W. B. ATKINSON.

Mole-Plow.

No. 30,036. Patented Sept 18, 1860.

Fig. 1

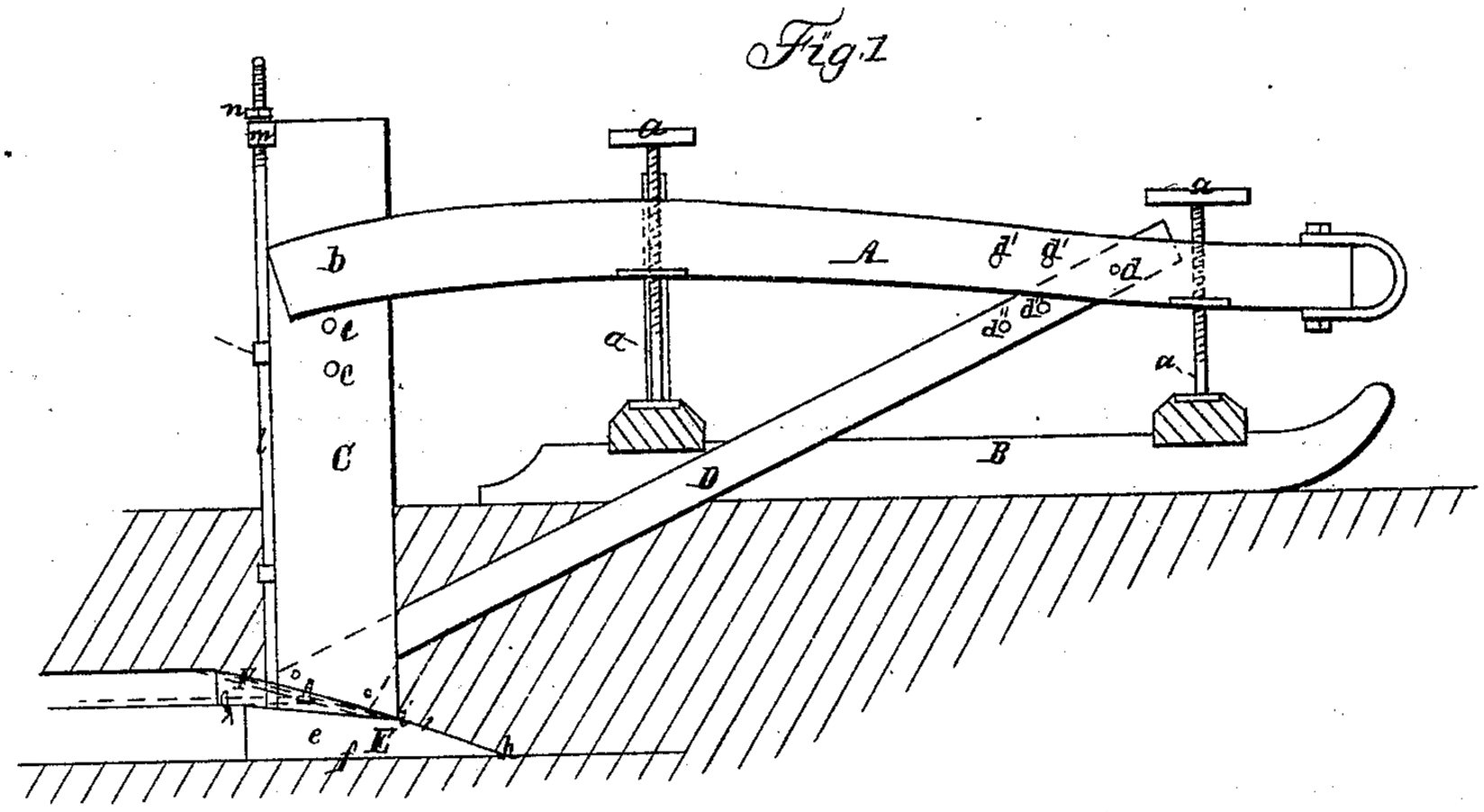


Fig 3

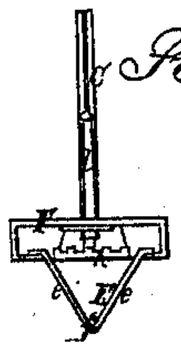


Fig 4

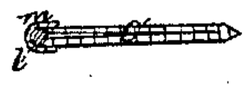


Fig 5

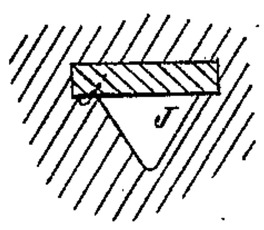
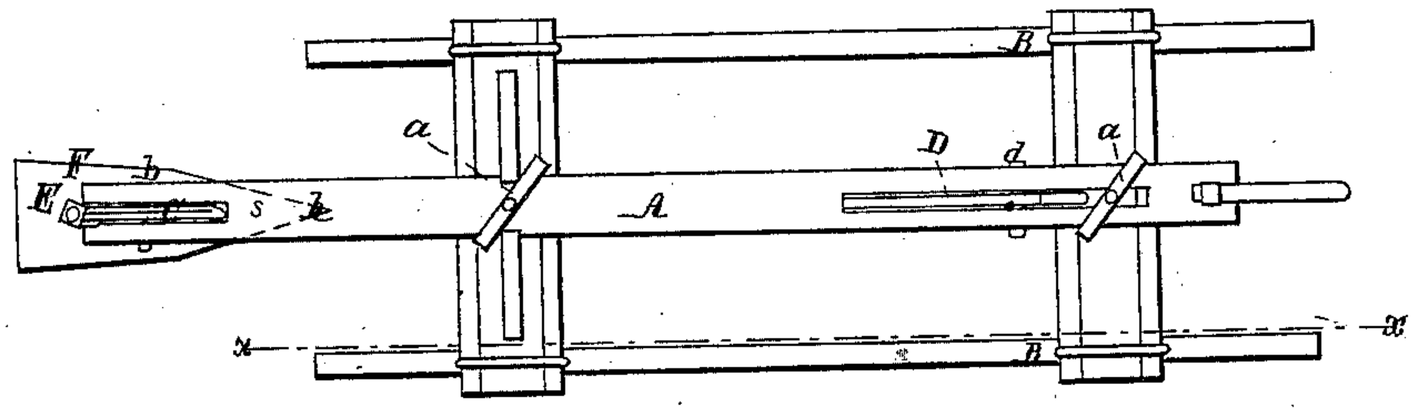


Fig 2



Witnesses:
J W Coombs
R S Spencer

Inventor:
W B Atkinson
per Munn & Co
attorneys

UNITED STATES PATENT OFFICE.

W. B. ATKINSON, OF PLYMOUTH, ILLINOIS.

IMPROVEMENT IN MOLE-PLOWS.

Specification forming part of Letters Patent No. **30,036**, dated September 18, 1860.

To all whom it may concern:

Be it known that I, W. B. ATKINSON, of Plymouth, in the county of Hancock and State of Illinois, have invented a new and useful Mole-Plow; 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, forming a part of this specification, in which—

Figure 1 represents a longitudinal vertical section of my invention, the line *x x*, Fig. 2, indicating the plane of section. Fig. 2 is a plan or top view of same. Fig. 3 is an end view of the mole or shoe. Fig. 4 is a transverse vertical section of the standard. Fig. 5 is a transverse vertical section of the drain when finished.

Similar letters of reference in all the figures indicate corresponding parts.

My invention consists, first, in arranging the sharp-pointed shoe or mole with a rounded and narrow bottom and with an inclined top, running up to the flanged back end in such a manner that the drain formed by the shoe is provided with two shoulders ready to receive the drain-boards, and that the sides of the drain are left comparatively unpressed, thus favoring the percolation of water or moisture, and forming at the same time a firm and durable drain, the pressed parts being prevented from returning to their original state from saturation, &c.; second, in the arrangement on the back end of the shoe of a clamp to be operated by a screw-rod from the top of the standard in such a manner that the drain-boards can be secured in the shoe and drawn into the drain as the plow passes along through the ground.

To enable those skilled in the art to make and use my invention, I will proceed to describe its construction and operation with reference to the drawings.

The beam A of my plow is supported by a sled, B, the runners of which are sufficiently far apart to straddle the drain, and set-screws *a* serve to adjust the beam to the desired level or inclination.

The standard C is made of a thin and broad piece of sheet-iron, which may be doubled over, as shown in Fig. 4, and its front end is sharpened, so that it passes easily through the ground. Said standard is secured to the beam by means of a bolt or pivot, *b*, so that it can be inclined in either direction, and it is provided with a series of holes, *c*, which allow of raising or lowering the standard according to the depth to which the drain is to be cut. A brace, D, extends from the lower end of the standard to the front end of the beam, being secured to the latter by means of a bolt or pivot, *d*, and the beam is provided with a series of holes, *d'*, to match a series of holes, *d**, in the upper end of the brace and to allow of adjusting the brace together with the standard. The brace is made of a thin piece of sheet-iron or sheet-steel, and its front edge is sharpened, so that the same passes readily through the ground.

The shoe E is made of a peculiar form, as clearly shown in Figs. 1, 2, and 3 of the drawings. Its sides *e* are inclined, running down to the narrow rounded sole *f*, which is placed at right angles with the standard. The cross-section of the shoe has the appearance of a **V**, as clearly shown in Fig. 3, and the top *g* of the shoe, as well as its sides, converge toward the point *h* in such a manner that in passing through the ground the shoe forces the ground up, exerting comparatively little pressure on the sides, and forming a drain, the sides of which favor the percolation of the water.

The rear end of the shoe is provided with a flange, F, which projects over the side of the shoe, as clearly shown in Fig. 3, running down gradually to a point, *i*, at about the middle of the length of the shoe, and extending beyond its end in such a form that the same in passing through the ground opens a rectangular channel, *j*, over the regular **V**-shaped drain J, as clearly shown in Fig. 5. This channel is intended to receive the drain-boards, which protect the top of the drain from tumbling in and stopping up the passage of the water. A clamp, *k*, in the interior of the flange F serves to hold the drain-boards and to draw them in as the shoe passes through the ground and opens the drain. This clamp is operated by a screw, *l*, that passes upon the rear edge of standard, being guided by loops *m*. A nut, *n*, on the upper end of the screw *l* serves to tighten the boards. The ends of the boards are cut off at angles of fifteen or twenty degrees, and they are spliced by means of bolts or rivets in such a manner that the joints re-

main of the same thickness with the rest of the boards, and that the boards can be drawn into the drain without interruption.

By this machine drains are formed of superior durability, owing to the shape of the shoe, and the upper sides of the drain are rendered perfectly safe and secure by introducing the drain-boards by means of the shoe itself, thus giving no chance to the soil to tumble in and to stop up the drain. The whole machine is made light. It is easily handled and operated, and all its parts are constructed in such a manner that they do not easily get out of order.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the V-shaped sharp-pointed mole E with the side flange, F, constructed and operating in the manner and for the purpose herein set forth.

2. The arrangement of the clamp *k* in combination with the shoe E, constructed and operating substantially as and for the purpose herein specified.

W. B. ATKINSON.

Witnesses:

H. A. MARKLEY,

A. W. KING.