

MINNESOTA



Binders Mowers
Dump Rakes
Side Delivery Rakes
Hay Loaders
Cultivators
Ropes and Binder Twine



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FOREWORD

IN presenting our new catalog, we again have an opportunity to express our deep appreciation for the splendid patronage we have enjoyed and, with considerable pride, we point to the fact that we had the privilege, during the past year, of serving so many who are engaged in our basic industry—agriculture.

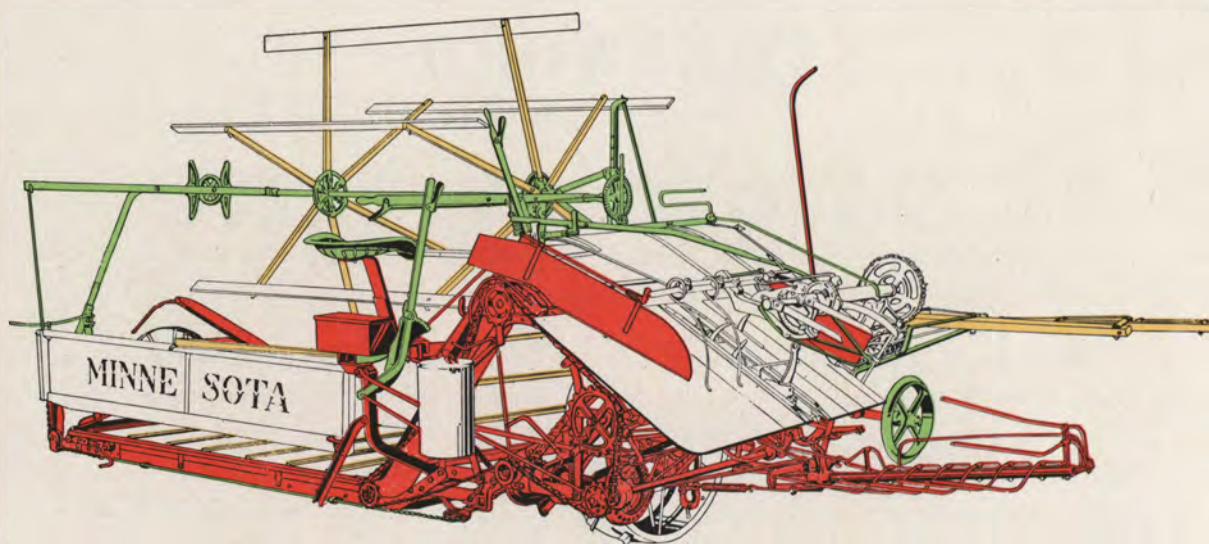
WITH each passing year, we cannot help but feel that our friendly relations with the many thousands who are now using MINNESOTA products are becoming more and more firmly cemented. Not only are we making new friends every year but we are keeping the old ones, whose support has made these Industries so successful. Not only one member of a family enrolled as a MINNESOTA user—but entire families. Mr. Wm. H. Dehne, Route 2, Holloway, Minnesota, writes us, in part: “My oldest boy has just bought a MINNESOTA binder, so that makes five MINNESOTA binders now in use in the family.” This is the foundation on which these Industries have been built.

WE prize and enjoy the friendship and good will of our host of customers. Their interest in our welfare spurs us forward and we shall do our utmost in the years to come to continue to merit the confidence that has been entrusted to us. We renew our pledge to furnish machines, twine and rope of unsurpassed quality, at prices as low as possible, backed by the same guarantee that has earned for MINNESOTA products a place among the leaders.

IN the following pages, we have tried to give you a brief description of the MINNESOTA line, but if you are interested in any particular machine, we invite you to make a critical inspection for, after all, the machine itself and its record in the field are the most convincing arguments in its favor.

We welcome your inquiries and stand ready to serve you at any time

Minnesota State Prison Industries
STILLWATER, MINNESOTA



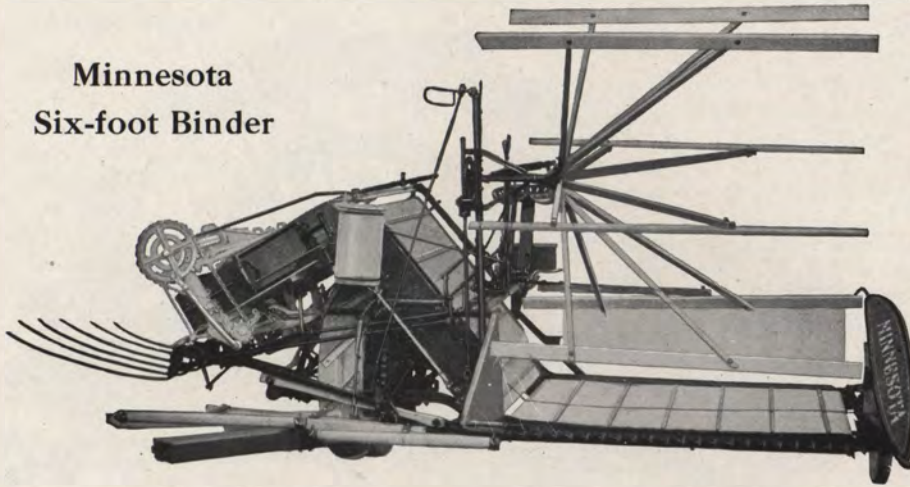
Minnesota No. 2 Improved Binder

MINNESOTA Binders are made in three sizes — six-foot, seven-foot and eight-foot cuts. Tongue truck is regular with eight-foot binders but can be furnished with the other sizes. The seven-foot and eight-foot are regularly equipped with outside reel supports.

The new MINNESOTA Binder embodies every feature that is necessary to meet the demand for a binder that can be depended upon—not only to harvest this year's crop but each successive year's under opposite and varied conditions. It is adverse conditions that test the mettle of a binder and if built to stand this strain without battle scars, then you know you have the kind of a binder you need. The MINNESOTA binder is designed as a general-condition binder. It is heavier in weight because it is reinforced to stand cutting on rough and hilly land. A MINNESOTA binder does not get out of alignment. It is easy running because it is equipped throughout with roller bearings. It is long lasting because the material of which it is made is in accordance with time tested specifications. Cheap material has no place in a MINNESOTA binder for its reputation is held higher than a profit. It is convenient to handle as all levers are within easy reach of the operator. Its capacity to handle heavy, down and

tangled grain and in opening a field is a particular feature in MINNESOTA binders. No loose bundles. The knotter in a MINNESOTA binder is a sure tier and of very simple construction. It is of but few parts and very seldom gets out of adjustment. This feature is appreciated by those who have had experience with complicated knotters. A neat, tight bundle is desired by every farmer and a MINNESOTA binder with its three packers, adjustable head board and vibrating butter in two sections produces the desired results regardless of the length of the grain. The sheaf is tied in the middle by simply shifting the binding attachment to place the band in the middle of the sheaf. The drop carrier is regular equipment, but the folding type carrier is available for those who prefer this carrier. A patented Reel Support and Tongue Truck, a more detailed description of which, as well as other features, will be found in this catalog.

Minnesota Six-foot Binder



Special Features of the Minnesota No. 2 Binder

Strong Steel Frame, thoroughly braced and trussed.
Heavy Ground Wheel, with broad face, giving ample power.

Positive Four-Point Clutch, for putting in and out of gear.

Relief Spring, breaks the jar on rough ground.

Twenty-three Roller Bearings, make light draft and save wear.

Self-Aligning Bearings, always run free.

Easily Adjusted Reel, one lever does it all.

Lever Adjustment on Butter and Binding Attachment, for binding long or short grain.

Adjustable Steel Plates on Cutter Bar, for taking up wear.

Automatic Spring Tension, for platform canvas.

Floating Elevator, adjusts itself to any quantity of grain.

Seventh Roller, Gear Driven, prevents bunching and loss of grain.

Canvas Slackers on elevators and platform canvases.

Perfect Knotter, always ties and always ties tight.

Square Butted Sheaves, the positive vibrating butter does it.

Band in the Middle, with long or short grain.

Steel Head Board, can be folded up out of the way of long grain.

Adjustable Wind Shield, convenient to adjust to desired position.

Perfect Work under all conditions.

Saves all the Grain and all the Straw.

Easily taken apart and put together.

All Parts Readily Accessible for oiling, etc.

Easily Raised and Lowered by means of handy crank.

Convenient Tilting Lever, gives great range of tilt.

Removable Dividers, rigid while in working position but easily removed for transporting or storing.

Quick Turn Tongue Truck that will not tip.

Easily Mounted on Transport Truck, when so mounted, will pass through a very narrow gateway.

Steel Seat Support.

Adjustable Seat enables a heavy or light driver to balance the machine and take all the weight off the horses necks.

Simple, durable, and not likely to get out of order.

John R. Maxwell, Box 52, Granada, Minnesota.

I have one of your 8-ft. Binders, 5-ft. Giant Mowers, Side Delivery Rake and Hay Loader which I have used for three years and they do the work fine. I have used other makes of machinery and I think the MINNESOTA machinery is as good if not better than other makes.

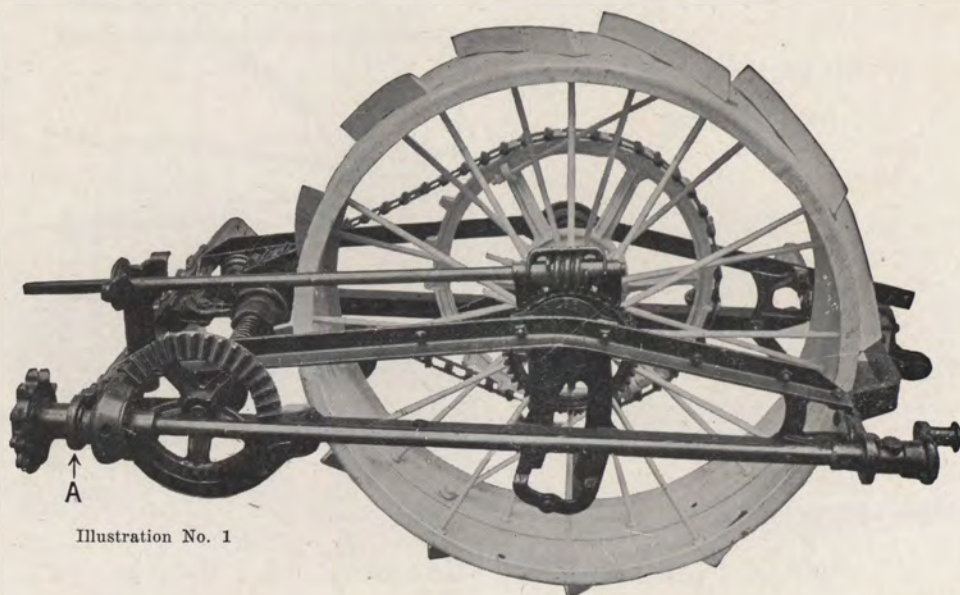


Illustration No. 1

Main Wheel

The main or Bull Wheel is all steel, three feet in diameter. The spokes are of seven-sixteenth inch round steel, riveted both to the inside and outside of the rim and to the steel hub sleeve at center. The bearings in this wheel consist of two large roller bearings with a one and five-sixteenths inch cold rolled axle. (See Illustration 2.) The main drive sprocket is fastened to the grey iron hub which is held rigid in the hub sleeve by three grooves. The sprocket is also bolted to the spokes of the wheel. This however, is only to hold it properly in place. This manner of attaching sprocket to bull wheel practically makes it a one-piece construction with the advantage of being able to renew the hub without discarding the wheel or sprocket. For further reinforcement, two braces hold the sprocket to rim of the wheel. The wheel is equipped with deep angle lugs riveted to the rim, giving it strong traction power.

It is raised and lowered by a worm and a worm gear attachment, very easy to operate and very powerful. A relief spring is on the rear end of raising shaft to take up shocks and jars.

A positive four-point clutch on the bevel gear shaft, operated by a lever within easy reach of the driver, puts the machine in and out of gear.

(See Illustration 1)

Main Frame

The Main Frame of a MINNESOTA Binder is constructed to insure a long life for the MINNESOTA Binder. It is double-trussed and built like a bridge, eliminating any possibility of its being sprung out of line when Binder is used on rough or hilly ground. Two side brackets, which hold the main wheel, also act as a reinforcement to the frame. These brackets are so constructed as to keep the main drive wheel running true, no matter whether the machine is raised or lowered to opposite limits. The frame is attached to the platform by two $\frac{1}{2} \times 2$ inch bars made of high carbon steel which prevents settling or sagging of the platform. (See Illustration 1.) Note the forged steel extensions "A"; also the drive chain, which is made of chrome steel and is oil-tempered. Gears and sprocket are made of semi-steel mixture of iron, which greatly adds to their life and with proper care should wear indefinitely. The gears are so assembled that they may be easily changed should it be necessary to do so.

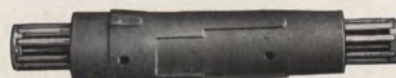


Illustration No. 2

Cross Shaft

The Crank Shaft is made of one and one-sixteenth inch cold rolled steel running in self-aligning boxes with roller bearing at rear end. Cross Shaft is of one and five-sixteenths inch cold rolled steel running in self-aligning boxes with roller bearings at each end. A ball bearing is used on the end of this shaft to take the thrust of bevel gear.

(See Illustration 3)

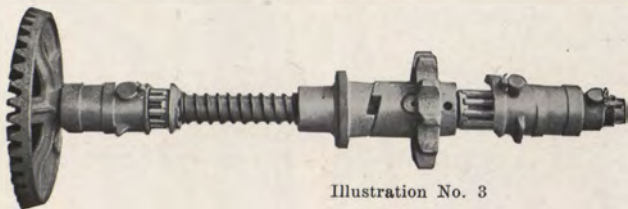


Illustration No. 3

Elevators

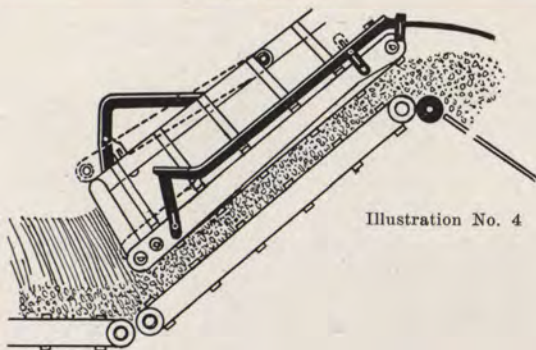


Illustration No. 4

The substantial manner in which the elevator supports on a MINNESOTA Binder are constructed is a feature worth while considering in the purchase of any Binder. Unless the elevators are supported properly, they will become warped and twisted and the bearings of rollers get out of adjustment, causing heavy draft of the binder as well as damage to the canvases.

The front elevator consists of cold rolled sheet steel, securely fastened to high carbon angle steel guide, also to canvas guides. This rigid construction keeps the bearings from getting out of alignment. The rollers are driven by gears which are enclosed in a grey iron housing, securely attached to the front elevator, which prevents dirt and refuse getting into the gears.

The rear elevator is made of one piece in the shape of an arch, with a cold rolled sheet and the canvas guides attached, which makes a very rigid

construction and prevents the elevator from sagging or getting out of shape. A brace extending from the top angle at the rear of the gear frame to the front elevator, is used for squaring the elevator and when once in position, remains firm and rigid. Steel rods are used to square the rear elevator with the front and when once in position, rarely will have to be changed.

The upper elevator floats at the rear,—a feature that is absolutely essential to the proper handling of light or heavy grain. It automatically adjusts itself to any volume of grain and insures perfect elevation and also saves the canvas.

Front Elevator Side

Illustration No. 5 shows the Front Elevator Side. Note particularly the butter and reel drive. "A" shows the dust proof box which encases the gears, "B" the all steel tilt crank, "C" the steel spring which holds in adjustment the floating elevator. This illustration also shows the manner in which the reel is driven. Note the tumbling shaft, which is equipped with roller bearings.

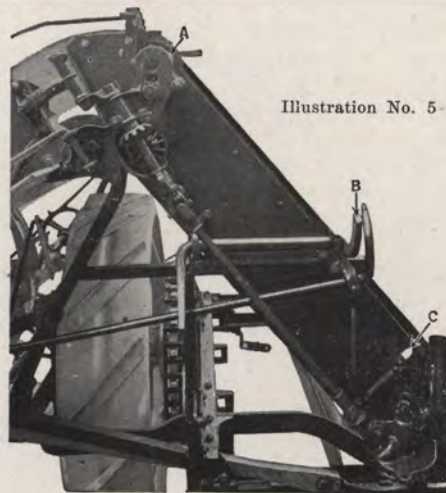


Illustration No. 5

Extra care is taken in making elevator rollers. They are bored for gudgeons, then turned on their centers, thus making a perfect, true running roller. The gudgeons are driven in by a machine especially made for this work and fastened securely in the rollers by rivets that run clear through the roller. All elevator rollers with the exception of the seventh roller run in roller bearings and self-aligning and solid boxes.

Both upper and lower elevators are equipped with canvas slackers which are easily operated.

Platform

The MINNESOTA Platform has, in many instances, been the deciding feature in the mind of a buyer which binder to purchase. The ordinary platform and cutting apparatus will do good work under ideal conditions, but the test comes under unusual, adverse conditions and the MINNESOTA Platform and cutting apparatus have, therefore, been designed and constructed to handle all kinds of grain under the most trying conditions. The Platform on a No. 2 improved MINNESOTA Binder is designed to use a canvas $46\frac{3}{4}$ inches wide to better handle long grain. An improvement is made in the design of the guards, which are now so constructed as to prevent weeds and morning glories drawing in at the outer end. The distance between the knife and the canvas is only $1\frac{1}{8}$ inches. The knife is equipped with serrated sections, measuring $3 \times 2\frac{1}{8}$ inches. The platform is equipped with a canvas tightener, which is very easily operated, and is also equipped with release springs to allow for shrinkage in the canvas when wet. The platform bottom is made of all steel with ribbed reinforcements of high carbon angle steel underneath.

Canvases

The Elevator Canvases, as well as the platform canvas, are made of No. 8 reverse construction cotton duck. Leather straps fitted with black enameled buckles are riveted to the slats as well as to the canvas. These are regular equipment with MINNESOTA Binders. However, lighter canvases with web straps and patent buckles are available and at a price that enables replacements with GENUINE MINNESOTA canvases rather than with "made-to-fit" canvases.

The cleats are made of well selected wood and are fastened to the canvas by tinned rivets at each end and tinned tacks in the center. Where the canvas is folded, the cleats are fastened with tinned rivets and burrs, tinned to prevent rust.

The Reel

One lever controls all adjustments of the Reel and this lever is conveniently located. It has two latches, one operated by hand and the other by foot; either or both can be operated at will. A strong spring balances the weight of the Reel, making it very easily handled. The MINNESOTA Reel has an exceptionally wide range of movement, handles

any kind or condition of crop that can be handled by a Binder. An adjustable brace enables the operator to readily overcome any tendency of the Reel to sag.

In order to take full advantage of the work done by the reel and to save all the grain, the cutting apparatus must be capable of cutting very close when conditions demand it, and the MINNESOTA has no superior on this point.

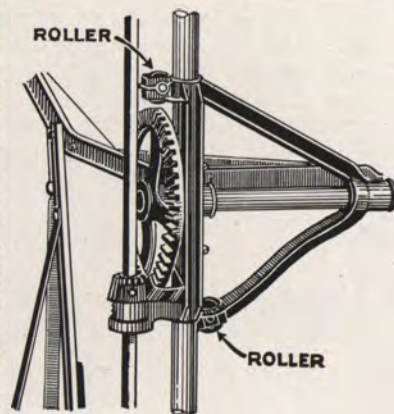


Illustration No. 6

The Twine Tension

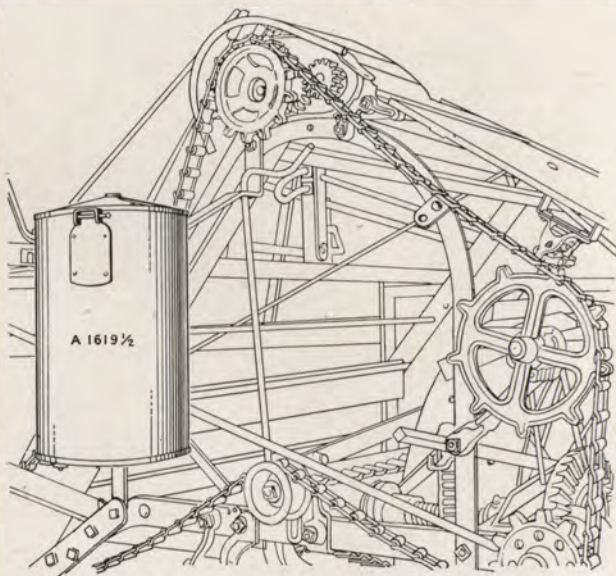


Illustration No. 7

Any desired tension can be placed on the twine by means of a simple, but effective roller tension.

Turning a small nut regulates the tension.

The roller tension allows any ordinary knot or enlargement of the twine to pass without interfering with the work of the binder. The twine can is now placed on the rear of the machine so that the driver can see at any time how much twine remains therein.

Steel Seat Support

The Improved MINNESOTA Binder is equipped with a Steel Seat and Elevator Support. All levers are conveniently located in front of the driver and operate very easily.

(See Illustration 8)

Adjustable Wind Shield

Adjustable Wind Shield on the MINNESOTA Binder is so designed that it can be adjusted to any desired position.

(See Illustration 8)

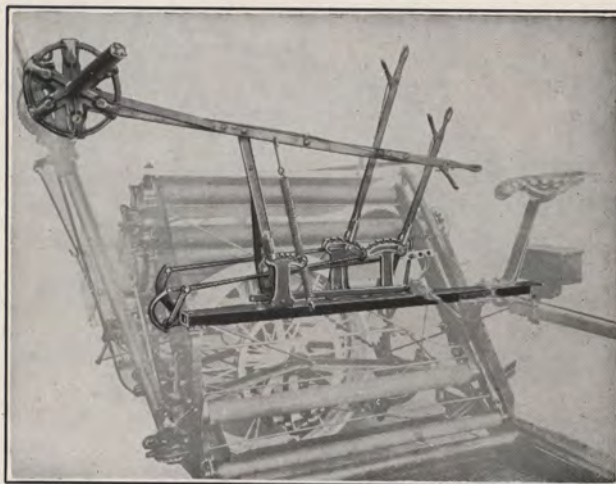


Illustration No. 8

The Three Packers

The Improved MINNESOTA Binder is equipped with a binding attachment that will handle any kind of grain, whether tall or short, and will bind bundles in the middle of the sheaf. Please note Illustrations 10 and 11 which give the range of adjustment for long and short grain. The binding attachment is equipped with three discharge arms and three packers, which, in addition to the improved butter, made in two sections and both vibrating, (See Illustration 12) enables the MINNESOTA Binder to handle heavy, exceptionally short and tangled grain, under unfavorable conditions, by carrying it down evenly and rapidly so that the needle, when the binder is adjusted either forward or backward, ties the bundle in the middle of the sheaf and makes the bundle symmetrical and square on the butt.

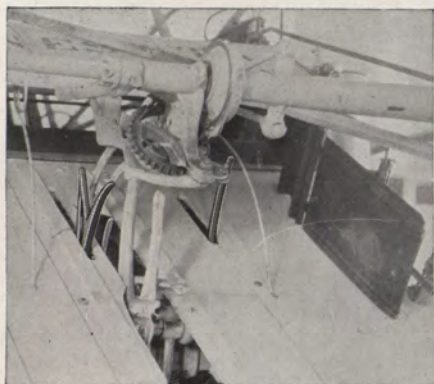


Illustration No. 9

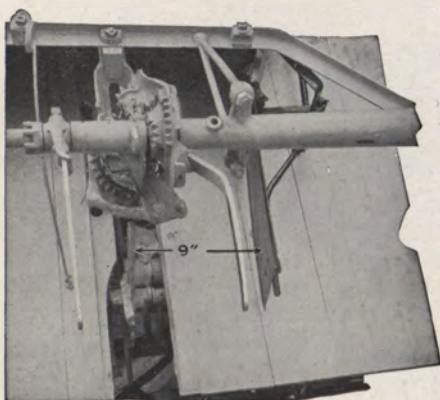


Illustration No. 10

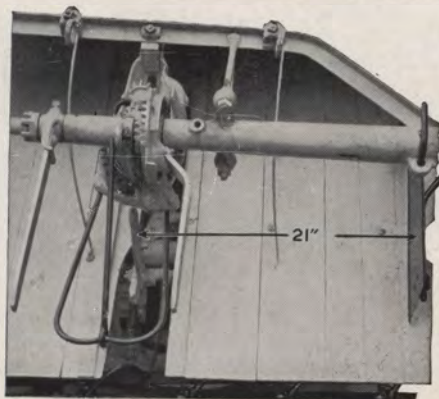
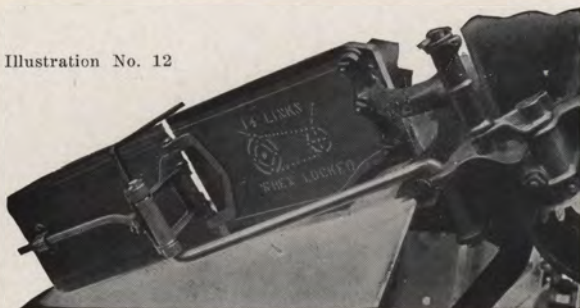


Illustration No. 11

Illustration No. 12



The Vibrating Butter

The grain is carried forward to the knotter by the action of the butter and packers. One of the packers always precedes the needle when the knot is being tied, saving power and taking the strain from the needle.

The Head Board

On the Improved MINNESOTA Binder, the head board is made of steel and can be folded up when not required (See Illustration 13.) It is fastened to the binding attachment and is shifted with it so that it functions the same in long or short straw. Other improvements on the Improved MINNESOTA Binder are shown in illustration No. 13, particularly the gear-driven seventh roller and the wooden decks which have been made longer to prevent the sheaves from catching on the clips of the sheaf carrier.

Illustration No. 13

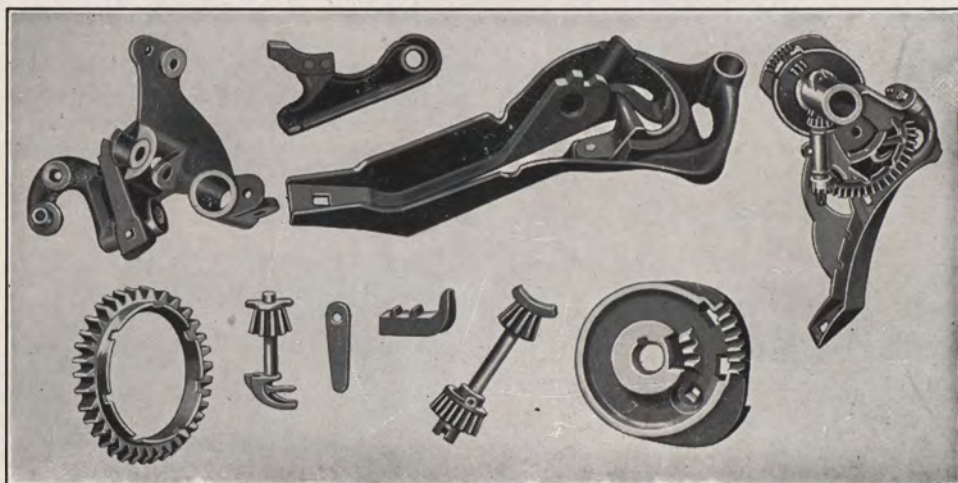


Illustration No. 14

The Minnesota Binder No. 2 Knotter

The MINNESOTA Knotter is composed of few parts—about one-half as many as other types—which is appreciated by farmers who have had puzzling troubles with knotters of many parts. The

simplicity of the MINNESOTA Knotter, the few parts it is composed of make it easy to keep in perfect adjustment. If adjustment is necessary, it is made in one of three parts—the pinion for taking up wear or

in the cord holder spring or in the Knotting-hook spring. It does not require the services of an expert. The knife is simple and strong. The cord holder ring turns once for seven sheaves. The cord holder is so arranged as to allow the twine to slip through, relieving any strain, thereby using a minimum amount of twine in forming a knot. For sureness of tying and saving of twine, no other knotter can compare with the MINNESOTA. These knotters, together with the complete binding attachment, are all tested in the factory, being run off with grain as it actually operates in the field. No binder is packed until it actually ties all the sheaves in various sizes and does the work in the factory under as near field conditions as possible.

Reel Support

The reel support is regular equipment on seven- and eight-foot MINNESOTA Binders. It cannot be put on a six-foot Binder and is not required. It is easily operated, requiring only one lever for either a vertical or horizontal movement (See Illustration 15.)

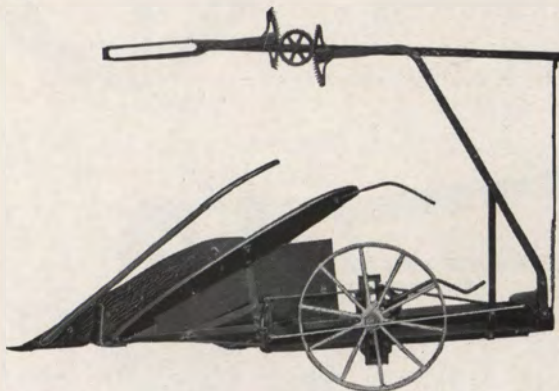


Illustration No. 15

Illustration No. 15 also shows the extra divider which is furnished at small additional cost and is well worth having for use in down and tangled grain.

Bundle Carrier

Either the folding or drop sheaf carrier is available to meet the demand of those who may have a preference. The drop carrier will carry five or six bundles and when dropped, the bundles are swept off by the stubble without shattering the grain. A strong spring assists in bringing the carrier back to its proper position.

The folding carrier is simple and strong; does not sag and is easily tripped by the driver's foot, dis-

charging the sheaves without shelling grain. It works satisfactorily on the level or on hillside — holding bundles until tripped. If it strikes a stump, or other obstruction, it folds automatically and prevents breakage. It is not necessary to climb over, or on it, to oil the machine, as it folds close to the side of the binder; it is always ready but never in the way.

The Grain Wheel

Illustration No. 16 shows the new grain wheel made of steel, equipped with roller bearings in a dust proof hub.

We again refer you to Illustration Nos. 2, 3 and 16, which show the roller bearings used with a MINNESOTA Binder. The MINNESOTA Binder is the lightest pulling binder on the market and the reason for this is that the principal bearings

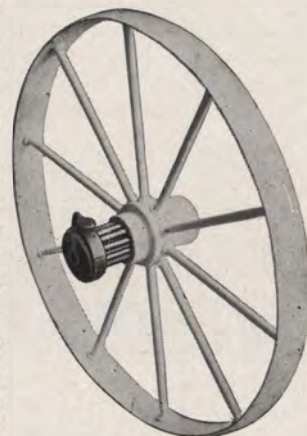


Illustration No. 16

are equipped with roller bearings, there being altogether twenty-three in the machine. Roller bearings are expensive and add greatly to the cost of a binder, but in line with the policy of building MINNESOTA Binders as good as a machine can be built, we feel well repaid for this extra expense because MINNESOTA Binders have the reputation of being the lightest draft binders on the market.

Edw. Kittelson, Route 4, Litchfield, Minn.

The binder I purchased this season could not have worked any better. It was very satisfactory in every way. Besides my grain, I reaped four acres of sugar cane sowed with a drill that stood eight feet high in some places.

Otto G. Miller, Route 1, Mauston, Wisconsin.

I am well pleased with my MINNESOTA binder. I cut heavy lodged winter wheat with two horses and it did good work, without clogging when tying a bundle as my old binder did.

Charles Worthley, Sherburn, Minnesota.

The binder I bought on July 13th this year went into the field and did very satisfactory work. The binder is easy pulling, compared to others I have used and it was a pleasure to go through the harvest this year.

Quick Turn Tongue Truck

The MINNESOTA Tongue Truck is actually the only tongue truck with which a binder can turn an absolutely square corner. It operates with a chain and when it is in position to turn a square corner, the horses are not in the way of the reel. This tongue truck will not tip as the wheels are always at right angles with the axle. The offset, which holds the eveners, is at right angles, holding the eveners squarely in position. Eveners are convertible for either three or four horses. Illustration No. 17 shows the new improved steel stub tongue and Illustration No. 18 the improved tongue truck wheel with hard oil cup and removable bush bearing.

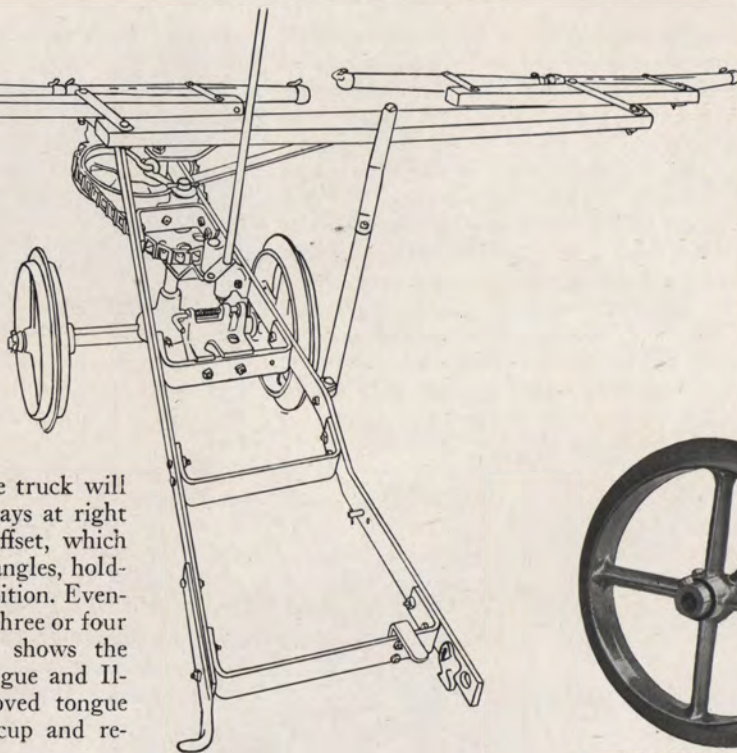


Illustration No. 17



Illustration No. 18

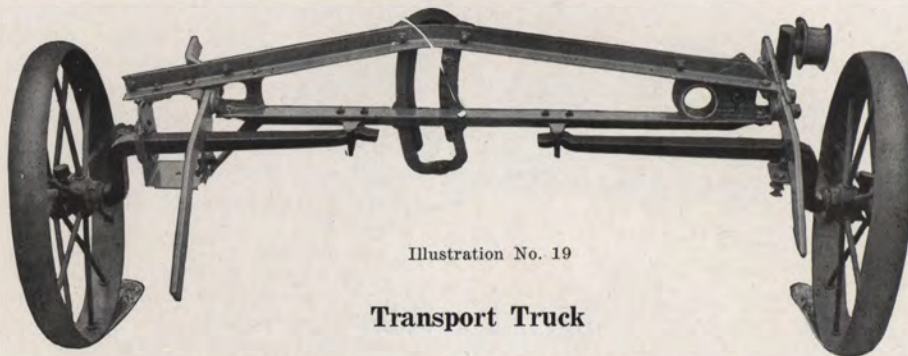


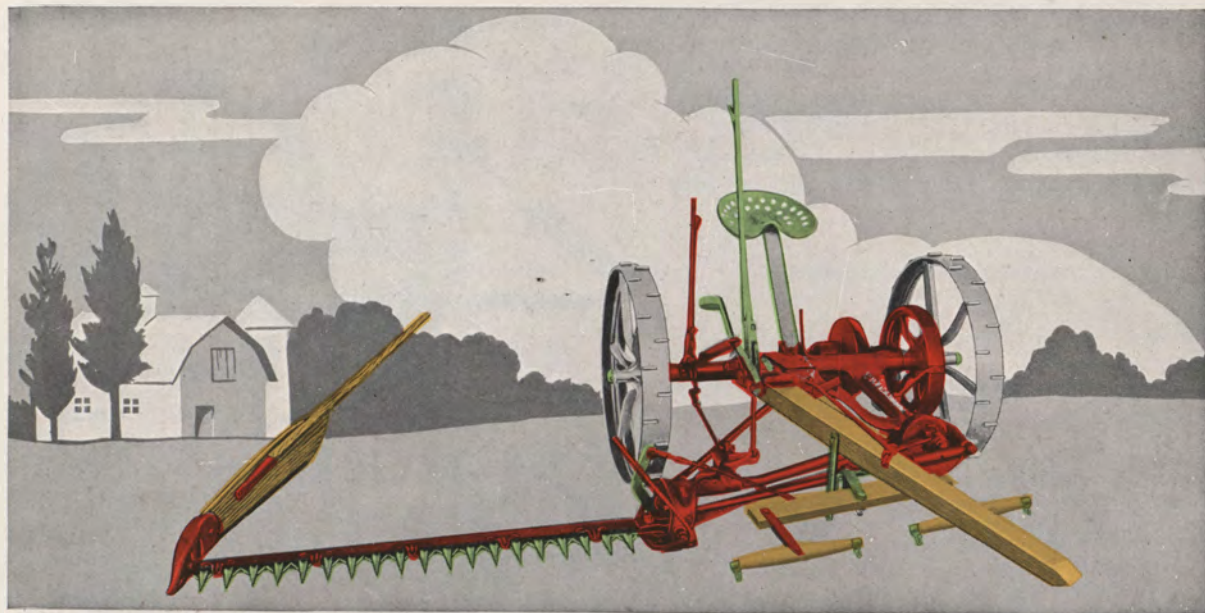
Illustration No. 19

Transport Truck

For the convenience of transporting MINNESOTA Binders on long narrow roadways and through narrow gates, a transportation truck is provided at small extra cost. It is equipped with square axles of forged steel. The wheel rims are half oval steel and the hub is equipped with hard oil cups and removable bushings, easily replaced in case of wear, saving expense of buying a new wheel. One man can very easily mount a MINNESOTA Binder on transports in a short time by a simple operation of fitting axles into sockets on the main frame underneath binder.

*T. G. Thomsen, Bear Lake Farm, McGrath, Minn.
The binder I purchased this season from Holm & Kalberg of Opstead has given splendid service; especially is the truck and four horse hitch a great*

improvement. Grain was very short here this year on account of drought but the binder picked it up very nicely and it seems to be built solid enough to stand any reasonable strain.



Minnesota High-Lift Mower

WE are offering to the trade a line of mowers, embodying all that is newest and best in the construction of an up-to-date mower; strength, durability, lightness of draft, easy handling and capable of doing satisfactory work, even under adverse conditions. They cut a clean, smooth swath and are as nearly noiseless as it is possible to make a fast running machine. We make this mower in three widths—four and one-half foot, five-foot and six-foot cut.

There are many reasons why MINNESOTA Mowers meet with such favor among those who need mowers for extraordinary cutting. In the plains of western Nebraska and South Dakota, where hay fields are measured in thousands of acres and cutting is done under the most severe conditions the MINNESOTA mower went through these fields with utmost satisfaction. Only a mower well built, with plenty of motion and traction can successfully operate in these fields. A MINNESOTA mower starts cutting the moment the wheels turn. There is no lost motion—no backing up to get a start. Both wheels are drivers and as soon as the wheels begin to turn, the knife starts. The wheels are high and broad faced, re-inforced with a heavy rib and cross lugged to secure ample traction. A single piece main frame, accurately machined; dust and dirt proof gear cases; strong powerful foot lift, cutter bar of

the finest quality of cold rolled steel with guards of new and approved design, milled to fit without play to keep them in perfect alignment; flexible swath board. These are some of the special features that are found in MINNESOTA mowers—a more detailed description of which will be found on following pages of this catalog.

E. Wagner, Route 2, Box 9, Medford, Minn.

My new MINNESOTA mower, as well as my used MINNESOTA binder, are all that I can ask of any piece of machinery all the way around. I can put them up against anything on the market for durability and efficiency. They are without a peer. Our own make of machinery should be used on all Minnesota farms.

Special Features of the Minnesota High-Lift Mower

Strong One-Piece Frame, the bearings are kept in perfect alignment.

High, Broad Faced Drive Wheels, mower runs easily on hard or soft ground.

Roller Bearings, light draft and long life.

All gears are enclosed, keeping out dust and dirt.

Oil Chamber on Pitman, keeps crank pin thoroughly oiled.

Finger Bar and Knife Back are cold rolled steel, combining great strength and smooth wearing surfaces.

Hard Steel Wearing Plates, wear on knife back and plates evenly distributed.

Underdraft, increases the traction of the drive wheels.

Powerful Foot Lift, both hands are left free to manage the team.

Four-Pawl Ratchets, knife operates the instant the wheels begin to turn.

Flexible Swath Board, follows the ground at any range of tilt and will yield in case of striking an obstruction.

Paint Distributed Evenly. All machines are painted with a brush, thus preventing paint from running into bearings, causing roller bearings to slide and stick and making the machine pull hard.

High-Lift

The five positions of the cutter bar on a MINNESOTA mower are shown in Illustration No. 20 and indicate the different positions of the bar to meet all requirements. First, the bar following the ground; second, when raised by the foot lever; third, when raised by the hand lever; fourth, raised by foot lever and hand lever; fifth, in the vertical position when being transported when not in use. In comparative tests, this lift surpasses all others for ease in operation.

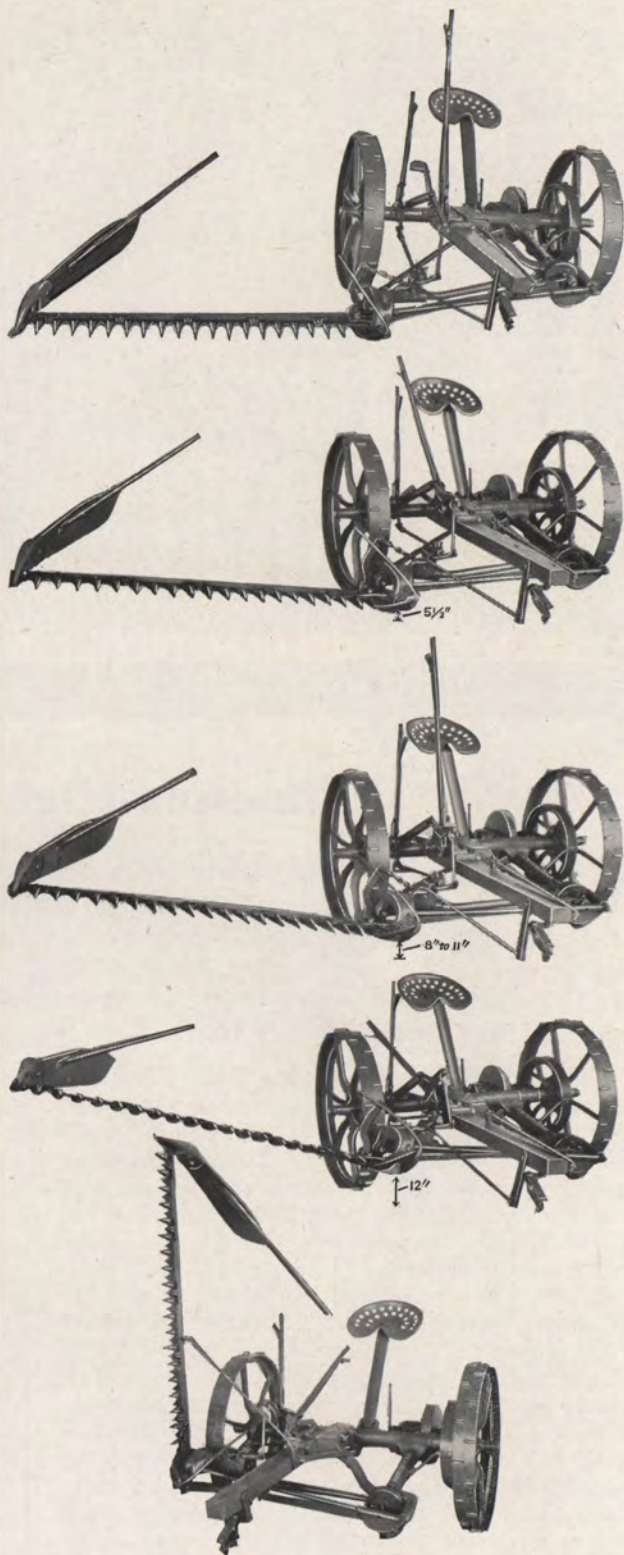


Illustration No. 20

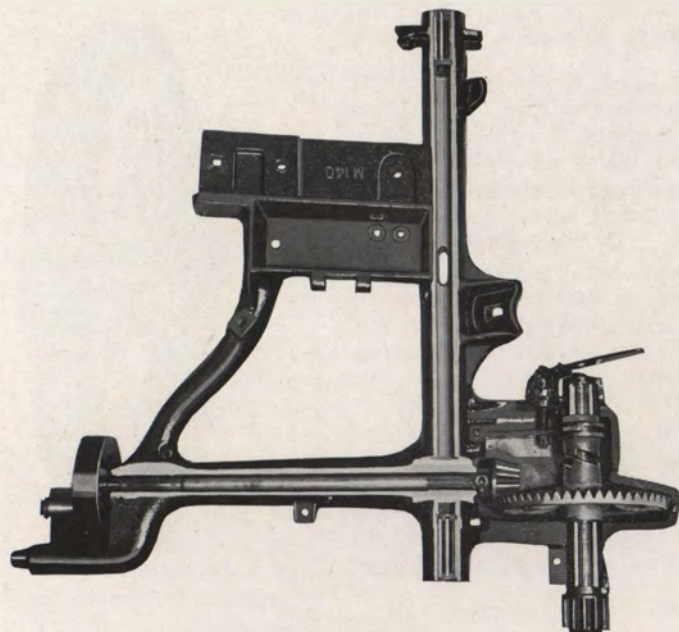


Illustration No. 21

This illustration shows the main frame on a MINNESOTA mower, cut away so that the location of the bearings can be seen. This frame is made of a single piece, accurately finished in a machine designed especially for this purpose which insures perfect alignment of all bearings and the correct fit of each part. The crank shaft runs in removable bronze bearings and the main shaft in roller bearings. The cross shaft in removable cast iron bearings. All bearings are easily replaced in case of wear at very little cost.

John C. Nordlum, Box 44, Middle River, Minn.

The MINNESOTA mower we purchased last summer was very satisfactory in every way. We used four other mowers of other makes last season and we found the MINNESOTA the smoothest and the easiest running mower we had.

Alvin W. Hacklander, Route 4, Blue Earth, Minn.

I purchased a MINNESOTA mower and side delivery rake and both gave excellent service. The side rake is especially well built, comparing it with other makes that are selling for considerable more money.

James Sybrant, Box 95, Harris, Minn.

Used a No. 1 MINNESOTA mower for years and it always worked O.K. This year, I purchased a new No. 3 and certainly found it very fine. Do not know how it could be any better.

Herman Melinsky, Howard Lake, Minn.

The Mower I bought from you last Spring is O.K. I like it fine and do not know of another mower that will do better work for the money than the MINNESOTA mower.

E. F. Chase, Route 2, Harmony, Minnesota.

I purchased a new MINNESOTA mower last July and am fully satisfied with its work. In my judgment there are none made any better, and few, if any, equal the MINNESOTA in point of strong and durable construction and ease of operating both to man and team.

Elmer Foley, Route 3, Box 48, Northwood, Iowa.

The mower I purchased is a wonderful machine for all kinds of cutting and very well built in all ways. It never causes any trouble and is very easily pulled. I also have a MINNESOTA binder that I have run two seasons. I never had any trouble with it. They are two very good machines for any farmer with sensible operating.

The Gears in the MINNESOTA No. 3 Mower are carefully fitted and run very quietly and smoothly. The clutch is simple, as Illustration No. 22 shows. A hand lever is provided for operating the clutch. All oilers are equipped with pressed steel dust proof covers. The cross shaft and crank shaft run in removable bushings which are easily replaced in case of wear. The main shaft is equipped with roller bearings.

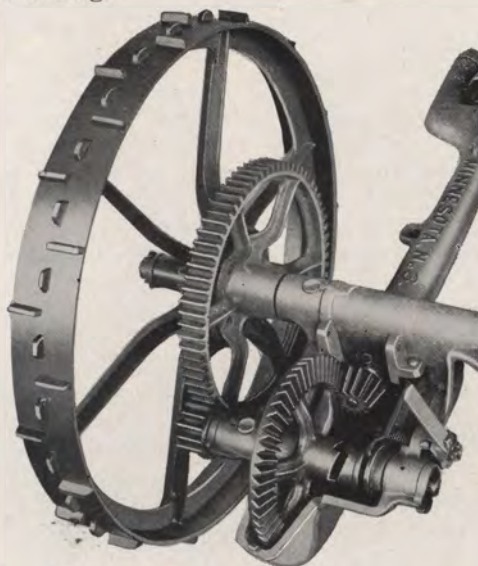


Illustration No. 22



Illustration No. 23

Drive Wheels

Being high and broad faced, the wheels carry the mower smoothly over a rough meadow and do not sink into soft or marshy ground. Wheels are provided with cross lugs and with a heavy ribbed reinforcement which greatly strengthens the rim of the wheel, reducing breakage to a minimum. On five-foot Giant and six-foot heavy mowers, center lugs are also provided as shown in Illustration No. 23. This is designed especially for mowers used on hard ground, but it will work as well for ordinary cutting. On four and one-half-foot and five-foot Regular mowers, the wheels are thirty-two inches in diameter with a three and three-fourth inch face. On five-foot Giant and six-foot mowers, they are thirty-three inches in diameter, with a four and one-eighth inch face.



Illustration No. 24

Rubber Tired Wheels

Rubber tired steel wheels are available and can be used on all MINNESOTA Giant and six-foot mowers. Recommended particularly for cutting along highways and paved streets.

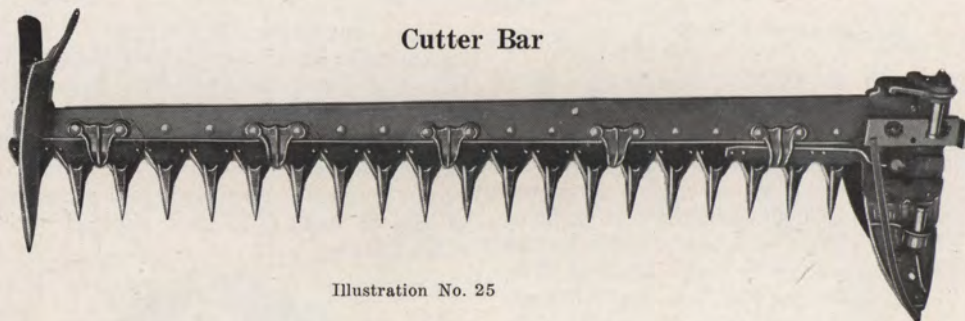


Illustration No. 25

Cutter Bar

The Cutter-Bar, or Finger-Bar as it is often called, is made of the very best quality of reinforced cold rolled steel. The guards (see Illustration 26) are of new and improved design accurately milled to fit the bar giving them a perfect alignment. They are equipped with serrated ledger plates which can be replaced in case of wear. The under part of the bar is free from obstruction and will carry along smoothly without harrowing the ground. The knife backs are made of high-grade reinforced cold rolled steel. The knife sections are all made of the best crucible steel with a soft center and hardened edges, designed to do satisfactory work under all conditions.

The knife runs at a suitable speed to cut any crop with plenty of

clearance. It is held in place securely by hardened steel wearing plates and malleable iron keepers.

The shoe is hinged to the coupler with a seven-eighths inch turned pin. It is well fitted so that looseness at this joint is impossible.

Pitman

The pitman is made of well seasoned hickory and is extra long. It works in line with the knife reducing friction to a minimum. It is equipped with forged steel straps securely riveted by four rivets. The straps also have forged insertions which are forced into the pitman to prevent them from working loose on the rivets. The crank box is fitted with brass bushings and with our patent self-oiling device guarantees sufficient and even lubrication, saving time of oiling and preventing heating and waste of oil. When pitman is not running, the oil is retained



Illustration No. 26

in the reservoir. The crank head on the pitman is hinged, which makes the pitman flexible and prevents binding. These hinges are securely held by ratchet nuts and springs, preventing them from working loose. The knife head is fitted with a ball attachment for pitman, allowing the ball to roll when machine is

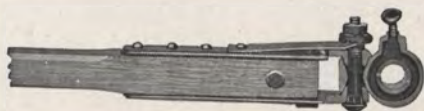


Illustration No. 27

tilted at any angle without binding. The pitman is protected by a seven-eighths inch steel rod directly in front of it and running its full length. This rod is heavy enough to protect the pitman from breakage under reasonable conditions and will give enough under extraordinary conditions to protect the frame from being broken. The pitman crank is protected by a shield which is part of the frame. The crank is perfectly balanced so as to insure a smooth running machine without vibration.

A New High-Lift

Illustration No. 29 shows the strong, powerful new foot lift, which will raise the inside shoe eleven inches from the ground. A long, heavy coupler, which includes push bar connections, makes a very rigid connection and allows the cutter bar to follow smoothly over uneven ground. The coupling pins are heavy and have a long bearing, preventing any looseness in the cutter bar. The tilt lever and connection are adjustable to any desired range of tilt.

Illustration No. 29 shows an adjusting screw indicated by an arrow which may be adjusted to carry the cutter bar at proper level.

*Fairmont Canning Co.
Fairmont, Minnesota.
Our only regret is that we
did not buy more MINNE-
SOTA mowers instead of re-
pairing some of the old mow-
ers we had on hand.*

Flexible Swath Board

The flexible Swath Board is now a part of the regular equipment of No. 3 Mowers. The flexibility of this board eliminates the breakage of the shoe and swath



Illustration No. 28

board parts should they come in contact with stones or stumps. The spring allows it to yield until the obstruction is passed,

when it returns immediately to its proper position. The motion of this swath board prevents bunching of the hay and makes a clear wide track.

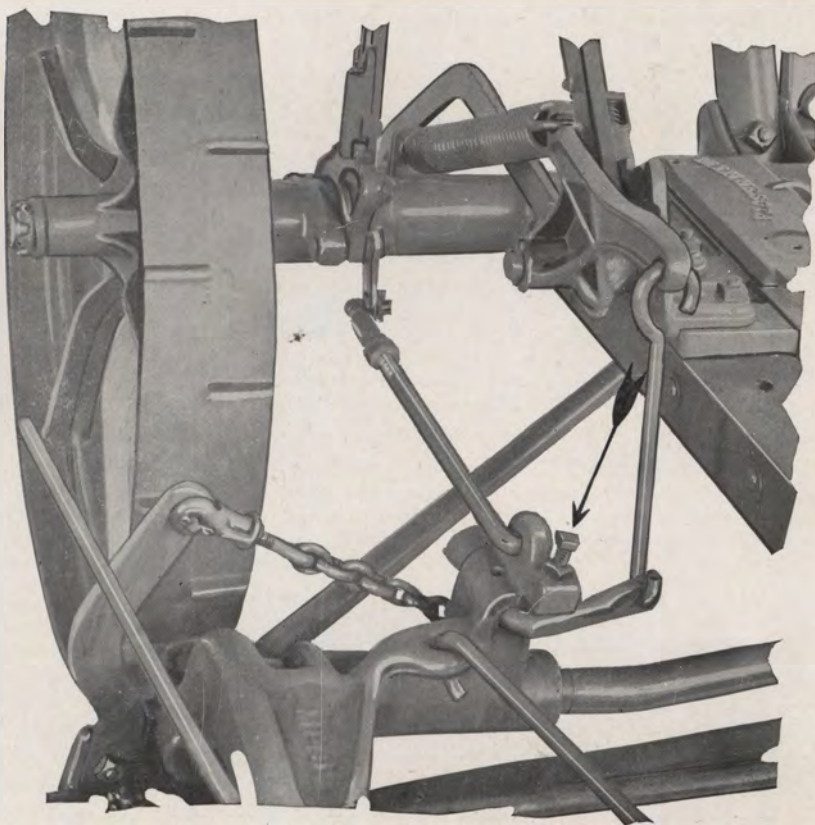


Illustration No. 29

Illustration No. 30 shows the under side of the mower. Note the strong coupling bar and push bar arrangement, with the pitman guard so constructed as to enable an easy adjustment to align the sickle with the cutter bar. Note that push bar is connected with center of frame, which gives perfect balance to the mower and enables both wheels to drive equally. This arrangement adds greatly to the strength of the coupler. The pole, which is made of high grade wood stock, has been made heavier and is bolted to the under side of the frame in a pole socket fourteen inches long and four and one-fourth inches wide. The draw lever brings the draft underneath the pole, which greatly increases the power by overcoming the tendency of the wheels to lift off the ground in very heavy work. The heavier the work, the more power is required and this feature insures the extra power when needed. The heavier the pull, the harder do the drive wheels bear on the ground. This draw lever also prevents neck weight on the horses and is so connected to the coupler as to effectively prevent side draft. The four-pawl ratchet provides a constant drive, even when turning corners. Both wheels are drivers. A folding brace is provided which holds the bar firmly in an upright position and a latch fastens it to the pole when not in use.

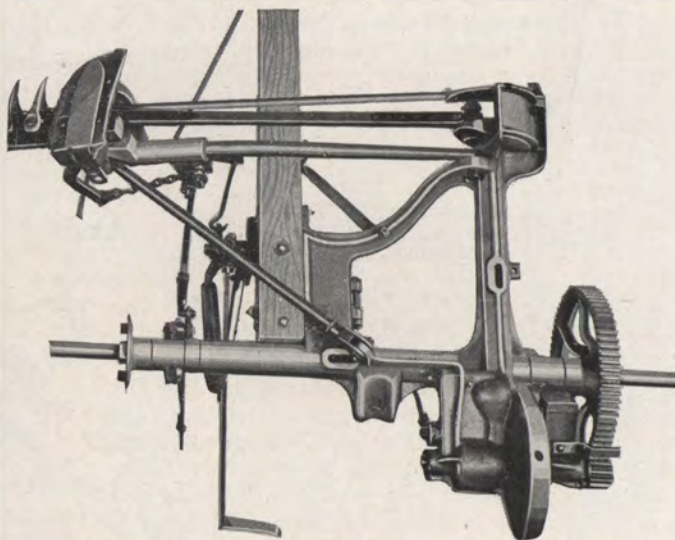


Illustration No. 30

George H. R. Brush, Route 4, Box 93, Owatonna, Minn.

The mower I bought this year from the Farmers Elev. & Merc. Co. of Owatonna gave perfect satisfaction. I can heartily endorse the machine, and also the side delivery rake. The twine was A-1 in every respect.

Geo. Hoverson, Marvel, N. D.

The MINNESOTA mower I purchased has given me perfect satisfaction. I think you have the best mower on the market. I have had several different makes but the MINNESOTA mower has them all beat.

Mr. J. E. Nelson, Route 1, Box 2, Dassel, Minn.

I am well satisfied with the MINNESOTA mower I purchased this summer. I have cut 75 acres of meadow alfalfa and sudan grass this season. All expense I had was the oil it used. It is well balanced, no side draft on the horses. I assure you the wheels are made strong. If I am able I will buy a MINNESOTA binder next summer.

Thomas Isaacson, Route 2, Box 68, Pelican Rapids, Minn.

I have never operated a mower that I have been more satisfied with than my MINNESOTA. My neighbors also say that it is equal to any machine on the market.

L. H. Eastman, Route 1, Beardsley, Minnesota.

Am well pleased with my new MINNESOTA mower. For light draft, clean cutting and quiet running, it has no equal. I cut over 125 acres of hay, some of it prairie grass, and the sickles are in fine shape.

Thomas Christianson, Route 3, Badger, Minn.

I now am using two MINNESOTA mowers and one MINNESOTA binder. There is no machinery which I own that I like better. It has served me very efficiently and am well pleased.

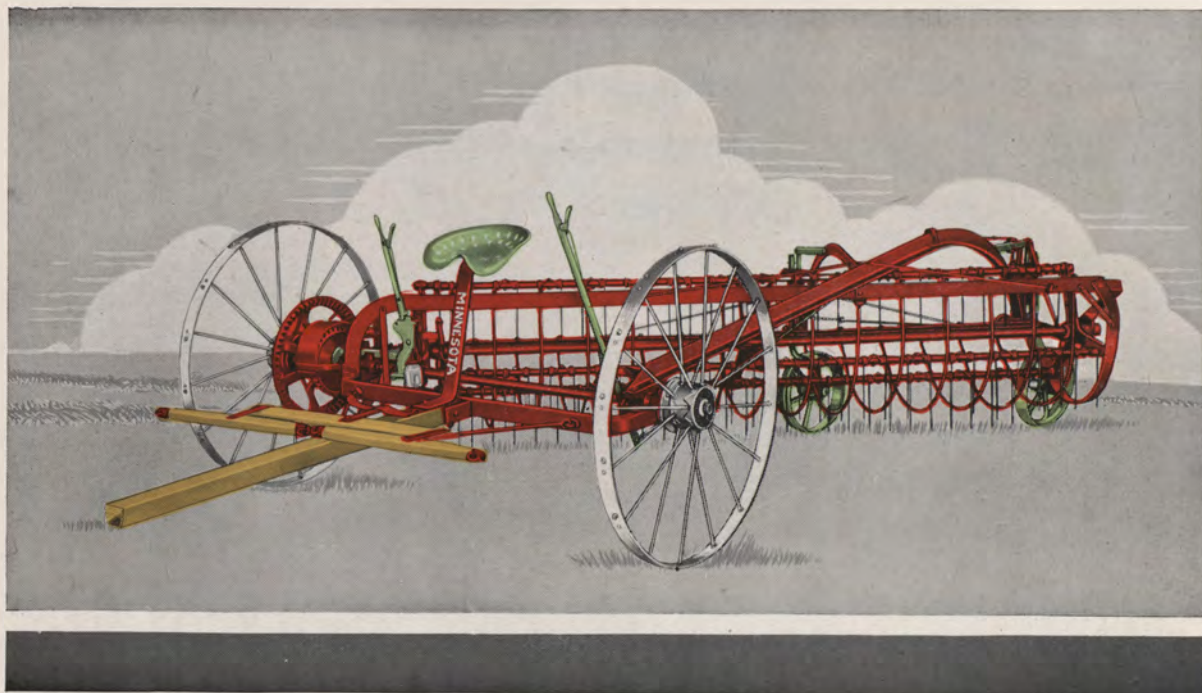
Lloyd Evens, Route 1, Joice, Iowa.

I am well satisfied with the MINNESOTA mower. It is the lightest pulling mower I have ever used. I have lent it to a couple of my friends and they say the same about it, and when they get new mowers that is the kind they will get. I also have a MINNESOTA binder and like it real well.

Richard Krueger, Route 2, Hawkeye, Iowa.

I have a new MINNESOTA Mower and a new MINNESOTA Side Rake. I like them just fine. It is the best mower I ever used and also the rake.





Minnesota Side Rake and Tedder

Left-Hand Delivery

THE MINNESOTA Side Rake and Tedder is really two machines in one—a well built and sturdy side rake with a $9\frac{1}{2}$ -foot cylinder and in addition, an excellent Hay Tedder, which can be converted from a rake to a tedder by simply shifting a lever.

The main wheels are very strong and equipped with ample lugs to prevent slipping. Both wheels are drivers. The frame is all steel, well braced to keep it in perfect alignment. Outer end can be raised

or lowered as desired by means of a raising lever conveniently located near the driver's seat. Two cast-iron wheels carry the rear end of frame and they are regular equipment. Cylinder is well supported in center so that it cannot sag. Teeth are of flexible spring steel, made in pairs. These teeth are clamped firmly to pipe shaft and are easily adjusted to any desired angle by means of a lever provided for this purpose. Sixteen cleaner fingers prevent hay from being drawn into the cylinder.

H. W. Turner, Route 2, Stewartville, Minn.

I purchased a MINNESOTA Side Delivery Rake and a MINNESOTA Hay Loader from Capelle & Biel Implt. Co. of Spring Valley and find them very satisfactory in every way. They handled my crop of alfalfa with the least loss of leaves I have ever seen and I saved about \$50.00 on the purchase price of the two machines.

H. Rotvold, Route 4, Box 47, Decorah, Iowa.

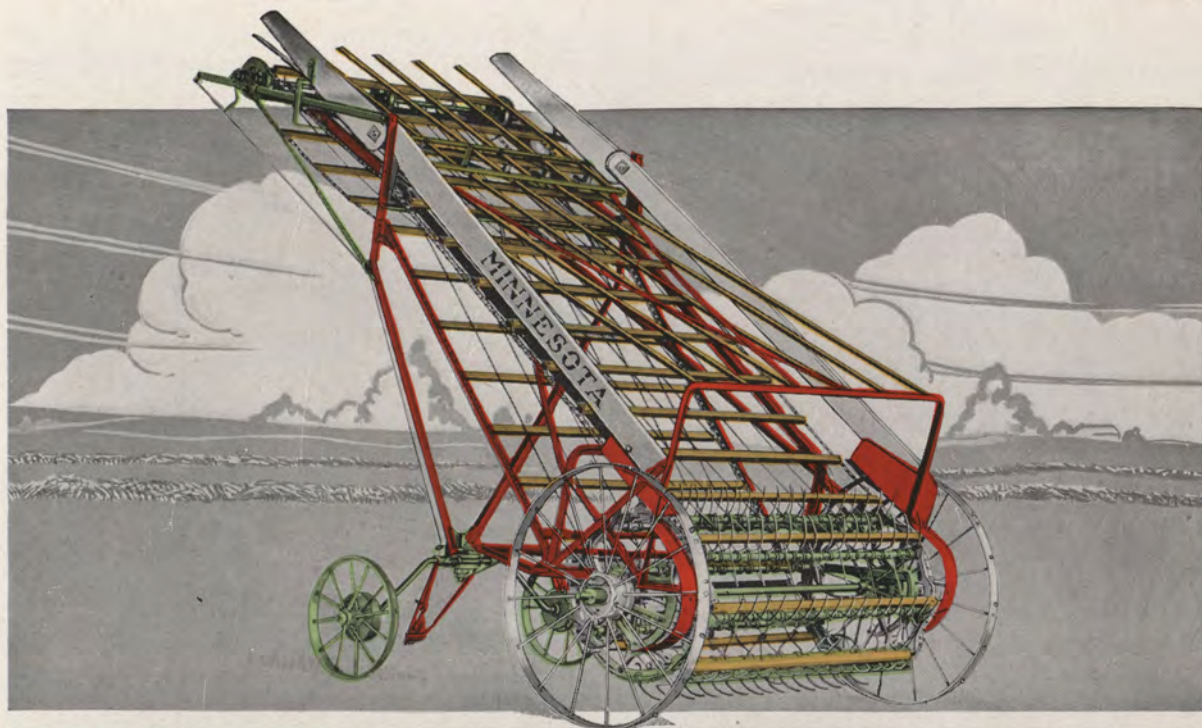
I am pleased to say that I like my MINNESOTA Side Rake very well. It does just as good a job of raking as any of the higher priced machines.

Herman Schuelke, Route 1, Comfrey, Minnesota.

Am very pleased with the MINNESOTA Side Rake. I think it does just as good work as any higher priced machines made by other concerns. Hope our State keeps up this work; helping the farmer. As to your twine, in my opinion you have a twine for every make of binder, some requiring a thin twine while others a heavy. I have used your twine for 12 years, as long as I have lived in this State.

H. G. Mathias, Route 1, Box 74, St. James, Minn.

I like my MINNESOTA Hay Loader fine and cannot kick about it at all. It works good.



Minnesota Windrow Hay Loader

THE MINNESOTA Six-foot Windrow Hay Loader is of the single cylinder type, so constructed as to obtain maximum strength with as little weight as possible.

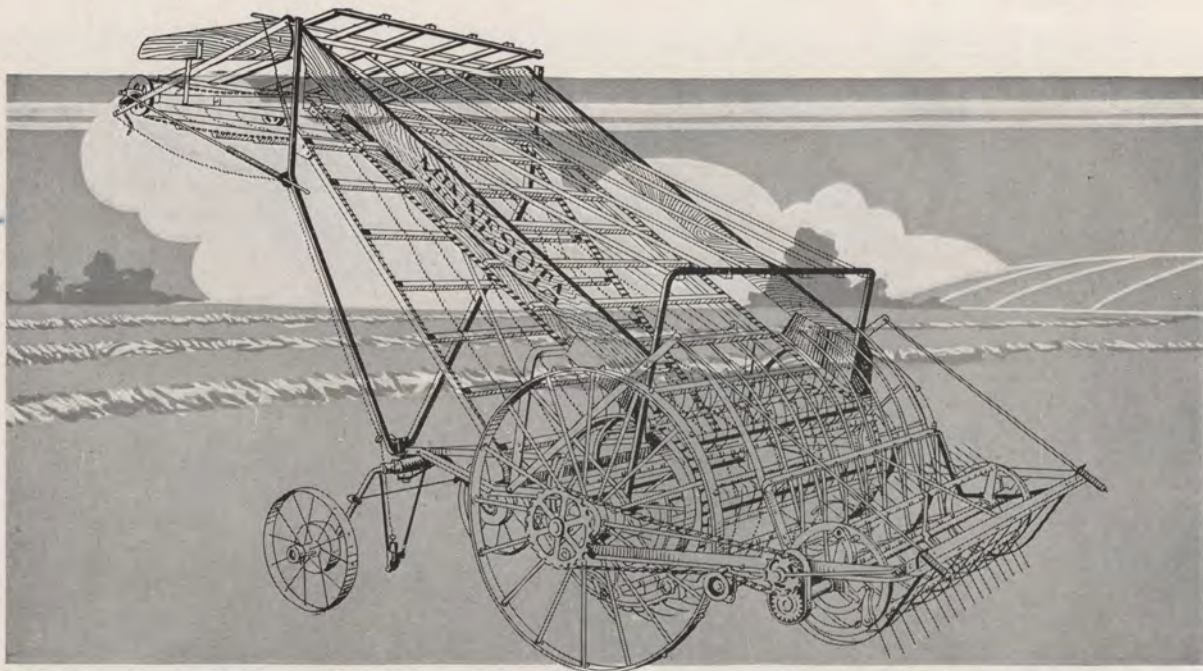
A new and practical construction is featured in the drop deck, which may be raised or lowered within a range of two feet, three inches and held in position automatically. The deck is supported by a gear and rack and is held in position by simply engaging a dog in the rack. By releasing the dog, the deck will drop to its lowest position for starting the load. Coil springs allow the deck to drop easily and assist in raising it. When the dog is reversed, deck may be raised to any position and held automatically. Side boards and compression slats hinge with deck, so hold their relative position when starting the load at a height of seven feet, nine inches or at its highest position at ten feet.

The carrier is constructed with steel chain and wood slats securely riveted to connecting links. Rope ends are equipped with hooks for fastening.

The cylinder is equipped with eight bars as tooth holders with eight double teeth in each bar, or a total of sixty-four double teeth. This extra number of teeth insures clean raking.

The loader has a forecarriage to make short turning possible and with convenient hitch controlled by a rope, extending to top of loader, permitting unhitching without lifting or getting down from load.

The forecarriage can easily be removed to permit storing of loader in shed, having a seven-foot clearance.



Gleaner Cylinder Attachment For Minnesota Hay Loader

A REAR, or gleaner, cylinder for use on the MINNESOTA Hay Loader has been designed and can be furnished when conditions are such that a double cylinder loader is required. Of the thousands of MINNESOTA Hay Loaders now in use,

very few have required the extra cylinder but having been requested to provide this cylinder to meet extraordinary conditions, we have designed one that has very satisfactorily met the requirements of those who wish to use both cylinders in making hay.

W. W. Magee, Cannon Falls, Minnesota.

We like the Hay Loader fine. This is the first season we used it. Also the rake works fine.

B. L. Gardner, Route 4, Box 52, Wells, Minnesota.

We thought it to be a very good hay loader. It picked the wild hay up cleaner than any other hay loader around. We planted 12 acres of alfalfa this year and hope to use it for harvesting it next year.

John D. Barrett, Box 85, West Union, Iowa.

I not only bought one of your Hay Loaders but also your mower and side delivery rake. I am well pleased with all of those machines also with your dealer, here in West Union, Iowa who has treated me fine. I may be in the market for one of your grain binders next Harvest. Your machines run good and light with no trouble or breakdowns.

L. J. Bates, Winnebago, Minnesota.

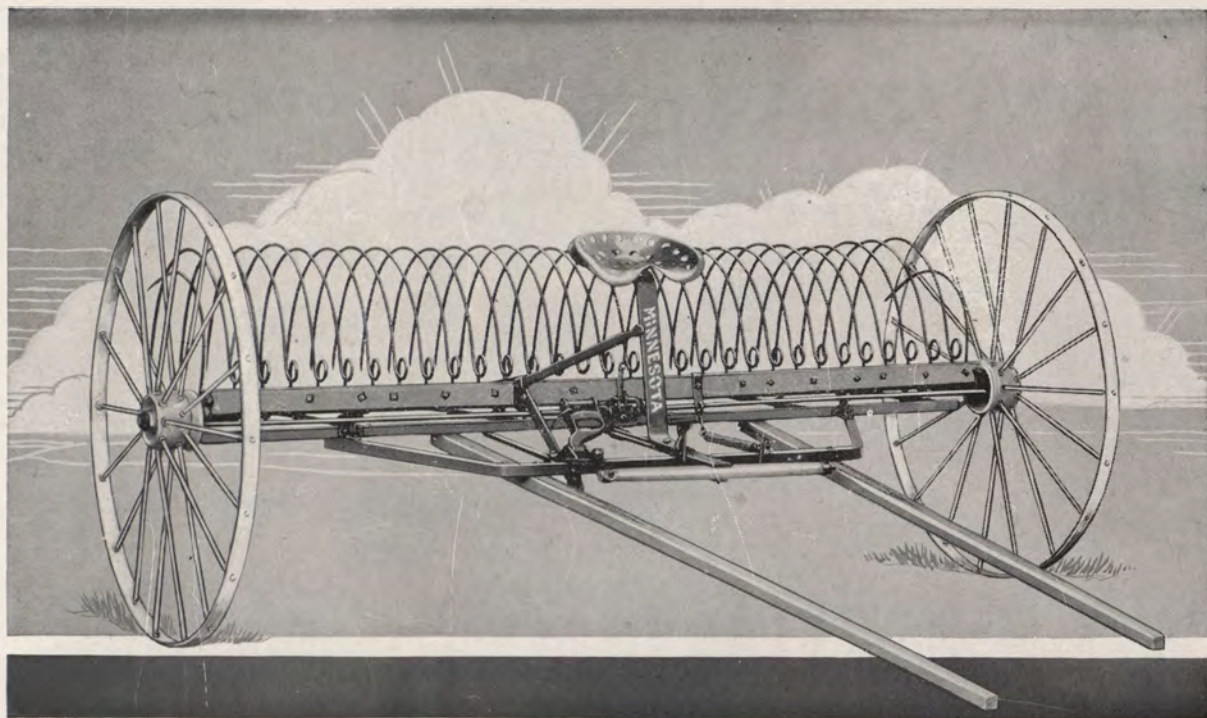
I am well satisfied with the Hay Loader I got this season. It surely does fine work and is light draft.

F. Latourell, Route 2, Box 14, Mapleton, Minnesota.

In regard to your Hay Loader, we are well pleased with it. We stacked 150 loads and had no trouble of any kind. I also purchased one of your Two-Row Corn Cultivators and am well pleased with that, so let the good work go on.

Mrs. Hattie L. King and Sons, Route 1, Box 17, Dennison, Minnesota.

We have worked with other machinery and sure like our MINNESOTA Hay Loader better than any. It picks the hay up better and runs easier and cost half as much. We like it so well we are figuring on one of your mowers next year. We cannot speak well enough of MINNESOTA machines.



Minnesota Improved Hay Rake

THE MINNESOTA Hay Rake is designed and constructed to do first class work. It is made in three sizes, ten-foot, twenty-six tooth; ten-foot, thirty tooth; and twelve-foot, thirty-six tooth.

Rake Axle—The rake axle is made of three by three and one-fourth inch high carbon angle steel, braced and trussed to make it very substantial and rigid.

Rake Frame—The frame is of angle steel strongly riveted together and hinged to the axle by strong malleable connections, riveted securely to the frame as well as to the axle.

Tooth Holders—The tooth holders on the axle are of grey iron well made and securely bolted to the axle. These are made in sections and are easily removed to replace teeth that may become broken.

Teeth—The teeth are made of high carbon oil tempered steel with a coil section to give flexibility and prevent breakage. Teeth can be furnished with either round or flat points as desired. Flat points are so shaped as to allow them to ride smoothly over the ground and will not catch in obstructions, which prevent breakage. Two guard-teeth are also provided which adds some to the width and pre-

vents the hay from getting into the spokes of the wheel.

Wheel Axles—The wheel axles are made of drop forged high carbon axle steel so shaped as to give the wheel proper angle preventing spreading or sagging.

Trip—The trip can be operated either by hand or by foot. The foot trip is operated by very slight pressure and is automatically thrown out when the teeth have advanced far enough to clear the windrows. The hand lever is equipped with a small hook to hold the teeth in an upright position when not in use.

Cleaners—The cleaners are oval-shaped and attached to the cleaner bar riveted by steel clips. They are also connected to a rod extending the full length of the rake.

Wheels—The wheels are fifty-four inches in diameter with channel tire and with eighteen one-half inch round staggered spokes and equipped with removable hub which can be replaced in case of wear.

Poles—The poles are made of high grade wood stock and can be arranged for the use of one or two horses as desired.

MINNESOTA Binder Twine ||| MEANS ||| LOW PRICES HIGH QUALITY SATISFACTION

For forty-two years it has protected the farmers from unreasonably high twine prices and at the same time given the best of satisfaction.

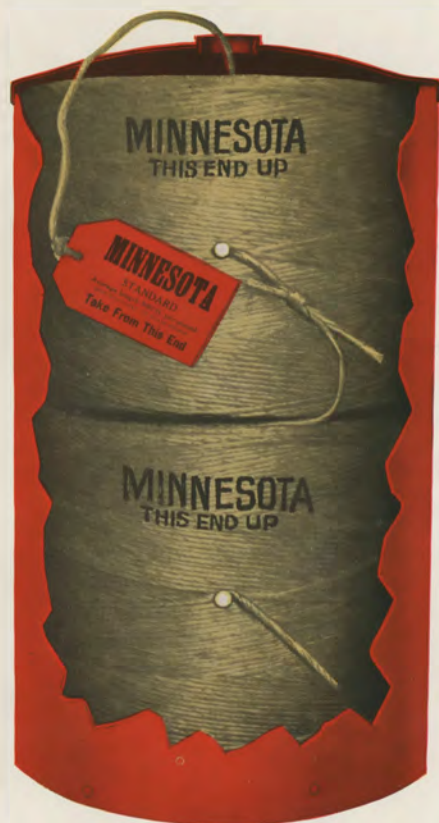
This has made MINNESOTA twine the "Farmers' Choice."

A few Facts about the Reliable Minnesota Binder Twine ~

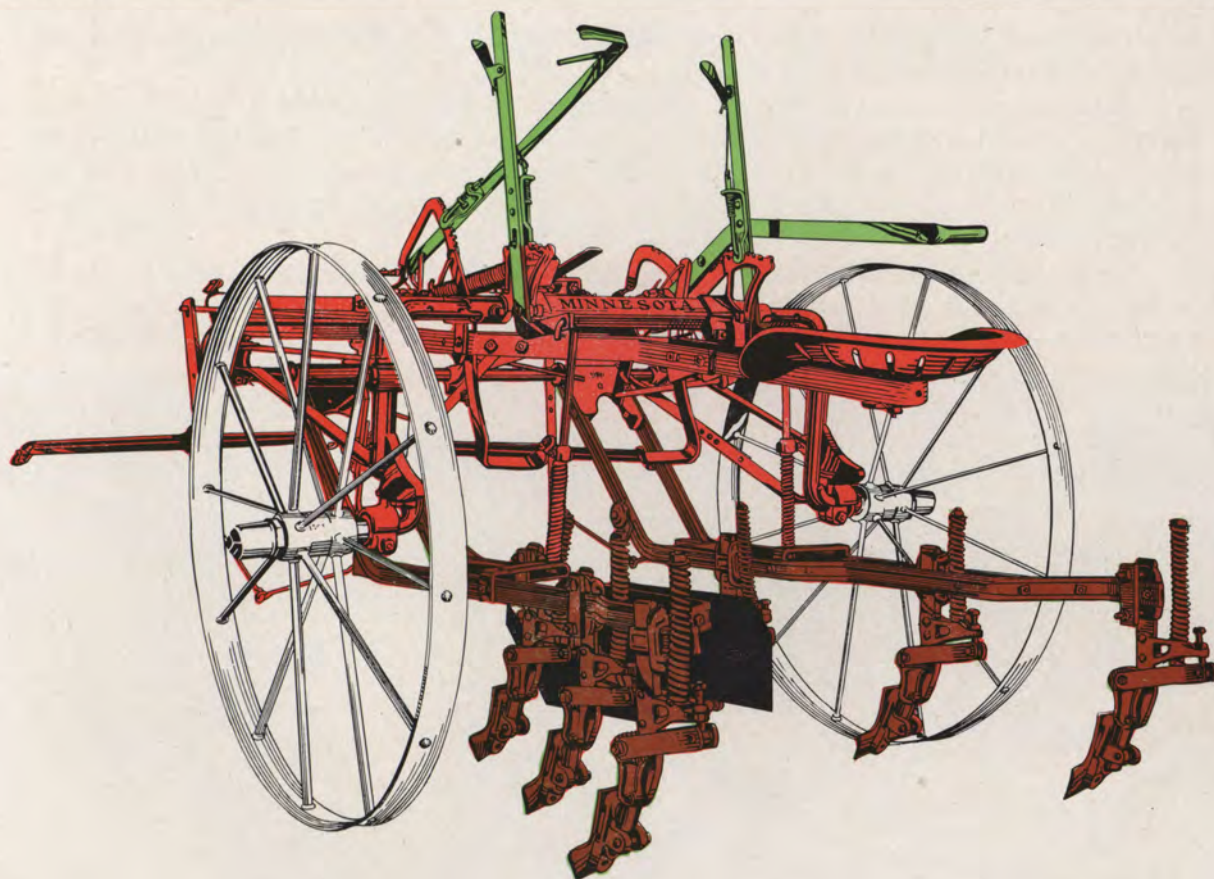
1. Manufactured since 1891.
2. Present yearly output about *twenty-five million* pounds.
3. Fully guaranteed to be up to grade in all respects.
4. Wound in eight-pound balls.
5. MINNESOTA TWINE
 - a. Runs full length,
 - b. Has a high tensile strength,
 - c. Is evenly spun,
 - d. Our special wind completely eliminates sticking, snarling, and tangling,
 - e. Is treated to prevent damage by insects,
 - f. Is wrapped in waterproofed paper and burlap.

All of Which Are Essentials of Good Twine!

**Minnesota Twine has Proved its Worth in
the Harvest Fields**



Buy "MINNESOTA" Twine Now and Save Some Money



Minnesota One-Row Cultivator

DESIGNED and constructed to do a thorough job of cultivation under varied conditions. Designed to operate easily and conveniently and constructed to withstand hard use.

Foot Pedals enable the operator, whether he be man or boy, to easily guide the wheels and gangs right or left in line of cultivation. The quick action of the pedals gives absolute control of direction and enables operator to easily follow the row and to avoid cutting plants that are out of line.

Levers—A master lever, assisted by a powerful lift spring, regulates the depth of both gangs, while another lever is provided to operate each gang separately, giving the operator control of the different depth of each gang, if found necessary. A spacing lever is also provided to spread the gangs to any desired width. A tilting lever adjusts the gangs for different heights of horses and enables the operator to

level gangs on hilly land. All levers are in front of the operator and conveniently operated from the seat.

Adjustments can be made on the axles of a MINNESOTA Cultivator for width, in extreme cases. The hitch is adjustable and brings the draft directly to the gangs thus relieving neck weight on the horses and eliminating side draft. The seat can be adjusted either forward or backward, as well as up or down and the foot pedals are adjustable, for the convenience of the operator.

Gangs are convertible and can be equipped with six or eight shovels, pin break or spring trip and arranged in zig-zag, or diagonal position. Shovels are made from soft center steel, hardened and ground, and are of the one piece diamond point type, assuring long wear. Plain shields are furnished, as shown in illustration.

MINNESOTA Cultivators are equipped with a tubular steel pole and steel single trees, which is in line with our policy to use nothing but the best in every MINNESOTA machine.

J. H. Koistinen, Route 1, Box 49, Erwin, S. D.

I purchased a MINNESOTA single row cultivator and surely like it. It is simple and at the same time strongly built. It is nice when you can get the wheels narrow enough so they do not trample the corn and potato vines when they grow thick. My eleven year old boy drove it and he sure was pleased with it.

E. R. Nordholm, Route 1, Finlayson, Minnesota.

I purchased a MINNESOTA cultivator and must say it is as good a cultivator as I ever operated. I intend to get a MINNESOTA Giant mower next summer and also a rake, so I am proud to recommend the MINNESOTA machinery to anyone that understands machinery.

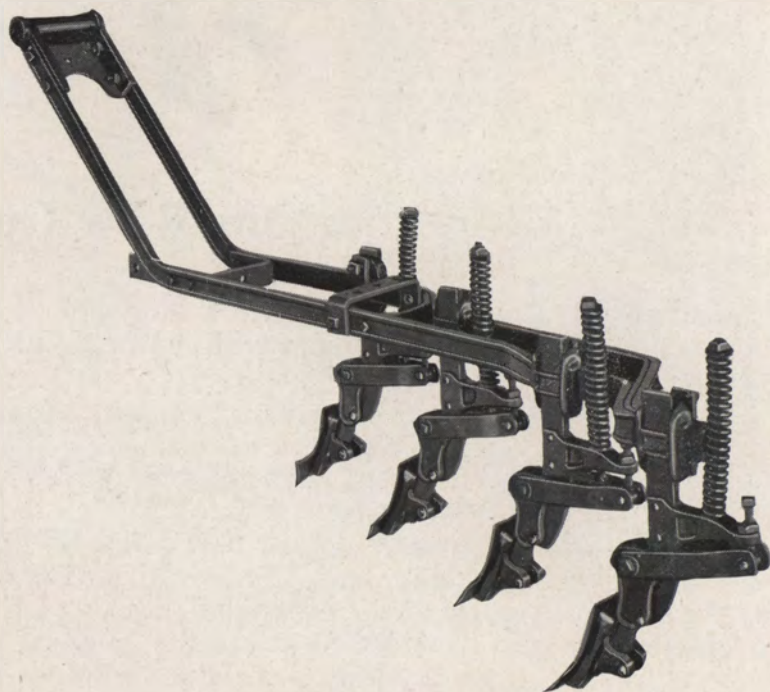
*Six or Eight Shovel
Pin Break or Spring Trip
Pivot Axle (Ball Pivot)*

*Balanced Frame
Light Draft
Master Lever*

*Foot Pedal Control
Independent Rig. Lever
Spacing Lever*

*Tilting Lever
Rigid Gangs
Hinged Seat*

*Sturdy Wheels with
Oil Tight Boxes
Steel Pole*



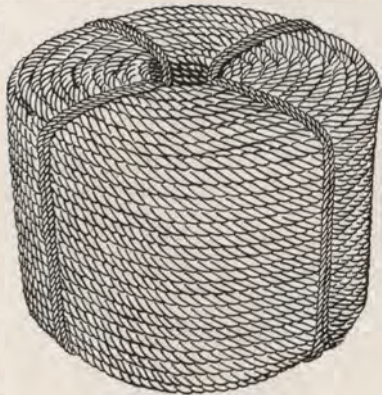
MINNESOTA ROPE

ASSURES

Durability—Full Length—High Tensile Strength—Uniformity—Flexibility
plus a special water-resisting emulsion tending to keep rope
pliable under most adverse conditions

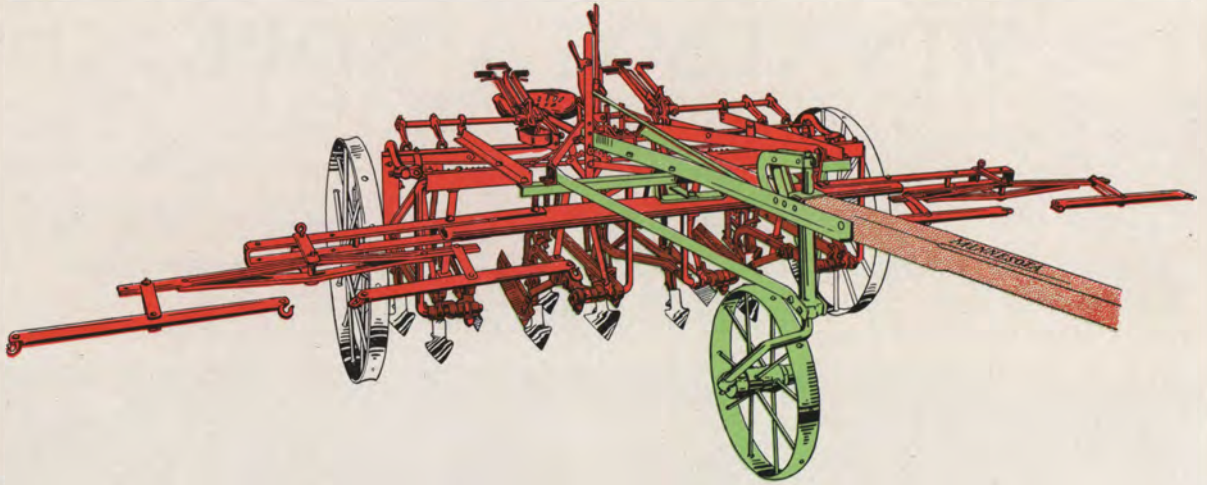


Manila Hemp Stalks Prepared for Stripping



**Take Advantage of this Saving
Meant for You**

Popular demand makes doubling
of our ROPE output necessary.
Insist on MINNESOTA Rope.
Accept no substitute.



Minnesota Two-Row Cultivator

THE MINNESOTA Two-row Cultivator offers an easy, practical and thorough method of cultivating corn. The construction of the machine, while not heavy, is very strong and three horses can handle it under ordinary conditions, without difficulty. However, the MINNESOTA Two-row Cultivator can be furnished either with the single wheel tongue truck and four-horse equipment as shown above, or with a three-horse hitch as illustrated on page twenty-nine.

The MINNESOTA Two-row Cultivator is made of the highest grade material throughout, is well designed and securely braced. It has eleven shovels of high grade soft center steel, carefully manufactured, correctly heat treated and highly polished. These shovels are arranged on eight beams so as to thoroughly work all the ground. The two outer beams and one inner beam are equipped with two shovels each and the fourth inner beam with one shovel. These beams are all stationary and controlled by the pivot axle wheels. The four shovels next to the corn rows are attached to a flexible beam and operate independently of the fixed beams, which makes the treadle easy to operate and at the same time, gives a range of operation that cannot be obtained by shifting all the shovels at one time. This makes it easy for the operator to dodge plants that are out of line.

The shovels on these flexible gangs are all bolted to the center—not to the side—so they cannot tip. The combination of the fixed and flexible beams, together with the pivot axle control, makes the cultivator easy to operate as the flexible beams and the wheels are shifted together, the fixed gangs automatically following the angle assumed by the wheels. The flexible beams nearest the corn rows may be released by the spring pressure, independently of the fixed beams, so as not to dig to the roots

when the corn is small. Either pin break or spring trip gangs can be furnished. The main wheels are 38 inches in diameter, with a 3-inch concave rim and fourteen $\frac{3}{4} \times \frac{5}{8}$ " oval spokes. The tongue truck wheel is 24 inches in diameter with a 3-inch convex rim and ten $\frac{1}{8}$ " round spokes. The double trees on the four-horse eveners may be set in to permit the passage of the two-row cultivator through a twelve foot gate.

Minnesota Two-Row Cultivator—Three-Horse Hitch

The MINNESOTA Two-row Cultivator, shown below, is equipped for three horses, with two poles, eveners and neck yokes.

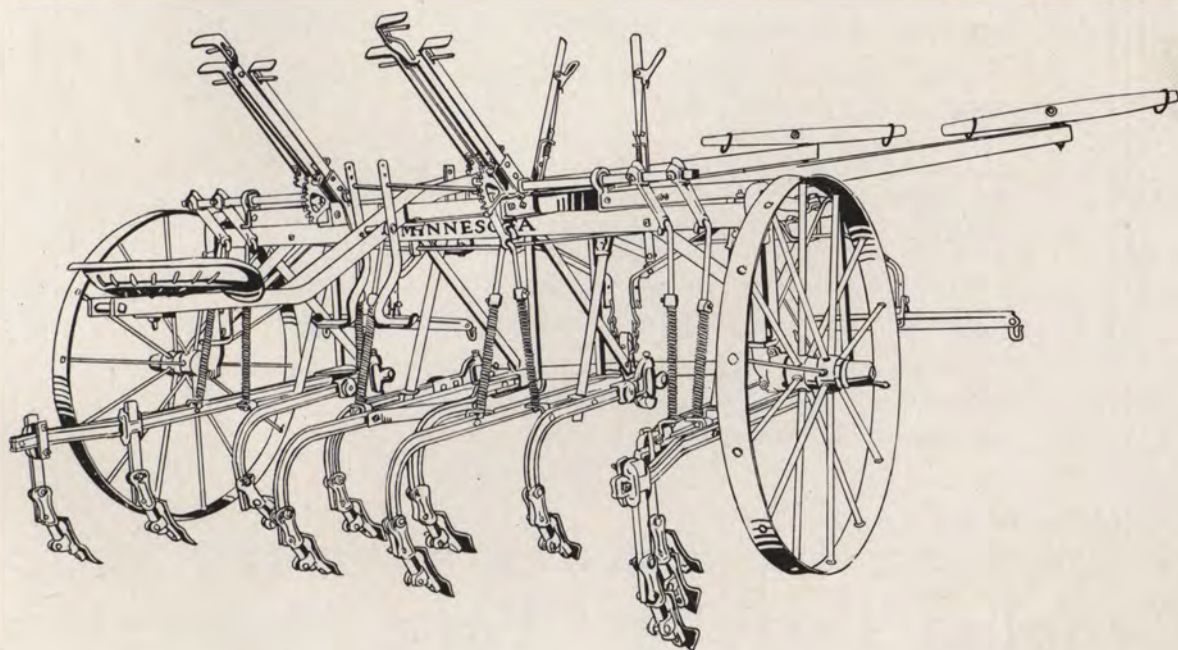
The construction of the machine, the design of the gangs, the arrangement of the shovels and the size of the wheels are the same on this machine as on the two-row cultivator with four-horse equipment, described more in detail on page twenty-eight. Pin break or spring trip equipment is optional, as desired. The illustration below shows clearly the arrangement of the gangs on either the three-horse or four-horse cultivator.

C. L. Owen, Supt. Oddfellows Home, Northfield, Minnesota.

"We purchased one of your Two-Row Cultivators and we have been very well satisfied with it as it is easy to handle and does excellent work."

John Rolin, Route 2, Rothsay, Minn.

I like the MINNESOTA cultivator very much. I have never used a better cultivator and I like it in every respect.



INSIST ON

Genuine Minnesota Parts

Whenever any of your MINNESOTA machines require repair work involving the use of new parts, it is to your distinct advantage to insist on getting Genuine MINNESOTA Parts. There are a great many replacement parts for MINNESOTA Machines now on the market at various prices—and of varying quality—all looking very much alike.

We have tested many of these unauthorized parts and have found that in most cases they do not come up to the original MINNESOTA specifications of quality and workmanship.

As soon as a MINNESOTA Binder, for example, is delivered to an owner, while vitally interested in the service which that Binder renders, we are unable to control the care that is given to its upkeep or to any repair work that might eventually become necessary.

Great care has been exercised by MINNESOTA designers and engineers in the quality and material specifications of MINNESOTA Machines.

Naturally, should any part need replacement, the new part should be of the same high standard of quality as the original.

Believing that MINNESOTA owners are intensely interested in getting genuine authorized MINNESOTA parts, we recommend going to an authorized MINNESOTA dealer for service.

You are interested in getting satisfactory service from your MINNESOTA Machine over a long period of time.

If you will insist upon using only genuine MINNESOTA parts, you will continue to have in your equipment the same high quality of material and workmanship that were originally built into it at our shops.

Genuine Parts are Your Protection

