

R. G. FORSYTH.  
Ditching Machine.

No. 103,595

Patented May 31, 1870.

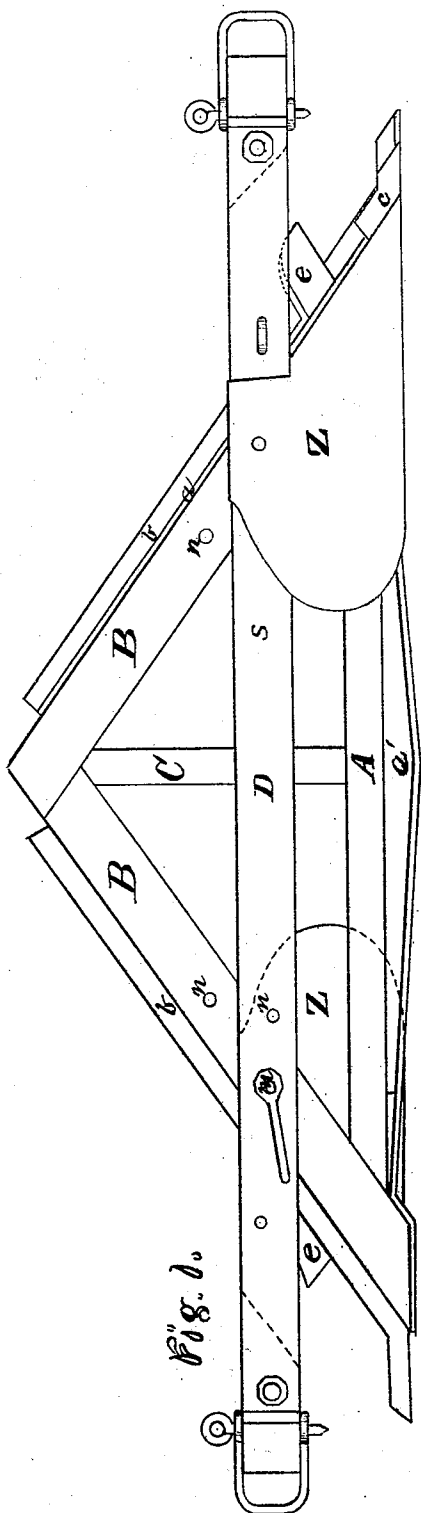


Fig. 1.

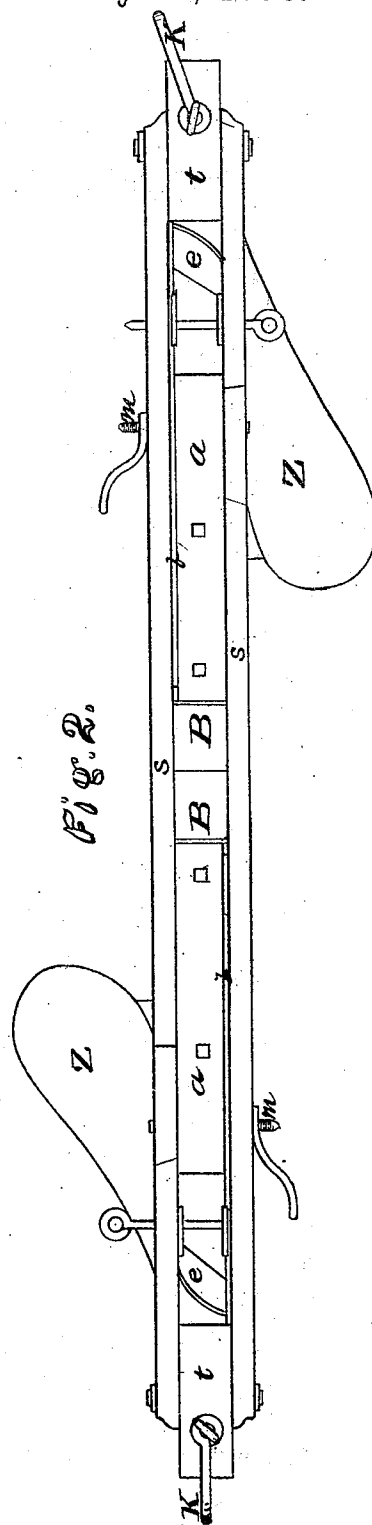


Fig. 2.

Witnesses,  
D. L. Kane  
Chas. Kenyon

Inventor,  
R. G. Forsyth  
Chipman & Son  
Attorneys

# United States Patent Office.

ROBERT G. FORSYTH, OF CLAYTON, INDIANA.

Letters Patent No. 103,595, dated May 31, 1870.

## IMPROVEMENT IN DITCHING-MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, ROBERT G. FORSYTH, of Clayton, in the county of Hendricks and State of Indiana, have invented a new and valuable Improvement in Ditchers; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawing making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a side view of my invention.

Figure 2 is a top view of the same.

My invention has relation to means for digging ditches, and consists, mainly, in the construction and novel arrangement of a double-acting ditch-plow, arranged to operate backward as well as forward, so that it need not be taken out of the ditch until it is of the desired depth.

The letter A of the drawings designates the foundation beam of my ditcher, having the swell *a* in the center thereof, and shod with iron, in the manner shown.

B B are the supports or inclined side bars, having their lower ends secured to the horizontal beam A, and their upper ends mortised together, as shown in the drawing.

A prop, C, is placed between the meeting ends of the bars B B and the bar A. This forms a strong and durable frame.

The ditching-bits *a a* are secured to the inclined bars B B, and have the same inclination, except at their lower ends, which have an upward pitch, to give them the proper set to the ground.

The bits are turned up at the sides, thus forming on one side a long flanch, *b*, extending the whole length of the bit, and on the other a short flanch, *c*, only reaching from the point of the bit a short distance up the main inclination thereof.

The front or cutting-edge of the bit is inclined forward from one side to the other, in order that it may be more easy of operation.

In manufacturing these bits they are first made plane. The flanches *b* and *c* are then turned up, and then, after cutting through each flanch at the point of bending, the lower end of the bit is turned up to the proper angle. The cut edges of the flanches are then welded together and finished off smooth.

*e* designates a guide, just above the bit, adjustable by means of the bolt *d*, and arranged to throw out the earth carried up by the bit.

D is an adjustable horizontal beam, to which the

horses are attached. It is arranged to be secured to the inclined beams B B by means of bolts *m*.

Series of openings *n n* are made both in the beams B B and in the drag-beam D, so that it can be adjusted to any height required by the depth of the ditch.

The beam D consists of two bars *s s*, arranged one on each side of the frame, and bolted to the sides of the blocks *t t* at each end.

K designates the hitching-staple, secured to the block *t* by a bolt, which passes perpendicularly through the block a little in front of the pivot-bolt which connects the block to the bars *s s*, and will, therefore, accommodate itself to an upward or side draft, or both combined.

The mold-boards Z Z are secured to the drag-beam, and operate to turn away from the ditch the soil thrown out by the operation of the bit *a* and guide *e*.

The swell on the bottom of the foundation beam A is designed to incline, whichever end may be forward, a little downward, thus avoiding friction from the parts in rear, and allowing the forward bit to enter the ground freely.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The double-acting ditching-plow herein described, having a triangular wooden frame, composed of the inclined supports B, horizontal beam A with swell *a*, and prop C; also, provided with the flanch bits *a*, guides *e*, and the adjustable drag-beam D, to which are secured the mold-boards Z, when constructed and arranged to operate in the manner and for the purposes substantially described.

2. The adjustable drag-bar D, composed of the check-bars *s*, connected at each end by the pivot-blocks *t*, to which are attached the hitching-staples K, when constructed and arranged to operate in either direction, substantially as specified.

3. The foundation beam A, provided with the central swell *a*, when constructed and arranged to operate in the manner as and for the purposes herein set forth.

4. In combination with the adjustable drag-beam D and the adjustable guides *e*, the mold-boards Z, when constructed and arranged to operate substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

Witnesses:

JAMES H. RYNERSON,  
JOHN HARRISON.

R. G. FORSYTH.