J. W. HUMPHREYS.

DITCHING-MACHINE.

No. 187,466. Patented Feb. 20, 1877.

Fig. 1.

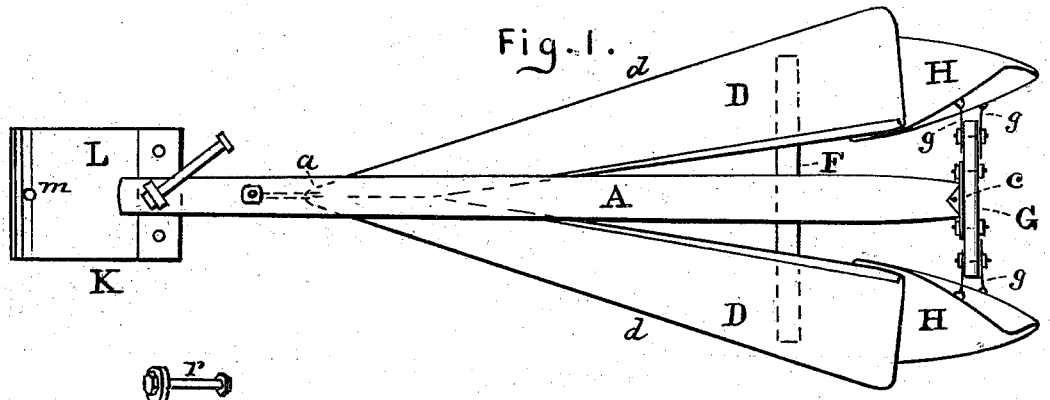


Fig. 2.

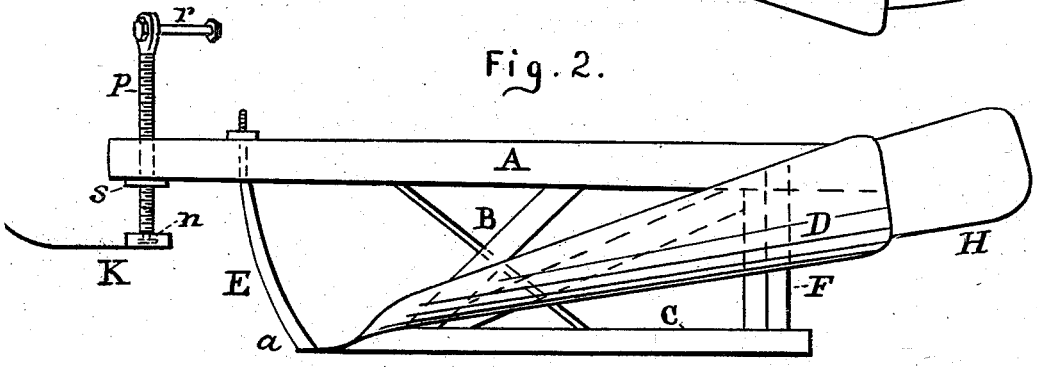
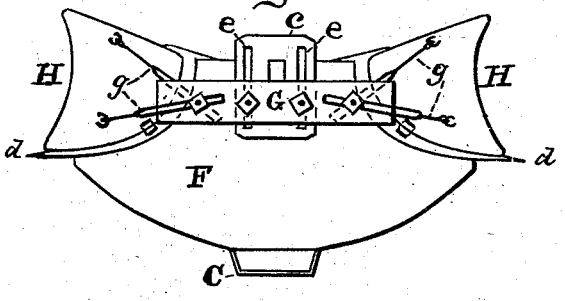


Fig. 3.



Witnesses :

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UNITED STATES PATENT OFFICE.

JAMES W. HUMPHREYS, OF LA FAYETTE, INDIANA.

IMPROVEMENT IN DITCHING-MACHINES.

Specification forming part of Letters Patent No. **187,466**, dated February 20, 1877; application filed August 16, 1876.

To all whom it may concern:

Be it known that I, JAMES W. HUMPHREYS, of La Fayette, in the county of Tippecanoe and State of Indiana, have invented certain new and useful Improvements in Ditching-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to machines for ditching and excavating; and consists in certain improvements in the construction of the same, as hereinafter more fully shown and described.

In the drawing referred to as forming a part of this specification, Figure 1 is a plan view of my improved ditching-machine. Fig. 2 is a side view of the same. Fig. 3 is a view of the rear end of same.

In the various figures of said drawing like letters designate like parts.

A designates the beam, supported in the usual position of plow-beams by the supports or frame B, the latter resting upon and having fastened thereto the base or sole, indicated by C. The said sole C is provided with a metallic covering for its protection when moving along against the soil.

Two excavating blades or shares, D, are attached to the frame, one on each side thereof, and are constructed to converge and form a point, *a*, in front, directly under the beam A, the said blades extending gradually apart and widening from the point *a* to their rear extremities, as shown in Fig. 1. The said blades are made concave in form, so that their cutting-edges *d* extend outwardly, the blades gradually inclining upward from the point *a* to their rear extremities, as shown in Fig. 2. The concave form of the blades D causes the excavated earth to turn over away from the ditcher as the machine passes along, thus giving it a more free passage.

The ditcher, formed of the blades D, is firmly secured to the sole C at the forward end thereof, the rear ends of the blades being secured to the cross-piece F, fitted to the beam A, as shown.

Each of the blades D has coupled thereto, at its rear end, an adjustable wing, H, the same being also somewhat concave in shape, and serving as an extension to the blade for conducting the excavated earth. The said two wings are supported and made adjustable in the manner following: The beam A, extending back a suitable distance, has rigidly fastened to its rear end a slotted plate, *c*, which is fixed in an upright position. To the said plate a cross-piece, G, is coupled by means of bolts and nuts, the said bolts passing through the slots *e* in the plate *c*, so that the cross-piece G may be raised or depressed, as desired. The rods *g* form adjustable connections between the wings H and the cross-piece G, the inward extremities of said rods being looped, as shown, and adjustably secured to said cross-piece by means of bolts and nuts.

Thus, by coupling the cross-piece G to the plate *c* in a higher or lower position, and adjusting the rods *g*, the wings H are regulated in position.

A cutter, E, is fastened to the ditcher at the point *a*, and extends upward with its cutting-edge forward to cut the sward or the surface of the ground. The said cutter is adjustably connected with the plow-beam, so that it may be lengthened or shortened to regulate the vertical draft of the ditching-machine in the soil. In advance of the cutter E, and secured to the beam A, is a slide, K, or gage for regulating the depth to which the machine is to cut. It consists of a piece or pieces of board, L, provided with an opening, *m*, through which the draft-rope passes to hold it in position; and is secured by a swivel-connection, *n*, to the end of a screw, *p*, passed vertically through the beam A, and provided with a lever, *r*, at its upper extremity to adjust it, and a screw-plate, *s*, fixed to the under side of beam A.

In operation the slide K rests on the ground, and is raised or depressed by turning the lever *r* on the screw *p*, thus allowing the ditcher

to cut a greater or less depth, according to the character of the soil.

Having described my invention, I claim—

The ditcher-beam A, provided with the slotted plate *c*, the cross-piece G, provided with bolts and nuts, and connecting with the wings H by rods *g*, as shown, for the purposes set forth.

In testimony that I claim the foregoing as my own I hereto affix my signature in presence of two witnesses.

JAMES WM. HUMPHREYS.

Witnesses:

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