A. WATSON.

Mole Plow.

No. 24,969. Patented Aug. 2, 1859.

Fig. 1

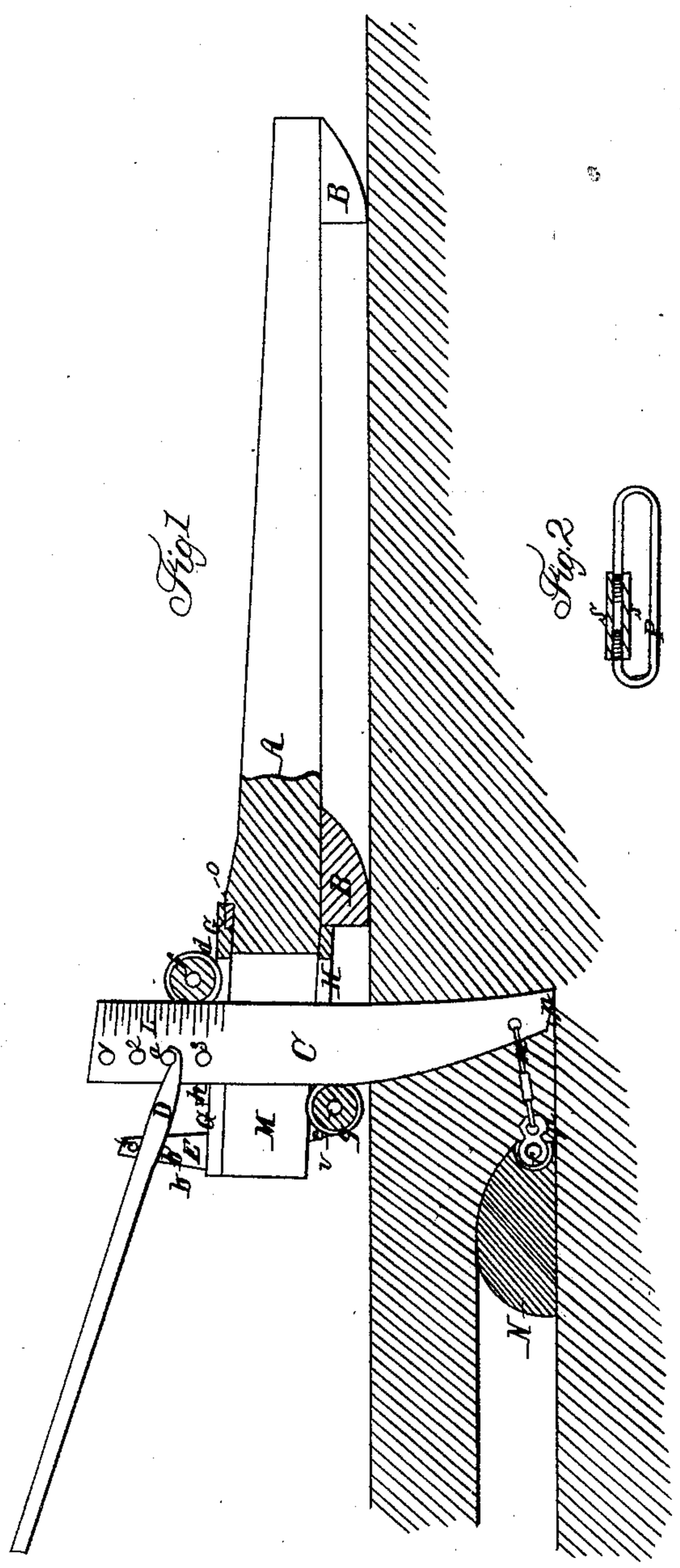
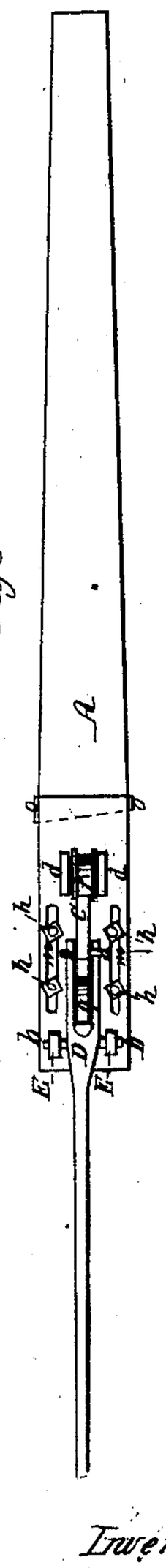


Fig. 2

Fig. 3



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UNITED STATES PATENT OFFICE.

AUGUSTUS WATSON, OF WALNUT RUN, OHIO.

IMPROVEMENT IN MOLE-PLOWS.

Specification forming part of Letters Patent No. **24,969**, dated August 2, 1859.

To all whom it may concern:

Be it known that I, AUGUSTUS WATSON, of Walnut Run, in the county of Madison and State of Ohio, have invented certain new and useful Improvements in Mole-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, in which—

Figure 1 represents a longitudinal vertical section through said mole-plow. Fig. 2 represents a top view of the same. Fig. 3 represents a detached view, hereinafter to be explained.

The nature of my invention relates to the construction and operation of the colter and mole of a ditching-plow; and it consists in the manner of raising and lowering the colter to which the mole is secured, whereby the colter is retained in its true position, while being raised or lowered. It also relates to the manner of regulating the position of said colter so that it will work to the best advantage; and it further relates to the manner of fastening the mole to the colter.

To enable others skilled in the arts to make and use my invention, I will proceed to describe its construction and operation.

A represents the beam of the mole-plow, which rests upon the runners or blocks B in the usual manner.

C represents the colter. This colter is not secured in any manner to the beam, as done heretofore, but is suspended within the open slot M of the beam A to the forked end of the lever D by means of a pin or bolt, *a*, while the lever itself bears upon the pin *b* of the standard E.

G and H represent two substantial iron plates, which are secured respectively to the upper and lower side of the beam A. They are provided with suitable supports, *d* and *e*, which serve as the bearings of the grooved rollers *f* and *g*. These grooved rollers serve as the bearings for the colter C, and which, during the operation of the machine, hold it in the position represented in Fig. 1, while they also serve the purpose of friction-rollers when the colter is raised and lowered, and as the colter runs between their flanges they retain its edge in its proper position. The beam-plates G and H are secured to the beam A by means of the screw-bolts *h*, which pass through both plates and through the beam. The plate H is immovable, but the plate G can be moved or adjusted in its longitudinal direction by means of the wedge *o*, the bolts *h* passing through the slots *m* of said plate, and as the roller *f* is supported by said plate and bears upon one edge of the colter it follows that by adjusting the plate G the position of the colter will be adjusted so as to give to the edge *n* the desired inclination or draft. This arrangement of suspending the colter C to a level instead of securing it to the beam affords great advantages in the operation of the machine, for when this colter is raised or lowered the inclination of the edge *n* will not be altered, whereas where the end of the machine has to be raised or lowered the colter is either thrown on its point or its heel, and in the latter case it has a tendency to work upward, instead of working horizontally. When the colter is provided with a graduated scale, as represented at L, it can be adjusted with the greatest nicety, so as to cut a drain of a certain grade, even when the ground itself does not afford such a grade for the drainage of the water. The action of the lever D can also be adjusted according to circumstances by inserting the pin *a* into one of the holes 1 2 3 or by inserting the pin *b* into the hole 4.

N represents the plug by which the underground ditch is formed in the ground. *p* is a tongue, the circular hub of which is pivoted to the plug N by means of the pin *r*, and which can freely play in the vertical slot of said plug. The tongue *p* is attached to the colter by means of a link, P, which passes through suitable holes of the tongue and of the colter. There have been great difficulties heretofore in securing the mole or plug to the colter. A hook, when used for this purpose, is liable to straighten out, and the mole is thus lost. To weld a link into the mold or colter is a very difficult matter, and, if performed successfully, it makes the machine very unwieldy to handle. I therefore construct my link as represented in Fig. 3. The two ends of the link P are provided with screw-threads, and the space between them can be closed up by means of the screw-sleeve *s*. Thus the link, when open, can easily be inserted into the tongue and colter, and can then be closed by the sleeve *s*. As the link P is not attached directly to the plug N, but to

the pivoted tongue *p*, it follows that when the colter is raised the plug is not lifted from its horizontal position, whereby the bottom of the ditch is made more even and with a more perfect grade than where the plug can follow all the motions of the colter; but although the position of the mole is not changed by the motion of the colter, the former cannot deviate from its vertical position, as the tongue *p* can only play vertically in the slot of the mole and has no side play.

An important feature in this underground drain-plow consists in the fact that the operator has the colter within his control at all times, and when the plow passes an elevation or depression in the surface of the ground he can let down or raise up his colter and mole, so as to preserve the grade of his ditch, and by graduating his colter he can thus let down or raise up the colter and mole to a certain distance and without guessing at it, as heretofore. Besides, he only raises his colter and mold, and not the beam or frame.

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

1. Suspending the colter C to the lever D and guiding it between rollers, so that it may be raised or lowered independently of the beam or frame of the plow, substantially in the manner and for the purpose herein described.

2. Making one or both of the beam-plates G H adjustable for the purpose of adjusting the position of the colter so as to give it the proper tip or inclination, substantially in the manner and for the purpose described.

3. In combination with the beam-plates and the colter C, the grooved guide-rollers *f g* for the purpose of guiding the colter in its vertical motion and preventing any side or twisting motion of the same, substantially as herein described.

4. In connection with the colter and mole, the pivoted tongue *p*, substantially in the manner and for the purpose herein described.

5. In combination with the colter and mole, the link P, whose ends are secured by a screw-sleeve, for the purpose herein described.

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Witnesses:

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