

throw the shake bar to a full stroke in the opposite direction. If the end of connecting rod 126 will drop on and raise off of the end of post 97 A free without binding at either end of the stroke, it is adjusted right and will remain so. Be careful always in making these connections to see that the free ends of the connecting rods does not bind, but will pass freely on and off the top end of the post 97 A. This is easily tested by making the stroke first in one direction and then in the other, and testing it at the end of the throw in each direction.

ADJUSTING THE STROKE.

This is easily adjusted to any distance by simply loosening the nut on the bolt that attaches the crank pin to the top of small gear wheel and moving the crank pin as may be required, taking care to turn up nut so as to hold the pin firmly in place before using. When one end is adjusted correctly disconnect the same by lifting the end of the connecting rod off of the post 97 A. Then adjust the opposite end, or check rower, in the same manner as the first. Then disconnect the same, allowing the free ends of the connecting rods 126 to both lay free and loose on top of the seed boxes. Take notice, ALWAYS DISCONNECT BOTH CONNECTING RODS 126 FROM POSTS 97 A WHEN THE PLANTER IS NOT PLANTING. When the planter is in position to start to plant, lay the wire in place in check rower and make connection with the shake bar on the side the wire will operate. When the wire is thrown off at the end of the row, disconnect the connecting rod 126 from the post 97 A. THIS SHOULD ALWAYS BE DONE. NEVER CONNECT BOTH ENDS AT THE SAME TIME, as one will act as a lock and prevent the other end operating.

STARTING TO PLANT.

In commencing to plant see that all nuts and bolts on either planter or rower are turned up firm, and that every part is properly adjusted and works free.

DRIVING THE TEAM.

A steady gait of the team is absolutely necessary in order to do good work with a check rower, or hand dropper either. If teams are changed while planting, see that the tongue is kept the same height from the ground, and that both teams are driven at the same speed.

CHECKING.

When the team is walking at its ordinary speed, the hills of corn should be found at the joint on the wire. If the corn is deposited ahead of the joint, move the rower forward about half the average distance the seed is dropped out of check. Lowering the tongue of the planter, or driving slower, will also remedy the trouble. If the hill of corn is back of the joint in the wire, raise the tongue of planter, drive faster or move the rower back.

TO MOVE THE ROWER FORWARD OR BACK.

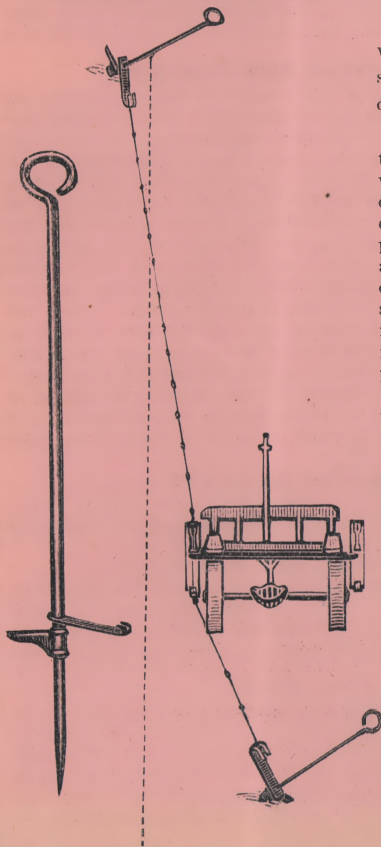
THIS IS EASILY DONE by loosening the two clamp bolts and sliding the rower to any point desired.

LAYING WIRE ACROSS THE FIELD.

This may be done in various ways as best suits the convenience of the operator.

A very good way is to stake the spool of wire down at the side of the field, fasten the end of the wire to the planter and drive across the field, some one remaining at the spool of wire to keep from unwinding too fast, or catching. We prefer to attach or fasten the reel of wire on the planter, as clearly shown in cut on the front or first page (we furnish this attachment with all our check rowers), then stake the end of the wire to the ground and drive across the field.

We have this season applied a brake to the reel of wire, (see cut on first page). The driver can easily regulate the tension of wire and prevent it tangling by pressing his knee against the brake while reeling off the wire.



SETTING AND USING THE ANCHOR.

AFTER the wire is laid across the field, set the anchor at each end of the field, *as shown in the cut.* (See opposite page.) The dotted lines represent the side of the field, and the planter starting on the first row. When the wire is first unreeled and fastened at one end, take hold of the other and pull hard to take curves or kinks out of the wire.

DRIVE ONCE ACROSS THE FIELD

With the planter before putting corn in the boxes; this will take out all the kinks and straighten the wire. Any kinks that this will not take out should be taken out by hand.

KINKS IN THE WIRE

Should all be taken out when the wire is first laid, to prevent any liability of catching the forks and thus making a stroke between the joints on the wire.

Always set the anchor stake at an angle of about 45 degrees with the surface of the ground, and nearly parallel with the rear end of planter, always having the upper end of stake about three inches farther away from planter than where it enters the ground. Always set the anchor stake so the lug or projection on the side will press the ground in the direction the tension comes on the wire; this will form a shoulder and prevent the stake pulling over on one side.

Always slant the anchor stake away from the planted rows, and as you approach the stake with the planter the hook which holds the wire will slide up the stake.

PLACING THE WIRE IN CHECK ROWER.

When the wire is placed in the check row, connect the rod 126 with the post 97 *A*. This should be at a point to *engage the fork the fourth or fifth joint from the stake*, and should be thrown out at the same point in driving out at the end. Plant across the field, throw the wire off, and disconnect the connecting rod 126 from the post 97 *A*; turn around and set the anchor behind the planter the same as in starting, put the wire in place and connect the connecting rod 126 with the post 97 *A*, and keep on in the same way until the field is planted.

THE COIL SPRING

Should bring the fork arm back quickly to place, after the stroke is made, but not too quickly so as to strike too hard a blow. The tension of the spring is easily regulated by moving the double bent hook rod, to which the springs are attached, out or in as the tension may require.

GENERAL SUGGESTIONS AND RECOMMENDATIONS.

WE RECOMMEND coating the wire with a coat of linseed oil after the season's planting is done.

OILING CHECK ROWERS.

Use only coal oil on the rower, and this should be used very sparingly after the paint is cut off.

DISCONNECTING THE WIRE.

The wire is joined every twenty rods by a link, and can be disconnected or joined at pleasure.

LENGTH OF WIRE.

Any length of wire may be used from twenty rods to one mile or more in length.

ALWAYS EXAMINE THE SHAKE BAR

Of planters before attaching the rower, and never attach the rower until the seeding mechanism works free and easy. If seed plates or shake bar is rusted clean with coal oil.

STRAIGHT ROWS AT THE END OF FIELD.

The first few rows at the end are not apt to be as straight as the others, by reason of the team walking slower when starting and stopping.

BE SURE THE CHECK ROWER IS SET STRAIGHT OR SQUARE ACROSS THE PLANTER. If one end is forward of the other you can never plant in check.

SPECIAL—READ THIS.

If at any time you have any trouble with your check rower, stop and read carefully the instructions and you will find all necessary information. If your planter don't drop in check you may be sure it is because it is not properly adjusted; go over it carefully and read instructions and you will find the trouble.

ATTACHING TO OTHER PLANTERS.

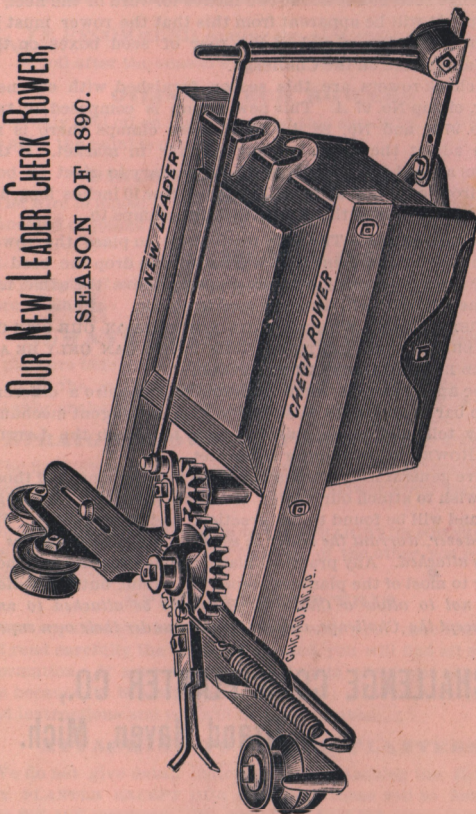
We do not give detail instruction for attaching the ROWER TO ANY PLANTER EXCEPT OUR OWN, and these will be found to be very full and complete. We would say that the same instructions that apply to the Challenge Planter *apply to others*; the only difference being that the rower must be placed farther forward, or back, in relation to top of seed boxes, in proportion as the seed boxes are set forward of the heel of the runner. To illustrate, the rear of seed boxes on the Barlow Rotary project back about

INSTRUCTIONS

For Attaching and Operating

OUR NEW LEADER CHECK ROWER,

SEASON OF 1890.



THE LITTLE WONDER.

The above cut shows perfectly the manner of attaching the Rower to the Planter.

MANUFACTURED AND WARRANTED BY THE

CHALLENGE CORN PLANTER COMPANY,
GRAND HAVEN, MICH.