(No Model.)

D. FULTON.

DITCHING PLOW.

No. 275,375. Patented Apr. 10, 1883.

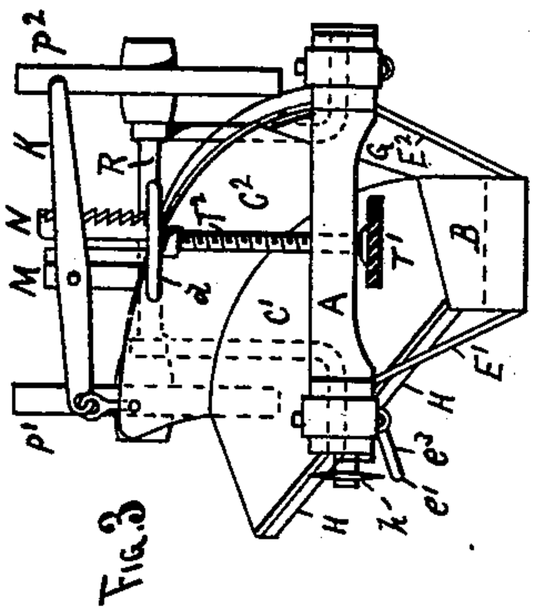

FIG. 3

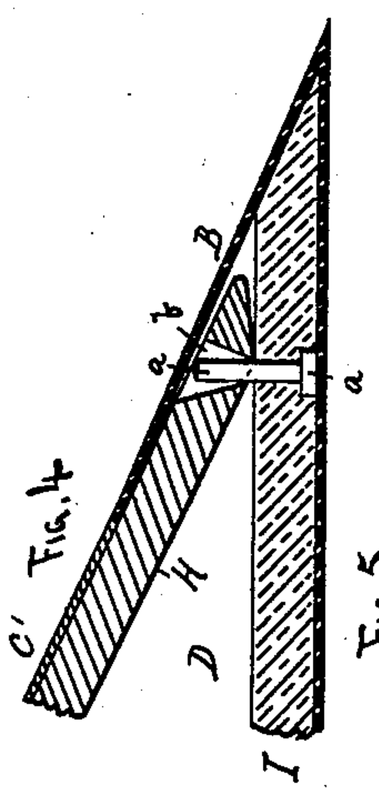

FIG. 4

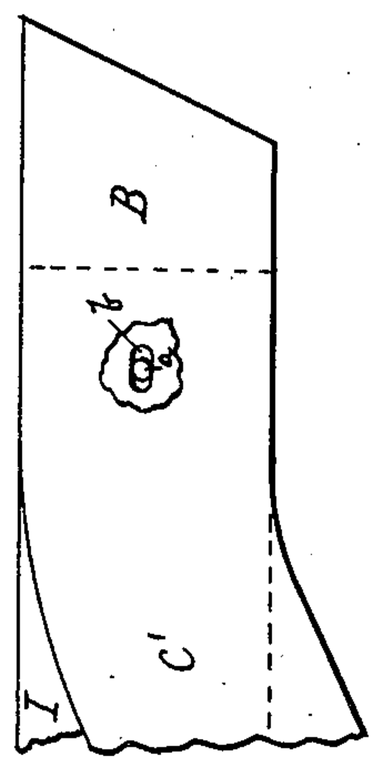

FIG. 5

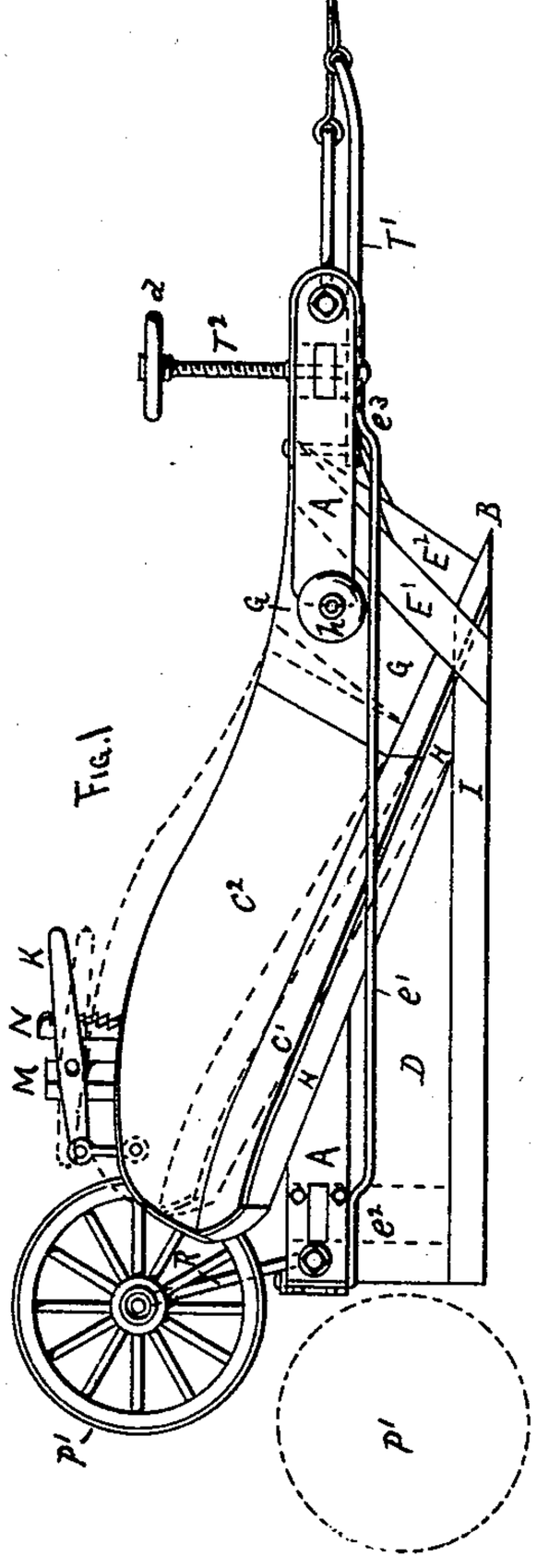

FIG. 1

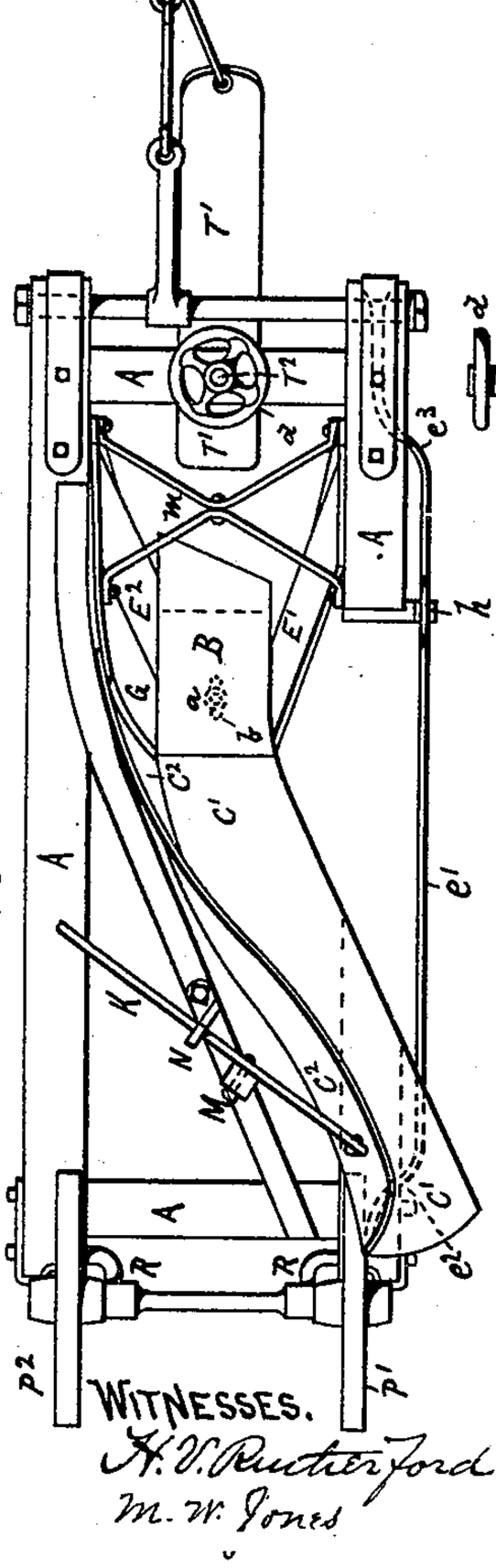

FIG. 2

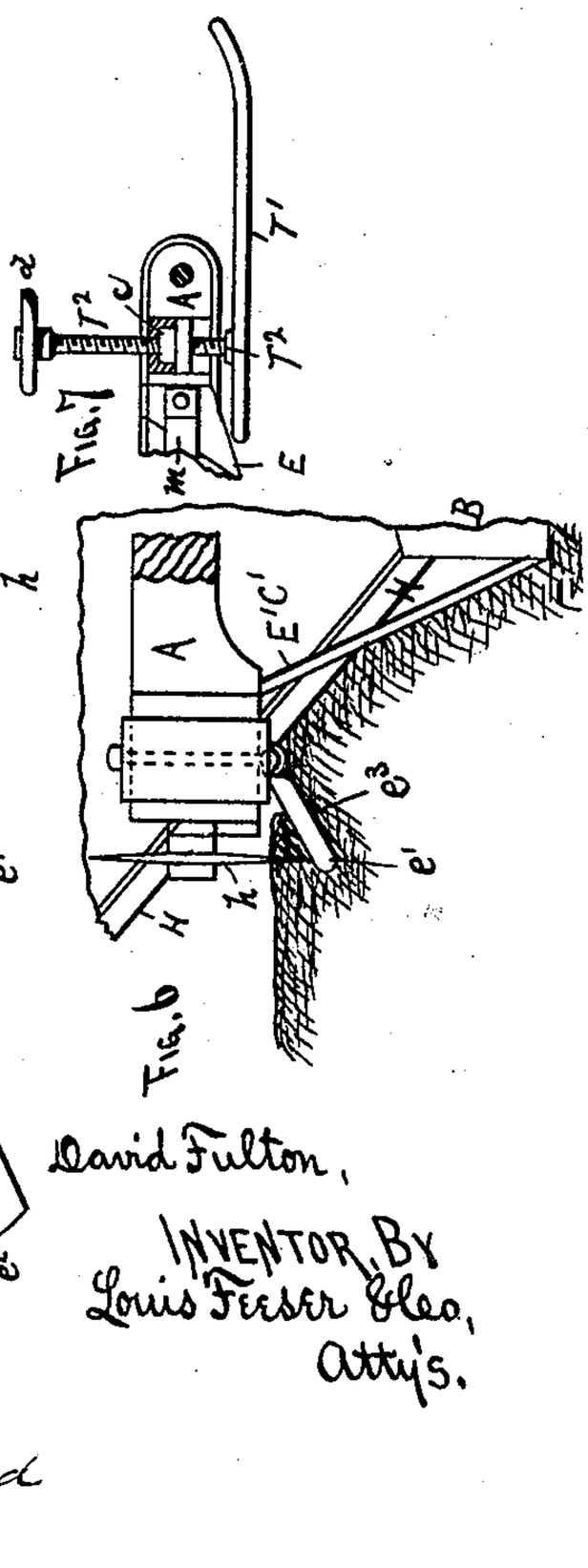

FIG. 7

FIG. 6

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UNITED STATES PATENT OFFICE.

DAVID FULTON, OF HUTCHINSON, MINNESOTA.

DITCHING-PLOW.

SPECIFICATION forming part of Letters Patent No. 275,375, dated April 10, 1883.

Application filed September 1, 1882. (No model.)

To all whom it may concern:

Be it known that I, DAVID FULTON, a citizen of the United States, and a resident of Hutchinson, in the county of McLeod and State of Minnesota, have invented new and useful Improvements in Ditchers, set forth in the following specification.

This invention relates to ditchers; and it consists in the construction and arrangement of parts, as hereinafter shown and described and specifically claimed.

In the drawings, Figure 1 is a side view, Fig. 2 is a plan view, and Fig. 3 is a front view, of the ditcher complete. Fig. 4 is an enlarged sectional side view, and Fig. 5 is an enlarged plan view, of the nose or share of the plow, showing the manner of constructing the joint for permitting the adjustment of the mold-board. Fig. 6 is an enlarged end view of a portion of the forward end of the frame, mold-board, colters, &c., illustrating the construction and operation more fully. Fig. 7 is a sectional side view of the forward end of the frame, showing the manner of arranging the "shoe" operating mechanism.

In forming ditches different qualities or conditions of soil require different angles of mold-boards; and to adapt one ditcher to all the varying conditions and qualities of the soil is one feature of my invention, which consists in making the mold-board adjustable, so that its inclination may be altered to any desired extent. I accomplish this adjustment in one manner, as shown in the drawings, in which A is the frame; B, the share; C′ C², the mold-board; D, the angular landside or guides, and E′ E² the colters for cutting the sides of the ditch in advance of the plow.

The mold-board is formed in two parts, as shown, a bottom or lower part, C′, the same width as the share B, and with its lower end butting against the upper end of the share B, and running upward and backward and off to one side, as shown, and a back or upper part, C², with its lower edge joined to the rear edge of the part C′, and with its front end lapping behind an angular-shaped plate, G, filling the gap between the side of the share B, cutter E², and frame A. By this means the mold-board C′ C² forms a continuation of the share B and plate G, the joints between them offering no obstruction to the earth passing over them. Beneath the part C′ is a wooden base, H, to which the part C′ is secured, and with its lower end extending beneath the upper end of the share B, as shown. The lower end of this base H rests upon the base or sill I of the land-side part D, and is held in place by a pin or bolt, *a*, (see Figs. 4 and 5,) fixed in the sill I, and passing up through a slot, *b*, in the plate H. The slot *b* is larger at the top than at the bottom, so that the plate H may be raised up and down at the rear end and swing on the pin *a* as a pivot, and at the same time be held in place upon the sill I by a head on the pin *a*, or by the pressure of the share B.

It will thus be seen that the whole mold-board C′ C², being attached to the base H, may be raised and lowered with it, the forward end of the back C² slipping in and out behind the plate G, but without forming an open joint, and the lower end of the bottom C′ springing the share B upward, but not opening the joint. By this means the inclination of the mold-board may be altered to any desired extent.

Any desired means may be used to raise and lower the mold-board; but for the purpose of illustration I have shown a simple lever, K, pivoted to a standard, M, and provided with a ratchet-standard, N, to hold it at any point.

In low, wet, or swampy land the inclination of the mold-board must be much less than in clay or similar soils to enable it to scour perfectly. In damp soil it should be raised a little, and in dry loam it should be raised still higher, each varying quality or condition of the soil requiring a different inclination of the mold-board. It frequently happens that all these various kinds of soil are met with in cutting a single ditch; but with my device the plow need not be stopped to adapt it to the soil, as the change of inclination can be made while the plow is in motion.

Another feature of my invention is a pair of wheels, P′ P², mounted upon a crank-axle, R, upon the rear of the machine, and adapted to be thrown down beneath the machine to support the rear end in transporting the machine from place to place, as shown by dotted lines, or be thrown over on top of the machine when it is in operation. The front end of the ma-

chine will be supported by a separate truck. (Not shown.)

Great difficulty has been experienced heretofore in removing ditching-plows from the ground at the ends of the ditch, as it is necessary to lift the large mass of earth upon the share and mold-board up bodily; and to do this easily and quickly I pivot in the usual shoe, T′, for supporting the forward end of the plow, a large screw, T^2, passing up through a nut, *c*, in the cross-piece of the forward end of the frame A, and provide its upper end with a hand wheel or lever, *d*. By this simple means the plow may be drawn upward out of the ground by simply revolving the screw T^2; or the same screw may be utilized to regulate the depth of cut by elevating or depressing the shoe with the screw. Ordinarily the rod *e′* runs straight along without inclination, and in such case the grass becomes entwined around it. The function of the rod itself is to take the place of the beam A, so that instead of having a broad beam over which the sod must be thrown only a narrow rod or bar will exist, over which the earth can more easily be thrown.

Another difficulty experienced in operating this class of ditchers is the clogging of the rod *e′* with grass and weeds; and to prevent this I bend the rod outward and downward at e^2 e^3, so that it will cut a channel for itself beneath the grass, and thus prevent the clogging of the rod. The forward bend, e^3, must be forward of the cutter E′, so that the rod will bury itself beneath the grass forward of the cutter; otherwise the rod would catch the grass as bad as ever. In some kinds of soil the grass is so tough and thick that the rod *e′* will catch it and become clogged; and to prevent this I attach a rolling colter, *h*, to the frame A, and suspend it, with its cutting-edge, just above the rod, as shown, to cut the grass loose therefrom and prevent its clogging. Again, in some kinds of soil the grass is of such a nature that the rod will become clogged no matter how arranged, and so I provide the forward part of the frame A with cross-braces *m*, so that when necessary the rod *e′* may be removed and the frame still held by the braces.

What I claim as new is—

1. In a ditching-plow, the combination of share B, sill I, provided with pin *a*, and mold-board C′, having extension H, provided with the tapering slot *b*, substantially as and for the purpose set forth.

2. In a ditching-plow, the combination of frame A, share B, cutters E′ E^2, angular land-side D, plate G, and hinged mold-board C′ C^2, the part C^2 of the mold-board fitting back of plate G, substantially as and for the purpose set forth.

3. A ditching-plow constructed with the frame A, share B, mold-board C′ C^2, and cutters E′ E^2, in combination with the rod *e′*, connected at the ends to the frame A and bent outward and downward at the central part, substantially as and for the purpose set forth.

4. The combination, with the frame A and rod *e′*, of a colter or cutting wheel, *h*, substantially as and for the purpose set forth.

5. The combination of frame A, share B, plate G, mold-board C′ C^2, the part C^2 of the mold-board fitting back of plate G, and cross brace-rods *m*, substantially as and for the purposes set forth.

6. The combination, with a plow, of the rod *e′*, inclined downward and outward, so as to be adapted to cut into the ground, as and for the purpose specified.

7. The combination of the mold-board C′ C^2, share B, and plate G, the part C^2 of the mold-board fitting back of the plate G and being free to be raised and lowered without opening the joint, substantially as set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

DAVID FULTON.

Witnesses:

C. N. WOODWARD,

LOUIS FEESER, Sr.