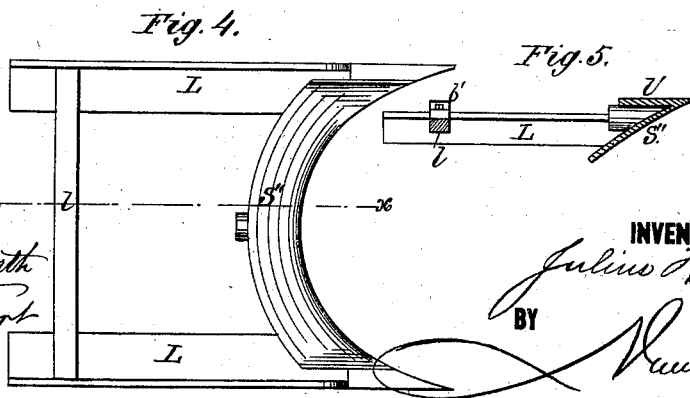
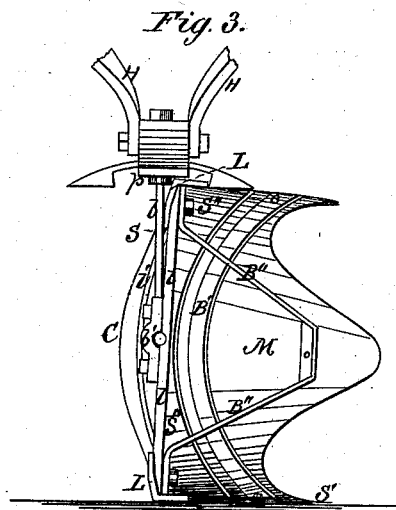
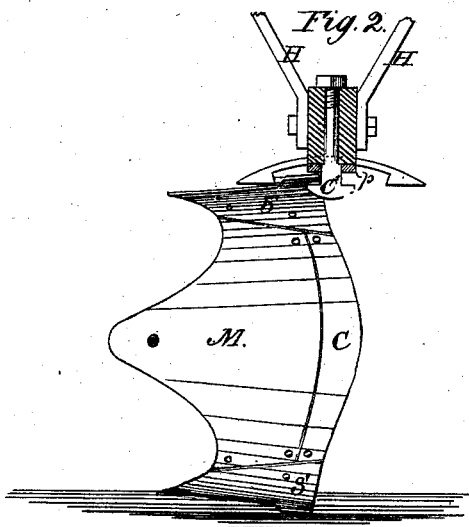
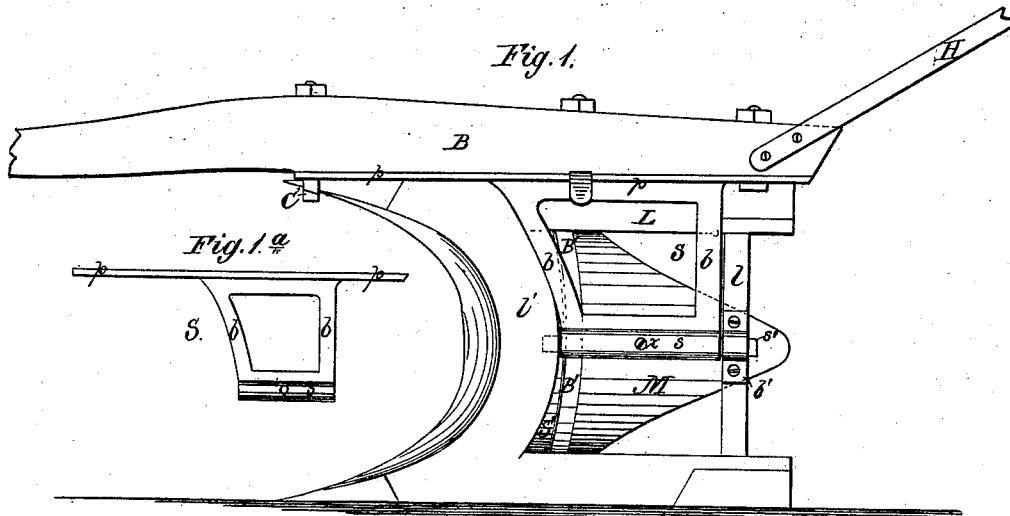


J. HARTMANN.
 PLOWS.

No. 194,428.

Patented Aug. 21, 1877.



WITNESSES:
W. W. Hollingsworth
Amos W. Hart

INVENTOR:
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 BY *Amos W. Hart*

ATTORNEYS.

UNITED STATES PATENT OFFICE.

JULIUS HARTMANN, OF LOUISVILLE, KENTUCKY, ASSIGNOR OF ONE-HALF HIS RIGHT TO ANTON LAUER, OF SAME PLACE.

IMPROVEMENT IN PLOWS.

Specification forming part of Letters Patent No. 124,428, dated August 21, 1877; application filed July 7, 1877.

To all whom it may concern:

Be it known that I, JULIUS HARTMANN, of Louisville, in the county of Jefferson and State of Kentucky, have invented a new and useful Improvement in Plows; and I do hereby declare that the following is a full, clear, and exact description of the same.

This invention relates to certain improvements in the construction of reversible or hill-side plows, more particularly those in which a double mold-board vibrates about a horizontal pivot.

The objects aimed at are to reduce the weight and cost of such plows without lessening their strength, to increase their durability, and render them easier to handle, and also of lighter draft by reason of being so constructed as to have a center draft.

In the accompanying drawing, forming part of this specification, Figure 1 is a side elevation of my improved plow. Fig. 1^a is a detail view of the standard detached. Fig. 2 is a cross-section, giving a front view of the plow proper. Fig. 3 is a rear view of the plow proper. Fig. 4 is a side view of the frame of the plow proper detached. Fig. 5 is a horizontal section on line *x x*, Fig. 4.

The handles *H H* are attached to the beam *B* in the usual way. The standard *S* of the plow consists of a flat bar or plate, *p*, attached by bolts to the under side of the beam *B*, two vertical bars, *b b*, and a sleeve or spindle-socket, *s*, all of which are formed of cast malleable iron in one piece. The mold-board *M*, shares *S'*, and center or colter piece *O* are formed separately, and attached to the plow-frame by bolts. Said frame consists of the two parallel land-sides *L L*, two connecting-bars, *l l'*, the rear one being straight and the front one curved, corresponding to the form of the colter and mold-board, also the inclined sheth *S''*. These parts, constituting the plow-frame proper, are, like the standard *S*, formed in one piece of cast malleable iron, and for the same purpose, namely, to secure the highest combination of cheapness of production along with rigidity and a power to resist sharp or violent blows which is not possessed by ordinary cast-iron.

In order that the mold-board, colter, and

shares and points, which are more subject to wear than other parts, may be made as thin and light as possible consistently with the required degree of durability, and also be enabled to resist sudden or severe strain, blows, concussions, &c., I form them from rolled steel plate. They may, however, be formed of cast-steel with good results.

It will be noted that the cutting-edge of the colter-piece *O* projects laterally from the standard, thus forming a center-draft plow, whereby the land-side is relieved of friction and the plow made easier to reverse at the end of a furrow, since a portion of the weight of the combined mold-board, shares, and frame is thrown on the opposite side of the pivot. The pivot is a spindle, *s'*, that passes through the socket *s*, and works in a detachable bearing, *b'*, attached to the rear bar *l* of the plow-frame, and in a socket formed on the curved bar *l'* in rear of the colter, so that it is out of the way of the soil, in place of being exposed, as in other plows—for example, that forming the subject of Letters Patent No. 75,104, assigned to Lauer and Hartmann. The spindle *s'* is held in the socket *s* by means of a screw, *x*, or other suitable device, so that it may be easily detached when required for the purpose of substitution, repair of the plow, or for packing the same for transportation or storage, or other purpose.

The curved or semicircular bar or brace *B'* connects the shares *S'* and mold-board *M*, as shown in Figs. 1 and 3, the same extending vertically across the front end of the mold-board, and being secured to it and the shares by screw-bolts. The brace thus serves to tie together or unite said parts, and to impart the required degree of rigidity. The remaining means for uniting and strengthening the mold-board and shares are the concave sheth *S''* and the V-shaped brace *B''*, whose arrangement is clearly shown in Fig. 3.

I employ a T-headed lug or double catch, *C'*, for engaging with the points or shares of the plow proper or reversible mold-board on either side of the beam. Its special functions are to co-operate with the device for locking the reversible mold-board, for holding the latter firmly in the desired position for plowing,

and to aid in relieving the standard S and spindle *s'* of part of the strain incident to the operation of plowing. The standard and spindle can, therefore, be made somewhat lighter than would be otherwise practicable.

An ordinary hook may be used for securing the reversible mold-board in each of its two positions; but the device I employ is a spring-catch, which is automatic in its action, and engages with the land-side when the mold-board is turned or reversed, and locks it against the standard. This greatly facilitates and lightens the labor of reversing the mold-board at the end of each furrow.

My improved plow is adapted for use in old or stubble land, as well as for "breaking" new soil, and upon level land as well as hill-sides.

What I claim is—

1. In a reversible plow, the combination of the concave sheth *S''*, curved brace *B'*, and V-shaped brace *B''* with the mold-board, shares, and frame, composed of the land-sides *L* and connecting-bars *l''*, all as shown and described.

2. In combination with a standard attached to the beam, the reversible plow proper, composed of the mold-board, shares, land-sides, and laterally-curved colter-piece, and a connecting and supporting frame, all constructed and arranged as shown and described, whereby the pivots or spindle bearings are brought in rear of the inner side or edge of the colter, and the plow made a center-draft, as specified.

3. In a reversible plow, the double spring-catch projecting horizontally from the sides of the beam, to which it is fixedly attached, the vibrating frame carrying the mold-board, land-sides, and shares, and the double or T-headed lug, all combined as shown and described, to operate as specified.

The above specification of my invention signed by me this 28th day of June, 1877.

J. HARTMANN.

Witnesses:

SOLON C. KEMON,
CHAS. A. PETTIT.