2 Sheets—Sheet 1.

H. WIARD & W. R. BULLOCK.

Plow.

No. 219,191. **Patented Sept. 2, 1879.**

Fig. 1.

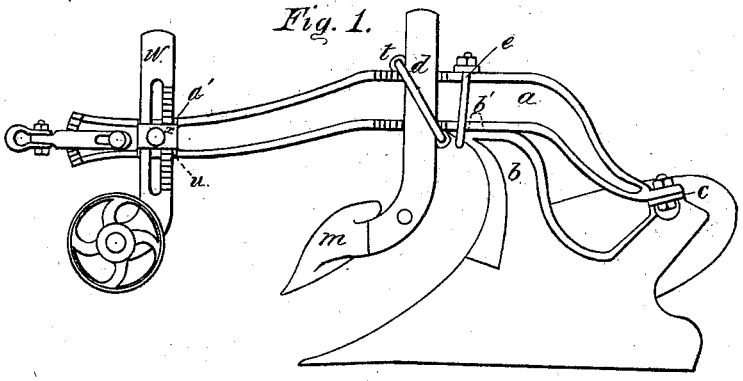


Fig. 2.

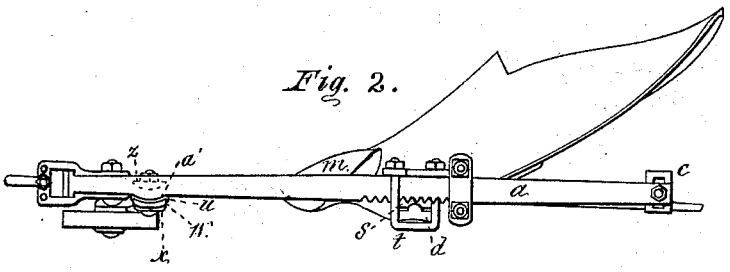
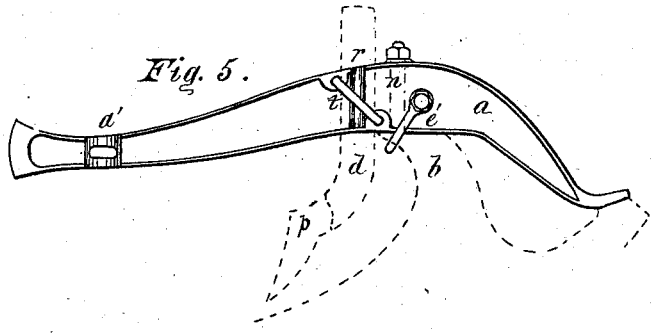


Fig. 5.



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2 Sheets—Sheet 2

H. WIARD & W. R. BULLOCK.

Plow.

No. 219,191. **Patented Sept. 2, 1879.**

Fig. 3.

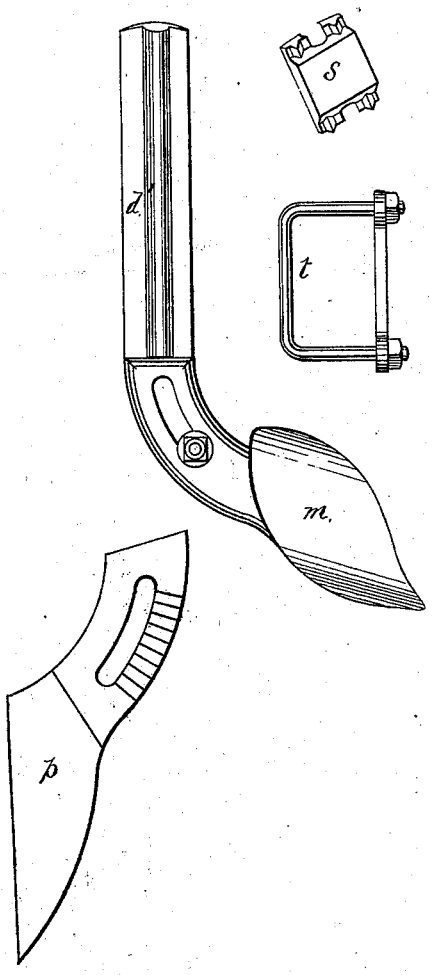
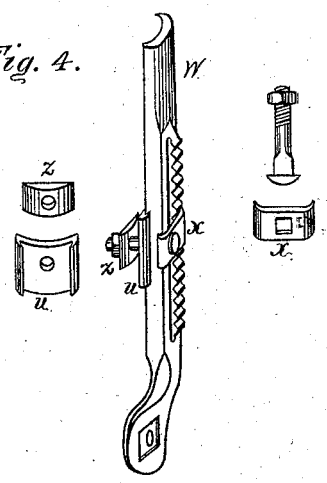


Fig. 4.



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UNITED STATES PATENT OFFICE.

HARRY WIARD AND WILLIAM R. BULLOCK, OF SYRACUSE, NEW YORK.

IMPROVEMENT IN PLOWS.

Specification forming part of Letters Patent No. **219,191**, dated September 2, 1879; application filed August 8, 1879.

To all whom it may concern:

Be it known that we, HARRY WIARD and WILLIAM R. BULLOCK, of Syracuse, Onondaga county, New York, have invented certain Devices in the Construction of Plows, of which the following is a specification.

Our devices consist in the formation and application of the beam to the plow, the construction and application of the jointer and its arm or standard, and the connection and adjustment thereof with the beam, and the connection and adjustment of the wheel-standard with the beam.

The construction is as follows, referring to the accompanying drawings, in which—

Figure 1 is an elevation of the land-side of the plow; Fig. 2, a top plan of the same; Fig. 3, the jointer-standard and parts connected therewith detached; Fig. 4, the wheel-standard and connecting parts detached; Fig. 5, modifications of the beam and connections.

We contemplate making our beam *a* of forged steel, also the standards *d* and *w* for the jointer and wheel, although they can, of course, be otherwise made. The mold-board, land-side, &c., are castings in the plow we make ordinarily, and of approved form, as seen in the drawings. On the top of the standard *b* there is a projection, (shown by dotted lines at *b'*, Fig. 1,) that fits into a recess in the beam; or it may be reversed, and a projection on the beam may be made to fit into a recess in the top of the standard *b*, by either of which the beam is pivoted at that point. At the top of the standard to which the handle is affixed, at the rear end of the land-side, there is a projecting lug, *c*, having an oblong slot through its upper face, which is concentric with the pivoting-point on standard *b*.

The plow-beam *a* is curved downward between standard *b* and lug *c*, with its rear end resting at a point considerably below the pivoting-point on the slotted lug *c*, to which it is attached by a screw-bolt, that passes through a hole in the end of the beam, and through the slot in lug *c*, with a nut on it, by which the two are firmly united.

A clip, *e*, surrounds a projection on the front of standard *b* and the beam *a*, the upper ends passing through holes in the yoke on top, where they are drawn tight by screw-nuts above, by which the beam *a* is secured to the standard, so that it can be turned sufficiently to the right or left and governed and held by its connection with the slotted lug *c* without the interposition of any other device or fixture. From a point at standard *b* to a proper distance in front thereof the beam is made straight and parallel at top and bottom for shifting the jointer-standard forward or back, (see Fig. 1,) whence it curves downward and tapers in proper form to the end in front at the point *a'*. Where the wheel-standard *w* is attached there is a segmental circular projection, with a corresponding recess on the other side of the beam.

At the place where the jointer-standard *d* is affixed to the beam there are notches in the top and bottom flanges, into which corresponding notches on the saddle *s* (see Fig. 3) fit. There is a vertical segmental groove on the outer face of the saddle *s*, into which a rounded bead on the standard *d* fits, projecting far enough to set the plane of the standard so far from the face of the saddle *s* as to allow it to turn vertically in the groove. A clip, *t*, surrounds the standard *d* and beam *a* diagonally, with yoke and nuts to properly adjust and securely fasten the parts in place, by loosening which the standard can be turned or revolved on its longitudinal rib *d'*, to set the jointer at the proper point, move it forward or back, and raise or lower it, and in any position the clip, when screwed up tight, will bind it.

The jointer *m* is united to the standard by a curved shank, the segment of a circle, corresponding with the center of the lower end of the standard *d*. It has a slot in it parallel with the curve, through which a screw-bolt passes that unites them, by which the point of the jointer can be set forward, giving it more or less pitch, without moving the standard.

A colter, *p*, may replace the jointer when required, as shown by the dotted lines at *p* in Fig. 5, and separate at *p* in Fig. 3, their shanks being alike.

Plow-standards of cylindrical form have been heretofore made, and with curved faces next the face of the beam; also, the curvature of the standard of a jointer forward at its lower end is not new, as they have been here-

tofore essayed, but not in the same form or in conjunction with the devices we employ; and it has been heretofore essayed to change the pitch of a jointer by a shank curved in the opposite direction to ours. These are not our invention, which consists in making our adjusting-shank concave on the upper side, as clearly shown in the drawings.

The wheel-standard *w* is concavo-convex in its cross-section, with a vertical slot in it. Notches in the outer face are made on one side of this slot, with like notches to fit them in cap *x*. A bolt passes through this cap, standard *w*, and projection *a'* on the beam, between which we interpose a saddle, *u*, having its edges turned up to embrace the sides of the standard at that point, to brace and hold it steady. The screw-bolt runs through this and the horizontal slot in projection *a'*, (see Fig. 5,) and through a convex washer, *z*, fitting the recess on the opposite side of the beam, where it is drawn up tight by a screw-nut, binding the parts firmly together.

A modification of the beam *a* and mode of attachment to standard *b*, and of affixing jointer-standard *d* thereto, is shown in Fig. 5. The dotted lines at *n* denote a vertical hole through the beam *a*, through which a bolt from standard *b* passes, with a nut and screw above to hold them together; or instead of this, or the clip *e* shown in Fig. 1, a smaller clip, *e'*, may be used, embracing the nose of the standard *b*, as in Fig. 1, and extending up on each side of beam *a*, with eyes in its upper ends, through which and the beam a bolt passes horizontally to unite them.

The modification for affixing standard *d* is to form a recess in the flanges of beam *a* at *r*, for the rounded projection on the standard to fit into; and the clip *t*, Fig. 5, instead of surrounding the beam, passes through holes therein, as clearly shown in that figure. This does not permit the standard *d* to move forward or back on the beam.

Having thus described our improvements, we claim—

1. The plow-beam composed of the front and rear bent portions and straight parallel section in front of the standard *b*, for the purposes herein specified.

2. In combination with the plow-beam, constructed as described, the notched and grooved saddle *s*, the ribbed standard *d*, and the clip *t*, substantially as specified.

3. In combination with the beam, formed as described, with notches in the flanges of the straight section, the notched and grooved saddle *s*, adapted to hold and adjust the standard back and forth and affix the same, as and for the purposes specified.

4. The combination of the jointer or colter with the standard *d*, as herein described, by means of a segmental curved shank having its concave curvature on the upper side for changing the pitch of the jointer properly, as herein specified.

In witness whereof we have hereunto set our hands.

HARRY WIARD.
W. R. BULLOCK.

Witnesses:
J. PAGE MUNRO,
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