

(No Model.)

2 Sheets—Sheet 1.

J. H. JONES.
WHEELED PLOW.

No. 520,645.

Patented May 29, 1894.

Fig. 1.

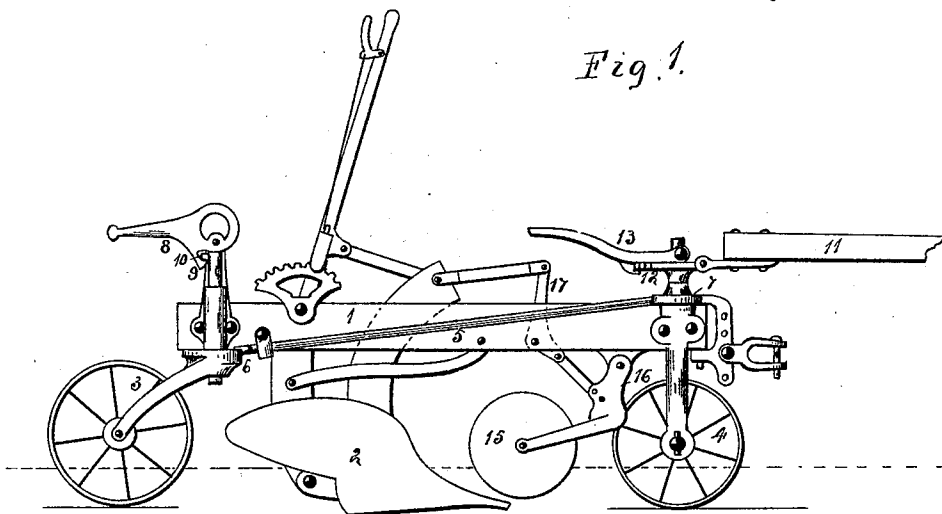


Fig 2

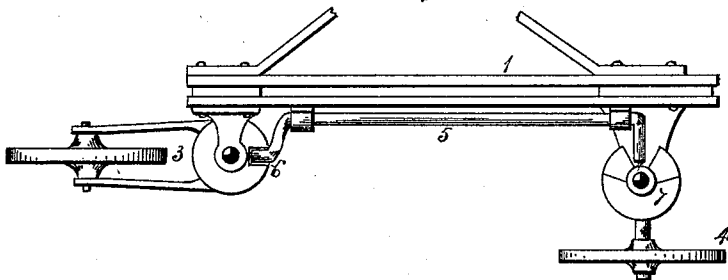


Fig. 3.

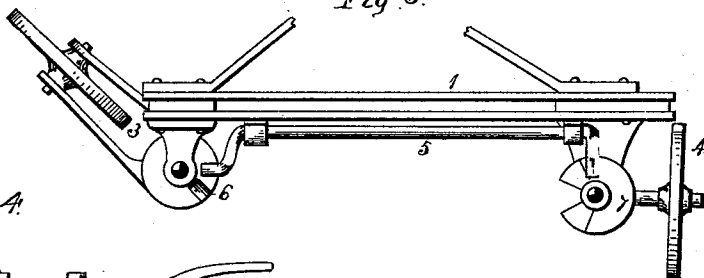


Fig. 4.

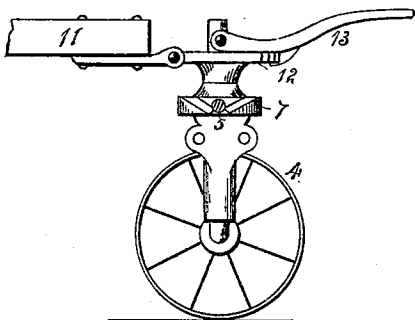


Fig 5.

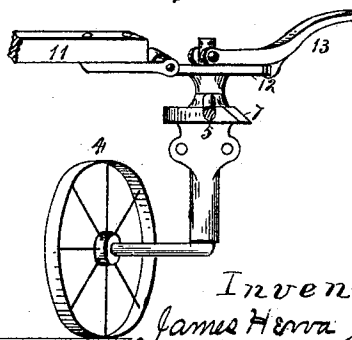


Fig. 6.



Witnesses :

E. Behel.

A Davenport.

Inventor:

James Henry Jones.
By A. O. Rebel
Attys.

THE NATIONAL LITHOGRAPHING COMPANY,
WASHINGTON, D. C.

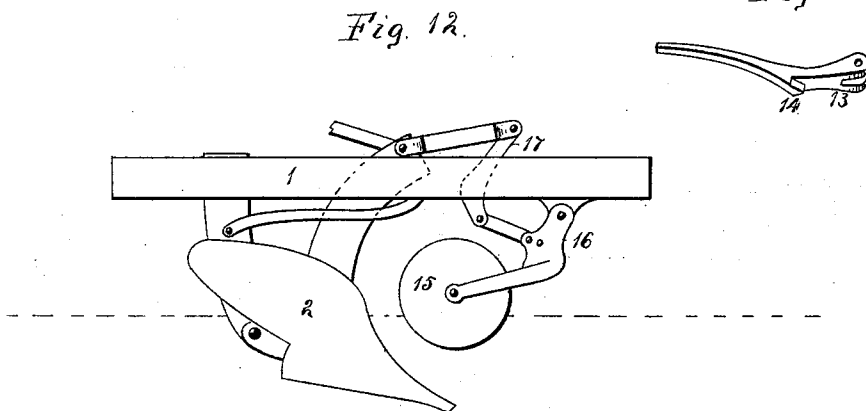
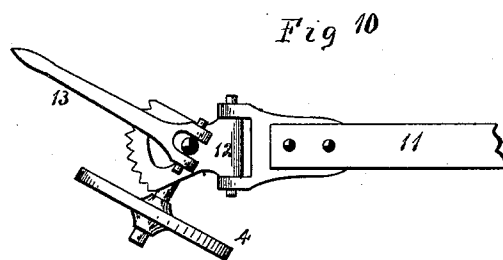
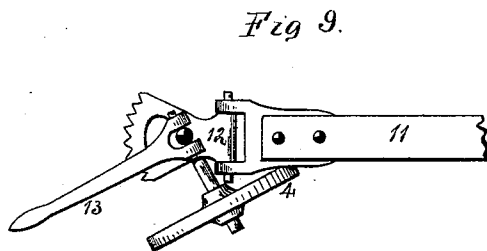
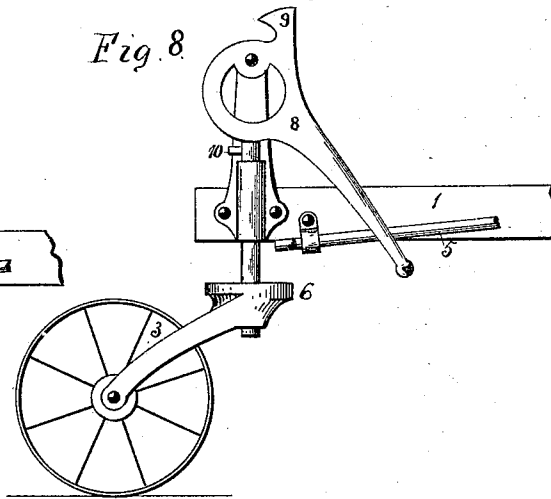
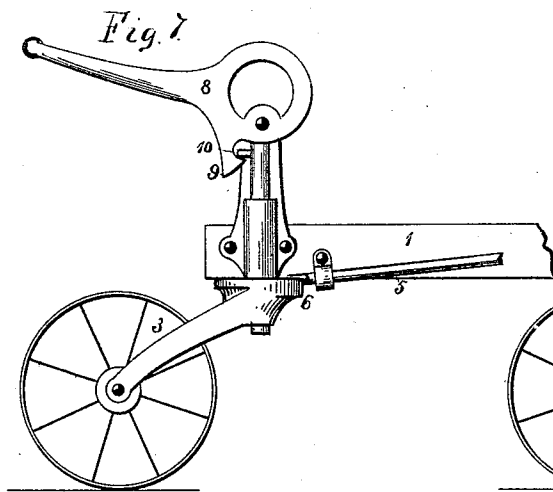
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2 Sheets—Sheet 2.

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WHEELED PLOW.

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E. Behl.
A. Davenport.

Inventor:
James Herva Jones
By A. O. Behl
Attys.

UNITED STATES PATENT OFFICE

JAMES HERVA JONES, OF ROCKFORD, ILLINOIS, ASSIGNOR TO THE ROCKFORD MANUFACTURING COMPANY, OF SAME PLACE.

WHEELED PLOW.

SPECIFICATION forming part of Letters Patent No. 520,645, dated May 29, 1894.

Application filed November 20, 1893. Serial No. 491,381. (No model.)

To all whom it may concern:

Be it known that I, JAMES HERVA JONES, a citizen of the United States, residing at Rockford, in the county of Winnebago and State of Illinois, have invented certain new and useful Improvements in Wheeled Plows, of which the following is a specification.

My invention relates to that class denominated the "wheeled plow;" which is constructed as follows. A main frame is mounted on wheels. A plowshare is attached thereto, and depends therefrom, in position to be operated, with means to lower and raise it in and out of the ground. A wheel runs on the unplowed ground. A wheel at the rear supports the end of the frame, and runs in the last made furrow. It is a "caster wheel" revolving between the two ends of a caster yoke, which turns on a vertical axis. It is essential that this yoke be locked or made rigid on its vertical axis when the plow is in operation, thus compelling the wheel to hold the plowshare firmly up against the gliding furrow slice. It is also essential that it be unlocked, or free to turn on its vertical axis when the plow "goes about" at the end of the furrow.

My invention supplies an automatic device of novel form and action to lock and unlock this caster yoke as required.

Means are provided for sliding the main frame upward on the spindle or vertical axis of the caster yoke, to carry the heel of the plowshare over obstructions while it is traveling over the ground. It is essential that the frame be locked down on the spindle or vertical axis of the caster yoke when the plow is lowered for operation, otherwise a variable resistance of the ground to the plowshare would create an injurious up and down vibration of the frame on the spindle, and produce inferior results. My invention accomplishes this locking down and leaves the caster yoke free to turn on its axis when the plow goes about at the end of the furrow.

A wheel at the front supports that end of the frame, and runs in the previously made furrow. It is commonly called the "furrow wheel" and its upright support which is revolvably attached to the frame, is so connected to the tongue of the plow that the team gov-

erns its line of travel on the ground independently of the frame. It is sometimes necessary to change the plan of this wheel obliquely to the line of the tongue, so that its oblique travel on the ground may lead the plow to the right or left, and thus vary the width of the furrow.

It is the purpose of my invention to enable the operator to make this change easily and quickly while the plow is in operation.

A revolving colter cutter blade depends from the main frame in a free jointed manner in front of the plowshare, and is lowered and raised simultaneously with the point. It is very desirable that the colter blade remains substantially at rest, and not follow the plow point down when it is lowered to its extreme limit below a level or working position. In such a case the point is depressed unusually low to enter the ground from the surface for the purpose of beginning a new furrow. The plow point has a "suction" or tendency to enter the ground without forcing, but the colter blade has not. Therefore, except for this provision it would require a useless exertion of the operator to force the blade down to an unnecessary position.

My invention provides for retarding the colter blade and keeping it substantially at its working position while the plow point is allowed to go much below it.

It will be seen from the foregoing that the nature of my invention is fourfold: first, to automatically lock and unlock in a novel manner the yoke of the caster wheel, so that it may or may not revolve on its vertical axis, as required; secondly, to lock the main frame down to the yoke of the caster wheel and keep it so while the plow is in operation, and to unlock and raise it readily for traveling on the road; thirdly, to quickly and easily change the line of travel of the front or furrow wheel to the right or left without stopping the team; fourthly, to arrest or retard the colter blade at its working position, while the plow point descends a considerable distance below it.

In the accompanying drawings.—Figure 1, is an elevated view from the right side of such parts of a wheeled plow as are required to represent all important features. Fig. 2, is a top or downward view of the device, for au-

tomatically locking the caster wheel yoke 3. Fig. 3, is a downward view of the same device with the furrow wheel 4, and caster wheel 3, out of the line of travel and the caster wheel yoke unlocked while turning around at the end of the furrow. Fig. 4, is an elevated view from the left side with frame removed, showing the wheel with double cams 7, and the end of the rock shaft arm 5, resting on that part of the main frame that supports the upright shaft of the furrow wheel between the points of the two cams free from action while the caster yoke at the rear is locked. Fig. 5, is an elevated view from the left side with frame removed of the same parts as in Fig. 4; the tongue of the team and the furrow wheel swinging partially around toward the spectator, and the wheel 7, with double cams turned with them; the arm of the rock shaft 5, raised up and resting on the cam wheel, while the caster wheel yoke at the rear is unlocked. Fig. 6, is a perspective view of the cam wheel 7, detached from the upright shaft of the furrow wheel. Fig. 7, is an elevated view from the right side of the caster wheel and yoke 3, and the cam lever 8, with locking hook 9 in position under the pin or projection 10, while the main frame is locked down and the plow in operation. Fig. 8, is an elevated view from the right side of the caster wheel and yoke 3, and the cam lever 8, in position while the main frame is lifted or slid upward on the vertical spindle and unlocked from the caster yoke, and the plow traveling on the road. Fig. 9, is a downward view of the front furrow wheel 4, tongue 11, quadrant 12, and shifting lever 13, for turning the upright support or shaft and changing the line of travel of the furrow wheel in relation to the tongue. Fig. 10, is a downward view of the same parts as in Fig. 9 with the furrow wheel in a reverse oblique position. Fig. 11, is a perspective view of the shifting lever 13, showing tooth or lug 14, on under side that engages the teeth of the quadrant 12. Fig. 12, is an elevated view of the plowshare 2, the colter blade 15, and the connection 16 and 17, between with the point of the plow depressed as hereinafter explained.

The manner of operation is as follows: The plow being properly at work, a furrow slice of earth is sliding up the surface of the mold-board 2, with a constant pressure upon it. This pressure is contracted and carried by the caster wheel 3, a rock shaft 5, revolving in a bearing at each end is constructed with a crank at its rear end. The wrist pin of this crank rests in the recess 6, formed in the head of the caster yoke 3, locking it and preventing it from turning on its vertical axes. The caster wheel, consequently being rigid in its line of travel, sustains the plow against the pressure of the furrow slice, see Figs. 1 and 2. When the furrow is finished and the operator wishes to turn the plow around, the team with the tongue is swung to a right angle practically to the plow frame. This move-

ment carries the furrow wheel 4, with it and revolves the cam wheel 7, also as they both turn in unison with the tongue. The rock shaft 5, has an arm at its front end bent to a right angle, substantially, and in the same plane with the crank. One of the chisel edged inclines of the cam wheel 7, underruns this arm and lifts it, this revolves the rock shaft 5, and lifts the crank wrist at the rear, out of the recess 6, of the caster yoke 3, unlocks it and allows it to turn on its vertical axis, see Fig. 3. When the plow once more gets into working position the caster wheel 3, and furrow wheel 4, swing into line with the frame; the cam wheel 7, allows the arm of the rock shaft 5, to fall, the rock shaft revolves, the wrist pin of the crank drops into the recess 6, by gravity or a spring may be used to accelerate, and the caster wheel is again locked. With the plow at work, the rear of the main frame 1, rests upon the shoulder or head of the caster yoke 3, and is locked and held from sliding upward on the spindle by the hook 9, on the cam lever 8, except for this the end of the frame would be lifted at times by the leverage of the plowshare. This hook passes under a pin or projection 10, which is attached to the spindle. The hook does not prevent the caster yoke from turning on its vertical axis, see Figs. 1, and 7. To raise the plowshare into position for traveling on the road, the operator tilts the point upward by means of the hand lever seen in Fig. 1. The heel is pivoted to a standard which is bolted to the frame, he next turns the cam lever 8, over forward, as seen in Fig. 8, this unlocks the frame from the caster yoke and the cam pressing on the top of the spindle raises the frame and also releases the yoke from the crank of the rock shaft 5, and the caster wheel is free to turn in any direction. While plowing, if the furrow slice is not wide enough, the operator raises the handle of the shifting lever 13, disengaging the tooth 14, from the notch in the quadrant 12, and moves the lever to the right until the tooth drops into another notch, as seen in Fig. 9. This changes the line of travel of the furrow wheel 4, on the ground, and the wheel leads the plow to the left which of course cuts a wider furrow. If the furrow is too wide the operator reverses the position of the shifting lever 13, as seen in Fig. 10, and the furrow wheel leads the plow to the right and reduces the width of the furrow. When the plow is in working position in the ground, the cutting edge of the colter blade 15, revolves closely over the point of the plowshare, or it may be a knife shaped cutter blade if desired. It is sustained by a yoke and swinging hanger 16, which is free jointed to the main frame. A bell crank lever 17, is pivoted between the two bars of the main frame, its upper end has a link connection with the curved shank of the plow-share 2, and its lower end has another connection with the hanger 16, see, Figs. 1, and 12. By means of these connections the colter blade is lowered and raised

simultaneously with the plow point. It will be seen in Fig. 1, that the point of the link connection with the hanger 16, and the lever 17, is practically on a "dead center" line with the fulcrum of the lever. This arrangement prevents the colter blade from exerting through its connections any heavy strain against the shank of the plow-share when it runs over obstructions that it cannot cut through. The most important result of this "dead center" position is that the colter blade remains in its working position or rises slightly above it when the plow point is depressed unusually low for the purpose of starting a new furrow from the surface of the ground, see Fig. 12. This saves any severe labor of forcing the colter blade down to an unnecessary depth in the ground, and also prevents useless strains and danger of breakage.

I claim as my invention—

1. In a wheeled plow, the combination of a main frame, a caster wheel supporting the rear end thereof, a vertical shank extending from the caster wheel support having a projection near its upper end, a cam lever having a pivotal connection with the main frame resting against the upper end of the shank and provided with a hook engaging the projection holding the shank locked against lengthwise movement.

2. In a wheeled plow, the combination with

a main frame, a furrow wheel having a vertical shank supported by the main frame, a notched quadrant loosely mounted upon the shank, a tongue having a pivotal connection with the forward end of the quadrant, a lever having a pivotal connection with the shank, and provided, with a depending projection entering the notches of the quadrant, said lever capable of a vertical movement upon its pivotal connection with the shank.

3. In a wheeled plow, the combination of a main frame, a plow supported thereby, a colter, and means forming a connection between the colter and plow so that as the point of the plow is depressed below a normal working position the distance between it and the colter will be increased.

4. In a wheeled plow, the combination of a main frame, a plow supported thereby, a colter having a pivotal connection with the main frame, a bell crank lever having a pivotal connection with the main frame, a link connection between the colter and bell crank lever and a link connection between the bell crank lever and plow, whereby as the point of the plow is depressed below a normal working position the distance between it and the colter will be increased.

JAMES HERVA JONES.

Witnesses:

A. O. BEHEL,
E. BEHEL.