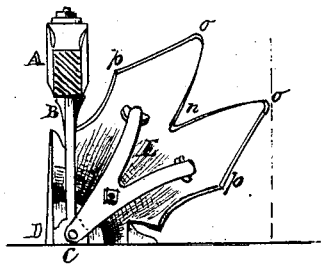
2 Sheets--Sheet 1.

J. HAPGOOD.

Swivel-Plow.

No. 163,589. Patented May 25, 1875.

FIG. 5



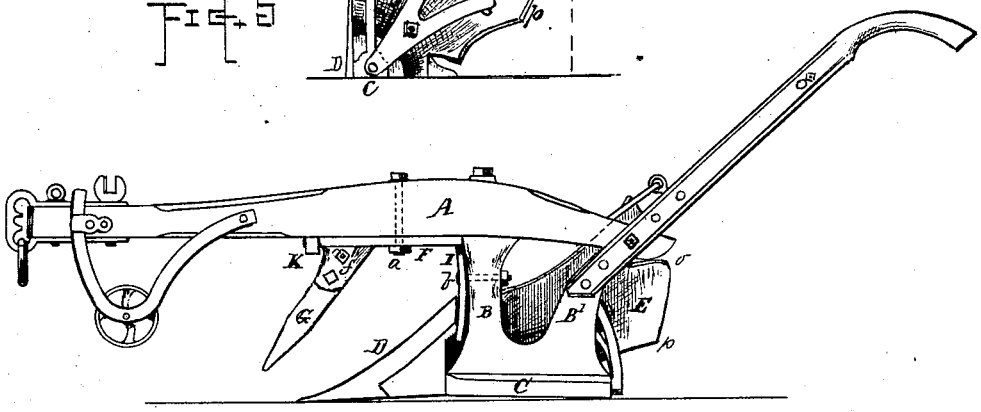


FIG. 1

FIG. 4

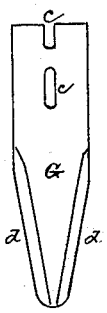
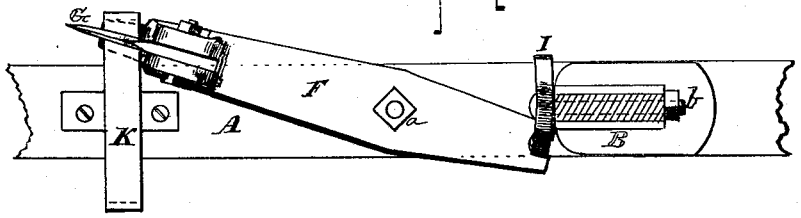


FIG. 2



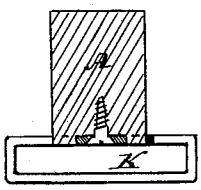


FIG. 3

Witnesses

Chas. Hy. Burleigh

Albert A. Barker.

Inventor

Joab Hapgood

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

2 Sheets--Sheet 2.

J. HAPGOOD.
Swivel-Plow.

No. 163,589. Patented May 25, 1875.

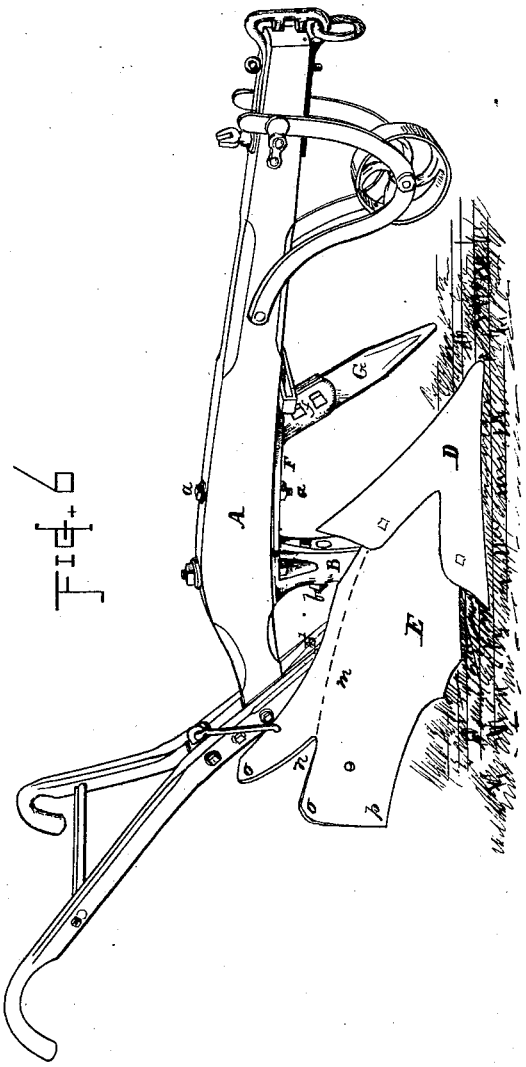


Fig. 1.

Witnesses.

Chas. Sedgwick Barleigh

Albert C. Barker.

Inventor.

Joab Hapgood

THE GRAPHIC CO PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE.

JOAB HAPGOOD, OF SHREWSBURY, MASSACHUSETTS.

IMPROVEMENT IN SWIVEL-PLOWS.

Specification forming part of Letters Patent No. **163,589**, dated May 25, 1875; application filed October 27, 1873.

To all whom it may concern:

Be it known that I, JOAB HAPGOOD, of Shrewsbury, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Swivel-Plows; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings which form a part of this specification, and in which—

Figure 1 represents a side view of a swivel-plow embracing my improvements. Fig. 2 represents a bottom view of the cutter devices on a somewhat enlarged scale; Fig. 3, a transverse section of the beam, showing the supporting-loop; Fig. 4, the blade or cutter; Fig. 5, a rear view of the mold-board; and Fig. 6, a perspective view of the entire plow.

The nature of my invention consists in a peculiarly-constructed automatically-adjustable colter or sward-cutter device for swivel-plows, as hereinafter described.

In the drawings, A denotes the beam of the plow; B B′, the standards; C, the bed-piece; D, the point or share; and E the mold-board. F indicates a lever, which I call the colter-lever, pivoted or fulcrumed in a horizontal position to the under side of the beam A by a bolt, *a*, and having at its forward end ear-pieces *f*, to which the cutter-blade G is securely fastened by screws or bolts, as indicated. The form in which I make the blade or cutter G is shown by Fig. 4 of the drawings, the upper part being provided with slots *c c*, for the holding-bolts, and both of its edges *d d* sharpened so that the cutter can be adjusted up and down, or be reversed when one of its edges becomes dulled. The forward end of the lever F extends beyond the ear-pieces *f*, and passes through a supporting loop or guide, K, rigidly secured to the under side of the beam A in a transverse position, as shown. This loop K serves to support the lever F against twisting or upward and downward movement, and transfers the strain upon cutter to the beam A, when in use, while it permits the free movement of the lever F from side to side when required. A second lever, I, which I designate the shipping-lever, is arranged in an upright position, just in front of the forward standard B, to which standard the lever is pivoted or fulcrumed by a bolt, *b*, passing through the parts in the position indicated. The upper end of lever I is made to engage with the rear end of the colter-lever F, the latter being forked or provided with a recess for its reception, and by the lateral movement of the shipping-lever I the colter-lever F and cutter G are operated. The lower end of the shipper-lever I is made somewhat broad, and extends down between the standard B and share D, to such position that it will be acted upon by the edge of the mold-board when the latter is reversed, and thereby moved from right to left, and vice versa.

The operation of my improved cutter device is as follows: When the mold-board is placed at the right-hand side of the beam A, the lower end of the shipper-lever I is pressed to the left, and its upper end acting upon the lever F, causes the cutter-blade G to be held in a position nearly beneath the left-hand side of the beam A, and coincident with the line of cut or in front of the upright part of the share when the plow has the proper inclination to land at that side. Then, when the mold-board is reversed or changed to the left-hand side of the beam its edges, striking upon the opposite side of the lever I, presses its lower end toward the right, and the motion being transmitted through the lever F, swings the cutter-blade G to a position nearly beneath the right-hand side of the beam A, or to correspond with the line of cut as reversed, thus automatically adjusting the cutter to the proper positions for plowing right or left hand furrows.

It will be observed that my improved cutter device is very simple in construction, and, while it operates with ease and facility, is not subject to derangement. It will also be noticed that while the cutter G is moved laterally to correspond with the reversing of the mold-board, the position of the cutter as regards a vertical plane is not changed, or in other words, the cutter always stands upright.

By the loop or guide K the end of the lever F and the cutter G are held very firmly to their work, while the lever is allowed easy movement laterally, when the cutter is relieved from strain, or while the plow is being reversed.

The cutter-blade G may, if desired, be forged

in a single piece with the lever F; but I prefer the construction shown and described herein.

The mold-board E of my improved plow I construct of the form shown in Figs. 5 and 6, the central portion *m* thereof being curved cylindrical, the rear part divided, as at *n*, and and the upper parts *o* of the divisions raised and turned outward, while the lower rear corner *p* is carried well under at an angle of some thirty degrees from a vertical position, (see dotted line, Fig. 5,) making the curve of the mold-board somewhat similar to the mold-board used on a land-side plow.

By this means my swivel-plow is made to turn a flat and wide furrow, and to do as good work as a land-side plow.

I am aware that adjustable cutters have heretofore been used upon swivel-plows, and I do not make claim, broadly, to an adjustable cutter; but

What I do claim as new and of my invention, and desire to secure by Letters Patent, is—

The combination, with the beam A, mold-board E, and standard B of the levers F and I, pivoted at *a b*, supporting-loop K, and cutter-blade G, said parts being constructed and arranged for operation substantially as herein set forth.

JOAB HAPGOOD.

Witnesses:
CHAS. H. BURLEIGH,
ALBERT A. BARKER.