No. 615,786. Patented Dec. 13, 1898.

F. D. BENDER.

STANDARD AND COUPLING FOR PLOWS OR CULTIVATORS.

(Application filed July 9, 1898.)

(No Model.)

Fig. 2.

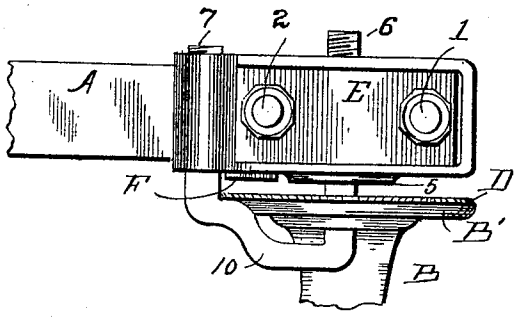


Fig. 3.

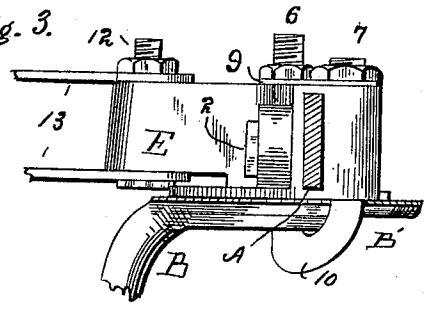


Fig. 1.

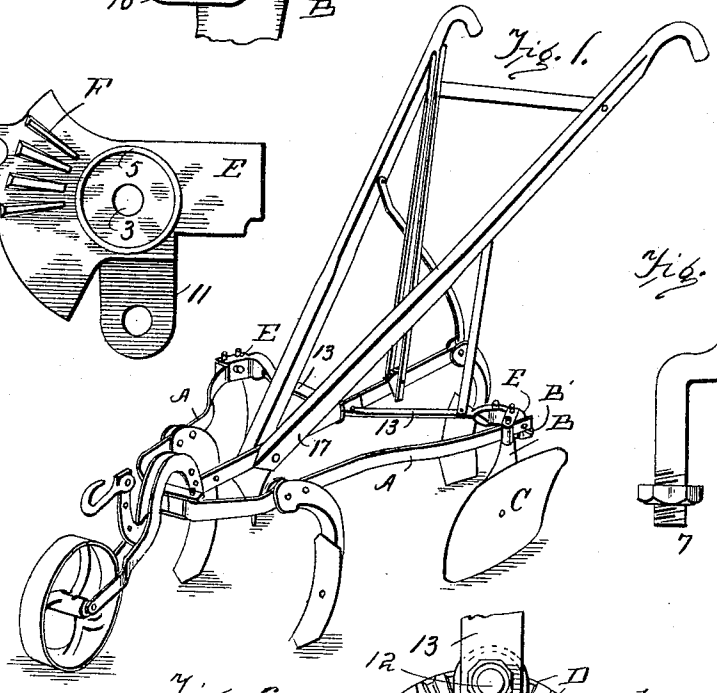


Fig. 4.

Fig. 5.

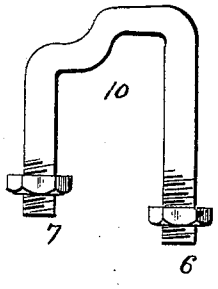
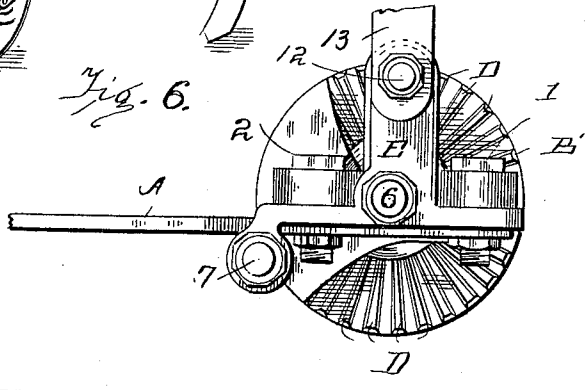


Fig. 6.



WITNESSES

Chas. K. Davis

W. A. Bartlett

INVENTOR

F. D. Bender

By C. C. Wood

Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

FRANK D. BENDER, OF LANSING, MICHIGAN, ASSIGNOR TO THE E. BEMENT'S SONS, OF SAME PLACE.

STANDARD AND COUPLING FOR PLOWS OR CULTIVATORS.

SPECIFICATION forming part of Letters Patent No. 615,786, dated December 13, 1898.

Application filed July 9, 1898. Serial No. 685,472. (No model.)

To all whom it may concern:

Be it known that I, FRANK D. BENDER, residing at Lansing, in the county of Ingham and State of Michigan, have invented certain new and useful Improvements in Standards and Couplings for Plows or Cultivators, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to mechanism for supporting a plow or cultivator standard and for connecting it adjustably to the beam or bar of the plow, cultivator, or like implement.

The object of the invention is to strongly support the standard in an adjustable manner, so that its position and that of the cultivator or plow may be easily changed within limits, but in whatever position the standard be that the same be held firmly, also to improve the standard and coupling mechanism by which the parts are secured together.

Figure 1 is a perspective view showing general relation of parts of cultivator. Fig. 2 is a broken side elevation of the rear end of one of the draw-bars of the cultivator with coupling mechanism and top of standard, the parts shown as not quite closed to working position and some minor parts omitted. Fig. 3 is a front view of coupling-box, showing draw-bar in section and standard and frame-bars broken away. Fig. 4 is a bottom plan of the coupling-box. Fig. 5 is an elevation of the binding-loop. Fig. 6 is a top plan of the coupling-box and broken plan of frame-bars, showing top of standard and omitting strap-washer.

A indicates the side bar of a cultivator, to which the standard B of a cultivator is connected. In a plow construction the beam is used in place of the cultivator-bar A, and, in fact, A may be a plow-beam.

The standard B may be either a casting or a forged or struck-up piece, to which the moldboard, cultivator-blade, or plow C is connected in usual manner.

The top B′ of standard B is made circular or in form of a plate with radial teeth D surrounding a central recess and opening, the upright bar of the standard projecting at one side of the central hole in the circular piece. The standard is integral whether cast or wrought or drop-forged.

The coupling-box E is preferably a cast malleable piece of nearly L form and having a longitudinal passage for the draw-bar or plow-beam, in which passage the bar A is held by bolts 1 and 2, passing through the draw-bar and the box E. On the lower face of the box E there is a sector with teeth F, these teeth standing radially from the central opening 3. Some of the teeth on the standard B′ enter between these teeth F on the coupling-box. The annular projection 5 on the bottom face of the coupling-box enters an annular recess in the upper face of the disk top of the standard, (see Fig. 6,) so that by slightly separating the parts B E, Fig. 2, the standard may be turned so that the teeth D F will engage at a different place. As the coupling-box E is permanently held to draw-bar A, such radial adjustment of standard B will change the direction of the point of the cultivator or plow C relatively to the bar or beam.

The standard is held to the coupling-box by the yoke 10, which has two threaded ends on which nuts are screwed. One end 6 of the yoke passes up through the central hole in the top plate of standard B and through the hole 3 in the coupling-box. The other end 7 of the yoke passes outside the edge of the plate B′ of standard B and through an opening 8 in a boss on the coupling-box. By preference an elongated washer or link 9 is placed on the top of the coupling-box, as in Fig. 3; but this may be omitted, as in Fig. 6. The nuts on the yoke-bars 6 7 will serve to draw the loop 10 of said yoke firmly against the lower face of the standard, and so bind the parts firmly.

The coupling-box referred to is not a mere plate with a corrugated face, but is a structure which surrounds or incloses the draft-bar. This insures a central position of the draft-bar and acts as a brace to the bar.

The yoke which holds the standard to the coupling-box has its loop portion in different planes, as shown in Fig. 5. This insures the binding of either the central or the marginal portion of the head of the standard by tight-

ening the proper nut, while the loop portion, especially when reinforced by the elongated washer, adds to the solidity of the joint.

The coupling-box has on one of its arms a boss 11, and a vertical hole through this boss serves for the passage of the bolt 12, with which the forked end of cross-bar 13 is connected. The coupling-box therefore serves as a means for supporting the standard in any desired angular relation to the draw-bar or beam A.

The L-shaped coupling-box permits the attachment of the brace 13 to the coupling-box and holds said box firmly as against torsion of the standard, thereby strengthening the bar or beam against bending. When used with a plow, a truss-rod may take the place of rod 17 of the cultivator.

I am aware that plow and cultivator standards have been constructed in which the standard has been adjustable in radial direction, also that it is common to couple beams on bars on which the abutting ends are formed of toothed sectors, also that perforations for bolts are not new, nor are binding-nuts, washers, recesses, or braces. I claim none of these mechanical elements.

What I claim is the peculiar constructions and combinations of mechanical elements, as hereinafter stated.

What I claim is—

1. The combination with the beam or bar of a plow or cultivator, of a coupling-box secured to said bar, said coupling-box having radial teeth on its lower sectoral face and vertical passages near the ends of said teeth, and a plow-standard having a disk face at its upper end having teeth to interlock with the teeth on the sector-face of the box, and a yoke having one arm passing through each of the vertical holes in the coupling-box, one of said arms passing through the center and the other outside the edge of the plate of the standard, all combined substantially as described.

2. In a plow or similar agricultural implement, the draw-bar, the L-shaped coupling-box bolted thereto and having a vertical hole near the angle of the box and vertical holes near the end of each arm, and having radial teeth extending from near the hole at the angle toward one of the holes near the end of one arm, the standard having a top plate with radial teeth and central opening, the yoke having one arm passing through the central opening of the standard and the other outside and through holes in the coupling-box as described, and the brace connected to the coupling-box, all combined substantially as described.

3. In a cultivator, the draw-bar, the coupling-box bolted thereto, the brace connected to the coupling-box, said box having two vertical perforations and teeth extending between them and an annular projection surrounding one of these openings, of the standard having top plate with radial teeth and a central recess to receive the annular projection of the coupling-plate, the yoke having its arms extending through the openings in the coupling-box and one of them through the center of the standard-plate and the other at the side thereof, and the nuts on said yoke-arms, all combined substantially as described.

4. In a plow or cultivator, the beam or bar, L-shaped yoke bolted thereto, the brace connected to one arm of the L-shaped yoke, and the standard having a toothed disk face and central opening, the yoke having one arm passing through the opening in the disk of the standard and the other outside, and both passing through vertical openings of the coupling-box, and the double washer and binding-nuts, all combined substantially as described.

In testimony whereof I affix my signature in the presence of two witnesses.

FRANK D. BENDER.

Witnesses:
FRANK E. TALMADGE,
BLANCHE B. BOOSINGER.