J. M. FUDGE, F. M. HOLMES & S. McDONALD.

Ditching-Plow.

No. 209,756. Patented Nov. 12, 1878.

Fig. 1.

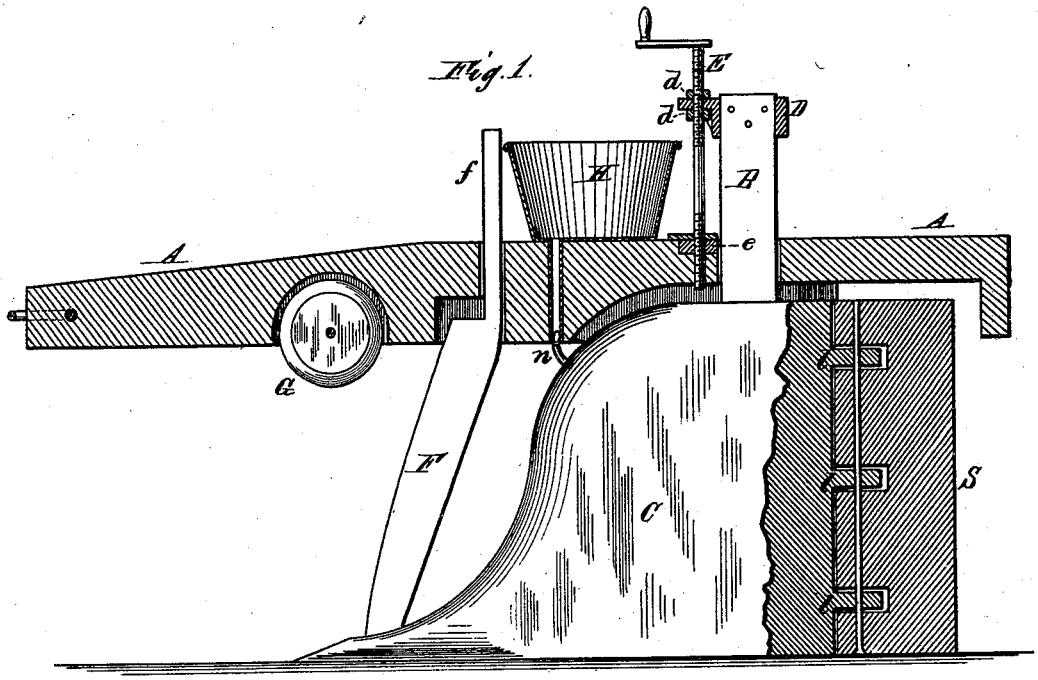


Fig. 2.

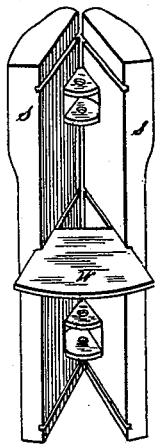


Fig. 3.

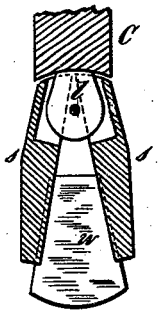


Fig. 4.

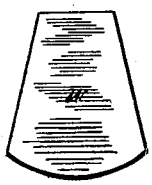
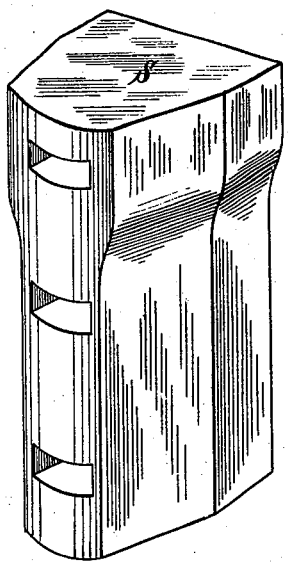


Fig. 5.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN M. FUDGE, FRANCIS M. HOLMES, AND SAM McDONALD, OF NILES TOWNSHIP, DELAWARE COUNTY, INDIANA.

IMPROVEMENT IN DITCHING-PLOWS.

Specification forming part of Letters Patent No. **209,756**, dated November 12, 1878; application filed October 3, 1878.

To all whom it may concern:

Be it known that we, JOHN M. FUDGE, FRANCIS M. HOLMES, and SAM McDONALD, of Niles township, county of Delaware, and State of Indiana, have jointly invented certain new and useful Improvements in Ditching or Draining Plows, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Figure 1 is a partial section and elevation of the improved plow complete. Fig. 2 is a perspective view, showing the adjustable spreader detached from the plow; and Fig. 3 is a horizontal section of the adjustable spreader. Fig. 4 is a plan view of one of the wedges or wedge-plates employed to adjust the wings of the spreader. Fig. 5 is a perspective view of a detached spreader as it appears when made solid or without the adjustable wings.

Like letters in all the figures indicate corresponding parts.

Our invention has relation to that class of implements intended for trenching the earth, and commonly known as "draining-plows" or "drain-tile plows," its purpose being to open a narrow ditch suitable for the reception of drain-tiles, &c.

The object of the invention is to so unite the essential elements of the implement as that the improved device shall combine all the requisite qualities of simplicity, durability, strength, and cheapness, and at the same time be as light of draft as possible, capable of vertical adjustment of parts to regulate the depth of ditch desired to be cut, and also have such laterally-adjustable or interchangeable parts as will regulate the width of the ditch to accommodate tiles of varying sizes.

To accomplish all of this, the invention consists in certain novel and useful arrangements or combinations of parts, as will be hereinafter first fully described, and then pointed out in the claims.

A is the plow-beam, to which the clevis may be applied in the usual manner. This beam is slotted to receive the standard B, which is suitably connected with the blade C, and carries the arm D. E is the screw-shaft, revolving in arm D, and raising or lowering beam A with respect to the blade, accordingly as the screw is turned one way or the other. Two shoulders, *d d*, prevent the rod or shaft E from rising or falling, and the nut *e*, properly embedded or connected with the beam A, insures the desired upward or downward movement of said beam whenever the shaft is revolved in a manner easily understood. In this manner the depth of ditch to be cut can be easily regulated by the operator. The upper portion of shaft E is also screw-threaded, preferably, so that the parts may be disconnected easily, whenever desirable, by simply unturning one of the shoulders *d;* and this adjustability of the shoulders *d d* likewise affords a means of clamping the shaft, if found necessary, so that it will be in no danger of revolving while the implement is being used, and thus varying the height of the beam.

The cutter F has a bearing against or upon the point of the plow to insure its rigidity, and the stem of this cutter, *f*, is carried up through a slot in the beam, and so that *f* and B shall be substantially parallel. This relative location of the two parts prevents the beam from binding as it is being raised or lowered.

The addition of the wheel cutter or colter G is obviously advantageous, and it serves its usual purposes in this machine.

Upon the beam A, and at some convenient point over the blade, we mount the vessel H. This is intended for the reception of water or some lubricating material, which is directed down upon the blade through a suitably-arranged nozzle, *n*, adapted to discharge the lubricator upon both sides of the blade. A passage for the lubricator may also be arranged so as to discharge some of it upon or against the cutter F.

The lubricator operates in a twofold capacity. It diminishes the friction between the plow and the soil, and it aids in insuring the packing or pressing of the earth, especially at the mouth of the ditch, so that it will not reclose after being opened or fall down and close the trench.

The rear of the plow is provided with lugs or projections *l l*, which serve as means for connecting the spreader S, the office of which spreader is to regulate the width of the ditch.

For varying sizes of ditches we may furnish with the plow a set of these spreaders, which are capable of being readily attached and detached; but we prefer to make a single adjustable spreader, such as shown in Fig. 2, wherein the two leaves *s s* are hinged to the lugs *l l*, and these leaves separated more or less by the wedge-shaped plates *w*, running in suitable grooves provided for them. The wedges are the simplest means of adjustment, as the operator has only to force them in or out in order to adjust the width of the spreader; but obviously any other mechanical equivalent of the wedges may be substituted for them.

The upper portion of the spreader is preferably flared slightly, or made larger than the lower portion, as plainly indicated, in order that the upper portions of the wall of the ditch will be pressed back out of the vertical line, thereby diminishing the chances of caving. When thus constructed and arranged the adjustable spreader is found to be very simple and efficient, and not liable to get out of order. At its juncture with the plow it should be about the width of the blade, and gradually spread out from that width, so as to oppose no abrupt enlargement, by which the draft or power required to move the plow would be greatly augmented.

The material of which the implement is to be constructed is no essential part of the invention, though we propose to protect the parts most liable to wear by making them of steel, if found desirable so to do.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In combination with the ditching-plow blade C, a spreader, S, hinged thereto, having two wings or walls, *s s*, and the wedges or wedge-plates *w*, adapted to spread and hold said wings at varying widths, substantially as shown and described.

2. The wings *s s*, forming the sides of the spreader, and having horizontal grooves, in combination with the wedge-plates *w*, plow-blade C, beam A, and a lifting-screw, E, substantially as shown and described.

In testimony that we claim the foregoing we have hereunto set our hands in the presence of two witnesses.

JOHN M. FUDGE.
FRANCIS M. HOLMES.
SAM McDONALD.

Witnesses:
EDMOND A. BLACK,
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