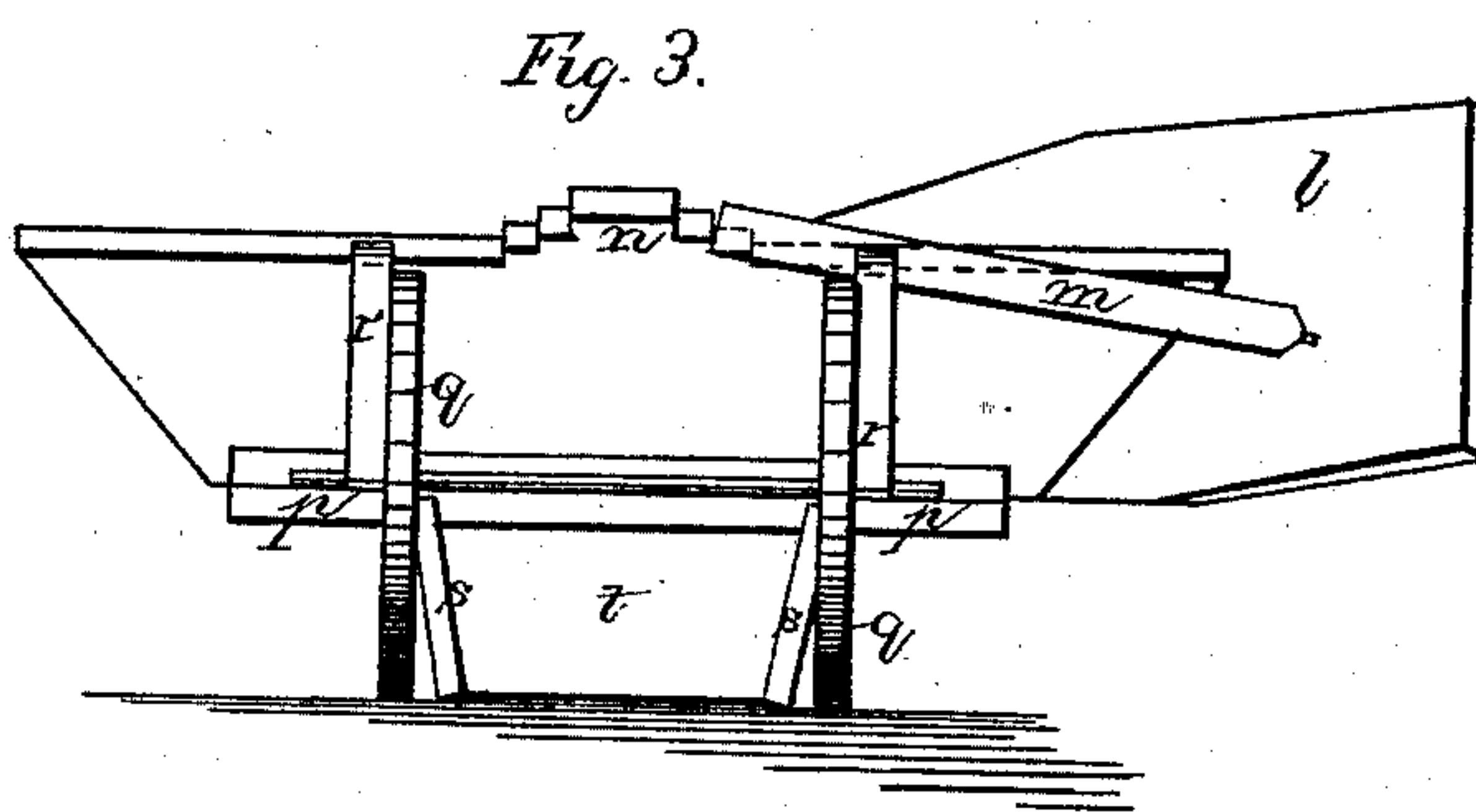
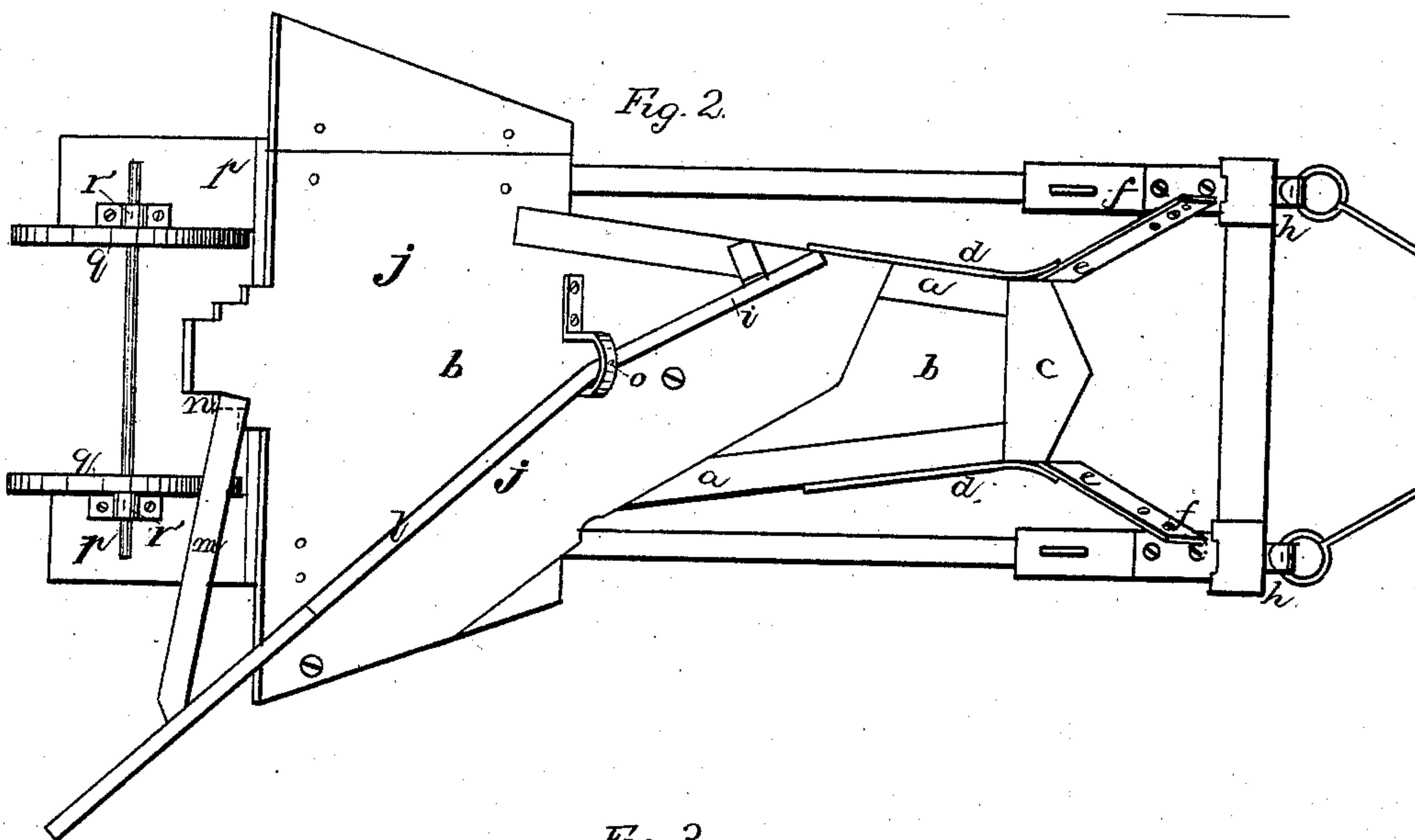
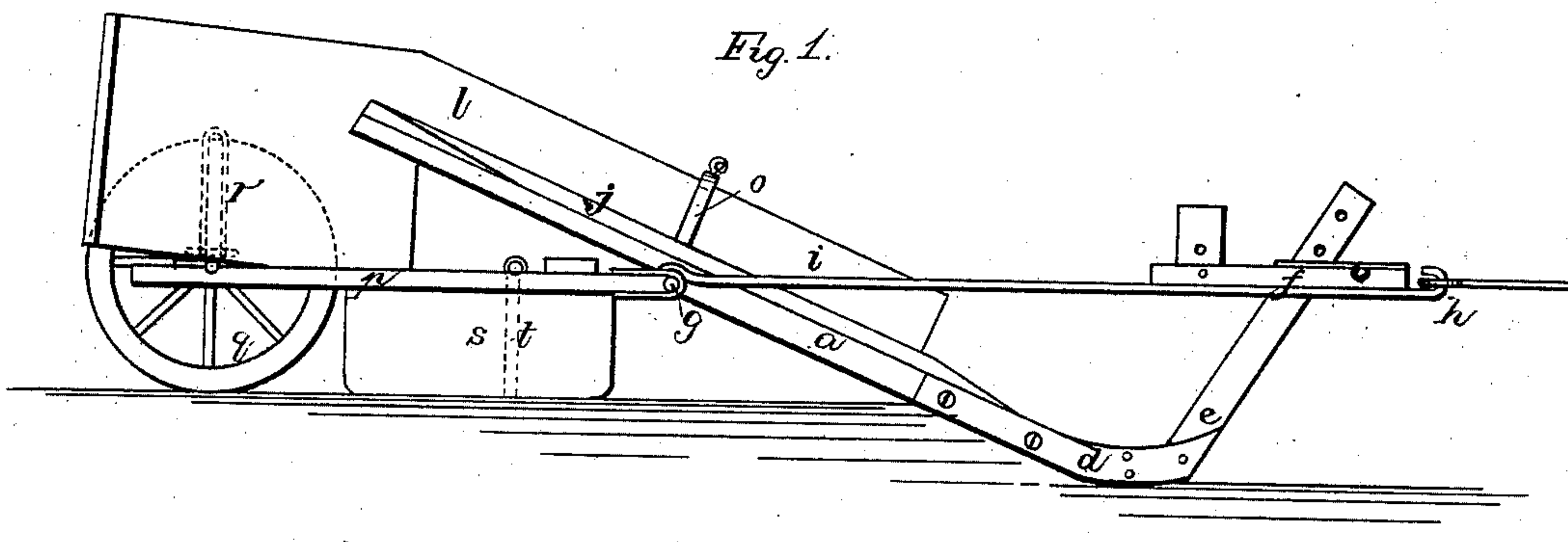


C. D. EDWARDS.  
Ditching-Machine.

No. 216,162.

Patented June 3, 1879.



Witnesses:

J. W. Garner  
W. S. D. Harris

Inventor:

Chas. D. Edwards.

per

F. A. Lehmann, atty.



# UNITED STATES PATENT OFFICE

CHARLES D. EDWARDS, OF ALBERT LEA, MINNESOTA.

## IMPROVEMENT IN DITCHING-MACHINES.

Specification forming part of Letters Patent No. **216,162**, dated June 3, 1879; application filed February 11, 1879.

*To all whom it may concern:*

Be it known that I, CHARLES D. EDWARDS, of Albert Lea, in the county of Freeborn and State of Minnesota, have invented certain new and useful Improvements in Ditching-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in ditching-plows; and it consists in the arrangement and combination of parts that will be more fully described hereinafter, whereby the soil can be deposited upon either side of the ditch, and the depth of the ditch regulated while the plow is being drawn forward by the capstan.

Figure 1 is a side elevation of my invention. Fig. 2 is a plan view of the same. Fig. 3 is a rear view.

*a* represents two wooden beams, having the flooring *b* between them, and the metallic point *c*, secured to their lower ends. To the outer side of each beam is secured the metallic plate *d*, to the front ends of which are secured the lower ends of the knives *e*. The upper ends of these knives have a series of holes through them, so that they can be fastened to the front ends of the pivoted frame *f*, which is adjustable up and down upon the pivot *g*. This frame extends forward beyond the plow-point a suitable distance, and has the hooks *h* for fastening the draft chain or rope to. This ditcher is drawn forward by a capstan and rope, and the rope is attached to the machine by a stay-chain, jointed in the middle and hooked on each of the sills, which prevents the machine from being drawn forward sidewise. By raising and lowering this frame on the knives, the point will run deeper or shallower.

The flooring projects backward a suitable distance, and is made much wider at its rear end than any other part. Secured upon this floor is the reversible mold-board *j*, which is placed obliquely across the floor in the direction the dirt is to travel. As here shown, the dirt will be deposited on one side, but by loos-

ening the mold-board *j*, turning it over and inclining it in the opposite direction, together with the guides, the earth will be thrown on the other side.

The guide is made in two parts, the one, *i*, being fastened rigidly to the floor, but the rear part, *l*, is pivoted at *o*, and can be adjusted at any desired angle by means of the brace *m* and shoulders *n* on the rear end of the floor. By means of this adjustment the dirt can be deposited nearer to or farther from the edge of the ditch. Also, pivoted upon the rod *g* is the frame *p*, which is supported at its rear end by the wheels *q*, the axle of which wheels is adjustable up and down in the guides *r*, one on each side of the frame. While the machine is in operation the axle is moved up in the guides, but when the machine is being moved about the axle is fastened down in the bottom.

Just in front of the wheels are the two downwardly-falling boards, *s*, which serve to regulate the depth of the furrow. Pivoted in between them is the stop *t*, which holds the two boards open at any desired angle. By dropping the boards downward, their lower edges bear upon the ground, and adjust the angle at which the point enters the ground. These boards can be adjusted at will while the machine is in operation.

In regulating the depth at which the ditch shall be made, the pins which hold the axle of the wheels down in the guides upon the top of the frame *p* are withdrawn so that the axle will rise upward in the guides, and thus the frame *p* is no longer supported by the wheels, and were it not for the boards *s* the rear end of the frame would drop down to the ground.

In moving the machine about, when not in operation, the axle is fastened down on the frame, as shown in Fig. 1, and the boards are closed up out of the way; but when in use, just the reverse is the case.

Having thus described my invention, I claim—

1. In a ditcher, the combination of a reversible mold-board, *j*, with a guide made in two parts, the part *i* being rigidly fastened to the floor, while the other part, *l*, is adjustable back and forth, substantially as shown.

2. In a ditcher, the frame *p*, provided with

the guides *r*, for the axle to move vertically in, wheels *q*, and a guide, *s*, to regulate the depth of the furrow or ditch, substantially as set forth.

3. The combination, in a ditcher, of the two falling boards, *s*, with the stop *t* placed between them, substantially as described.

In testimony that I claim the foregoing I

have hereunto set my hand this 1st day of February, 1879.

CHARLES D. EDWARDS.

Witnesses:

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THEO. TYRER,

JOHN SHYLOCK.