shifted forward, or, by shifting back the binder and shifting forward the adjuster a total distance of 24 inches between the needle and the butts can be secured.

A long, sensitive deck-trip sets the binder in motion instantly when sufficient grain has formed for the size of sheaf desired.

The mechanism for packing the bundle, for compressing it, for tying it and for discharging it are all calculated to make the most neat, most compact bundles with the least possible amount of twine, and at the least expenditure of labor and time. The description of the knotter of the Pony Binder given on page 11 applies equally to the knotter on this machine.

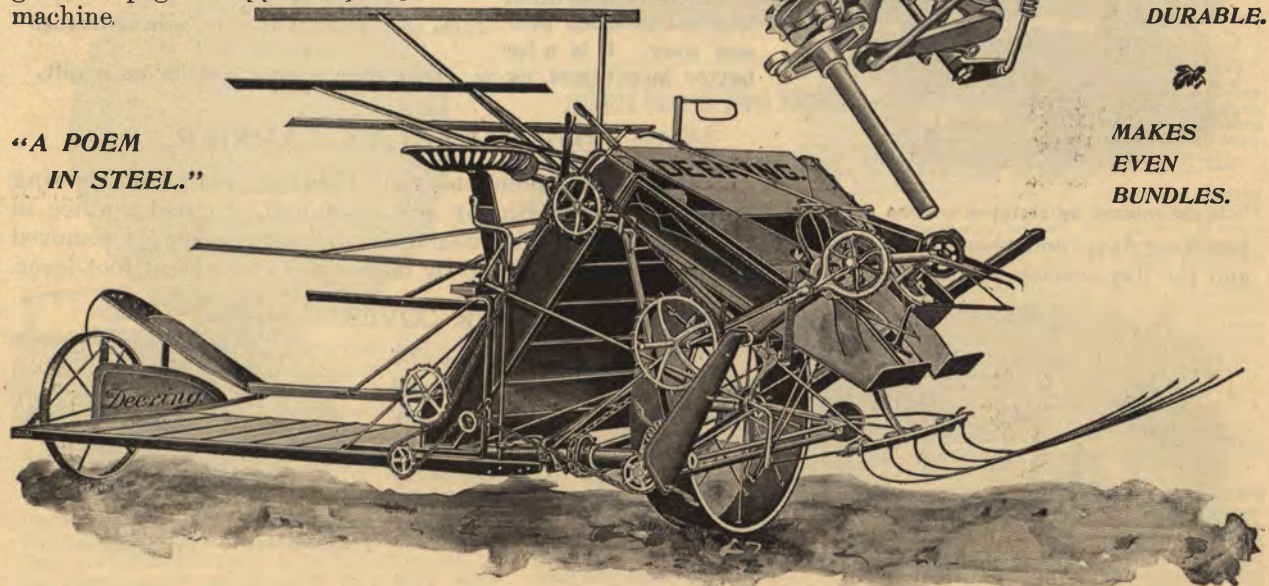
DEERING BINDER ATTACHMENT.



LIGHT, SIMPLE, DURABLE.

MAKES EVEN BUNDLES.

"A POEM IN STEEL."



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

Deering FOLDING... ...FINGER Bundle Carrier

A COMPETITOR who most strongly inveighs against the Deering Bundle Carrier acknowledges in his catalogue that the only way he can get rid of his carrier is to give it away without extra charge, instead of selling it as an extra. Harvester concerns which have attempted to imitate the Deering carrier have discovered that there is such a thing as law in the land, and one by one they have concluded to pay us a royalty on the carriers manufactured by them.

All carriers at all resembling this pay royalty to the Deering Harvester Co.

The Deering Bundle Carrier.

The Deering Steel, Folding Finger Bundle Carrier is the only carrier which is both dumped and returned by a double crank foot lever. It is the only carrier which protects itself perfectly against injury due to striking obstacles. It folds automatically out of harm's way on striking obstructions. Its fingers are made of tempered spring steel. They have sufficient rigidity to carry any load of bundles, and at the same time have all necessary flexibility to prevent breakage. It is the only carrier that will travel up or down a steep grade without the likelihood of losing its load of bundles. The fingers are secured separately to a frame, so that they move independently and yet in unison.

Will not lose its load on a steep hillside.

Folds back automatically on passing through narrow ways.

Is not injured by striking a stone or stump.

The Deering Bundle Carrier more than saves the labor of one man every day it is operated. It pays for itself over and over. It is a far better investment as an extra than a poor carrier as a gift.

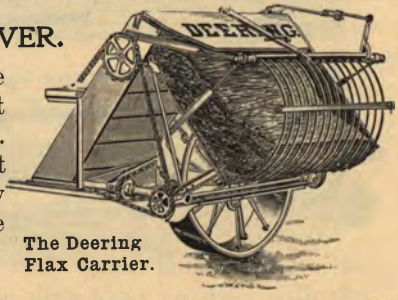
DEERING FLAX CARRIER.

This attachment to the Deering Pony or Deering Improved Steel Binder will be found of great service in handling flax, buckwheat, seed grasses, etc. The binder attachment and adjuster are simply removed and the flax carrier put in their places. This carrier is dumped by means of a convenient foot-lever.

Waterproof Binder Cover.

DEERING BINDER COVER.

This will be found to be a very good investment because it saves the machine. The cover is made, from tent canvas, so as to fit perfectly and to shed the rain like the roof of a tent.



The Deering Flax Carrier.

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.

HIGHEST World's Columbian Exposition, Chicago, 1893. . . . HONORS

As a result of most rigidly conducted field trials, held under the auspices of the committee of awards of the World's Columbian Exposition, the Deering machines were awarded more honors and higher honors than were vouchsafed to any competing machines by this great exposition. The *Farm Implement News*, a leading implement paper of the country, in commenting on the awards given to the Deering machines in its issue of March 12, 1896, said:

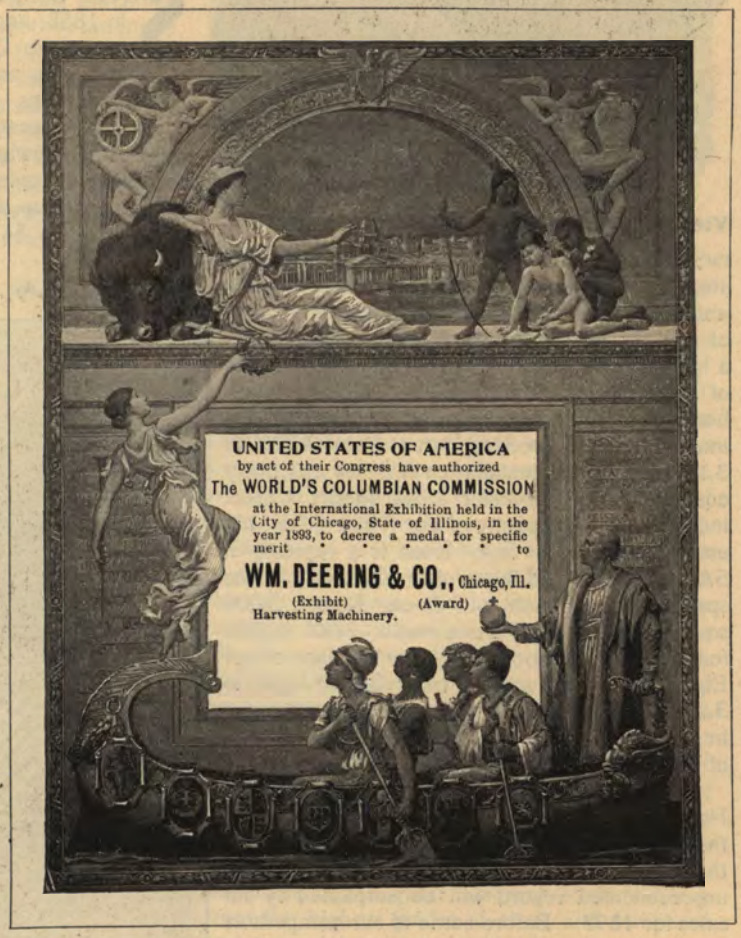
"WORLD'S FAIR MEDAL.

FAC-SIMILE OF THE ONE AWARDED TO THE DEERING HARVESTER COMPANY.

"We show a fac-simile of the medal awarded the Deering Harvester Company by the jury of awards of the World's Columbian Exposition.

"With this medal was awarded a diploma containing sixteen awards based on the appearance of the Deering machines on the floor, and more particularly their performance in the field.

"The field trials of these machines created a decided stir at the time because all the then known draft records were beaten by the new roller bearing machines. They have never been equaled so far as we know by any machine not having roller bearings. The trial of their corn harvester also attracted attention, as the machine did better work in a high wind and a sea of mud than the judges had expected to see under favorable conditions."



EXTRACTS FROM THE ABOVE DIPLOMA.

DEERING BINDERS.

"For the instructive features of the collective exhibit; the great advancement accomplished in the ingenuity and utility of the knotting device; the exceptional excellence of design and construction of machines and attachments; the effective, convenient and economical operation, as demonstrated by practical field trial, where the Deering Pony Binder, cutting a 6-foot swath and drawn by two horses, cut, bound and delivered in perfect condition an acre of grain in 24½ minutes, the draft being 285 pounds, and 213 pounds running light.

"The Deering Improved Steel Binder, cutting a 6-foot swath, cut, bound and delivered an acre in 22½ minutes with a draft of 303 pounds and 222 pounds light. It has simplicity and grace in design, combining strength with lightness; perfect balancing of weights, relieving horses of neck load; perfection of workmanship in the machine and the work done by it; lightness of draft; adjustability of reel; mechanism for perfect handling of bundle; simple and efficient bevel-gear binder attachment.

"The Deering Pony Binder shows development in the art, as exemplified in the extremely light weight, light draft, lowness of center of gravity, excellence of design, ingenuity of device, excellence of construction, and the special feature of roller and ball bearings, elevator extension, and easily adjusted reel."

DEERING MOWERS.

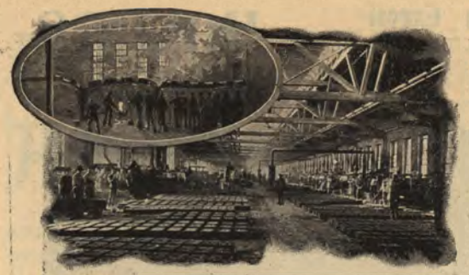
"At the trial of mowers the Deering Ideal Mower, 5-foot cut, mowing alfalfa on lumpy ground, cut an acre to short stubble in perfect condition in 27½ minutes with 85¾ pounds cutting draft and 59¾ pounds rolling draft.

"The New Deering Mower, 5-foot cut, showed a cutting draft of 110 pounds; running light the draft was 84½ pounds.

"The field trials of all these machines were eminently satisfactory. The roller and ball bearings reduce the friction of the various bearings to the lowest possible degree. The perfect mechanism, construction in detail, and proportions of lightness of weight and the lightness of draft, are prominent to a great degree in the Ideal Mower.

"**THE DEERING CORN HARVESTER** was tried in corn comparatively green and wet, and wind blowing hard, yet the machine did excellent work, cutting and binding the corn with ease, celerity and satisfactory results. It shows simplicity of design, solidity of construction, and is excellent in operation and effective in results."

DEERING HARVESTER WORKS, CHICAGO.



Views in Deering Malleable Iron Foundries.

SINCE this great industry was started in 1858, and particularly since it was moved to Chicago in 1880, not a year has passed that has not seen great additions to its buildings and a material increase in its working force. When the first wheels turned, 16 years ago, the plant occupied 25 acres of land, only partially built up, and employed 800 hands. It now covers 51 acres, closely built with two and three and four story buildings, and gives steady employment to 3,500 souls. In our last annual catalogue we chronicled the enlargement of our Mower Department and the erection of a huge fiber warehouse. We now have to tell of the addition to our largest machine warehouse of 60,000 square feet of floor space; the increase of our working force from 3,000 to 3,500 people; the installation of a new and finely equipped Corn Harvester Department; a great increase in the capacity of our Twine Mills; the enlargement of our Iron House to a capacity of 5,000 tons; the addition of 3,000 feet of floor space to our Punch and Shear Room; 3,000 square feet to the Pattern vault; 2,000 square feet to the Office floor space; the increase of our Electric Lighting system from **2,200** lights to **3,200** lights; besides a general enlargement and improvement in the equipment of every branch of our factory.

There is an air of prosperity about the Deering Harvester Works which contrasts strongly with the spirit of doubt and indecision prevailing at the plants of our competitors. Last year's unprecedented record will be surpassed by our sales for 1897. Before some of our competitors had even started their winter's work, we had made and stored in our warehouses more machines than they will make and sell during the whole season of 1897. The whole secret of this activity is told in two words—**Roller Bearings**—and these two words, with all the pleasant associations they convey to the minds of our customers, will continue to turn Deering-ward the harvester business of the world.

Exterior Deering Malleable Iron Foundries.

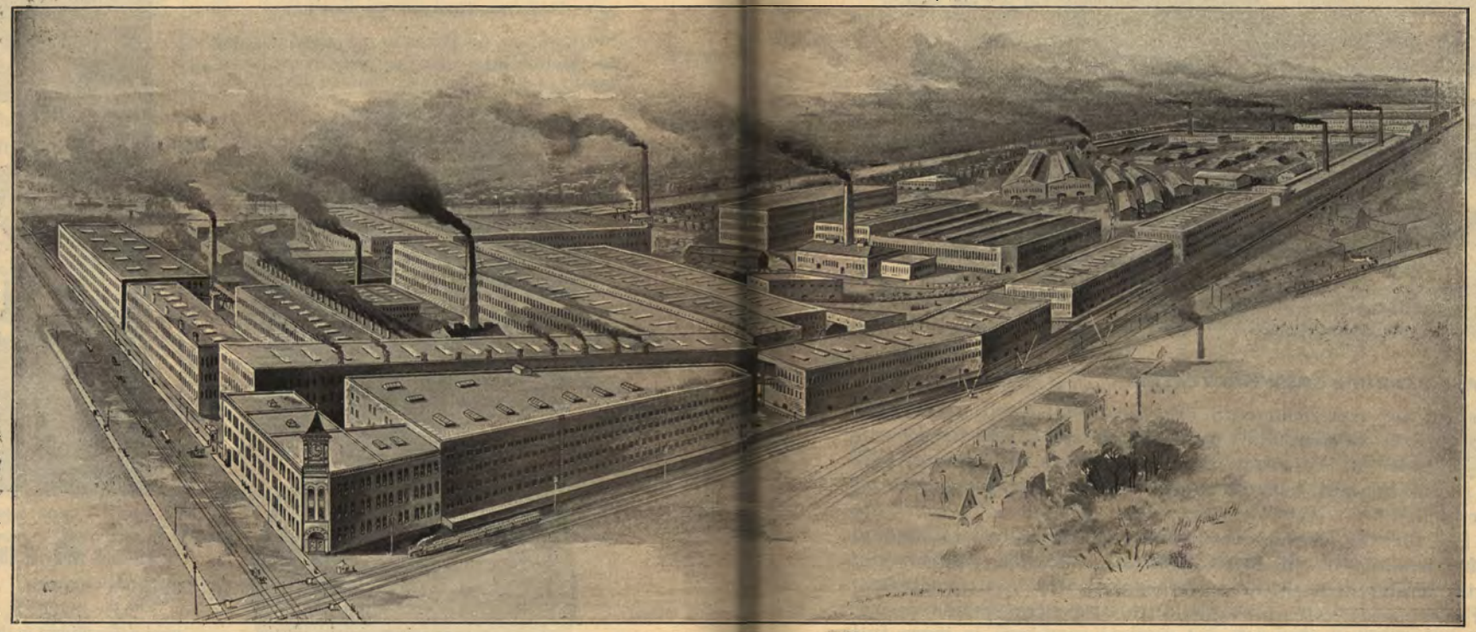
The high quality of Deering machines is guaranteed by the fact that they are made from raw materials wholly by ourselves, in our own plant. We have learned that it is not safe to trust to outsiders a single step in the manufacture of machines that shall bear the name **"DEERING."** Our competitors have such important parts as their malleable castings, their knives, their cutting apparatus, and even their drop forgings, made by irresponsible outsiders. They lack either the courage, or the capital, or the room, or all three, to undertake this work in their own plants. Their "Harvester Works" may be said to be "Assembling Warehouses" for parts made by outsiders. When these parts come to them they may **look all right** and pass inspection; but it takes a harvest to demonstrate, when too late to remedy, that they were **not** all right. It is hard to tell by looking at a casting, or a forging, or a knife, whether it is a good one or not. The only sure way is to be there when the parts are made, and to know that the processes of manufacture are the right ones. We are sure that the Deering parts are right, because we make them ourselves in our own works, where we can watch every step in the process of their manufacture.

View in Deering Drop Forge Department.

Deering malleable iron castings, famed for their toughness, are made in the huge Deering Malleable Iron Foundry—one of the largest in the country. Deering knives, sickles, sections, ledger plates, wearing plates, knife-backs, etc., are made in the great Deering Knife Works, from the highest grades of steel, and tempered and ground by experts, with the utmost care. Woodwork for our machines is made in our own Planing Mill from the best hardwood lumber, and seasoned by us. The canvases on Deering binders are made in our Canvas Department, and more carefully made than if they were made by outsiders—and so on throughout the whole manufacture of Deering machines, **the work is done in our own plant under the supervision of our own superintendents and inspectors, with the single end in view of making the complete machines as perfect, as flawless, as durable as the best materials and the most skilled workmanship can do it.** Deering superiority is no accident.

The tremendous capacity of this great plant was tested by the unprecedented shipment and sales made last year.

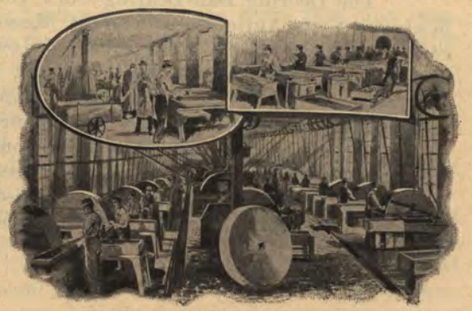
COVERS 51 ACRES! EMPLOYS 3,500 WORKMEN!



CAPACITY: ONE COMPLETE HARVETING MACHINE AND THIRTY MILES OF BINDER TWINE EVERY MINUTE.

Views in Deering Gray Iron Foundries.

Exterior Deering Gay Iron Foundries.



Views in Deering Knife and Sickle Works.

THE LARGEST PLANT OF THE KIND IN THE WORLD.

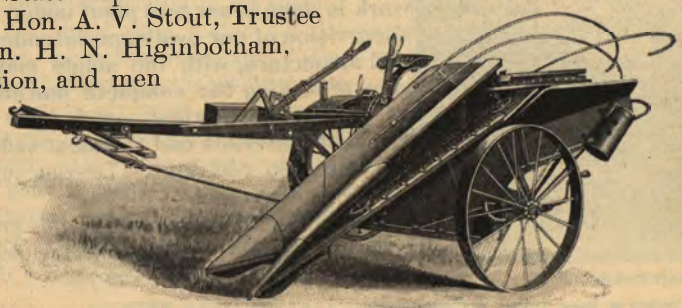
DEERING BALL-BEARING CORN HARVESTER.

DEERING BALL-BEARING CORN HARVESTER.

THE great problem of harvesting the American corn crop is at last solved. The Deering Corn Harvester has solved it as completely and as satisfactorily as the Deering Twine Binder solved the problem of the grain harvest, way back in 1878 and 1879. The Deering is the only successful corn harvester now, as the Deering was the only successful grain harvester then.

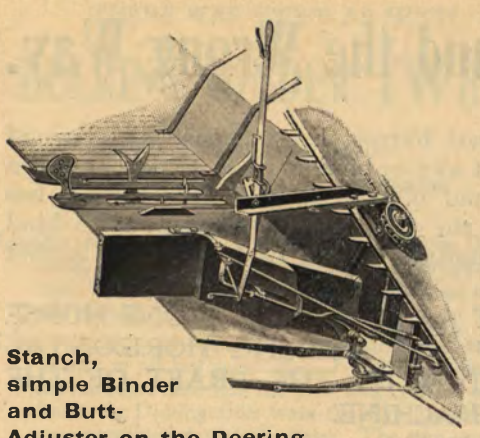
The last harvest demonstrated the fact that the Deering was not only the only practical machine on the market, but that it was **THE ONLY ONE WORKING ON THE RIGHT PRINCIPLE.** The Deering binds its bundles as they lie down on the horizontal binder deck, while machines with which our competitors have been experimenting (at the farmer's expense) attempt to hold the top-heavy stalks upright while tying the bundle. The difference between the horizontal and vertical machines is more fully shown on the next two pages.

The Deering Ball-Bearing Corn Harvester has received the unqualified endorsement of the Michigan State Agricultural College, Missouri State Experiment Station, Minnesota State Experiment Station at Lynd, ex-Governor Boies, of Iowa; Hon. A. V. Stout, Trustee of the Iowa State Agricultural College; Hon. H. N. Higinbotham, President of the World's Columbian Exposition, and men and institutions of the greatest prominence all over the country. In fact, every one who has used this wonderful machine or seen it working has given it unqualified praise. It is the Corn Harvester of the present and the future.



Stanch, Compact, Simple, Reliable.

The Right Way...



Stanch, simple Binder and Butt-Adjuster on the Deering.

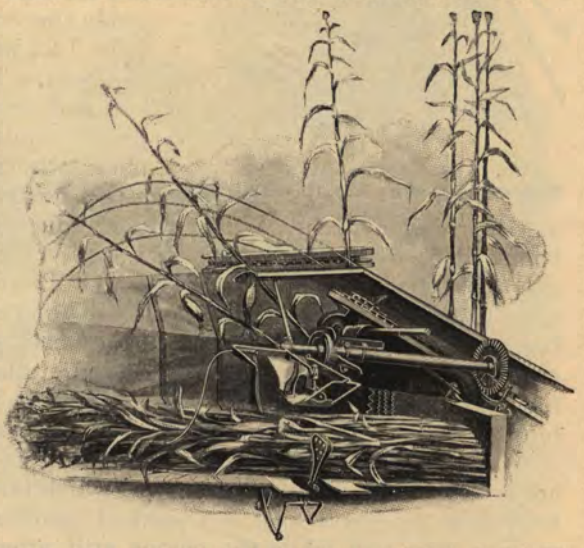
THE Deering Ball Bearing Corn Harvester is the only corn harvester in which the position of the band can be changed for long or short corn, without raising the whole machine.

The Deering Ball Bearing Corn Harvester is the only corn harvester with a butt-adjuster.

The Deering Ball Bearing Corn Harvester is the only corn harvester that binds the corn in a rational way—lying down on the horizontal binder deck.

The Deering Ball Bearing Corn Harvester is the only corn harvester that can be drawn anywhere by two horses.

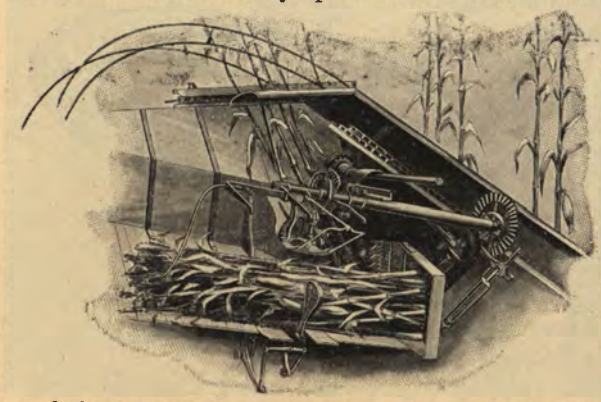
The Deering Ball Bearing Corn Harvester does not pull off ears as does the vertical machine; it does not throw the bundle on its head as does the vertical machine; its gearing is not exposed to mud from the main wheel as on the vertical machine; it does not miss bundles as does the vertical machine; it ties a larger bundle than can be tied by the vertical machine; it is easier to drive and to handle than the vertical machine; it has no side draft as have vertical machines, and it is in every way the only successful, reliable, efficient, sensible corn harvester before the American people.



Adjuster set for long corn; band tied far from the butts.

DEERING ADJUSTMENTS.

As we said above, the Deering Ball Bearing Corn Harvester is the only corn harvester on which the band can be tied high or low without raising the entire machine. The adjustment for varying lengths of corn is made easily and quickly, and it is all done by means of the easily controlled butt-adjuster. For long corn this adjuster is thrown far forward, making a great distance between the butts and the band; while for short grain the adjuster is drawn back closer to the needle. In any position of the butt-adjuster, the overhead adjuster tends to lay the stalks flat with their butts against the butt-adjuster. The Deering Corn Harvester is by this mechanism enabled to tie higher up from the butts than any competing corn harvester. The only competing machine that makes any attempt to change the position of the band for long corn compels the farmer practically to take the machine to pieces in order to accomplish a variation of only 3 or 4 inches.



Adjuster set for short corn; band tied near the butts.

The adjusters on the Deering are made so that they stand the severe usage of a heavy crop. The butt-adjuster is made of reinforced sheet steel and it has an aggressive action that handles the clumsy corn stalks at a lively rate. Both adjusters are controlled by levers near the driver's hand, and can be manipulated with ease while the machine is in motion.

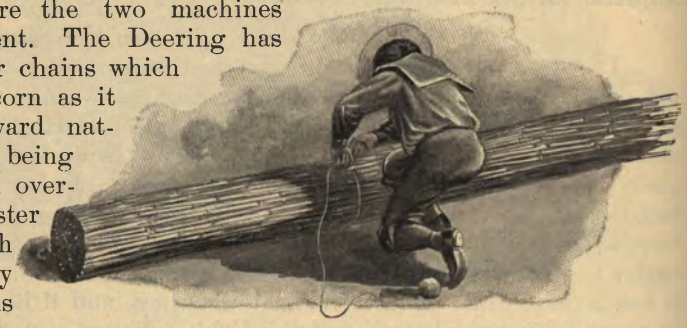
The Right Way and the Wrong Way.

The Wrong Way is the Hard Way.

THE experience of the past harvest has demonstrated beyond a doubt that the right way to bind corn is to lay it down on a horizontal deck and bind it there. This harvest has equally demonstrated the fact that the wrong way to bind corn is to attempt to hold it upright and to pack and tie it in that position.

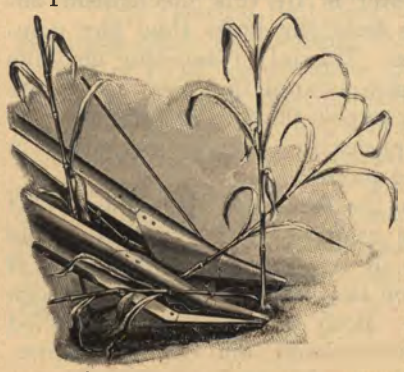
THERE IS AT LEAST A DIFFERENCE OF ONE HORSE POWER IN FAVOR OF THE DEERING HORIZONTAL MACHINE AS COMPARED WITH THE DRAFT OF THE COMPETING VERTICAL MACHINE.

Compare the two machines for a moment. The Deering has two elevator chains which guide the corn as it falls backward naturally after being cut, and an overhead adjuster chain which lays it neatly on the binder deck. When the bundle is bound it is discharged, butt first, and falls only a few inches. In the whole process there is no lifting or elevating of the corn. The minimum amount of power is used to compress it in binding, because the corn lies in a compact mass on the binder deck. There is no sliding of the heavy weight on jagged butts, and no violence in discharging to the ground. There is all the room desired for binding, with the needle perfectly free from incoming corn while binding, and there is simplicity and positive action throughout.



The Right Way is the Easy Way.

How different is the vertical machine! The stalks, when cut, are seized by a multitude of chains, which strain and tug in order to hold their top-heavy load in a vertical position; forced into a narrow passage way, and while the chains still attempt to hold the stalks upright, the packers attempt with difficulty to compress the stalks in their unnatural position, forcing them against the needle while it is struggling with the previous bundle, and wasting power and draft, breaking off ears, and clogging the machine—all done in an attempt to perform an unnatural and unscientific task. The bundle, when finally bound, is too small for economy and altogether too loose. Such as it is, it is hurled to the ground from its upright position, landing head first and breaking off more ears.



Flexible Divider Points.

Ball Bearing on Crank Shaft of Deering Corn Harvester.

Already the lightest draft machine made, because of its simplicity, the Deering Corn Harvester is still further lightened by means of a ball bearing in the crank shaft, as shown in the illustration. This bearing consists of nine $\frac{5}{8}$ inch balls, completely filling the ball-bearing cup. **The Deering Corn Harvester is one horse lighter in draft than any competing machine made.**

THERE WAS TWICE AS MUCH

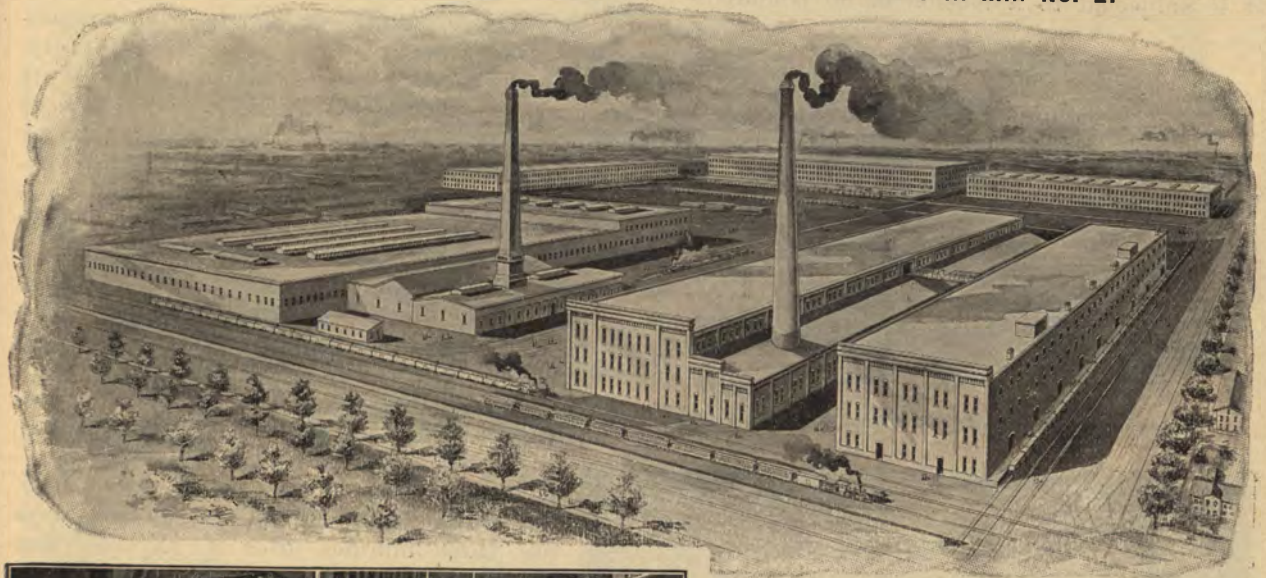
DEERING BINDER TWINE

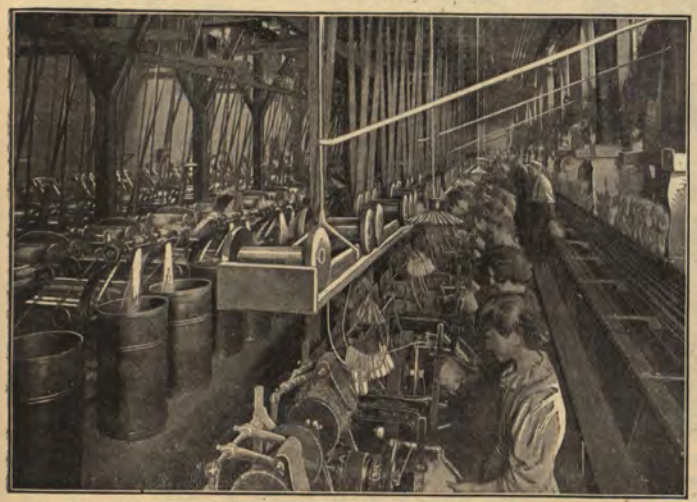
Made and sold in 1896
as twine of any other make.

Deering twine is NEW TWINE from the new Deering mills, made by skilled hands, under rigid inspection, from the best Sisal and Manila Hemps that money can buy.

Out of a total of 44 twine mills in the United States, only 11 ran at all last year. Out of those that ran only six ran more than half the year, and as far as we can learn, the Deering mills were the only ones that ran every working day of the year. The two immense Deering twine mills shown in the picture below turned out ONE-THIRD of the total twine sold and used in the United States the past season.

Row of Finishers in Mill No. 2.





Balling Machines, Mill No. 1.

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

The Deering twine mills ran night and day and then could not manufacture enough twine to supply the demand. Competing mills ran only a small portion of the working days of the year and found difficulty in disposing of the twine they did make. Deering twine had preference among the intelligent farmers of the country, because they knew that

"Every ball of Deering twine is just exactly what the tag says it is."

They knew that Deering twine was long to the pound, uniform and even in strength, free from knots and flaws, and beautiful to look upon.

Deering twine is made more carefully from better selected fibers, and is more rigidly inspected for quality and more carefully tested for weight than any other twine.

ANY REPUTABLE FARMER who has used Deering twine, made in the new mills, will tell you that he has found it to be longer to the pound, stronger, more even and more free from knots, flaws and "witches" than any other twine he has ever used.

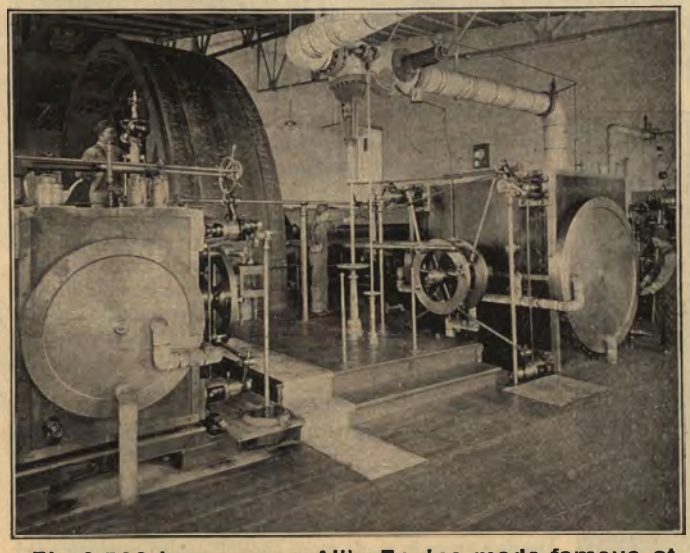
When you buy Deering twine you get the supreme quality available by the best known methods of this day and age. You get a twine that will tie your bundles without trouble, without annoyance and without loss of time.

A CHAIN is no stronger than its weakest link. Twine is no stronger than its weakest place. Deering twine is the strongest because it has no weak places. Every foot of it is subjected to a tension of 50 pounds when the ball is wound. No other mills have this automatic tension test, nor any proper method of securing uniformity.

Glimpse at Spinning Department, Mill No. 2.

A Row of Spinners in Mill No. 1.

AMUSING.—A competitor who has twine made in a Trust mill says in his 1896 catalogue: "Every day a bale of twine is shipped to us for testing our binders at our works. If it is found to be wanting in any of the requisites of high grade twine the mill is notified and the twine rejected." **ONE BALE!** One whole bale every day! That is rigid inspection surely, and inspection at the long range of 1,000 miles. It must give the office an admirable opportunity of remedying the difficulty after the mill has been running on rejected twine three or four days! Why, bless your heart, there are 2,500 bales of twine made every day in the Deering twine mills, and every one of these 2,500 bales is inspected, not in the bale only, but at every one of the dozen steps in the process of manufacture of every foot of twine in that bale. And any difficulty is remedied not three days nor three minutes after it happens, but instantly.



Big 2,500 horse-power Allis Engine made famous at the World's Fair and now furnishes power for Deering Twine Mill No. 2.

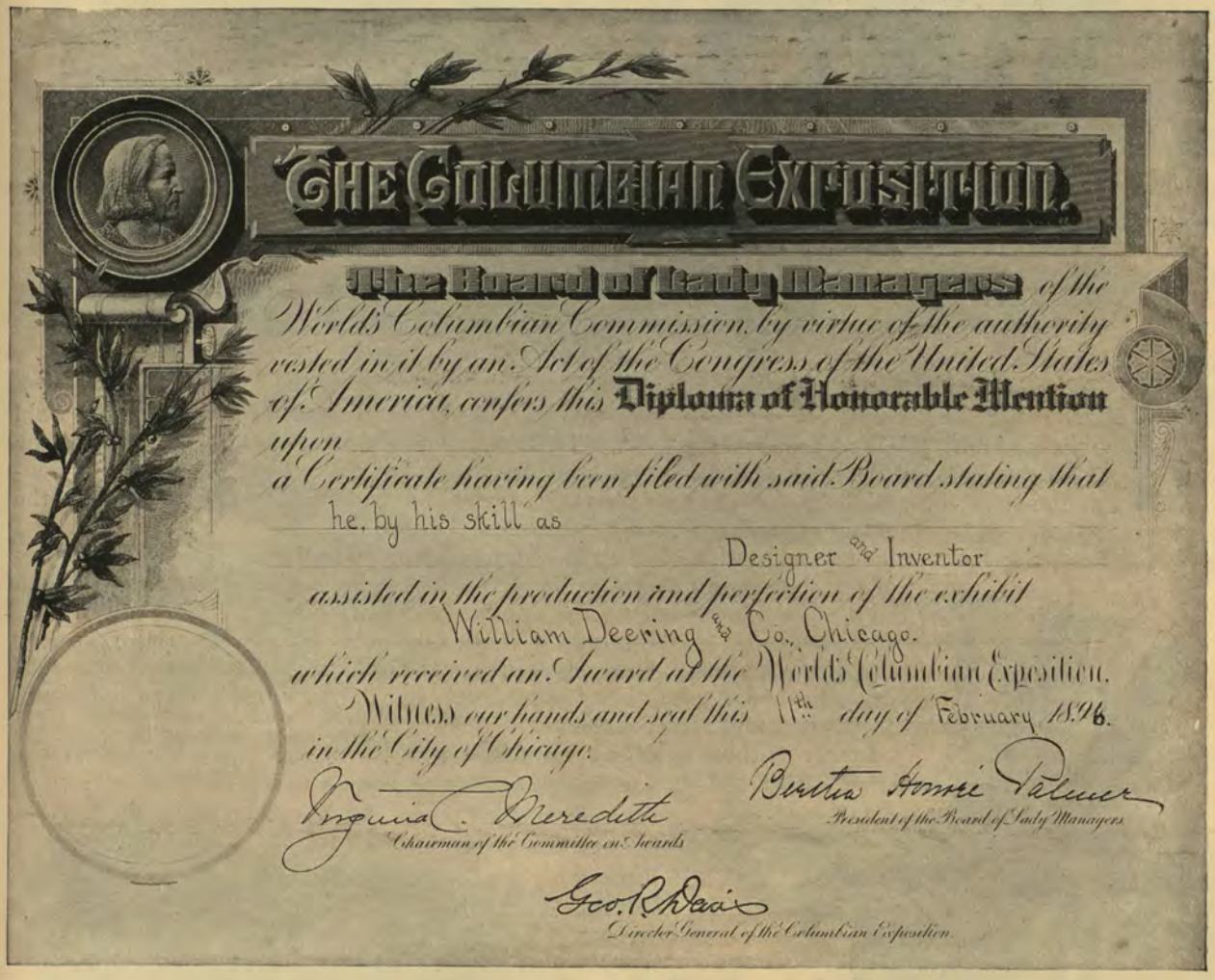
"DEERING TWINE INSPECTION GAURANTEES PERFECTION."

There's an old adage which says, "If you want a thing well done, do it yourself," Deering binder twine—every pound of it—is made in the big Deering Twine Mills. We guard every step in its manufacture with a jealous eye because our reputation is at stake. Is it not reasonable to suppose that the Deering Company uses closer inspection in the manufacture of twine which will bear its name than will an irresponsible "Twine Trust" mill, or prison plant in the manufacture of a product which will bear no other name than that of the "Harvester Company," which buys it at so much a ton?

Inspecting for length per pound.

"DEERING TWINE INSPECTION GUARANTEES PERFECTION."

FROM the time that the huge bales of raw fiber are opened, and the kinky strands "scutched" out, to the time that the endless row of shining balls disappears in well-tied bale-sacks, not an incident in the whole manufacture of the millions of miles of twine made in these great mills, escapes the trained eyes of the army of alert inspectors stationed all along the route that leads from the bale of fiber to the ball of twine. Each inspector keeps a record and makes a daily report. These reports are studied separately and studied when massed as a whole. The slightest deviation from "Deering perfection" is instantly corrected, and on top of all this, every bale of twine is weighed at least three times before it leaves the mills.

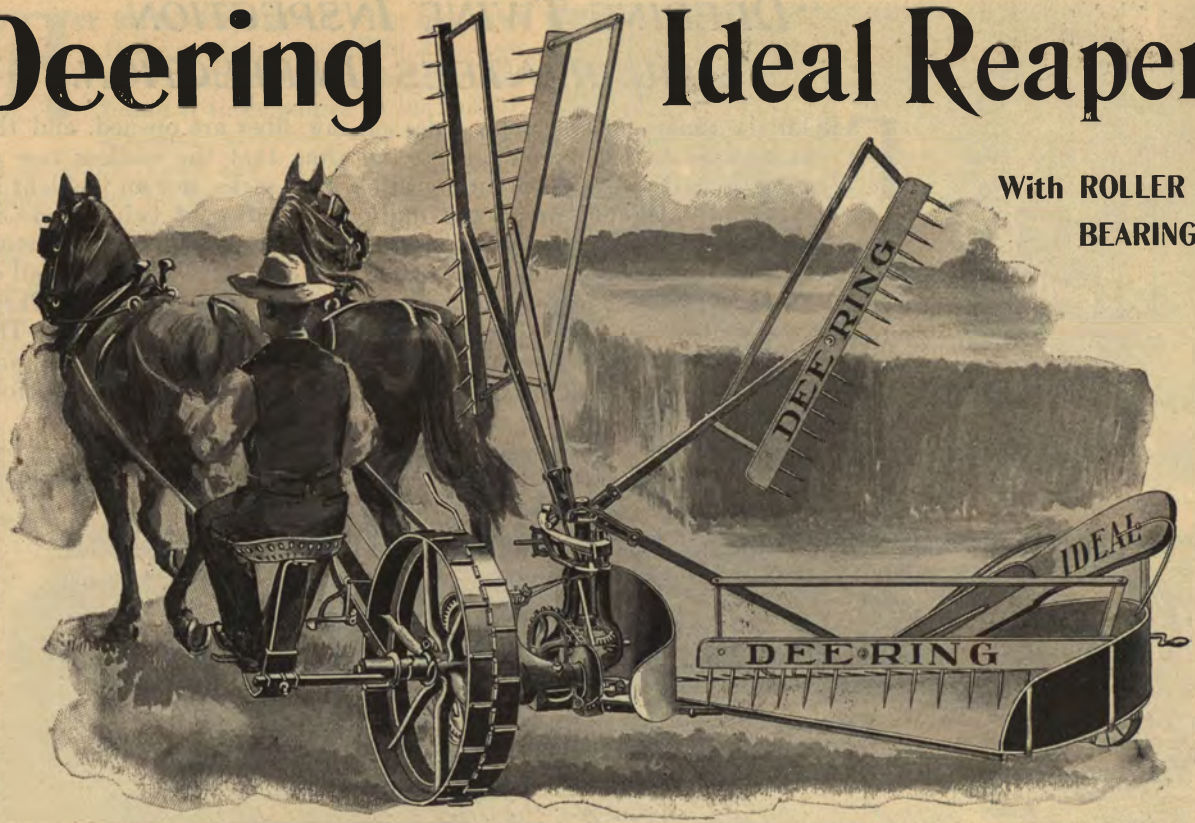


MORE WORLD'S FAIR HONORS.

The great World's Columbian Exposition crowned the Deering firm with its highest honors; but it remained for the womanly tact of the Board of Lady Managers of the Exposition to recognize and reward the individual efforts of the bright minds that direct and watch over the active processes of manufacture in the Deering Harvester Works. *OVER ONE HUNDRED* exquisite diplomas, similar to the above, were presented to heads of departments in the great Deering plant.

Deering Ideal Reaper

With ROLLER BEARINGS



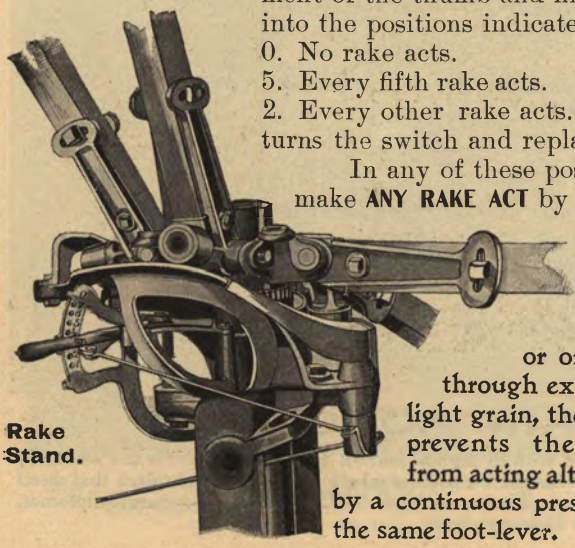
DEERING IDEAL REAPER, 5 ft. cut, with Roller Bearings.

AMONG the many points of superiority of the Deering Ideal Reaper, two stand out in bold relief: **LIGHT DRAFT** and **CONVENIENCE OF OPERATION.** Already the lightest of reapers, the 1897 machine will be made still lighter in draft by the use of roller bearings; while its convenience of operation is due to an automatic device for regulating the motion of the rakes, and to the many other labor-saving devices on the machine.

The device for regulating the motion of the rakes deserves special notice. By an easy movement of the thumb and finger as he drives along, the operator moves the switch into the positions indicated by the numbers, so that:

0. No rake acts. 7. Every seventh rake acts. 6. Every sixth rake acts.
5. Every fifth rake acts. 4. Every fourth rake acts. 3. Every third rake acts.
2. Every other rake acts. For "swathing," the driver simply draws out a pin, turns the switch and replaces the pin.

In any of these positions, no matter how the switch is set, the driver can make **ANY RAKE ACT** by a quick pressure and release of a foot-lever.



Rake Stand.

In turning corners, or on going through extremely light grain, the driver prevents the rakes from acting altogether by a continuous pressure on the same foot-lever.

Device for Governing the Motion of the Rakes.

Roller Bearings.

It is a matter of supreme satisfaction to us to note the unanimity with which agriculturists of every nation have come to demand roller bearings in their harvesting machinery, because it shows that our efforts in the direction of draft-saving are keenly appreciated. Roller bearings are placed on the main wheel axle of the Ideal Reaper, extending through both the main wheel and its sprocket. They not only greatly reduce draft, but materially lengthen the life of both this axle and the sleeve around it.

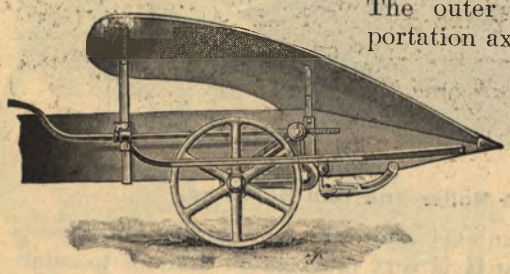
Roller Bearings run clear through the main wheel hub.

Main Wheel Raise-and-Lower Device.

RAISE-AND-LOWER DEVICES. Under the head of "Convenience" should be classed the devices for raising and lowering the cutting apparatus. A convenient crank at both main wheel and outer wheel, operating a screw, enables the driver to place the platform in any desired height and to lock it there automatically. In connection with this raise-and-lower device the device for tilting the table is extremely convenient and efficient. You can cut any stubble you want with the Ideal.

The Deering Ideal Reaper is unsurpassed for its ability to shave the ground clean. It will cut as close as anyone could desire, or can be raised very high where the land is rough and stony.

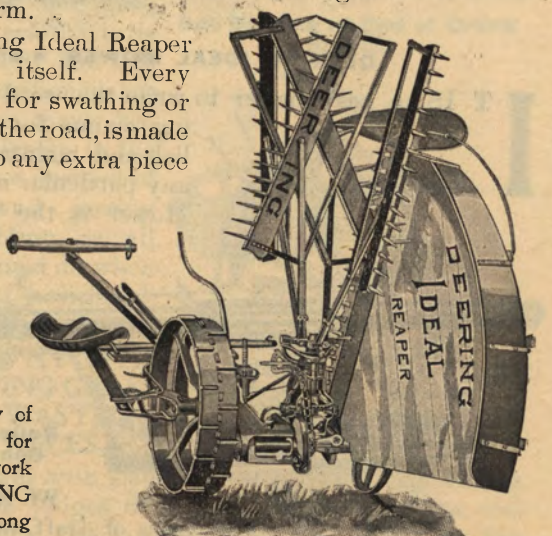
FOLDING FOR TRANSPORTATION. In the matter of folding for transportation, also, the Deering Ideal Reaper leads them all. A transportation axle is attached to and always with the machine. Much annoyance due to a separate truck or axle is thus avoided. The outer wheel is simply slipped off its axle and onto this transportation axle and the table raised and locked into position, and the machine is ready for the road.



Grain Wheel, Outer Divider and Raise-and-Lower Crank.

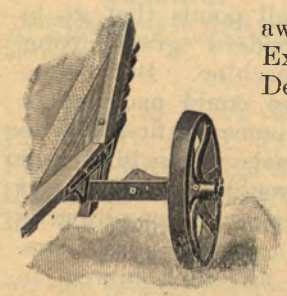
It is not necessary to remove the inside divider in folding the machine, as that has been hinged so as to fold with the platform.

The Deering Ideal Reaper is complete in itself. Every desired change, for swathing or for traveling on the road, is made without resort to any extra piece or attachment.



Handy for Transportation and Housing.

The only reaper to receive an award at the World's Columbian Exposition, Chicago, 1893, was the Deering Reaper.



Hinge and Fixed Transportation Axle.

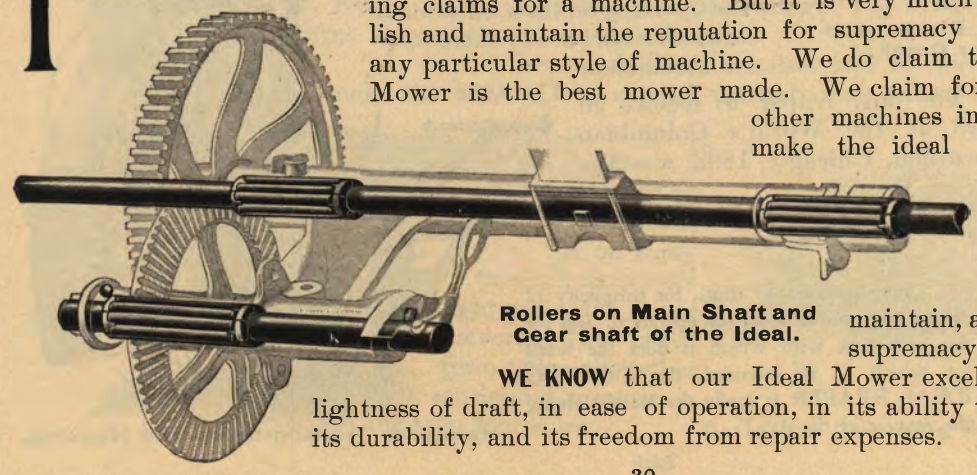
"For lightness of draft, for simplicity of design, for convenience of operation, and for the perfection with which it does the work for which it is intended, the DEERING IDEAL REAPER is easily the leader among the reapers of the day."

Deering Ideal Mower

WITH ROLLER AND BALL BEARINGS.

DEERING IDEAL MOWER, 4 and 5 ft. cut, with Roller and Ball Bearings.

IT IS an easy matter to write the word "Best." It is an easy matter to make broad and sweeping claims for a machine. But it is very much more difficult to establish and maintain the reputation for supremacy in the manufacture of any particular style of machine. We do claim that the Deering Ideal Mower is the best mower made. We claim for it supremacy over all other machines in all points that go to make the ideal modern grass-cutting machine. But before we could make these claims we first had to make a machine that would establish and maintain, against all opposition, its supremacy in all these particulars.

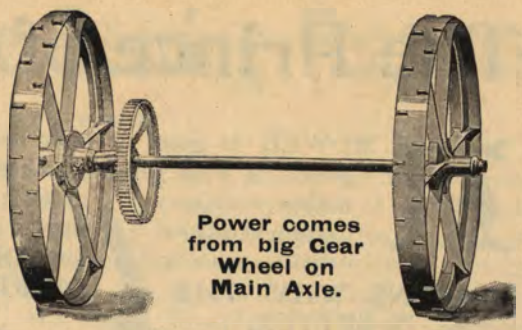


Rollers on Main Shaft and Gear shaft of the Ideal.

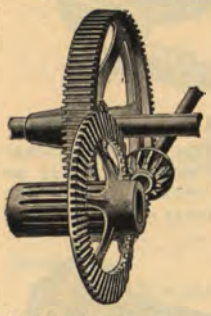
WE KNOW that our Ideal Mower excels all other mowers in lightness of draft, in ease of operation, in its ability to save all the crop, in its durability, and its freedom from repair expenses.

Simplicity.

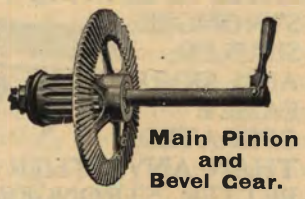
In the simplicity of the Deering Ideal Mower lies its greatest strength. Part acts with part with a precision and with an easy regularity that makes lost motion or waste of power impossible. Two simple gears, with their pinions, transfer the power from the main drive wheels to the pitman. The first of these gears is a large one keyed to the main axle. Its pinion is part of the same piece with the main bevel gear, and the pinion of the main bevel gear forms one end of the crank shaft. The old style "intermediate gear," with all of its waste of power, is done away with. So positive is the action of the gearing on the Deering Ideal Mower that the knife starts the instant the wheels start. This is one reason why the Ideal can be started in the most difficult crops without backing the team. Other reasons for this fact will be found on the next few pages.



Power comes from big Gear Wheel on Main Axle.



Simple Gears of Ideal Mower.



Main Pinion and Bevel Gear.

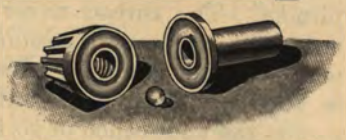
The previous page has shown the position of the roller bearings on the main shaft and gear shaft, and the ball bearing at the end of the gear shaft. Observe also that there is a ball bearing at the upper end of the crank shaft and a removable anti-friction bushing at the lower end. This construction makes the crank shaft almost absolutely frictionless in its operation, and forms an interesting chapter in the story of the light draft of this machine.

Removable Bushing of Crank Shaft.

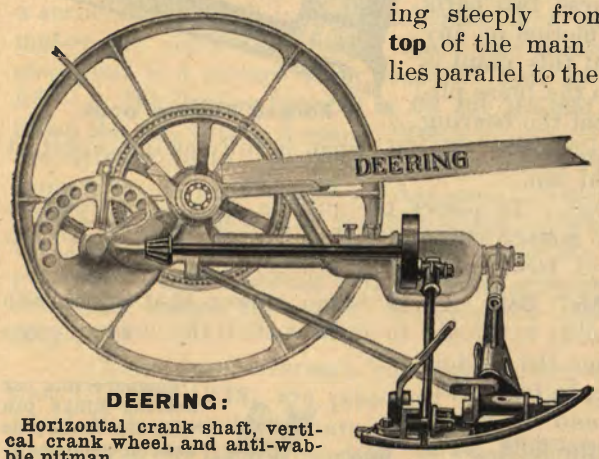
HORIZONTAL CRANK SHAFT.

It is important to observe that the crank shaft on the Ideal Mower is almost horizontal. Instead of slanting steeply from the **top** of the main axle it lies parallel to the ground, with its pinion-end **below** the main axle. The horizontal position of this crank shaft gives, of course, a vertical position to its crank wheel; and this vertical position makes the pitman move easily and silently in the same plane instead of jerking and jarring and wabbling as all pitmans must do when the crank shaft is not horizontal.

Horizontal Crank Shaft.



Ball Bearing at End of Crank Shaft.



DEERING:
Horizontal crank shaft, vertical crank wheel, and anti-wabble pitman.

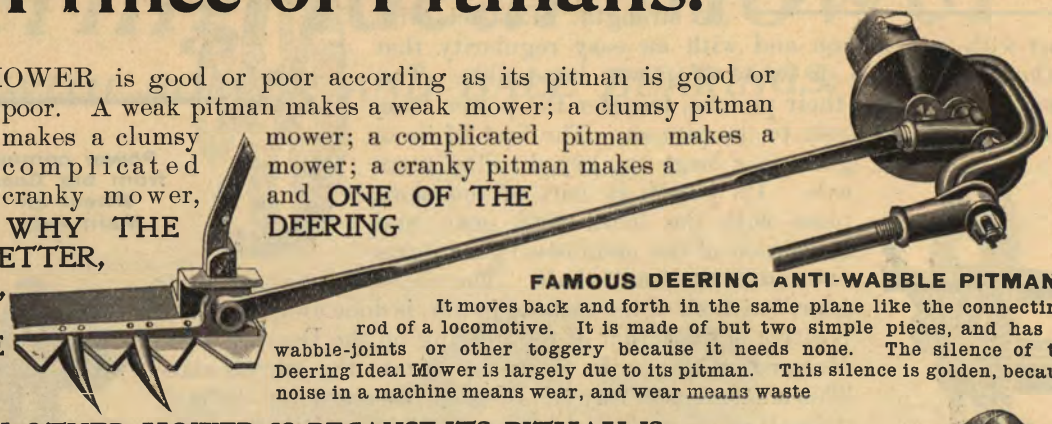
COMPETITOR:
Slanting crank shaft, slanting crank wheel, and zig-zagging pitman.

THIS IS WHY WE CALL OUR PITMAN AN ANTI-WABBLE PITMAN; AND THIS IS ANOTHER REASON WHY THE POWER EXERTED BY THE TEAM IS USED IN CUTTING GRASS INSTEAD OF BEING WASTED—WORSE THAN WASTED—IN WEARING AND TEARING THE MACHINE TO PIECES.

At the World's Fair Field Trial, a cheap 5-foot mower with slanting crank shaft and wabbling wooden pitman registered a draft of 152 lbs., of which the judges distinctly state that 100 lbs. was due to **"friction of mechanism"** and 52 lbs. to cutting. The Deering Ideal Mower, 5 feet, in the World's Fair trial, registered a **TOTAL** draft of $85\frac{2}{3}$ lbs.

The Prince of Pitmans.

A MOWER is good or poor according as its pitman is good or poor. A weak pitman makes a weak mower; a clumsy pitman makes a clumsy mower; a complicated pitman makes a complicated mower; a cranky pitman makes a cranky mower, and **ONE OF THE REASONS WHY THE DEERING IDEAL IS BETTER, STRONGER, SIMPLER, AND MORE EASILY OPERATED THAN ANY OTHER MOWER IS BECAUSE ITS PITMAN IS BETTER, STRONGER AND SIMPLER THAN THE PITMAN OF ANY OTHER MOWER.**

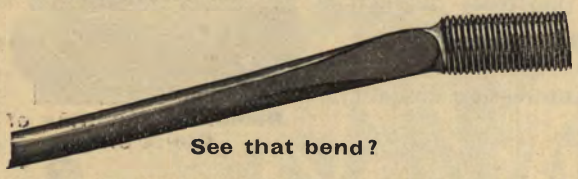


FAMOUS DEERING ANTI-WABBLE PITMAN.

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 wabble-joints or other toggery because it needs none. The silence of the Deering Ideal Mower is largely due to its pitman. This silence is golden, because noise in a machine means wear, and wear means waste

The Deering pitman is composed of but two pieces — a long steel rod and a durable brass head. The rod has at its lower end, forged in the same piece, a hook which fits in the eye of the knife head. This hook is large and strong enough to withstand any probable strain, and is case-hardened to prevent wear. At the upper end of the rod there is a long screw thread. A corresponding thread on the inside of the brass pitman head forms a union between these two parts which is at once the strongest and affords the easiest motion on any pitman. The thread never wears out, and friction at this point is reduced to the very minimum. Provision is made in the brass pitman-head for a stuffing of wool to hold the oil, so that the bearing is kept constantly oiled automatically. This not only saves oil, but, what is fully as important, it avoids the annoyance of so frequently applying the oil can.

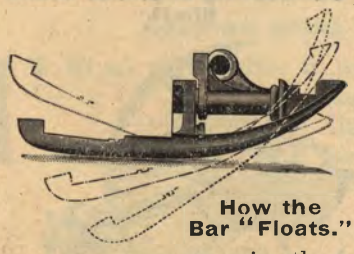
Brass Pitman Head.



See that bend?

Forged Pitman Hook.

See the bend at the upper end of the pitman rod. It places the pitman in such a relation with the knife, that no matter what the tilt of the guards, the action of the pitman is always free, frictionless, noiseless.



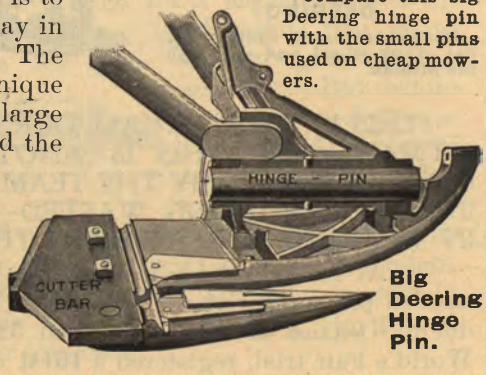
How the Bar "Floats."

DEERING "FLOATING" BAR. There is no mower that equals the Deering Ideal in its ability to "float" in and out of all the unevennesses of the ground. It hugs the ground close, getting all the crop there is to cut, putting every pound of hay in the stack that grew in the field. The curve in the pitman rod just described; the unique double-acting hinge at the inner shoe; the very large steel hinge pin on which the cutter bar swings, and the unapproached perfection of the Deering Lifting Spring (see next page), all combine to give a freedom of action that insures a close cut, no matter what the position of the wheels.

Compound Hinge.

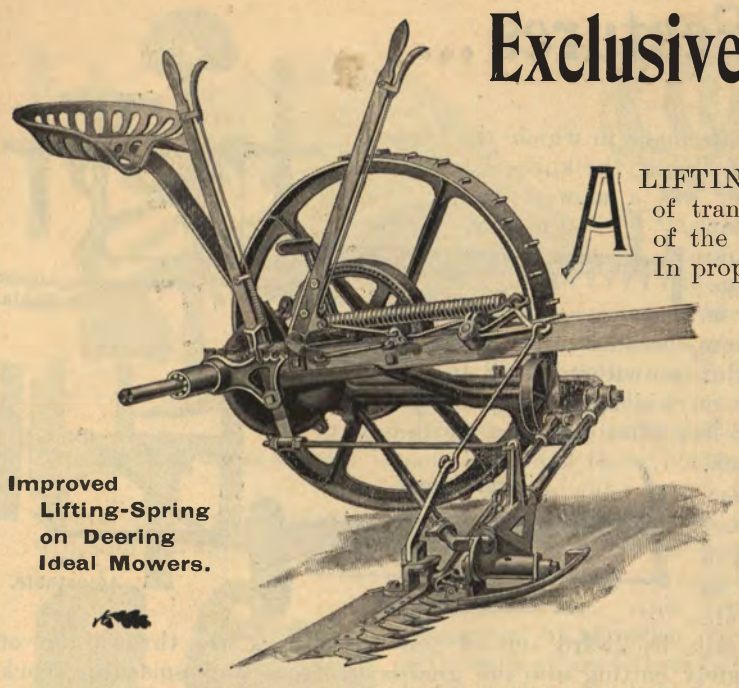
The hay saved by this "float" of the Deering bar alone, may pay for your mower in a single season.

Compare this big Deering hinge pin with the small pins used on cheap mowers.



Big Deering Hinge Pin.

Exclusive Deering Features



Improved Lifting-Spring on Deering Ideal Mowers.

A LIFTING spring is on a mower for the purpose of transferring the major portion of the weight of the cutter bar from the ground to the wheels. In proportion to the success with which a lifting spring does this, is that spring a good one. We claim broadly—and our claim is conceded almost universally—that the Deering lifting spring more perfectly neutralizes the weight of the bar and more successfully transfers it to where it belongs than any other lifting spring on any other mower. This spring is everywhere popular because it makes the lifting lever so easy to handle, no matter how long the bar. We claim, also, that there is no other lifting spring which leaves the bar so perfectly free to float in and out of the unevennesses of the ground, and there is no spring which so nearly neutralizes the weight of the bar without causing it to jump off the ground when striking obstructions.

DEERING FOOT-LIFT.

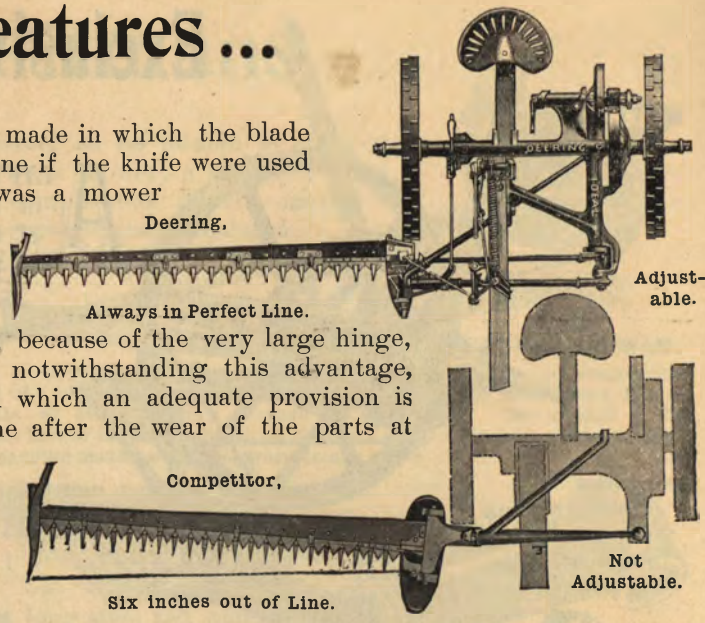
It is one thing to have a successful foot-lift on the machine and quite another to talk about a successful foot-lift in the catalogue. For instance, one of our competitors in his 1896 catalogue makes the claim that his is the "only successful foot-lever on any mower." Right opposite this statement is a picture of a "foot-lift" that never did lift the bar and never could lift it. **The Deering Foot-Lift is ON THE MACHINE, and it is there for the purpose of lifting the bar,** lifting it easily, lifting it quickly, and keeping it lifted as long as the driver desires. It is so successful a foot-lift that as a matter of fact the hand-lever is rarely used at all. It has such a leverage that it requires the pressure of only a few pounds to raise the longest bar. Its action is so positive that the bar rises the instant the lever is depressed, while the mechanical perfection of the Deering lifting spring arrangement above described makes the push required on this foot-lever very light.

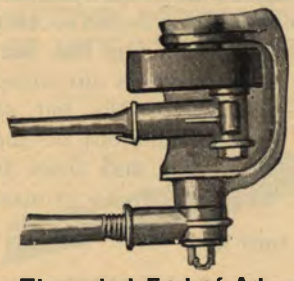
These two features, a successful lifting spring and a foot-lift **THAT LIFTS,** are possessed alone by the Deering Ideal Mowers, and they are found on all our Ideal Mowers from the One Horse to the Giant sizes. With the roller and ball bearings described on page 30 and the perfect shear-cutting knives to be described on page 35, they form a combination that makes competition on even terms an impossibility.

Improved Foot-Lift on Deering Ideal Mowers.

More Exclusive Features...

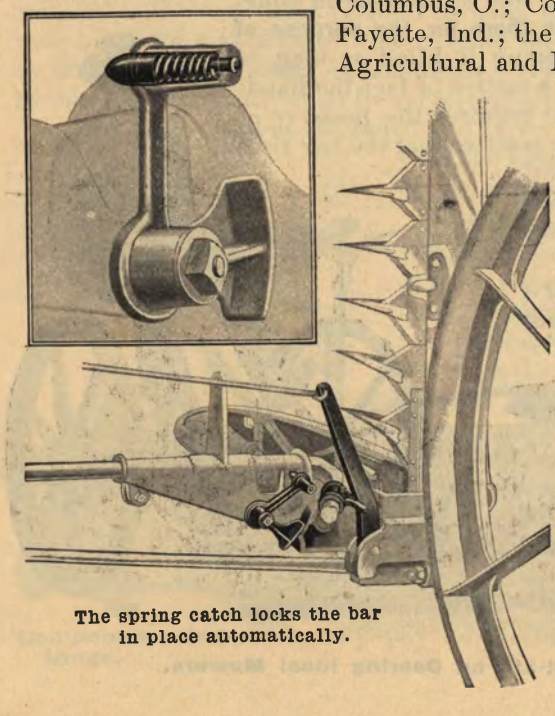
THERE never was a jack knife made in which the blade would not sag back out of line if the knife were used long enough. There never was a mower made in which the cutter bar would not sag back out of line after the parts at the inner shoe became worn. On the Deering mowers this wear is later in coming than on competing mowers, because of the very large hinge, pin at the inner shoe of the Deering. But, notwithstanding this advantage, the Deering mowers are the only ones on which an adequate provision is made for bringing the bar forward into line after the wear of the parts at the inner shoe has caused it to sag back. This feature is of the utmost importance, because a mower with its bar out of line is as bad as no mower at all. When the bar falls backward out of line the knives are thrown out of register, alternately cutting into the guards in front and smashing back against the knife back, skipping half the crop, worse than wasting the power exerted by the team, and playing the mischief generally. The cure of this grievous malady is a simple one, as all great cures are simple. It is the **DEERING ADJUSTABLE DRAG BAR.** It is that heavy bar which lies immediately in front of the pitman, and all that it is necessary to do to bring the bar forward into line is to unscrew the nut at its upper end, give the head as many turns on its thread as seems advisable, and replace the nut.





Threaded End of Adjustable Drag Bar.

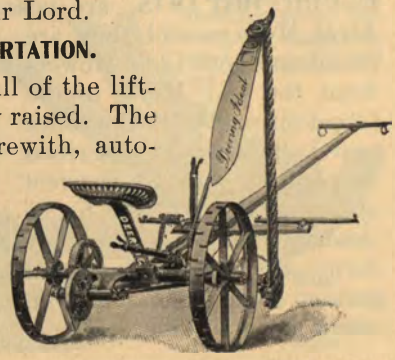
The Deering Ideal Mower is in use at the Ohio State University, Columbus, O.; Cornell University, Ithaca, N. Y.; Purdue University, La Fayette, Ind.; the Missouri State University, Columbia, Mo.; Texas State Agricultural and Mechanical College at College Station; Maine State College of Agriculture at Orono, and at other institutions of like prominence throughout the country. It has been subjected to the most rigid tests, and the most critical inspection that the trained heads of Government Agricultural Experiment Stations could devise. It has gained new luster with each test and won new honors with each examination. It is recognized by the highest authorities as far-and-away the most highly perfected grass-cutting machine of this year of our Lord.



The spring catch locks the bar in place automatically.

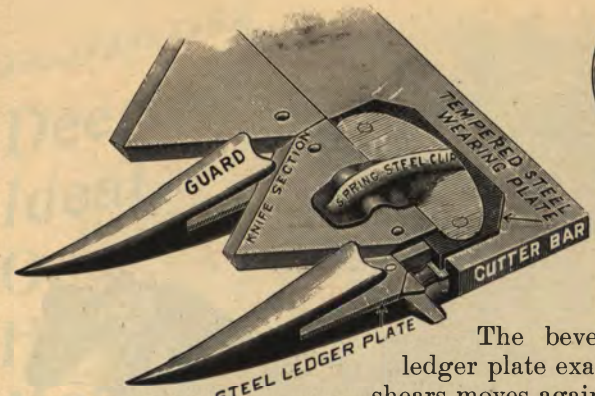
FOLDING FOR TRANSPORTATION.

Owing to the even pull of the lifting spring the bar is easily raised. The cutter bar lock, shown herewith, automatically holds it in any desired position, while a spring makes the positiveness of this lock doubly sure, and yet permits it to be released at will.



Convenient to Fold.

Cutting Apparatus



The Perfect Grass-Cutter.

THE Deering Ideal Mower is essentially an edged tool. It cuts the crop cleanly and cuts it as close to the ground as desired. Its superiority in this direction is due to the perfect shear-cutting principle of its knives, and particularly to its **SERRATED LEDGER PLATES.**

The beveled knife moves against the ledger plate exactly as one blade of a pair of shears moves against the other; while the spring-steel clip holds these blades firmly against each other. Try to cut a match in two with a pair of shears, holding the blades well open. If the shears be at all dull the match will slide forward uncut. This is just exactly what happens with stubborn grasses when they are caught between the blades of a dull mower. And this is just exactly what we prevent by **serrating** one of the blades. The little teeth or serrations hold the stubborn grass in their grasp until the knife snips it off. This construction not only makes it possible for the Ideal Mower to run longer without sharpening than competing machines, but, what is more important, it makes the Ideal the only machine that can be started from a stop in any crop without backing; the only mower which can be driven at a slow walk in the most stubborn crops without clogging.

Tempered Steel Wearing Plate. **Spring Steel Clip.**

Serrated Ledger Plate. (Exact Size.)

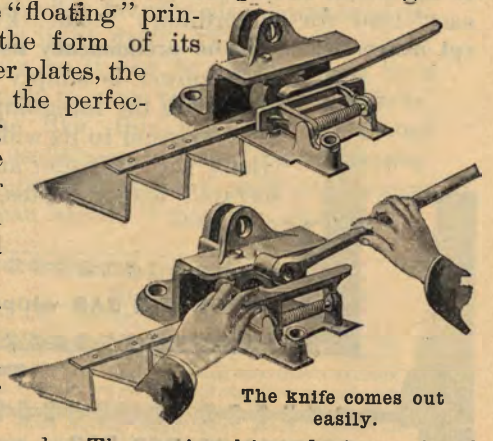
A SHEAR CUT.

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

Observe that the knife moves over the serrated ledger plates in front and the tempered steel wearing plates at the back. Its action throughout is that of steel against steel. The liability of fine hair-like grasses working backward into the cutting apparatus and clogging the machine is reduced to the minimum by the positiveness with which each part moves against its neighbor.

A CLOSE SHAVE. The "floating" principle of its cutter bar, the form of its guards, the serrated ledger plates, the shear-cutting knives, and the perfection of the whole cutting apparatus make the Deering Ideal Mower leave a clean field of which its owner may well feel proud.

A Close Shave.



The knife comes out easily.

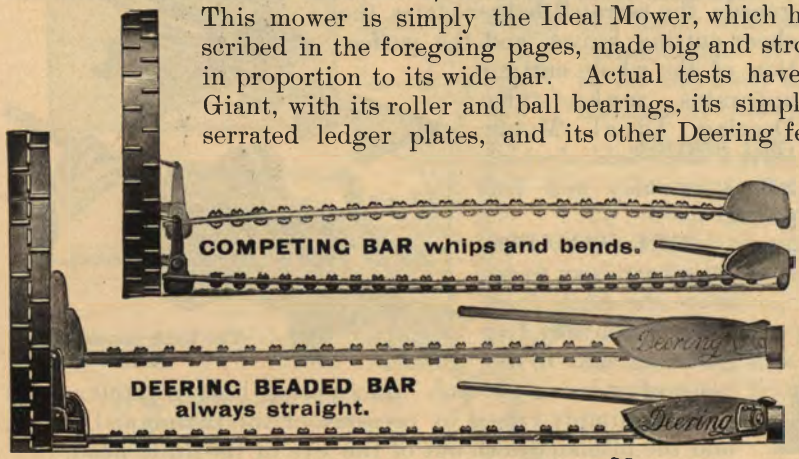
KNIFE CONNECTION. It is very easy to remove the knife from the machine for grinding and to replace after being ground. The spring-hinged pitman-head guide is simply raised by pressure of the thumb and finger, and the pitman drawn out of the eye of the knife head.

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

WHERE the character of the land permits it, the use of a wide cut mower is a matter of great economy. Every foot added to the bar reduces the number of feet to be traveled, leaves many less corners to be turned, and so many more acres that can be mowed from dawn to dark. But this is only true when the wide cut mower is strong all over in proportion to the width of its bar. It is only true when the wide cut mower is so light of draft as to be an easy load for an ordinary team. For these two reasons it is safe to assert that **the only wide cut mower which can be economically used is the Deering Ideal Giant Mower.**

The Beads.

This mower is simply the Ideal Mower, which has been described in the foregoing pages, made big and strong all over in proportion to its wide bar. Actual tests have shown that the 7-foot Deering Ideal Giant, with its roller and ball bearings, its simple gears, its anti-wabble pitman, its serrated ledger plates, and its other Deering features, is a lighter load for a team than any competing 5-foot mower made. It is also true that the 6-foot Deering Ideal Giant is lighter in draft than the ordinary 4-foot competing machine.



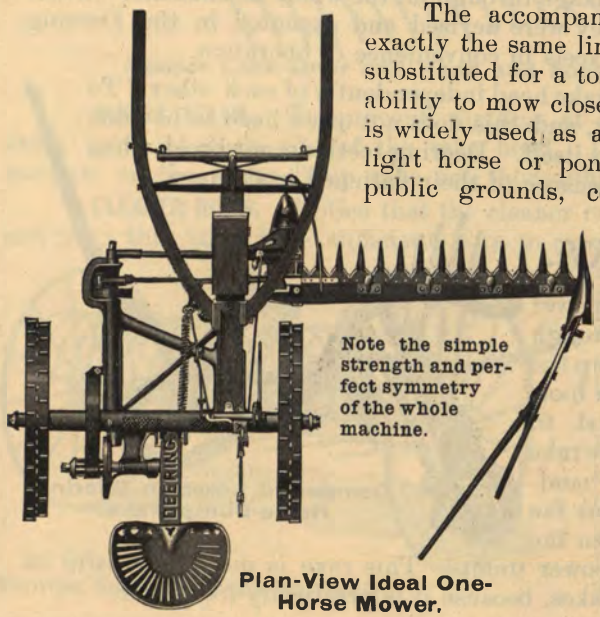
BEADED CUTTER BAR. The finger bar of this machine is beaded or ribbed, as shown in the small cut above. This gives it a rigidity which prevents bending and whipping.

Deering Ideal One-Horse Mower

DEERING IDEAL ONE-HORSE MOWER, 3¼ and 4 ft. cut.

THE descriptions just given for the Deering Ideal Mower refer equally to the One-Horse Ideal. This machine is a substantial, practical farm implement, capable of handling any crop that any large mower can handle. It has the roller and ball bearings, horizontal crank shaft, perfect two-piece pitman, shear-cutting knives, and serrated ledger plates exactly as has the larger machine.

Where the acreage is small, or the land extremely rough, this machine will be found to be of the greatest service. Its draft is extremely light, while its levers are so easily operated that a boy can handle the machine with perfect success.



Note the simple strength and perfect symmetry of the whole machine.

Plan-View Ideal One-Horse Mower.

The accompanying plan-view shows that its frame is formed on exactly the same lines as the frame on the larger machines, thills being substituted for a tongue. This machine is a favorite also, because of its ability to mow close, and its extremely light draft. For this reason it is widely used as a horse lawn mower, as it can be easily drawn by a light horse or pony not heavy enough to mar the lawns. In parks, public grounds, cemeteries, and the like, this machine has found a wide field of usefulness as a horse lawn mower. It is so easily operated that any child old enough to drive a horse can handle it most successfully.

ST. LOUIS, MO., May 18, 1896.

DEERING HARVESTER CO., Chicago, Ill.

Gentlemen:—In reply to your favor of May 15th, inquiring how I am pleased with the one-horse mower which I recently obtained through your Western agency, would say that it exceeds all expectations, and I would not be without one even though the price was twice what I paid. I take pleasure in recommending the machine to all those having large lawns around cities, or farmers who have any considerable acreage in orchard or grass. It is a very handy machine to work with between trees, and I find that it does nearly the work of a two-horse machine, while one horse can operate it very easily. Yours truly,

F. E. NIESEN.

DEERING

Hand-Dump AND Horse-Dump

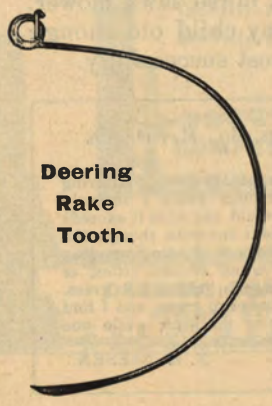
HAY RAKES

DEERING HORSE-DUMP HAY RAKE, 8½, 10½ and 12 feet.

FARMERS have pretty generally learned that when a thing is made of steel, of good steel, it is pretty sure to give them good service. That is the way Deering rakes are made. There is no wood in them, except the combined pole and shafts. Deering Steel Hay Rakes are made with a view to giving long and satisfactory service under the most difficult conditions. Though only two years before the public, they have already taken first place among the hay rakes of the world. Their popularity is due to three things: Their durability, their economy, their ease of operation. Their durability is due to the fact that they are well made from sensible designs out of good steel. Their economy is due to the shape of the teeth, which enables the machine to clean the ground perfectly without scratching it, and to the freedom from breakage throughout the whole mechanism. Their ease of operation is due to the fact that they were devised and executed in the Deering shops, from which everything that issues excels in convenience of operation.

Rake Tooth Clip.

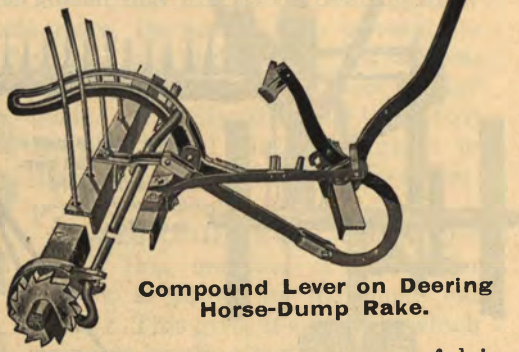
The teeth are secured to the angle steel rake head independently of each other. To replace a tooth it is only necessary to remove one bolt, and this does not often have to be done on a Deering rake because of the strength of the tooth itself. Deering teeth do not break when others do, because they are made of better steel, and because of their flattened oval shape.



Deering Rake Tooth.

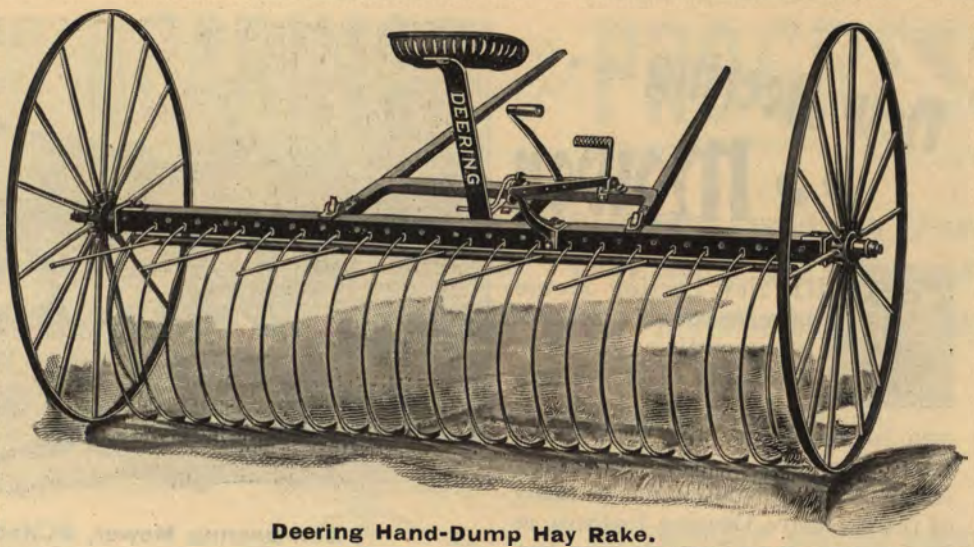
HORSE-DUMP RAKE.

This rake is dumped by the power transferred from the wheels through the long steel dump rod. To dump the rake it is only necessary to touch a foot-trip, which causes the dump rod to engage ratchets at each wheel. The rake can also be dumped by means of a hand-lever, a lever which is notable for the fact that it remains stationary when the rake is lifted by means of the power dump. This rake is more successful in bunching than other self-dump rakes, because it is practically lock-lever.



Compound Lever on Deering Horse-Dump Rake.

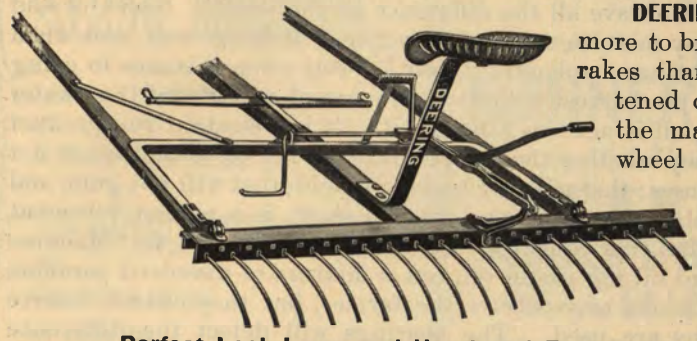
Hand-Dump Rake



Deering Hand-Dump Hay Rake.

THIS is the most perfect lock-lever rake on the market, and is at the same time extremely easy to dump. The perfect dead lock of the dumping device when the teeth are down does not interfere with the easy lifting of the rake, an operation which is done with equal ease by means of either foot-lever or hand-lever. In fact, the foot-lever is so convenient that the driver will rarely make use of the hand-lever at all. This foot-lever is unique in the fact that it both dumps and returns the rake.

BUNCHING. The very great strength of this rake, combined with the absolute certainty of its lock-lever, makes it the ideal rake for bunching the windrow.



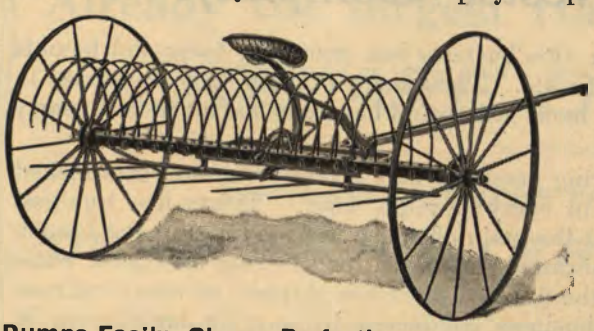
Perfect Lock-Lever and Hand and Foot Dump.

DEERING STEEL RAKE WHEELS. Nothing has done more to bring about the wide popularity of the Deering rakes than their matchless steel wheels. The flattened oval spokes are upset into both the rim and the malleable hub. The whole formation of the wheel is such as to give it strength to withstand both lateral and vertical strains. These wheels are practically everlasting.

COMBINED POLE AND SHAFTS. Deering rakes, both hand-dump and horse-dump, in all sizes, are furnished with combined pole and shafts, making it optional with the farmer whether he uses two horses or one.

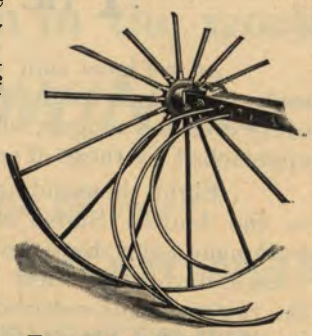
SHORT TEETH. To prevent winding at the wheel hubs, Deering rakes are provided with short teeth at each end of the rake head. In addition to this protection against winding, the ratchets on the horse-dump rake are thoroughly shielded by an enclosing gear-cover

CLEANER RODS. Notice that the cleaner rods are so hung that they clean the teeth perfectly, and also that they have sufficient play to protect them against breakage in case of an unusually heavy load of hay being pressed against them. This is of especial importance on the horse-dump rakes.



Dumps Easily, Cleans Perfectly.

SIZES. Deering Hay Rakes, in both hand and horse dump, are made in the following sizes: 8½-foot, 20 teeth; 8½-foot, 26 teeth; 10½-foot, 26 teeth; 12-foot, 30 teeth.



The Short Tooth Prevents Winding.

New Deering "" Mower

New Deering Mower, 4½ and 5 ft. cut.

THE New Deering Mower is a thoroughly reliable grass-cutting machine. A veteran of eleven harvests, it still holds its own in the trade. It is a better mower than any machine offered by competition, because it has so many of the exclusive Deering features, as for instance, the adjustable drag bar, the shear-cutting knives, the anti-wabble two-piece pitman, the floating cutter bar, etc., etc.

Deering Harvester Oil.

A REAL HARVESTER OIL. There is a tremendous difference between oil and oil. The name is the same in each case, but the stuff behind it can have all the difference in the world. Some oil sold as "Harvester Oil" is not oil at all, but a soapy mixture made of paraffine. It looks well, and when the temperature is just right has a splendid "body." But when it comes to using it in the heat of summer in the harvest field, it is no more of a lubricant than water out of the creek. Deering oil is not this kind of oil. It is a straight-run product that has the same consistency whether the temperature be hot or cold; that is not affected by moisture or dryness; that will not become rancid; that will not gum, and that is free from objectionable chemicals, and that, in short, is a perfect lubricant at all times. Remember that oils commonly sold as "Lard Oil" or as "Machine Castor Oil" are neither lard oil nor castor oil, but a mixture of dissolved paraffine and other chemicals. Such oils may deceive the farmer, but they cannot deceive the bearings on which they are used. The bearings will detect the difference instantly, and the heating and wear and added friction and draft, due to the use of inferior oils, form unanswerable arguments against the use of such "doctored" products. **"DEERING HARVESTER OIL KEEPS THE BEARINGS COOL."**

SOLD IN HALF, ONE, THREE and FIVE GALLON CANS, and IN BARRELS.

The Deering Harvester Company.

As we have said elsewhere in this little book, this business has grown by leaps and bounds each year since its inception. Our business is world wide. The name **"DEERING"** is recognized in every civilized tongue, while the machines which that name represents have reached a sale not nearly approached by those of any other make.

Eight thousand agencies for the sale of Deering machines and binder twine are established in the United States alone, with hundreds more in every foreign land. Thirty-five hundred workmen in the shops, and fifteen hundred employes at the main office, on the road and at the branch houses, devote all their energies to supplying the unexampled demand for Deering machines, while the raw materials received by train and shipload, and the finished machines shipped on every railroad in the United States, far exceed in magnitude the business conducted by any similar concern in the world.

W. B. CONKEY COMPANY, PRINTERS AND BINDERS, CHICAGO.

ROLLER AND BALL BEARINGS AND GREAT PROGRESS

PRICES of farm products were so low in 1896 that farmers could not afford to use poor, wasteful Harvesting Machines. They had to get every dollar's worth of crop from every field, and get it at the minimum expense for labor, horse-feed and repairs.

THAT IS WHY:

... The 1896 sales of

DEERING MACHINES

exceeded those of 1895 by

23,256 Machines.

... The 1896 sales of

DEERING MACHINES

exceeded those of 1894 by

40,000 Machines.

... The 1896 sales of

DEERING BINDER TWINE

exceeded those of 1895 by

7,000 Tons.

... The 1896 sales of

DEERING BINDER TWINE

exceeded those of 1894 by fully

10,000 Tons.

Already the largest Harvester Concern in the world,

...WE ARE STILL GROWING...

NOTHING CAN STOP THE TRIUMPHANT MARCH OF THE

DEERING ROLLER AND BALL BEARINGS.

Chicago, U. S. A., December 1st, 1896.

DEERING HARVESTER CO.

FOR SALE BY