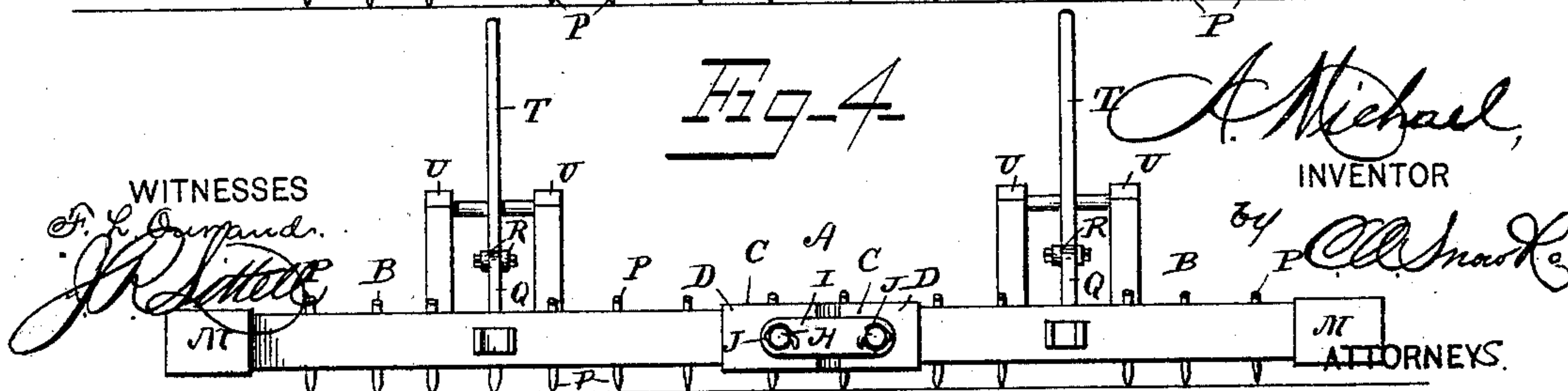
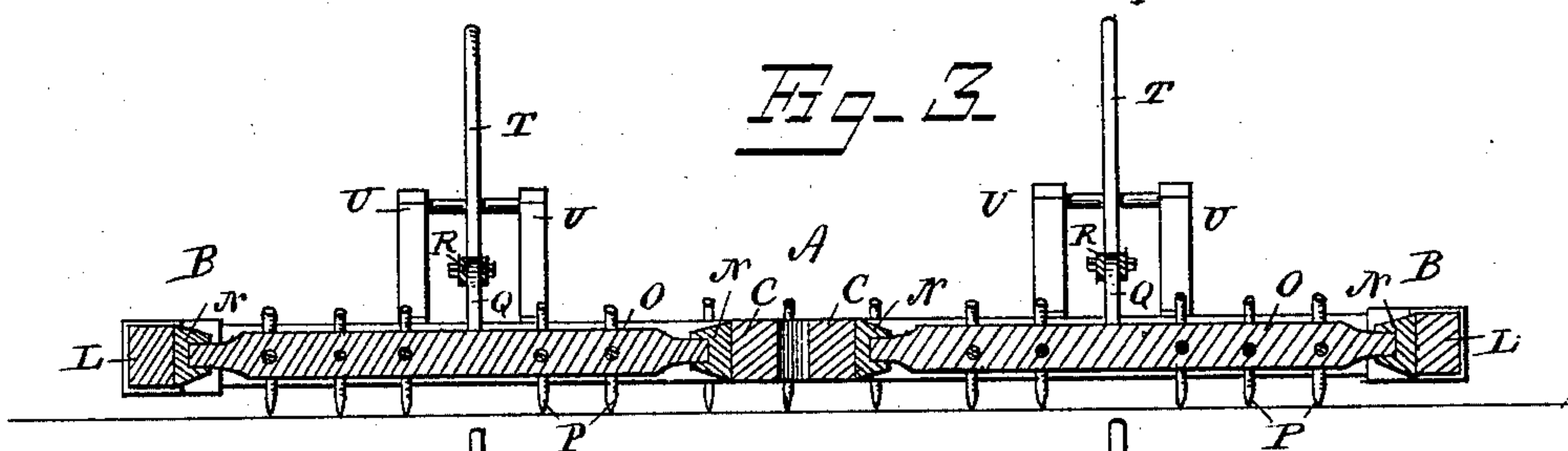
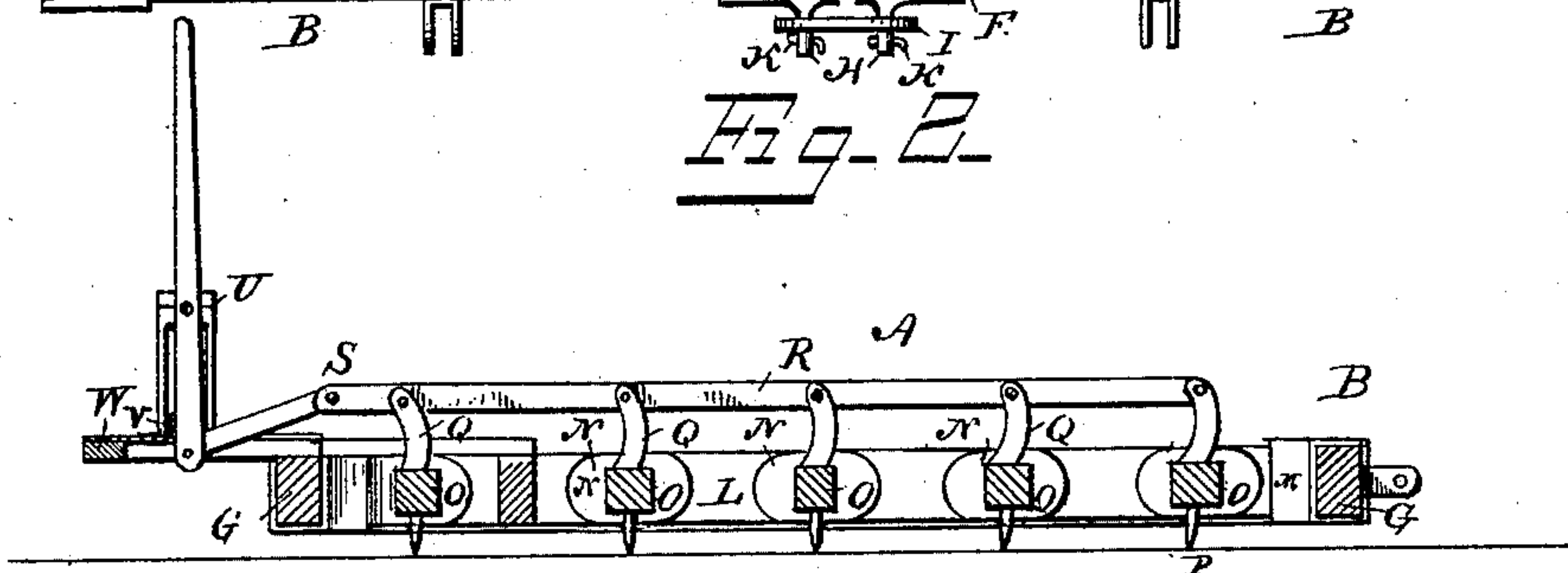
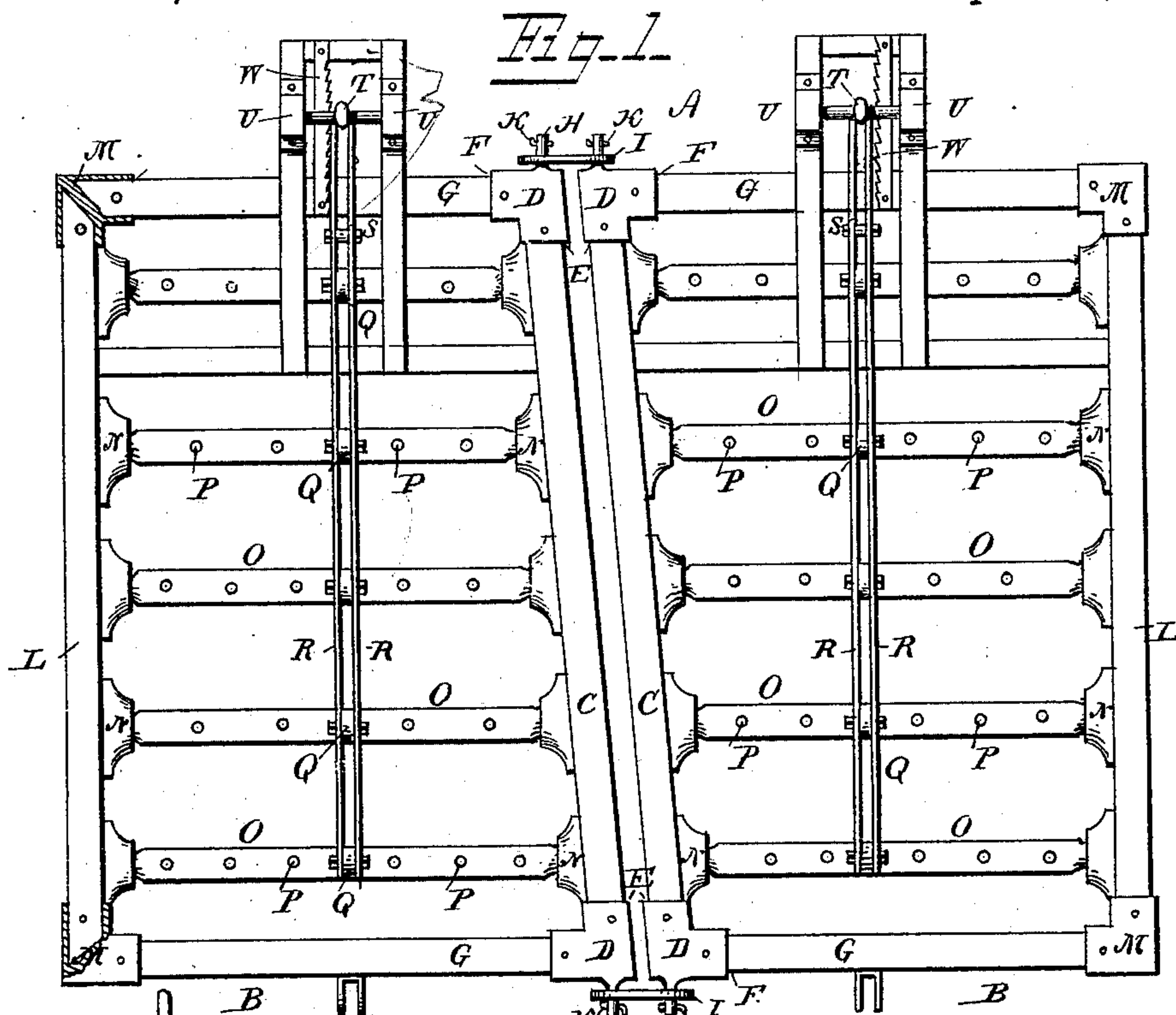


(No Model.)

A. MICHAEL.
HARROW.

No. 285,501.

Patented Sept. 25, 1883.



UNITED STATES PATENT OFFICE.

ABEL MICHAEL, OF DARKE, OHIO.

HARROW.

SPECIFICATION forming part of Letters Patent No. 285,501, dated September 25, 1883.

Application filed March 5, 1883. (No model.)

To all whom it may concern:

Be it known that I, ABEL MICHAEL, a citizen of the United States; residing at Darke, in the county of Darke and State of Ohio, have invented a new and useful Harrow, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to harrows; and it consists in certain improvements in the construction of the same, which will be hereinafter fully described, and particularly pointed out in the claim.

In the drawings hereto annexed, Figure 1 is a top view of my improved harrow. Fig. 2 is a longitudinal sectional view of the same. Fig. 3 is a vertical transverse sectional view, and Fig. 4 is a front view.

The same letters refer to the same parts in all the figures.

A in the drawings represents the frame of my improved harrow, which is constructed of two sections, B B, forming together a rectangular frame, as shown. The inner adjoining sides of the sections B B are diagonal, as shown, so that the rear end of one of the sections will lap over the joint between the sections. By this construction the ridge which would otherwise in operation be formed between the two sections is avoided; and I have also in practice found that an easier draft and more satisfactory results are produced.

The inner diagonal beams, C C, of the sections B B are provided at their front and rear ends with castings D, having sockets E to receive the said side beams, and provided with laterally-projecting sockets F to receive the end beams, G, which are thus connected to the side beams, bolts or other suitable means being employed to retain the beams in their respective sockets. The castings D are also provided with extending pins or pintles H to receive the hinge-plates I, which are provided with perforations J, by which they are adjusted upon the said pintles, thereby enabling the two sections composing the harrow to work freely in relation to each other. The hinge-

plates are held upon the pintles by linchpins K, passing transversely through the latter.

The end beams, G, are connected with the outer side beams, L, by castings M, having sockets to receive the side beams, as shown.

The side beams, C and L, are provided on their inner sides with boxes N to receive the ends of the transverse bars O, which are pivoted in said boxes. The bars O are provided with teeth P, of suitable construction.

Bars Q, projecting upwardly from the transverse bars O, are connected by rods R, the rear ends of which are connected by pivoted rods S with the lower ends of levers T, pivoted between brackets U, as shown. The levers T have catches V engaging ratchet-bars W, by which they may be retained in any position to which they may be adjusted.

The operation of this invention will be readily understood from the foregoing description, taken in connection with the drawings hereto annexed. By means of the levers the toothed bars may be readily "set" at any desired angle. The frames, owing to their peculiar construction, are strong and durable, and may be readily shipped or stored, and the peculiar hinge-joints permit them to work freely in relation to each other during operation.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

In a harrow, the described coupling, consisting of an angular casting having sockets facing in two directions to receive the side and end beams of a harrow-section, and provided with an outwardly-extending pintle, forming a bearing for one end of a hinge-plate, as described.

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

ABEL MICHAEL.

Witnesses:

FRANK WILCOX,
FRANK HECK.