J. LANE.

Mole-Plow.

No. 26,771.

Patented Jan 10. 1860.

Fig 3

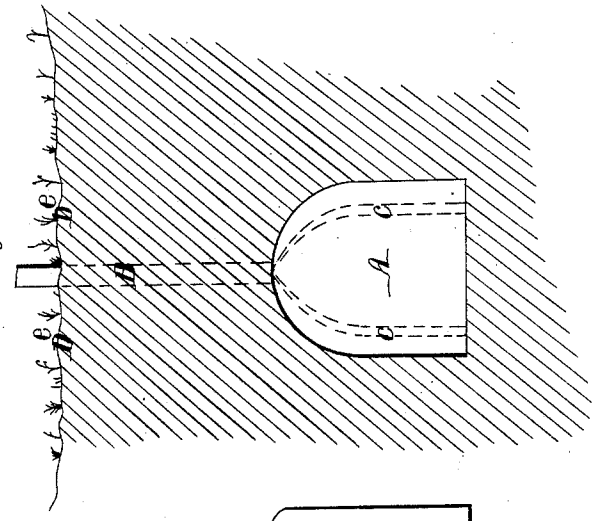


Fig 2

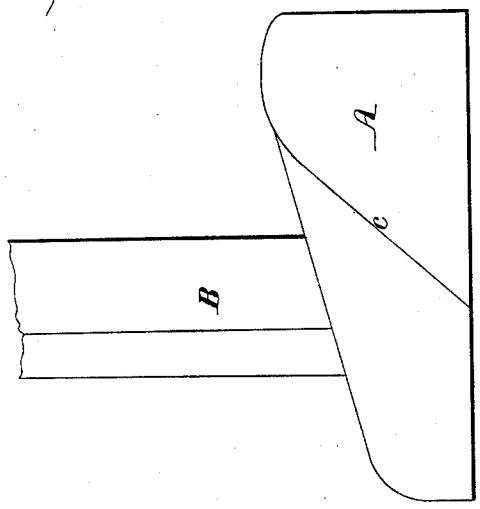
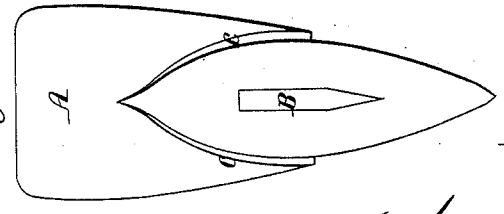


Fig 1



Witnesses.

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UNITED STATES PATENT OFFICE.

JOHN LANE, OF LOCKPORT, ILLINOIS.

IMPROVEMENT IN THE MOLES OF DRAIN-PLOWS.

Specification forming part of Letters Patent No. **26,771**, dated January 10, 1860.

To all whom it may concern:

Be it known that I, JOHN LANE, of Lockport, in the county of Will and State of Illinois, have invented a new and useful Improvement in the Shape of the Moles of Underground-Draining 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, forming a part of this specification, in which—

Figure 1 is a plan of my improved mole. Fig. 2 is a side view of the same; and Fig. 3 is a rear view of the mole as in use, an underground drain being shown in its transverse section.

Similar letters of reference in each of the several figures indicate corresponding parts.

It is very desirable in underground drains to have the sides and top of the same compressed equally, while the bottom is left uncompressed; and in forming such drains with any of the mole-plows heretofore devised the clay is densely compressed on all sides, yet the compression is not equal at the top and sides, and hence the development of my invention, which is designed to effect an equality of compression at top and sides, and also to close up the slit made by the colter of the mole more effectually than it can be done by simply forming conduits in the top of the mole on each side of the colter.

My invention consists in so constructing a mole for underground-draining plows that the front half of it will first form what I shall term a "minor" arch-shaped drain with compacted walls, and the rear half, following after, will abruptly, instead of gradually, convert the same into a major drain or a drain of the desired size, and in doing this will, owing to its abruptly commencing to increase the size of the minor drain, cut away the compacted dirt which forms the walls of the minor drain from the base to the top of the drain, and conduct the same in its compacted condition to the top of the drain, behind the colter, and thus insure a more perfect packing of the top of the drain and of the filling up of the slit formed by the colter with dirt, which has already been to a very great extent rendered compact.

In forming a drain with a mole the lateral resistance of the clay is great, owing to no chance being allowed for the clay to give back and get out of the way of the mole. Hence it is that the desired density of compression at the sides of the drain by the mole is effected, whereas the upward resistance of the clay is not so great, owing, first, to the existence of the slit or crack formed by the colter in the earth, and, secondly, to the clay yielding upward. There is another difficulty with the common-shaped mole making an arch-drain. It is this: In turning corners, making angles to the ditch, the mole-stem will leave a crack of some three times the thickness of itself just at the point of turning, and it is often necessary to dig down to the drain and repair the corner with stone. My invention obviates to a very great extent all difficulties experienced in the use of the mole.

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

A A′ designate the mole; B, the mole-stem or colter; and *c c* are the shoulders on the mole. These shoulders are formed by enlarging the mole abruptly at the center of its length. They commence at the base of the mole, forward of the back of the stem or colter, slope backwardly as they rise, and come together at a point midway between the stem or colter and the rear end of the mole.

In operation, the part A′ of the mole forms a minor drain with compacted walls, and then the shoulders, by abruptly enlarging the minor drain for the part A to enter and form what I term the "major" drain, necessarily trim off a portion of the packed clay which forms the side walls of the minor drain and convey it up and deposit it where it is wanted to stop the slit of the mole stem or colter, and to compensate for the upward yield in the earth to the top of the mole.

The main advantage resulting from my particular combination of the minor and main moles and conductors is this: The clay is compressed before being conveyed to the top. Therefore a more perfect filling up of the top of the drain and stem or colter slit is accomplished.

By referring to Fig. 3 a drain formed by my mole is shown. The dark lining upon the sides

and top is the packed clay. The dotted line *e e* illustrates how the earth yields or rises when the mole is in action. It is to overcome the difficulty resulting from the earth thus yielding as well as to fill up the colter-slit that I convey clay which is already partially compressed from the compacted sides of the minor drain and deposit it on top of the mole, in rear of the colter. Thus conveying up compressed clay enables me to make a drain with its sides and top of nearly equal density and with the colter slit or crack of the mole-stem more effectually closed.

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

The combination, with the peculiarly-constructed mole A A′, of shoulders *c c*, which extend from the base of the mole, slope backward as they rise, and terminate at a point about midway between the back of the stem or colter and the rear end of the mole, substantially in the manner and for the purpose set forth.

JOHN LANE.

Witnesses:

C. A. WELCH,

J. D. LOOMER.