S. ADAMS.

Mole Plow.

No. 27,283. Patented Feb. 28, 1860.

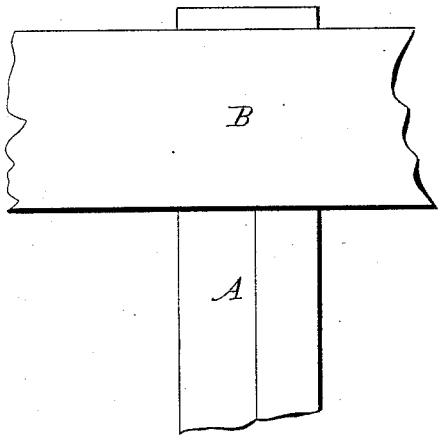


Fig 3

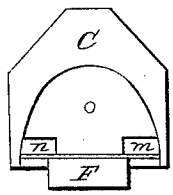
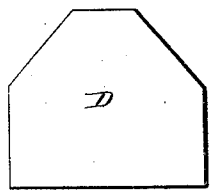


Fig 4



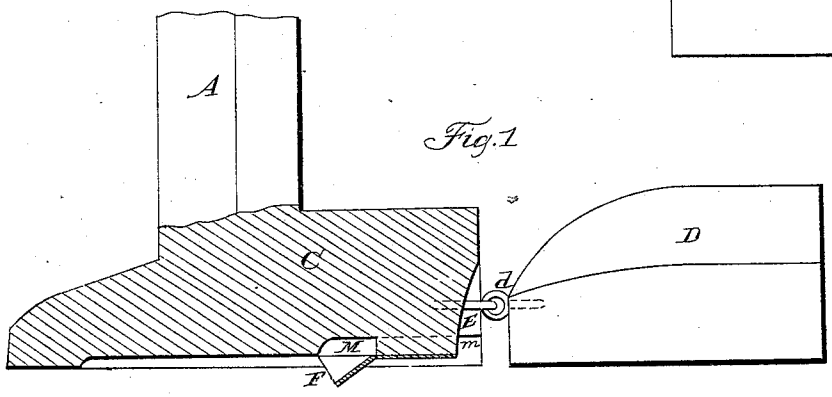


Fig. 1

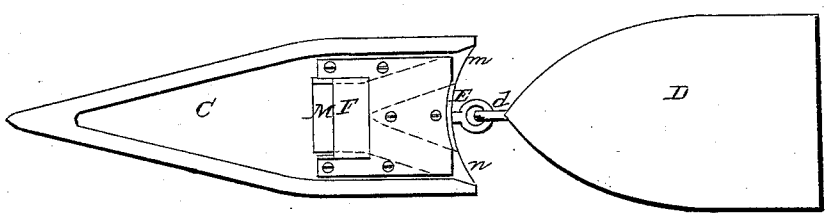


Fig. 2

Witnesses.

Daves Lowman

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UNITED STATES PATENT OFFICE.

SAMUEL ADAMS, OF TOULON, ILLINOIS.

IMPROVEMENT IN MOLE-PLOWS.

Specification forming part of Letters Patent No. **27,283**, dated February 28, 1860.

To all whom it may concern:

Be it known that I, SAMUEL ADAMS, of Toulon, in the county of Stark and State of Illinois, have invented a new and useful Improvement in Mole-Plows, whereby the drain produced is more perfect at the bottom than heretofore; and I do hereby declare that the following is a full and exact description of the construction and operation of the same, reference being had to the accompanying drawings, and to the letters of reference therein, in which—

Figure 1 is a vertical section. Fig. 2 is an elevation of the base of the plow. Fig. 3 is a rear view of the first mole, and Fig. 4 is a rear view of the following mole.

Similar letters refer to like parts in all the figures.

The effect of a mole-plow is to open a channel through the earth in which the superfluous moisture of the earth may escape. The channel is produced by forcing away the earth in such a manner that it is highly compressed at some or all points in the immediate vicinity of the drain. This great pressure is desirable at the top and sides in order to aid the cohesion of the earth and prevent the immediate refilling of the drain, but is objectionable on account of the earth so compressed often becoming almost or quite impervious to water. It is therefore desirable to leave the under side of the drain in as nearly its natural condition as possible, in order to allow the ready influx of water from that direction. It is also desirable to provide a groove along the lower side of the drain which shall confine the water within narrow limits when, as is usual, the quantity flowing is very small. Among the means devised to effect these desirable objects has been the employment of a knife projecting down from the lower edge of the plow; but this has performed but imperfectly, because the knife itself necessarily compresses the earth to some extent.

The nature of my invention consists in scooping up the earth along a suitable groove at the base of the drain, and instead of compressing it in any manner into the earth immediately adjacent, causing it to traverse through suitable channels in the body of the plow, and ultimately to be compressed into the sides or top of the drain. By this means I produce a groove at the base of my drain which is narrow and smooth to allow a ready channel for the water to flow along, even if the quantity is small and the inclination very inconsiderable, and also insure an absolute freedom from compression of the adjacent earth immediately in contact with or which forms the boundaries of such groove; but little force is required to scrape up a small quantity of earth when the space above the scraper is clear and the earth acted on has previously been but very slightly compressed. The action is obviously of such character that my scoop or scraper is readily adapted to produce the effect desired without a possibility of compressing the earth beneath and at the sides of the groove thus formed.

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

A is the colter, which is of any form and material adopted in other mole-plows. It is attached in any suitable manner to the beam B, and is provided with any of the means in use for inducing the filling up or stopping of the deep narrow channel produced in its passage through the earth.

C is the main body or mole of my plow, and D is the trailing or pushing portion. The transverse section of D is very similar to that of C, but is a little larger, which increase of section so compresses the earth as to close up the incision left by the colter A. D is provided at its front with a connection, *d*, which locks into a swivel, E, which latter is mounted in the rear of C, as represented.

The under side or face of C may be either plane or hollowed, as represented. The earth at the base of the drain is consequently left in a condition nearly plane and very little compressed. F is the scraper. It cuts out and lifts the earth to form the narrow groove desired along the base of the drain. It is firmly secured to C by any convenient means, and stands at such an angle that the earth loosed thereby is conveyed upward. In the base of C, immediately above or a little in the rear of F, I make a cavity, M. I extend this cavity by a double passage, M *m* M *n*, diverging gradually, as represented, from this point to the extreme rear of C. The earth lifted by F

is by the progressive motion of the plow induced to rise and to enter M, and to flow through the channels M *m* and M *n* and escape at the rear. After emerging from *m* and *n* it is caught by the inclined faces of D, and is finally compressed into the sides or top of the drain, where it permanently remains.

I make the channels M *m* M *n* very smooth, and extend them as directly as may be from F to the most convenient and desirable points of discharge in order to secure the ultimate compression of the earth into the sides or top of the drain. I make the bends or turns therein as gradual as possible, and prefer to make the area of the channels increase backward, M being slightly larger than the area of the cross-section of the groove produced by F in the earth, and the channels M *m* M *n* increasing in section from thence rearward. This form allows the earth to pass readily through without clogging.

The knives and analogous devices heretofore employed to groove the soil at the base of a drain have all compressed the earth to a greater or less extent, especially when their edges or points have become in any wise dulled and rounded by use. My invention differs radically therefrom in opposing no obstacle other than the gravity of the particles to prevent the ready rise of the earth which is to be removed to form the groove. My scraper F will therefore keep sharp for a long period and will never sensibly compress the earth so long as the channels M *m* M *n* are kept open by the free escape of the earth at the rear. The swiveled connection *d* E allows the trailing mole D to adapt itself to the irregularities in the soil, and to follow in any curved path described by the leading or main mole C.

If it be preferred for any purpose, the trailing mole D may be duplicated, and a series of such plows so connected, either of the same size or a gradually-increasing size, may be made to follow each other by attaching another or others to the rear of D.

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

The construction of mole-plow herein described, whereby the earth in the groove at the base of the drain is excavated and conveyed to the side or top of the drain, substantially as and for the purposes herein set forth.

SAML. ADAMS.

Witnesses:
DAVIS LOWMAN,
JOHN W. DENNING.