

H. T. DIVELBISS & J. S. BRASFIELD.

Improvement in Ditching or Drain making Machines.

No. 123,092.

Patented Jan. 30, 1872.

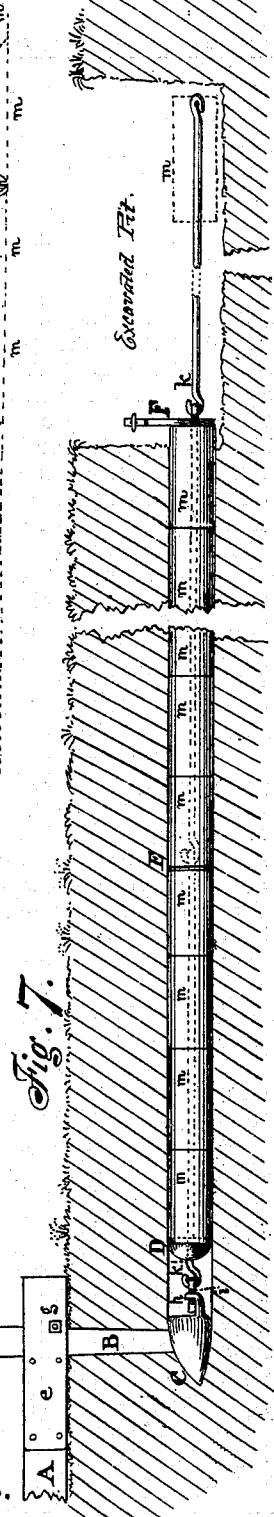
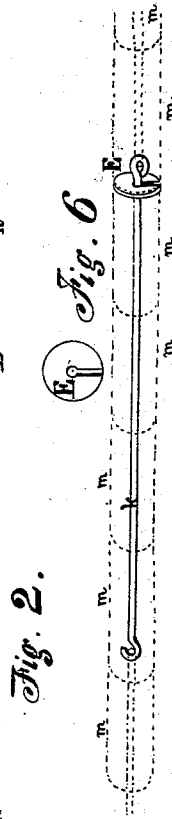
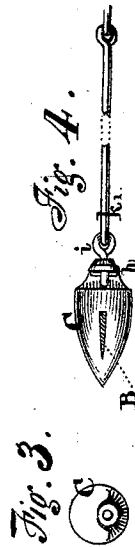
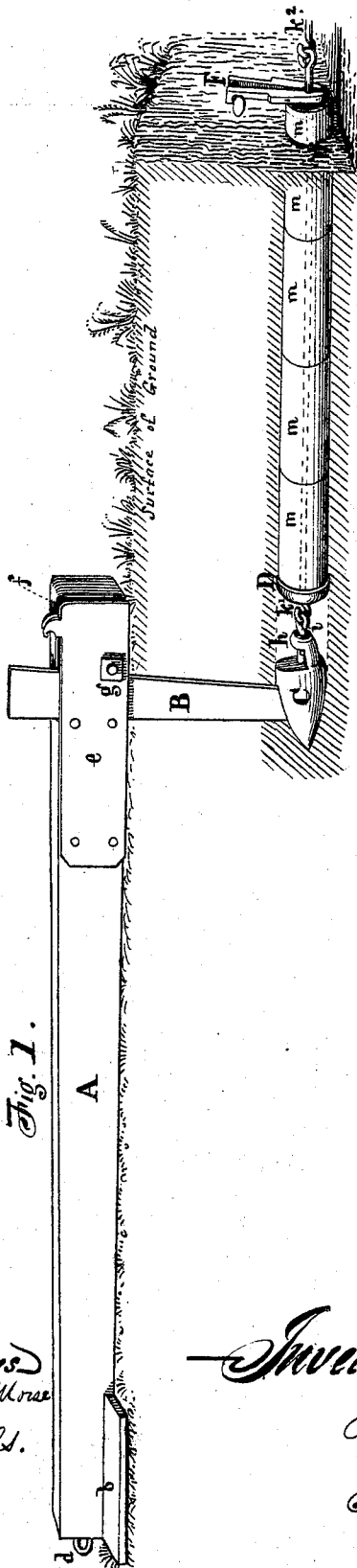
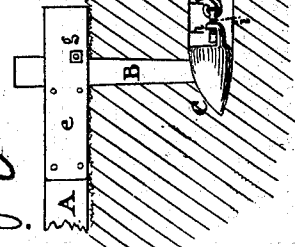


Fig. 7.



Witnesses
J. M. Morse
H. H. Wells.

Inventors—
Henry T. Divelbiss
by Edmund Thurston,
his atty in Fact.
James S. Brasfield
by Edmund Thurston his atty in Fact

UNITED STATES PATENT OFFICE.

HENRY T. DIVELBISS, OF SARATOGA TOWNSHIP, AND JAMES S. BRASFIELD,
OF WHITEFIELD TOWNSHIP, ILLINOIS.

IMPROVEMENT IN LAYING DRAIN-TILES.

Specification forming part of Letters Patent No. 123,092, dated January 30, 1872.

To all whom it may concern:

Be it known that we, HENRY T. DIVELBISS and JAMES S. BRASFIELD—the first of Saratoga township, county of Marshall, State of Illinois, the second of Whitefield township, in the county of Marshall and State of Illinois—have invented an Improvement in Ditching or Drain-Making Machines for Laying Drain-Tiles or Tubes, (or ditcher and drain-tile layer combined;) and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the annexed drawing making a part of this specification, in which like letters of reference refer to like parts, and in which—

Figure 1 represents a perspective view of the machine in operation; Fig. 2, side elevation of the “mole” and tail with its hook; Fig. 3, rear elevation of the “mole;” Fig. 4, superficial or plan view of “mole,” tail, hook or eye-bolt, and rod; Fig. 5, side elevation of block or “forerunner” of tubular drain-tiles; Fig. 6, one of the rods, showing the position of the disk E and the drain-tubes or tiles; Fig. 7, side elevation of “mole” at work drawing the tubes after it, and showing section of “pit” or entrance of drain, drawn on smaller scale than the other diagrams, which are on a scale of half an inch to one foot.

This invention is an improvement in subterranean draining, the channel being made and the pipes carried into the channel or drain at one and the same operation. The ordinary ditching beam with the “leveler,” and drawn by a capstan, or other motor is used, the tail of the beam carrying the usual knife terminating under the soil in a “mole” or cone for making the channel or tunnel.

A in the drawing represents the beam, having the staple *d* in front for the attachment of a rope carried forward to the capstan; *b*, the “leveler,” which prevents the beam from turning. The beam may be about fourteen feet long and from nine to twelve inches square, larger at its rear end and terminating there in a vertical side plate, *e*, covering the slot, *f*, which is rather forming one side of the slot, *f*, which is vertical and carries the knife B. A set-screw, *g*, adjusts the plate *e* and secures the knife at various depths in the soil; B, the knife, usually about four feet in length, about eight inches

broad at its upper end, and six inches where it is fastened in the “mole,” and one inch thick at the back or rear; C, the “mole,” similar to that form usually employed—*i. e.*, a conical block of iron about twice the length of its rear diameter; the diameter may be varied to suit the size of the required drain. The form of the “mole” is similar to a Minie rifle-ball, the point projecting forward in the direction of the beam A and drain, on a line somewhat lower than its center to make it retain a “hold” in the soil, and not have a tendency to come to the surface. (See elevation, Fig. 2, end view, Fig. 3, and plan, Fig. 4.) It terminates vertically in the rear, excepting at the lower part where a projection or “tail,” *h*, parallel to and below its center, carries a small lug pierced with a hole to admit an eye-bolt, *i*, which has an eye in the rear, and a transverse hole to admit a pin through that end of the bolt within the lug. This bolt is in a line with the center or axis of the mole. To this bolt one of a series of rods, *k*, is hooked, each being about ten feet in length and from one-half to one inch in diameter, (according to the size of mole and weight of drain-tiles to be drawn by them,) each having an eye at one end and a hook at the other. D is a hemispherical block of the same diameter as the “mole,” having a hole through its axis for its attachment on the first rod *k*, which follows the mole, and a recess around its flat side to receive the forward end of the first drain-tile *m*; E, a disk of same diameter as the mole, block D, and tubes “*m*,” having a hole in its center and a slot from thence to its periphery, that it may be slipped on to either of the rods *k* (behind a tube and at and immediately before the eye of a rod) as a stay for the tubes while entering the drain; F, a clamp or strong pair of pivoted jaws closed by a set-screw, and used to clasp the rod behind a tube or series of tubes or tiles, *m m*, &c., for the same or similar operation as the disk E above described.

The operation of this invention is as follows: A pit is dug in the soil, its bottom on a level with the intended drain, about ten feet in length and a foot or two wide; the beam A laid on the line of the intended drain, with the knife B and hole C within the pit; the latter at level or center of the drain to be cut; the

first rod *k* with the block *D* at its forward end is now hooked to the eye-bolt *i* of the "mole," and the tubular tiles are passed on to the rod until the latter is filled. The front end of the first tile, *m*, is adjusted within the recess in the block *D*, and the clamp *F* is fastened behind each tile as it enters the hole, or behind the whole of the tiles occupying the rod to prevent them from slipping back along the latter when the capstan pulls the beam *A* forward. The block *D* keeps the first tube or tile in place and prevents this and the others from the entrance of dirt or mud. When the last tile has entered the drain another rod is attached, the machine being then stopped for the purpose, the clamp *F* is removed and another series of tiles adjusted up to the last one in the drain, and the process continued exactly as before. When about eighty feet of drain has been thus laid the disk *E* is slipped on to one of the rods immediately behind the last tile and just in front of the terminal eye of the rod, to act as a stay and to release the clamp *F* from the strain of so many tiles against. The disk is allowed to enter the drain, and is afterward recovered by excavating another pit at the point reached by the disk after another eighty feet of tiles have been laid. When one hundred

and sixty feet of tiles have been thus located another pit is dug at the place the machine and mole has then reached, when the pin in the tail of the mole and eye-bolt *i* is removed, the mole and knife also; the rods *k* *k'*, &c., can then be drawn out and the same operation commenced again on the line of the drain, on the opposite end of the pit, ten feet distant the intermediate space in the open pit being filled in with tiles by hand after this next one hundred and sixty feet of tiling have been drawn in in the same manner as before described.

What we claim as our invention is—

In an apparatus for laying drain-tile, consisting of the ordinary ditching-beam carrying the usual knife and mole, and drawn by a capstan, the block or cap *D*, disk *E*, and clamp *F* in combination with rod *k*, substantially as described.

In testimony that we claim the foregoing ditcher, drainer, &c., we have hereunto set our hands this 8th day of September, A. D. 1871.

HENRY T. DIVELBISS.
JAMES. S. BRASFIELD.

Witnesses:

JAMES M. MORSE,
WM. JACK.