

It will be time well spent if these directions are read through very carefully, in order that the purchaser may be sure that his machine is properly put together. Do not fail to read and observe all suggestions as to operating, as they are the result of several years' experience.

THE
DEERING
TWINE SELF-BINDING HARVESTER



DIRECTIONS FOR PUTTING UP AND OPERATING
DEERING'S
MARSH HARVESTER, HARVESTER KING
THE DEERING TWINE BINDER

AND
THE MARSH WIRE BINDER

FOR 1881

MANUFACTURED BY WILLIAM DEERING,

CHICAGO, ILL., U. S. A.

Directions for Setting Up

—THE—

DEERING MARSH HARVESTER.

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Unpack the box and lay the Platform lengthwise of it.

Put the Center-lever in place, which may be done by removing one bolt of the Back Canvas Slide.

The Divider may now be put in position, connecting front of Divider to Sickle Beam, the same bolt fastening in place the Fender Rod.

Bolt angle iron casting No. 253 to the rear of the Divider inside with bolts found in place, securing the casting to the Platform Sill with bolts found in casting.

Place the Drive Wheel in its proper position in relation to the platform with the gear next the platform.

Raise the Main Frame over the Drive Wheel and lower it to its proper position.

Bolt the Sills to the Sickle Beam and the Platform Sill with bolts found in place. Great care must be taken to make the Axle Pinions enter the corresponding Teeth on both the side castings, otherwise one end of the axle will be too high, and the gear will not mesh properly.

The long hooked Pawl on the side sill entering any of the eyes in the Disc on Axle will retain the Harvester in position as to height of cut.

The Back Board should now be put in position, its outer end being fastened to the casting on the Divider, its strap bolts passing through the platform sill and its inner end resting against the back sill.

Place the Back Frame in position ; secure the foot of its board with the long Strap-bolt between it and the Back Board, passing the long $\frac{3}{8}$ bolt through the Canvas Slide, Brace Board, Strap-bolt and Back Sill, drawing tight. Omit for the present placing the Lower Drum Box.

The bolt found in the foot of short Post should be passed through the Back Sill, and take as well Tightener Stand, No. 274.

The foot of the Back Post is secured with bolt found in place, and in case a Twine Binder is to be attached to the Harvester, the nut need not be tightened.

Put the Lower Drum Box bolt in the place from which it was taken, passing it through the Back Sill.

Pass the long ends of the Drum Shafts through their bearings at the top of the Brace Board, leaving their front ends for the present unsupported. (When one of these drums is found to have a threaded end in front let it be placed beneath the other.)

Place the two Drums having short journals in the bearings at the foot of Canvas Slides—the larger one uppermost.

The front frame is next to be put in position and secured with bolts found in

Directions for Setting Up the Deering Marsh Harvester. 3

places (first having passed the journals of the Drums into the bearings in the Frame), the bolt at bottom of Post taking the straighter end of the next to the longest iron Brace. The casting No. 212 must be between bottom of post and sill at the same time, securing the foot of the Brace Board to Shoe with bolt found in place.

Place the Cross-tie between Frames with its projecting end in front, securing it with bolts found in place. Casting No. 251 should now be bolted to the side of Cross-tie prepared with holes for its bosses, and the long bolt passed down through Cross-tie, girt, foot of casting, and the eye in the Long Brace, in the order given, which must be hooked into Side Casting No. 267.

Hook to the Nails in the Cross-tie the Leather Loops of Gear-cover, its lower edge resting against the edge of the Gear Plank.

Place the Top Board from frame to frame, securing with bolts found in place.

The Seat Post should now be placed, its slotted end resting upon the projecting end of Gear Sill, its upper end secured to the Girt above with bolt found in place. The short Brace must be inserted in the slot at the bottom of this Post and there secured by the bolt passing through it that fastens the Post to the Plank.

Attach the Tongue, with the Hammer Strap upward, using the long $\frac{5}{8}$ bolt, inserting a Washer between the Tongue and end of Sill.

Remove the Hook from the rear end of the Tongue Brace, then hook it into the Eye in the Shoe near the end of the Sickle, then re-secure it to the end of the brace. The front end of the Brace should be bolted to the side of the Tongue.

The Inside Divider rod should be secured to the Gathering Board with its extension projecting over the end of the sickle,

The Lower Drum may now be placed; also its Box No. 220. Put on the Lower Sprocket Wheel 276 with its dished side inward.

Let the Canvases now be put in, in each case so that the ends of the Straps will droop backward as the canvases revolve.

Take the Hand Lever Crank, No. 216, insert the small pin of its end into the larger hole in the end of the Tongue Standard. Insert the shaft of No. 216 into the eye of casting No. 251 and secure its other end in the Box No. 255 and bolt to Front Girt with bolt found in place.

Bolt Hand Lever to Crank with bolts found in place, not omitting to hook the rod of Spring Bolt into the Bell Crank on Hand Lever.

Secure Tongue Standard to Tongue with $4\frac{3}{4} \times 1\frac{1}{2}$ bolt and Spring Key.

The Box beneath the Platform may now be removed.

The Shifter Hook must have its singly curved end hooked into the hole in the Shifter Ring, connected with the Clutch in the Gearing. Next take Shifter Rod and hook the doubly curved end of the Shifter Hook into the eye of the small casting at its lower end, dropping the foot of the rod into the hole in the Gear Frame, its upper end into notch in Back Girt, there securing with clip and bolt found in place.

Place Seat Board, securing it with bolts found in Girts, the longer bolt at front end taking the top of the Brace connecting the Girt with the bottom of short Post; the same bolt also taking the long foot of Reel Lever Bracket, which now place.

4 Directions for Setting Up the Deering Marsh Harvester.

The Take up Guide may now be placed, securing its gained end to the outside of the Front Post, its length projecting forward.

Bolt the Front Post Extension to the Front Girt immediately in front of the take-up Guide, screwing the upper beveled end to the Brace Board.

Unpack the Reel and open its Shears so wide as to allow the long Ratchet to be inserted into the Sliding Box No. 194. Close the Shears and put the Reel in place, laying the hinge at bottom of Ratchet upon front end of Seat Board, securing with bolt found in place. Remove the Slide Rod from Take-up Guide, passing it through the remaining hinge; insert its end into hole in front end of Cross-tie, which should be secured with rivet found in Tool Box, its other end resecured to Take-up Guide; the same bolt taking the top of the Brace reaching from the foot of Front Post.

Take Loop off from Reel Lever by removing bolt from its middle, hook the end of Latch Rod into the hole in the Pawl on Sliding Box, place the eye in end of Lever upon the stud upon side of Sliding Box, fastening with Spring Key and Washer. Replace the Loop taken from Lever so that the Lever and nut will be between its two ends, its Bow hanging around under the top of Reel Lever Bracket, inserting the bolt with head toward the left, leaving the space for spanning the Bracket between the end of Loop and Lever. Now bolt the Reel Chain Take Up to the eye found on the right axle disc of the Drive Wheel.

Slide the Loop of Chain Take-up on the end of Reel Shaft. Next place the Reel Sprocket Wheel securing with bolt found in place. The Arms and fans may now be put on, adjusting the latter so as not to strike at either end. For short or light Grain it may sometimes be well to attach the Arms by passing the bolts through the holes provided for giving the fans a twist.

Put on the Reel Chain, each of its two Laps passing under one of the Pulleys of the Take-up; make the Chain tight by moving down the Sliding Pulley. This Pulley may be removed to facilitate the putting on of the Chain. Either the large or small sprocket wheel may be used, as is found desirable.

Secure the Seat Spring with bolt through one of the rearmost holes in the Seat Board, and turn the nut very tightly; the Cleat on bolt being below the Board and the Saddle No. 35 above the Spring.

If the machine is to be used as a harvester, fasten with $1\frac{3}{4}$ screws the Wire Rail, inserting into the gains the wires, so that the ends will droop downward.

Place the Gears upon the rear ends of the Upper Drums, the sprocketed one beneath and fasten with Spring Cottars.

Put on the short Drive Chain passing it around the smaller sprocket wheel on crank shaft and the platform roller sprocket Wheel, allowing the tightener found in place to press up against the lower half of the chain to secure the necessary tightness.

The longer Drive Chain should now be passed around the crank wheel and the elevator sprocket wheel, unless the Twine Binder is to be attached, in which case it is well to defer placing the chain until the binder has been put on.

The Tightening Pulley Casting No. 275 should now be attached to the back girt at the right of the shifting rod.

A cut illustrating the manner of attaching the drive chains will be found herewith and another will be found on the back board.

If the Twine Binder is not used, the chain passes directly around Crank Wheel and Elevator Sprocket Wheel.

Put Pitman in place, taking care to tighten the two nuts of bolts through the end of the Center Lever.

The Tool-box may be secured to the rear end of the Seat Board with screws. Attach the Grain Board beneath the Upper Drum by means of the bolts found in Front and Rear Post, unless the binder is to be attached, in which case it is not used.

For the hand binding harvester insert the hooks of the Foot Board into the holes in Front and Rear Posts, just above the Girts, the longer hook to the front, and there secure with Spring Key. The ends of Sills should enter the holes in the Side Sills. The Table is secured to the ends of the Girts, by bolting its Hinges thereto. Its Standards must enter the holes in the upper corner of the sill.

The block of wood about 2 feet long with a strip of leather at one end is to be used in blocking the wheel when the machine is raised or lowered. It is to be attached to the back post by hooking the leather over a screw found in the back post and allowing the block to rest on the side sill, its other end being supported between the side casting and the small wrought iron strap, or in case the twine binder is attached, by the wooden support.

TO RAISE AND LOWER THE MACHINE.—First, be sure that the Harvester is in gear. Next, place the block of wood, found at the rear end of the Side Sill, between the spokes of the Drive Wheel, *under the forward end of the Gear Plank* (not on top of the rear end).

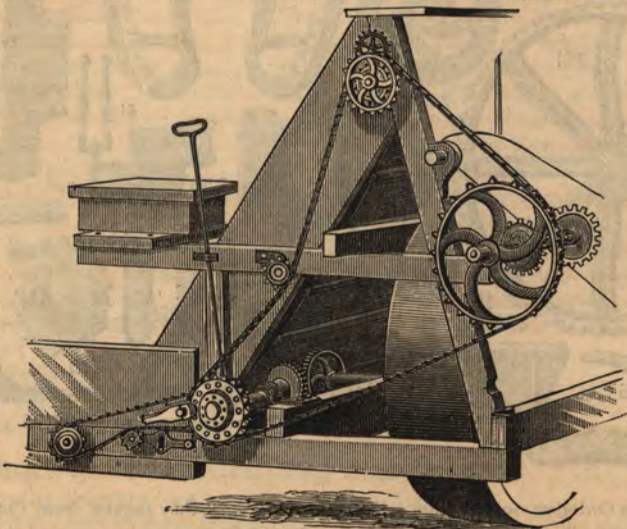
Hook the pawl attached to the Back Sill over the sprockets of the Crank Wheel, then insert the iron lever, with the tapering end in one of the sockets of the Crank Wheel. Move the lever a little to the left, sufficiently so to loosen the pawl in the Axle disc that holds the machine up. This latter pawl must then be withdrawn.

Now again move the Crank Wheel Lever to the left, and the machine will be found to raise easily. When it reaches the desired height, insert the pawl in the socket on the axle disc; withdraw the Crank Wheel Lever and throw off the hooked pawl.

Next, withdraw the block of wood. If the block is jammed, the entire machine may be moved a little forward to loosen it.

The machine is now ready for work.

TO LOWER THE MACHINE.—The block of wood must be put under the end of the Gear Plank to block the wheel, as before, the pawl thrown over the Crank Wheel and the disc pawl withdrawn. Insert the tapering lever, lift up the Crank Wheel pawl, and allow the machine to fall slowly by its own weight until it reaches the desired point.



This Cut Shows the arrangement of the Drive Chains.



Persons Ordering repairs can easily determine what they require from the above cut, and in making their order must always give the number of the piece as represented in the cut, and the name of the piece opposite the same number in the Price List.

PRICE LIST OF EXTRAS FOR THE DEERING MARSH HARVESTER,

MANUFACTURED IN 1881.

35 Seat Spring Saddle.....\$ 20	261 Main Gear.....\$6 50
36 Seat..... 2 50	262 Sprocket Hub..... 2 50
41 Pitman Ball and Straps... 60	263 Beveled Gear..... 2 50
43 Crank Shaft Collar..... 15	264 Tongue Shield (upper)... 25
93 Sickles Clips 05	265 Tongue Shield (lower).... 40
106 Hand Lever Pin (wrot)... 25	266 Side Casting (right)..... 2 50
120 Bevel Pinion..... 80	267 Side Casting (left)..... 2 50
121 Clutch..... 75	268 Back Gudgeon Box..... 40
124 Reel Ratchet Pawl..... 25	269 Grain Wheel Hub..... 1 50
134 Raise and Lower Pinion.. 75	270 Cross Bar Support.. 2 00
135 Center Lever Socket..... 50	272 Spur Pinion 1 75
141 Reel Hinge (cast)..... 40	273 Crank Wheel..... 2 50
163 Take Up Pulley (large).. 60	274 Lower Tightening Pulley
164 Take Up Bracket..... 1 00	Stand..... 75
166 Take Up Roller..... 40	275 Upper Tightening Pulley
183 Axle Disc..... 1 50	Stand 1 00
190 Reel Ratchet..... 60	276 Lower Drum Sprocket
193 Reel Hinge (malleable)... 30	Wheel 75
194 Reel Slide Box..... 80	277 Reel Sheave..... 1 60
196 Swallow Tail (malleable) 1 00	278 Divider Point..... 75
199 Grain Wheel Axle..... 2 00	279 Equalizer Cross Bar..... 1 50
201 Shifter Ring..... 40	280 Equalizer Guide..... 1 00
204 Reel Lever Squirrel Tail.. 30	281 Globe Pitman Boxes, per
205 Upper Drum Sprocket	pair 50
Wheel 1 50	2½ inch Wrought Reel Box 35
206 Upper Drum Gear..... 75	2 inch Wrought Reel Box 30
207 Tilting Lever Bell Crank 25	Shifter Rod..... 75
210 Shoe..... 1 50	Guard (wrought)..... 20
212 Front Post Footing..... 40	Hand Lever Spring..... 20
216 Tilting Crank..... 2 00	Clutch Spring..... 25
218 Tilting Lever Bell Crank	Drive Wheel Axle. 2 00
Washer 10	Crank Shaft 2 00
220 Lower Drum Box.. 25	Shifter Hook 25
222 Shifter Clip..... 15	Sickle (5½ feet)..... 3 50
223 Shifter Pull..... 15	Sickle (6½ feet)..... 4 00
224 Center Lever Stud..... 60	Drive Chain (long) No. 45
248 Oil Can Holder 25	(64 links) (malleable)... 2 50
250 Center Lever Rest Socket	Drive Chain (short) No.
(rear) 1 00	45 (36 links) (malleable) 1 25
251 Tilting Crank Sector..... 1 00	Reel Chain No. 45 (105
252 Center Lever Rest Socket	links) (malleable)..... 3 00
(front)..... 50	Elevator Canvas..... 5 50
253 Back Board Angle Iron.. 1 00	Platform Canvas (5½ feet) 4 00
254 Hand Lever Squirrel Tail 50	Platform Canvas (6½ feet) 4 50
255 Hand Lever Crank Box.. 50	Inside Divider Guard..... 50
256 Divider Angle Iron..... 20	Outside Divider Guard... 20
257 Beveled Pinion Stop..... 15	Sickle Eye... 30
258 Gear Frame..... 3 50	Sections..... 15
259 Spur Pinion Box..... 1 25	Slide Box Spring.. 15
260 T Box..... 1 50	Pinion Shaft..... 1 75

N. B.—By mistake the price of canvases was given as last year. They should be :
 { Elevator Canvases..... \$4 00
 Platform Canvases (5½ feet) 3 00
 Platform Canvases (6½ feet) 3 50

Directions for Running the Marsh Harvester.

The following directions must be carefully observed :

The machine is now supposed to have been properly put together, having all its parts in their proper places and well oiled, and the purchaser desires to go to work. Now, if he carefully observes the following suggestions he will not fail.

He must first see that all the nuts are screwed up tightly, and having tried the Sickles, Canvases and Elevators, each by hand, to see that each runs freely, attach the team, **DRIVE SLOWLY**, throw in gear and try Sickle first, then put on Chain and run all parts together, noticing if they run freely and without any unnecessary jar, correcting whatever may be wrong, and getting the machine in thorough running order, and the men and horses used to the motion before going into the grain.

In cutting short grain which stands well, put the machine on low cut, with Reel back and low. Do not tip the machine forward any more than is necessary. When the grain is too ripe to bind, or too short—as with barley—or if a full set of hands can not be had, the Machine can be used as a Self-Raker, and one man sitting on the table can gavel nicely and easily. Or, in cutting barley, remove the tables and foot board, and let the grain pour over in a swath. It cures quickly thus, and is in admirable shape for raking together with a horse rake.

The natural position of the machine is **LEVEL**, with **CUTTER BAR UP**, rather than down, as in other machines. In cutting lodged spots of grain, it is necessary to pitch the sickle down, by using the hand lever; or throw the reel forward and down, which can be done with reel lever as the machine moves along, whenever you come to such spots in the field. If the whole field is lodged, the same rule applies, except that it will be necessary to shove the reel forward and low enough to dip under the lodged grain. Experience, with these suggestions will soon accomplish the work. Remember lodged grain is not very pleasant to cut with any machine.

The reel must be used rather lower than on ordinary machines.

To get the cut of the machine required, raise or lower the main wheel and level the sickle by raising or lowering the grain wheel. Having got the right cut attach the horses. Let a driver get into the seat, and using the hand lever, "set" the front of the canvas platform, with sickle a little higher than the back,—the front pitched up a little. Now go on steadily, driving as slowly as possible, cutting narrow if you can not drive slowly. Remember that **ONE SKILLED BINDER CAN DO AS MUCH AS TWO UNSKILLED**. The binders **MUST HAVE TIME TO LEARN**, AND THE DRIVER **MUST NOT GIVE THEM MORE GRAIN THAN THEY CAN BIND EASILY AND WELL**.

If in lodged and tangled grain there is found any tendency for the grain to cling to the divider, the reel should be so adjusted as to permit the fans to clean it.

Directions for Adjusting and Operating the Marsh Wire Binder.



The foregoing rules for setting up the Harvester proper, apply in preparing it for the Wire Binder, with the following additions:

The Supporting Casting, No. 154, should be secured for the outside of Sill in front of Side Casting, with bolts found in place.

Place the Long Pinion Box, No. 90, just at the rear of the latter, secured with the $\frac{1}{2}$ inch bolt that connects Side Casting to Sill.

Insert the short Journal of Long Pinion Shaft into Box No. 90, and secure the rear Long Pinion Box to rear end of Sill which $3\frac{1}{2}$ bolt, and with the long bolt at foot of Post, (placed head outwards for convenience), which, in addition,

should take the angled end of No. 147. The top of this casting is secured to the rear Side of Back Post with bolt found in place, which also should secure the Idler Stud.

Passing through the bearing in this No. 146 is a long rod which should have its remaining end supported to Back Girt near end of Seat Board with Bolt and Clip found in place. The Clip is designed in the Harvester proper to hold the Shifter Rod, but when the Tripper Rod of the Binder is placed, the large end of the same laps over it. The rod will act to hold the Shifter in the notch in the Back Girt. The Cast Crotch at the lower end of this Tripper Rod should be so placed as to span the Clutch from beneath. Bear in mind to have the large washer between it and the flange of Clutch. Remove the pin and washer from the end of Long Pinion Shaft, and place the Sprocket Wheel No. 15 so that its teeth will engage with those of the Clutch, and replace washer and key. The Chain may now be applied, passing from the small Sprocket Wheel upon the Crank Wheel of Harvester, around the Sprocket Wheels No. 15 or 19. (If the grain to be cut is heavy the sprocketed ring No. 19 should be removed, running the chain upon No. 15 direct, which will increase the rate of the Binder, decreasing the distance between bundles.) All slack must be taken out of the chain by swinging Idler No. 166 downward. The act of tightening the bolt securing No. 113 will fix all these parts from further movements.

The bar of wood with beveled ends should be placed with its foot upon the Side Sill behind No. 154, its Top resting upon the Back Girt, with gained side fitted to Post, and there secured with 5 x $\frac{3}{8}$ bolt, and to Side Casting with bolt found in bar.

Casting No. 210 must be secured to the top of Back Frame with bolts found in place. Into the bearing of this casting, place the end with shorter bend of Adjusting Crank, the said bend directed forward, with the shaft of Crank passing downward along the Back Post and secured at the bottom in Box No. 157, with the bolt passing through Post and the Brace before placed.

To the middle of Brace Plank secure Casting No. 168, eye outward.

Place the Pedal Support No. 153 upon the Seat Spring just above the Seat Saddle.

Put the Pedal No. 152 upon the extension of the No. 153, hooking its rod into the hole in the end of Tripper Rod.

It will be well now to oil the Long Pinion, Boxes and Clutch. See that they move freely. Remove the Rollers from Supporting Casting, and oil the bearings well.

The Binder may now be put in place, so adjusting its Sill that the flanges of the Supporting Roller will enter the groove in its under side.

To hold the Binder in position pass the Slide Rod through No. 137 of Binder, then into eye in Supporting Casting, securing the bent end of Slide Rod with bolt found in place, nut downward, turning so tightly as to prevent its working off. Connect the lower end of Adjusting Crank with the Binder with the long hook.

Secure the Adjustment Lever to the left side of projecting end of the top of Adjustment Crank, Latch and Rod beneath, with bolt and yoke found in place; screw up tightly. Oil Slide Rod and try the Adjustment of the Binder by means of the Lever. If the gear meshes too deeply into the Long Pinion to admit of its sliding easily, take off the Binder and remove the washers that are found on the studs with the Supporting Roller, so as to allow the Binder Sill to move outward.

Secure the Wire Crane in its place to the left of the lugs upon the rear side of the Swinging Post No. 142 of Binder, screwing up tightly. Remove the one nut from the end of the brace found tied to the Wire Crane, insert end of brace through the projecting end of the Clip beneath the joint of needle, and replace the nut, turning up tightly. The upper nut must not be moved, it being so placed as to give the brace the proper length. To the Front Girt of Harvester bolt the notched bar, so that its shorter end will rest beneath the rear end of the Reel Chain Take-up guide of the Harvester, notch upward. Now carefully oil the

working parts of the Binder, and try all the small sheaves with string or wire and make them run freely. Put the table in place; dropping the cleat beneath its front piece into the notch in the bar hinged to the girt. See that the small latch on end of the bar enters the groove in the cleat. This will prevent table from jumping out of place. The claw secured to rear of table should grasp the groove in the post, just above the sweep and be there secured with bolt. Let there be no uncertainty about the fastenings of the table.

Attach the spool stand to the adjustment lever, the part bearing the strap pin extending to the right of the lever.

Insert the leather core into the spool of wire, place it upon the Spool Pin on the Adjustment Lever, so that the wire shall be drawn from the forward side of the same. Oil the tension strap thoroughly, upon the side to be applied to the spool, and pass its loop on to the pin in Spool Holder, and carry it around behind the spool; connect the spring with the strap; tie the end of the string found in the remaining end of the spring into the eye in top of the tension key. The tension of the wire is regulated by winding more or less of the string upon the tension key. The Spool of Wire should always be well oiled. Put the wind boards in place; the wider one in front and secure to the tops of front and back frames.

Draw the wire from the spool, passing it around behind the sheave on the Wire Crane, thence under and back over the Lower Sheave in the Take-up, thence forward and over the Upper Sheave, but **BENEATH** the small stud extending between the discs of the Take-up, thence through the Pod of the Needle over its Upper Sheave and through the slot, over and back under the Lower Sheave, thence downward and tie into the hole in the Twister plate.

The first revolution of the binding mechanism will attach the wire to the Twister, after which every revolution will complete a band.

After running a short time, the parts can be moved so easily that in threading up, the Binder may be given its first movement by carrying the point of the Wire Arm through its revolution with the hand while the Harvester is standing. This is desirable, for in the first revolution the wire not being attached to the Twister, any grain, that might flow into the receptacle while the arm is being carried around by the forward movement of the Harvester, would be left unbound, and the wire encircling it be wasted.

When it is desired to give the Binder a thorough oiling, the table may be removed by throwing Binder backward, removing the pin from the Claw, and unlatching the Cleat.

In oiling, give frequent attention to all of the small Sheaves and Rollers, around which the Wire passes to the Twister, and its pinion. A little oil upon the Twister Hook before starting will be beneficial. The Take-up Spring must be frequently oiled.

In starting, let the driver place his foot upon the pedal, and, by pressing it forward, hold the binding mechanism out of gear until a large gavel has accumulated in the receptacle; then by removing the pressure, the clutches will engage, and said mechanism be put in motion, which motion will be continued until the pressure of the foot is again brought to bear upon the pedal.

Let this be borne in mind: The binding mechanism should never be stopped at any other point than while the Wire Arm is at its extreme outward movement, thus allowing plenty of room for the gathering of the next gavel.

If the grain is short move the Binder forward by carrying the Adjustment Lever over to the left; if long grain, reverse the movement.

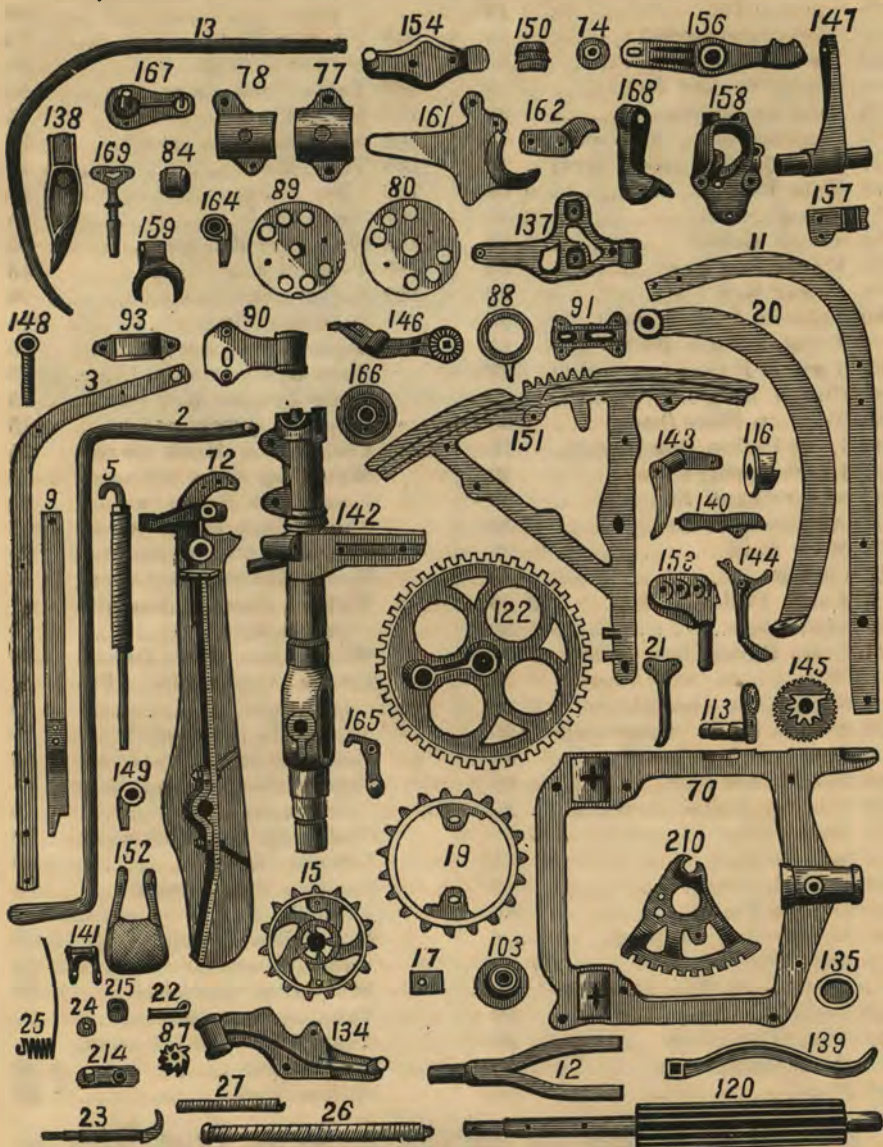
In case it should ever be necessary to insert a new Twister, it must be so placed, that its points will be directed a little to the right of forward, when in its position of rest.

The curved connection must always be kept so short as to bring the Wire Arm down **VERY POSITIVELY**. By turning the nuts upon its lower end, the length may be varied at will, but always keep the nuts tight.

If it is desired to increase or diminish the pressure of the Compressor, it may be done by turning the nut above the spring up or down, thus varying its tension.

Be sure, that the Take-up acts promptly, that its spring is not prevented from exerting itself by having become gummed up from the use of bad oil, or from any other cause.

Always endeavor to bind large bundles, thereby save wire.



Parties ordering Repairs can easily determine what they require from the above Cut, and in making their order must always give the number of the piece as represented in the Cut, and the name of the piece opposite the same number in the Price List.

2 Adjustment Crank.....	\$1 50	7 Compressor Shaft(wro't).\$	1 00
3 Take-up Crane (wrought)	2 00	9 Long Shear (steel).....	1 00
5 Compression Spring (steel wire).....	40	11 Wire Arm.....	3 50
6 Compression Spring(steel)	50	12 Bootjack (wrought).....	2 25
		13 Separator	75

15 Sprocket Wheel.....	\$1 75	153 Pedal Support.....	\$ 40
17 Short Shear (steel).....	40	154 Front Support.....	60
19 Sprocketed Ring	75	156 Bootjack Extension	50
20 Connection (wrought)....	2 50	157 Adjusting Crank Boxes, 1	
21 Squirrel Tail	15	pair.....	50
22 Clicker (wrought).....	10	158 Twister Plate.....	75
23 Twister (steel).....	1 25	159 Shifter Crotch.....	30
24 Needle Sheave (steel).....	25	161 Table Claw (large).....	40
25 Take-up Spring.....	20	162 Table Claw (small).....	15
26 Tension Spring (steel wire)	75	164 Separator Box (rear).....	25
27 Latch Spring (steel wire)	10	165 Table Hook	15
70 Main Frame.....	5 00	166 Idler Pulley.....	40
72 Sweep.....	6 00	167 Spool Stud.....	25
74 Sweep Roller.....	25	168 Slide Rod Bracket.....	50
77 Upper Box Cap	50	169 Tension Key	15
78 Lower Box Cap.	50	210 Adjustment Sector.....	1 00
80 Take-up Plate (front).....	35	214 Separator Tripper.....	15
84 Twister Plate Roller.....	15	215 Separator R iller.....	05
87 Twister Pinion (wrought)	40	Slide Rod (wrought).....	75
88 Clutch Ring	20	Long Tripper Rod (wrot)	25
89 Take-up Plate (back).....	50	Latch Rod (wrought).....	15
90 Long Pinion Box (front)...	75	Connection Hook (wrot)	25
91 Latch Spring Case.....	20	Main Gear Axle (wrought)	1 25
93 Sheer Crank Box.....	25	Long Rack Brace (wrot)...	25
103 Adjusting Roller.....	35	Short Rack Brace (wrot)	25
113 Idler Stud.	25	Eccentric Pin (wrought)	1 00
116 Clutch	75	Sweep Roller Pin (wrot)...	40
120 Long Pinion	2 00	Twister Plate Roller Pin	
122 Main Gear.....	4 50	(wrought).....	10
134 Long Pinion Box (rear)...	1 00	Wire Crane Brace (wrot)	40
135 Wire Guide (with sheave)	35	Lower Connection Pin	
137 Shear Cam (malleable)...	1 25	(wrought)	50
138 Needle Point (complete)...	1 00	Shear Pin (wrought).....	10
139 Compressing Lever.....	40	Roller for Slide Cam (wrot)	15
140 Shear Cam Cap.....	20	Compressor Spring Rod	
141 Twister Roller Bracket...	20	(wrought).....	50
142 Swing Post	5 50	Clutch Spring (steel wire)	50
143 Shear Crank.....	75	Tension Strap	40
144 Rack Latch....	40	Machine Screws each.....	05
145 Double Pinion.....	1 00	Table for Binder (wood)...	10 00
146 Shifter Rod Support.....	60	Wind Board (wood).....	2 00
147 Arm Hinge.....	1 00	Sweep, complete.....	12 75
148 Connection Eye Bolt.....	75	Wire Arm, complete.....	6 00
149 Separator Box (front)....	20	Take-up, complete	3 50
150 Arm Hinge Cap.....	20	Chain for Binder (46 links)	
151 Rack (complete).....	3 00	malleable.....	1 50
152 Pedal ...	60	Shifter Rod.....	50

Directions for Adjusting and Operating the Deering Twine Binder.

Read carefully the Directions for Operating the Twine Binder, found in the Twine Box, and the Directions for Operating the Harvester, found herein.

The foregoing rules for setting up the Harvester proper apply equally well when preparing it for the Twine Binder, with the following additions.

Unpack the binder, removing the parts wired thereto. Open the twine box and take out the small pieces contained in it. One of the two cast Binder supports, No. B118, is secured to the front post extension by the bolt passing through it and the front post. The rear support is bolted to the rear post by the bolt found in casting.



Take the thick block with notched ends, place the end having the beveled notch upon the outer upper corner of the side sill of Harvester, just at the rear of the side casting, and there secure with bolt found in place. The accompanying Brace is secured by the bolt passing through the back post and the side sill.

Now remove the forward one of the two upper decks.

Now raise the binder and put it in position with the upper pipe resting in the cast binder supports on front and rear posts.

Pass the 7 inch yoke bolt found in twine box over the pipe and through the back post, drawing it tight. Put the wrought iron hook over the pipe and through the front post extension, securing it in place.

Take the flat wrought iron strap with hooked end. Pass the hooked end over the lower pipe and bolt the other end to wooden binder support by the bolt securing the brace rod. Replace the Deck just now removed. Bolt the adjuster, casting No. Bro8, to front post of harvester with bolts found in place, putting the threaded end of the elevator roller shaft through the hole in the larger boss. Screw the larger of the two beveled pinions, No. B46, on the elevator roller shaft. Put the swinging adjuster frame in position with the threaded shaft, passing through the smaller boss in casting No. Bro8, screwing the smaller beveled pinion, No. B47, on the threaded end as you place it in position. Attach the Adjuster Lever to the frame by the cast pivot No. B52.

Next slide the Adjuster Lever casting No. B115 over the end of the Adjuster Lever so that its spring will rest on top of the lever. Screw it by the two 1 inch screws to the top rail of the harvester in such a position that when the lever is hooked in the first notch the adjuster frame will hang parallel to the elevator. Now put on the Adjuster Canvas, buckling it so that the loose end will droop backward as the canvas revolves.

The longer of the two Drop-leaf Decks must be placed beneath the permanent one to the rear of the binding mechanism, and the short one in a corresponding position in front, not omitting to hook the connecting rods into the castings upon the Drop-leaves.

The sheet iron Shield must be screwed to the edge of the top board with 1½ inch screws, its lower edge supported by the stick immediately over the packers entering its slot.

The upper pivot of this Swinging Adjuster is formed by a strap brace found with the parts, which must be bolted to the front end of the Top Board of harvester. This brace is itself further supported by a strap riveted thereto which should take a screw about six inches to the rear of the front end of the Top Board.

Be sure that the Adjuster Drum is perpendicular, with reference to the plane of the decking.

Place the Twine Box in the position shown in the cut, and there secure it with the bolts found in place. The Tension Rod should hang down along the Box between its lower corner and the screw in the End Board of the Binder, then fall behind the weighted Lever.

Mount the large Sprocket Wheel, No. B14, upon the projecting end of the shaft at the rear end of the Binder. Its distance from the Back Post of Harvester, must, in every case, be the same as the distance, from the post, of the Sprocket upon the Drum above. This will insure all the wheels being in line. Now see that all the strings and wires are removed that were used for preventing the parts from movement while shipping.

Go carefully over the Binder; oil all parts subject to wear, and while the Binder is new, especially the part of No. B7 (see cut) that passes through the eye in the trip-hook.

By removing its cover, the tying mechanism will be exposed to view. Clean the knotting hook thoroughly. If this part is found rusted it must be cleaned and well oiled. Now turn the large Sprocket Wheel and see that the parts move freely. It will be observed that after part of the revolution has been made, the binding mechanism will cease to move. In this position the Binder may now be threaded.

Start the end of the Twine from the inside of the ball in the Box, pass its end upward and out of the hole near the top of the left side of the Box, and pass it through the hole in the tension box.

Now bring the end of the twine down and, pressing the weighted Lever downward to its lowest position, the end may be passed through the three eyes thus brought into line.

Pass the Twine forward and through the hole in the casting near the Needle, then backward through the hole in the extension of the Needle, then up through the long hole in the Crotch, then forward through the eye of the Needle and pull it out about three feet.

Now, in order to complete the operation of threading up, it is necessary to turn the binding mechanism through its first movement in order to let the Needle pass the Twine into the Holder.

This Binder being so arranged that when sufficient Grain for a Bundle is packed into the Band, it presses upon the Trip Hooks (the arms that support the Grain immediately below the tyer) moving them outward, it will be readily understood that to throw the machinery into engagement it will be necessary to move them in the same direction by hand.

Now turn the large Wheel and the Binding Mechanism will be carried through one revolution and the operation of threading will be completed.

The Chain may now be applied as shown in the cut herewith, the longer one being carried round Sprocket Wheel, No. B14, of Binder.

If it is desired to carry the Binding Mechanism through an operation, it may be done by giving the Tyer Shaft a revolution by means of the Discharger Arms. The Tripper Hooks must be pulled outward in order to throw the Clutches into engagement as before.

If it is wished to witness the operation of tying the knot, the Band must be pulled down by hand as it would be done by the bundle.

It must be understood that the method of adapting this Binder to long or short grain is different from others in this; that, while with them, the Band is adjusted to any required position on the Bundle, with this the Grain is adjusted endwise to the Band. This is done by means of the Swinging Adjuster. Short Grain must be carried far to the rear, which is done by swinging the Adjuster backward.

If the Grain is long, swing it forward, if very long, swing it out of the way.

Let the attention of the Driver be well directed to this feature of adjustment, as the perfection of the work depends largely upon it.

In rare cases it may be desirable to vary the tension of the Spring at the rear end of the Needle Shaft, by means of the thumb-nut in connection therewith. Should the condition of the grain be heavy, this Spring may be LOOSENEED; if light, its tension must be increased; but if over ripe and light, the adjustment must be exactly the same as in heavy grain, and when working in this condition of grain the pressure of the wires immediately over the straw in the receptacle must be rendered less, which may be done by loosening up the little iron Caps that secure them to the bar above and moving the coil around.

The degree of tightness of binding depends upon the tension of the Spring regulated by the thumb-nut as above described, and on the tightness of the twine tension.

If after use the joints should be worn so that the Needle fails to be brought sufficiently into the tyer, the Pitman at the rear of the Binder may be shortened by turning its head further on.

For convenience and to save time, two balls of Twine may be put into the Box at once, the outer end of the one above tied to the inner end of the one below.

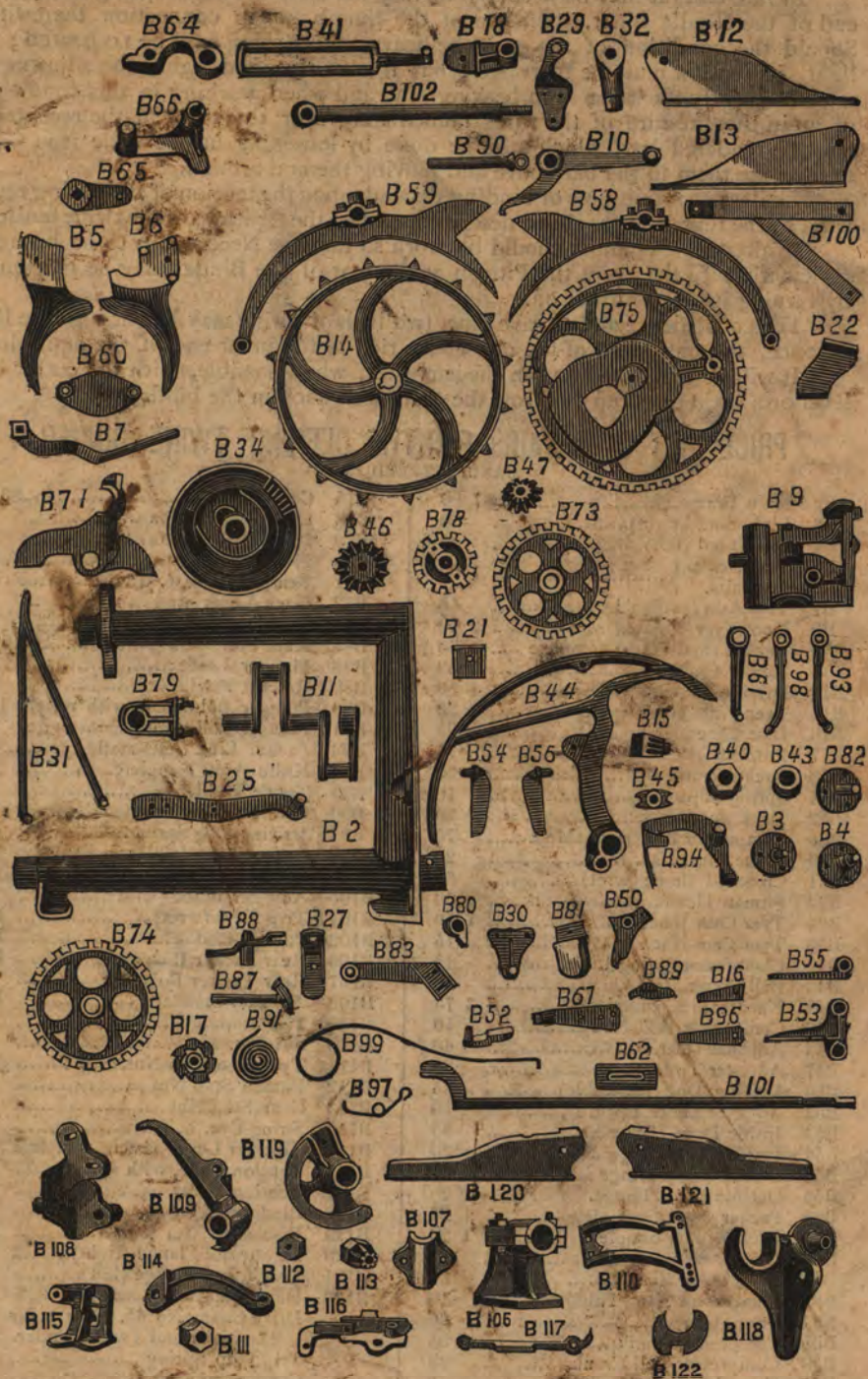
It will be found best to run the harvester, when possible, with the cutter bar level or a little tilted up to throw the grain well back in the binder.

PRICE LIST OF REPAIRS FOR THE DEERING TWINE BINDER.

MANUFACTURED IN 1881.

B2 Main Frame.....	\$7 00	B75 Cam Gear.....	\$3 00
B3 Link Stud (right).....	20	B78 Drive Pinion.....	60
B4 Link Stud (left).....	30	B79 Packer Shaft Box.....	40
B5 Trip Hooks }.....	1 00	B80 Plunger Collar.....	15
B6 in pairs. }.....	1 00	B81 Tension Release.....	15
B7 Trip Arm (malleable).....	50	B82 Slack Lever Stud....	20
B9 Knot Tyer Frame.....	2 50	B83 Slack Lever Arm, complete.....	30
B10 Tucker (malleable) complete	75	B87 Knot Tyer.....	1 50
B11 Packer Cranks.....	1 50	B88 Plunger Lever.....	50
B14 Driving Sprocket Wheel.....	1 50	B89 Ratchet Pawl.....	10
B15 Tyer Pinion (malleable).....	20	B90 Plunger Bolt (steel, with roller) 1 50	
B16 Disc Check spring.....	25	B91 Plunger Bolt Spring (brass wire) 25	
B17 Ratchet Disc.....	75	B93 Packer Link (left) malleable.....	30
B18 Packer-crank Box.....	30	B94 Knife Arm, complete.....	1 25
B21 Spring Clip.....	10	B95 Twine Holder.....	50
B22 Deck Support.....	20	B96 Twine Holder Spring.....	25
B25 Compressor Bar (malleable).....	75	B97 Driving Dog Spring.....	10
B30 Brace Pin.....	20	B98 Packer Link (right) malleable... 30	
B31 Crotched Brace (wrot).....	60	B99 Grain Check Spring (steel wire) 20	
B32 Pitman Head.....	50	B100 Adjuster Brace (wrot).....	50
B34 Tyer Cam Wheel.....	1 50	B101 Trip Shaft (wrot).....	1 00
B40 Tyer Cam Nut.....	15	B102 Pitman Rod.....	1 00
B41 Compressor Spring Link.....	40	B106 Rear Packer Box, complete.....	1 00
B43 Bell Crank Roller.....	10	B107 Rear Packer Box Cap.....	40
B44 Needle Arm, complete.....	3 75	B108 Adjuster Standard.....	1 50
B45 Compressor Rod Nut.....	10	B109 Trip Stop.....	75
B46 Adjuster Gear.....	40	B110 Stripper.....	70
B47 Adjuster Pinion.....	30	B111 Tyer Cam Stop Nut.....	15
B50 Driving Dog (malleable).....	35	B112 Pitman Stop Nut.....	15
B52 Adjuster Lever Pivot.....	10	B113 Gear Stud Nut.....	20
B53 Inside Drop Hinge.....	30	B114 String Eye.....	30
B54 Inside Deck Hinge.....	20	B115 Adjuster Lever Catch, complete 75	
B55 Outside Drop Hinge.....	20	B116 Tension Plate, with spring.....	70
B56 Outside Deck Hinge.....	20	B117 Tension Lever.....	30
B58 Packer (right) complete.....	1 25	B118 Binder Support.....	75
B59 Packer (left) complete.....	1 25	B119 Discharge Arm Hub.....	1 25
B60 Driver, complete.....	75	B120 Breastplate Flange (right).....	75
B61 Compressor Link.....	30	B121 Breastplate Flange (left).....	75
B62 Compressor Shaft Thimble.....	10	B122 Disc Cleaner.....	25
B64 Frame Clasp.....	30	Drive Chain, No 45, 78 links, for	
B65 Compressor Crank.....	25	Harvester and Twine Binder. 2 75	
B66 Compressor Bell Crank.....	30	Trip Stop Spring.....	25
B67 Tyer-Cam Spring, complete.....	40	Compressor Spring.....	50
B71 Tucker Cam.....	75	Ratchet Pawl Spring.....	10
B73 Intermediate Gear.....	1 00	Adjuster Canvas.....	1 50
B74 Intermediate Gear.....	1 00		

Repairs for the Deering Twine Binder made in 1881.



Persons ordering Repairs can easily determine what they require from the above Cut, and in making their order must always give the number of the piece as represented in the Cut, and the name of the piece opposite the same number in the Price List.