J. CASE.

Mole-Plow.

No. 22,701. Patented Jan. 25, 1859

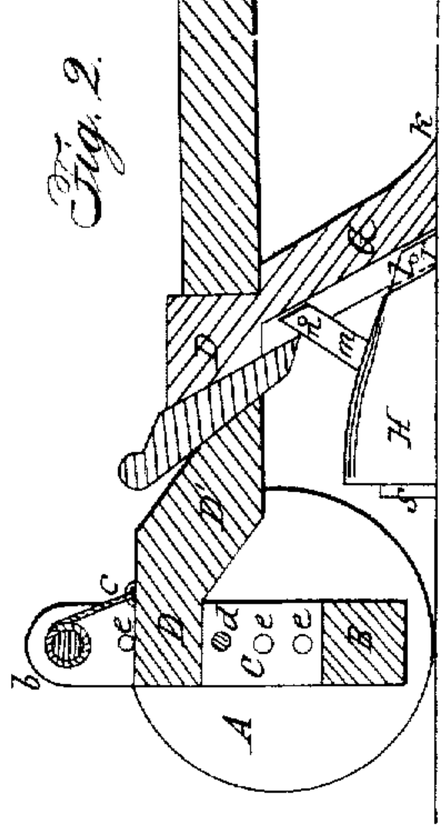

Fig. 2.

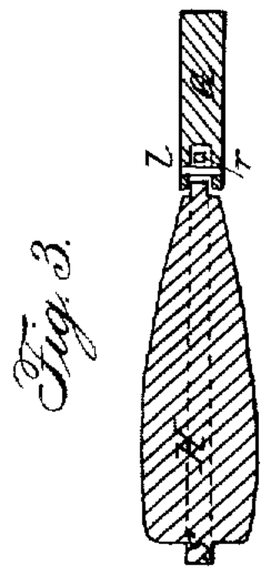

Fig. 3.

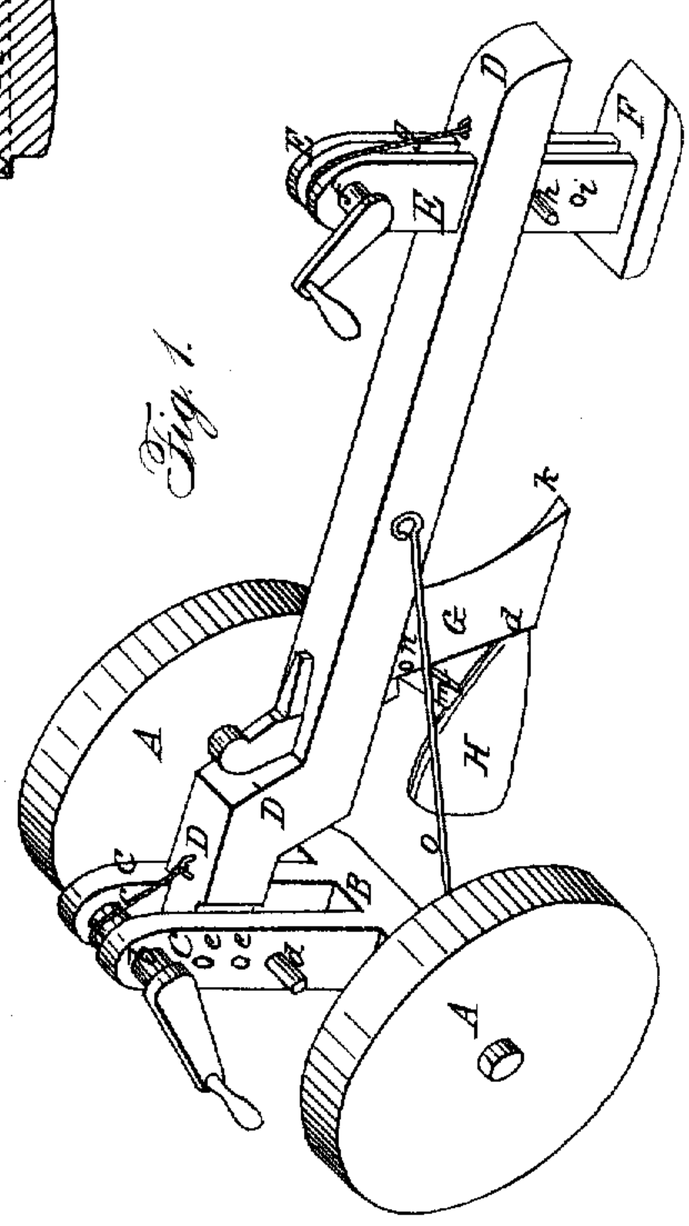

Fig. 1.

Witnesses:

Thos. W. Clapperman

E. Cohen

Inventor:

Jarvis Case

UNITED STATES PATENT OFFICE.

JARVIS CASE, OF BLOOMINGTON, ILLINOIS.

IMPROVEMENT IN MOLE-PLOWS.

Specification forming part of Letters Patent No. **22,701**, dated January 25, 1859.

To all whom it may concern:

Be it known that I, JARVIS CASE, of Bloomington, in the county of McLean and State of Illinois, have invented certain new and useful Improvements in Mole or Underground-Ditching Plows; and I do hereby declare the following to be a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a perspective view of the plow. Fig. 2 represents a vertical longitudinal section through the same, and Fig. 3 represents a horizontal section through the mole and colter.

Similar letters of reference, where they occur in the several figures, denote like parts of the machine in all of them.

A A are a pair of wheels having an axle, B, in them, upon which are supports C C, between which the heel or after part of the beam D is guided and held. The beam D has a crook or bend in it at D′ to bring it down nearer to the ground than the axle B would otherwise allow it to do. The point of the beam has its support on standards or supports E, that are permanently fixed in a shoe or runner, F, sloped up at its front so as to slide over the ground. The axle B is bent or cut down in its central portion to aid in allowing the beam to come down close to the surface of the ground.

In the standards C C is a windlass, *b*, to which a rope or chain, *c*, is attached by one of its ends, the other end being connected to the beam D; and by this windlass the beam may be raised up to any proper height and there held by a pin or bolt, *d*, passing through one of the adjusting-holes, *e*. On the front standards, E, is also arranged a windlass, *f*, and a rope or chain, *g*, for raising the front end of the beam to any suitable and proper height, where it is held by a pin, *h*, passing through one of the adjusting-holes, *i*. The weight of the beam and the tendency of the plow to run down or into the ground will cause the beam to descend without any mechanical appliances to aid it.

G is a colter permanently affixed to the beam, so as to be rigid and strong, though removable when its fastenings are loosened, the point *k* or sole of this colter determining the bottom of the underground ditch or drain to be made by the plow, while the points of support of the beam determine the depth that the ditch shall be below the surface of the ground.

The mole or former should be at its extreme rear end of the size or shape of the drain to be made by it, and from thence forward it diminishes in area until it approaches to or near the colter G and terminates with a nose, *r*, that enters a slot, mortise, or opening in the rear of the colter, and where it is pivoted by a pivot pin or bolt, *l*, that will allow the mole lateral motion, for a purpose that will be hereinafter mentioned.

There is an arm or brace, *m*, cast or wrought onto the mole, which projects from the top of the mole upward and forward, and may also enter a slot, mortise, or opening in the rear of the colter, where it is also pivoted by a pivot pin or bolt, *n*, the object of this arm or brace being to prevent the bottom and rear of the mole from excessive friction on the ground.

The wheels and shoe or runner take the friction from the sole of the colter, and the mole being suspended vertically to the colter, of course its friction is taken off and supported also on the wheels and shoe, which of course determine the depth at which they shall penetrate the ground, and all tendency of the colter or mole to run into the earth is taken onto the wheels and shoe, and there is thus no unnecessary friction on them.

The object of pivoting the mole close up to the colter is that it may more readily follow the kerf or cut of the colter and, that the mole may move to one side or the other to avoid a stone or other obstruction that it could not pass through, I so pivot it as that it may move laterally, but immediately return to the line of the colter after the obstruction is passed.

The brace *m* prevents the sole of the mole from going below that of the colter, and the nose of the mole cannot run into the ground or get out of the cut or path of the colter, though both may turn from their direct path to avoid an obstruction.

The nose *r* may be of a piece of wrought metal cast into the mole, or otherwise wrought thereon, to prevent its breaking. The arm *m* may also be of wrought metal. The bar, too,

of which the nose is formed, may run clear through the mole, as shown at *s*, to form the basis of a similar fastening for second mole, if it should ever be found advantageous to use more than one. *o* are stay-rods for bracing the axle to the beam.

Where the mole is fastened by a link or chain to the colter it will take a sheer and run out of its line and against obstructions, which break the machine. No such accident could happen to my plow, as the nose of the mole must follow the colter; but at the same time the rear of it can move laterally to avoid an impassable object.

I have described the mole as pivoted to the colter and the colter as rigid in the frame, and being thus rigid it acts as a part of said frame, practically, so far as the mole is effected by it; but it is obvious that a separate piece may be extended down from the beam behind the colter, to which, instead of the colter, the mole may be connected.

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

1. So suspending the mole to the beam or the colter as that it cannot go vertically beyond a given depth, while it may move laterally, substantially as described.

2. Extending the nose of the mole into the rear of the colter, so that it cannot at any time run out of the line of cut of said colter at its point, substantially as described.

JARVIS CASE.

Witnesses:
THOS. H. UPPERMAN,
E. COHEN.