

No. 773,584.

PATENTED NOV. 1, 1904.

M. L. O'BRIEN.

SPACING MECHANISM FOR PUNCHING OR DRILLING MACHINES.

APPLICATION FILED AUG. 9, 1901.

NO MODEL.

2 SHEETS—SHEET 1.

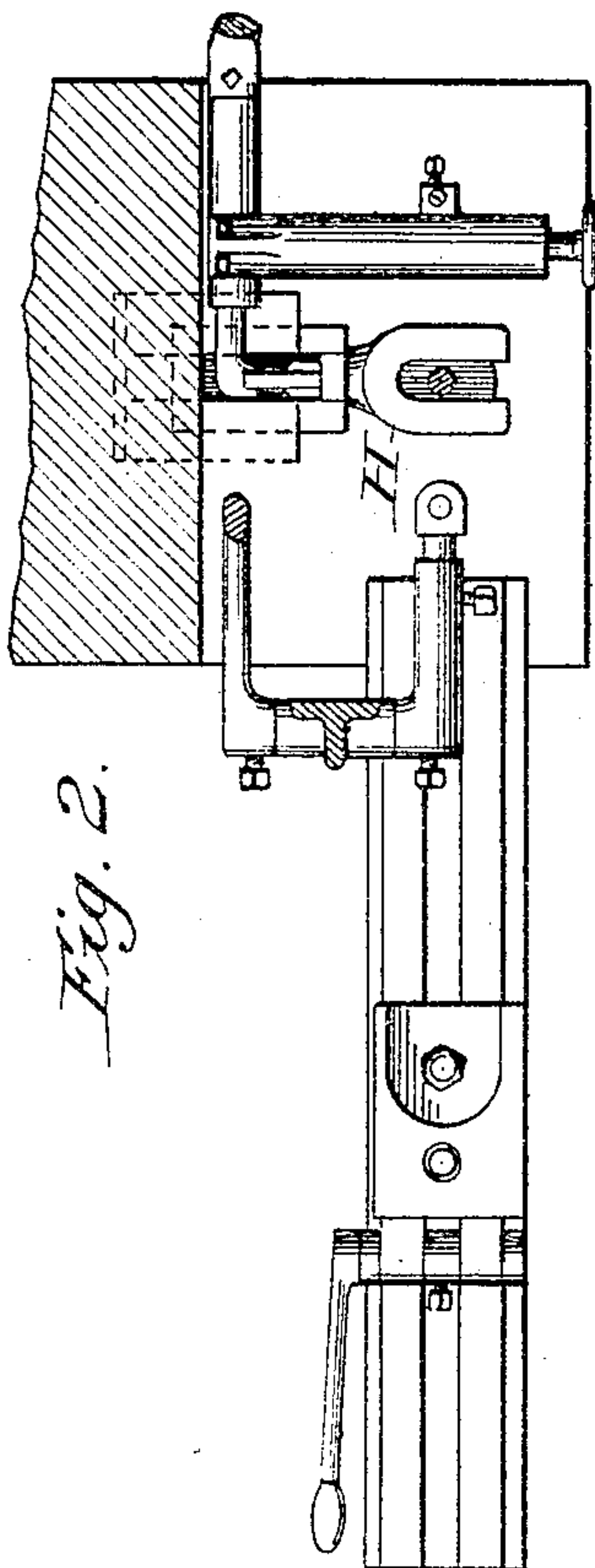


Fig. 2.

Witnesses:
A. E. Miller
James A. Hoover

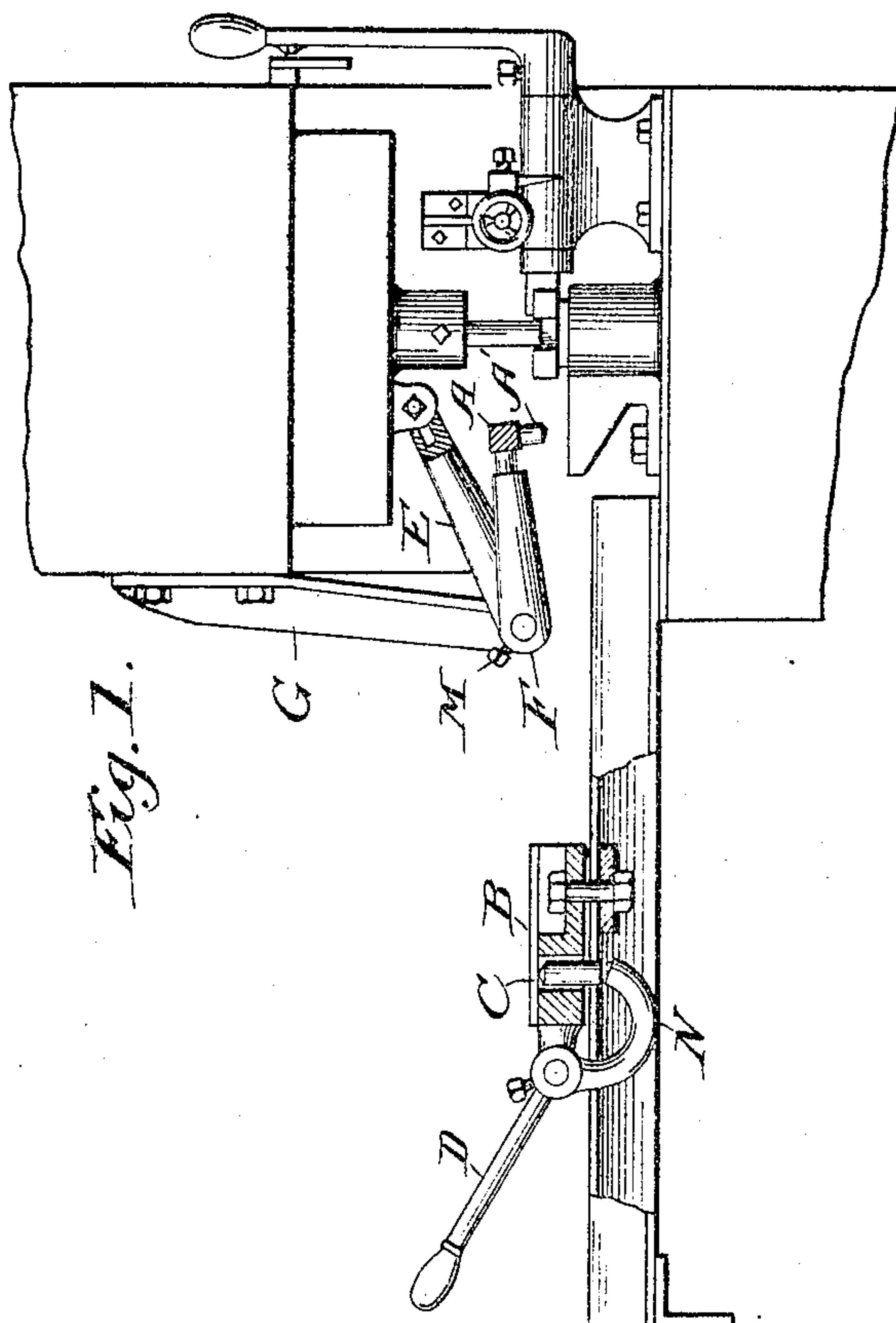
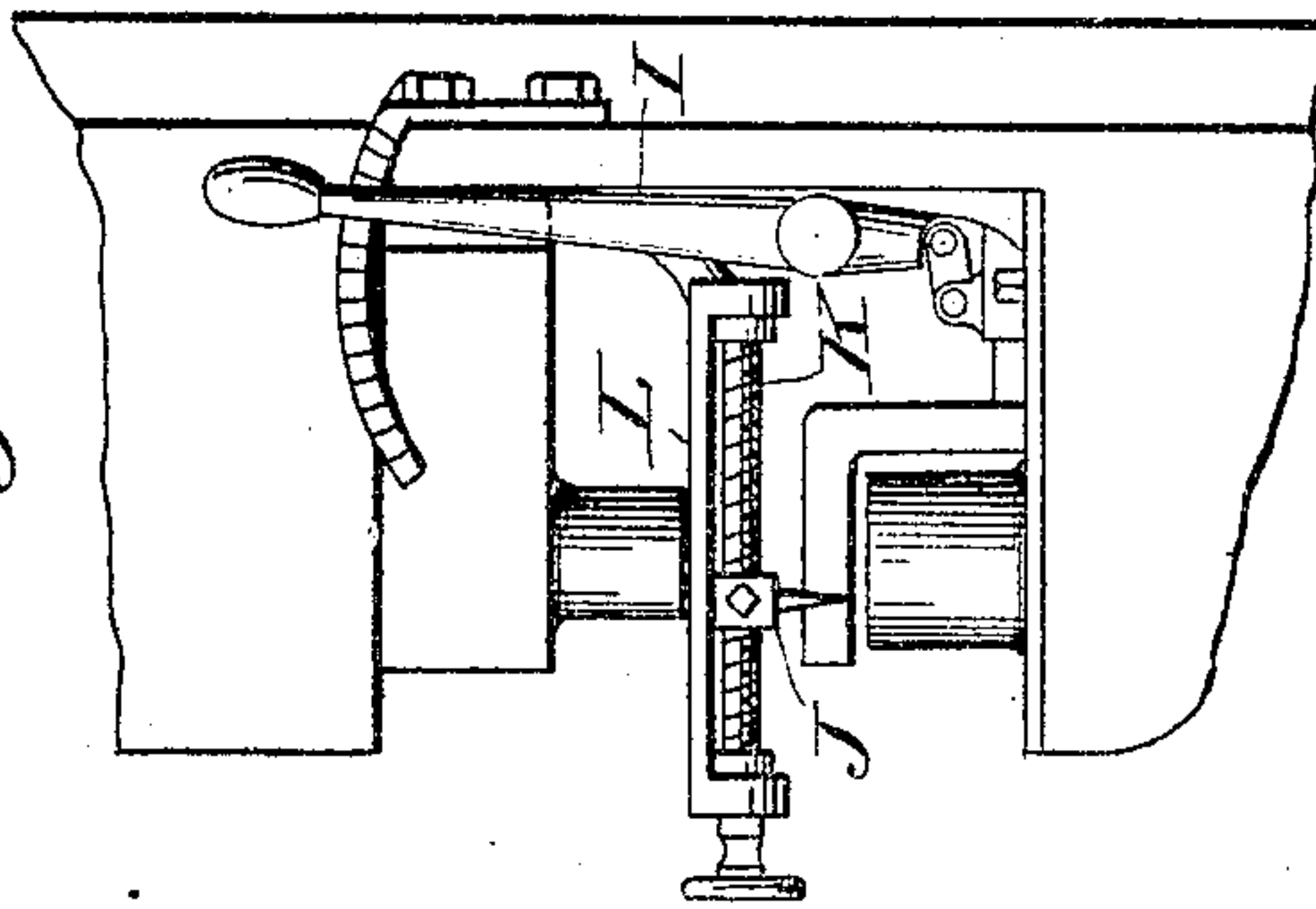


Fig. 1.

Inventor:
Michael O'Brien

Fig. 3.



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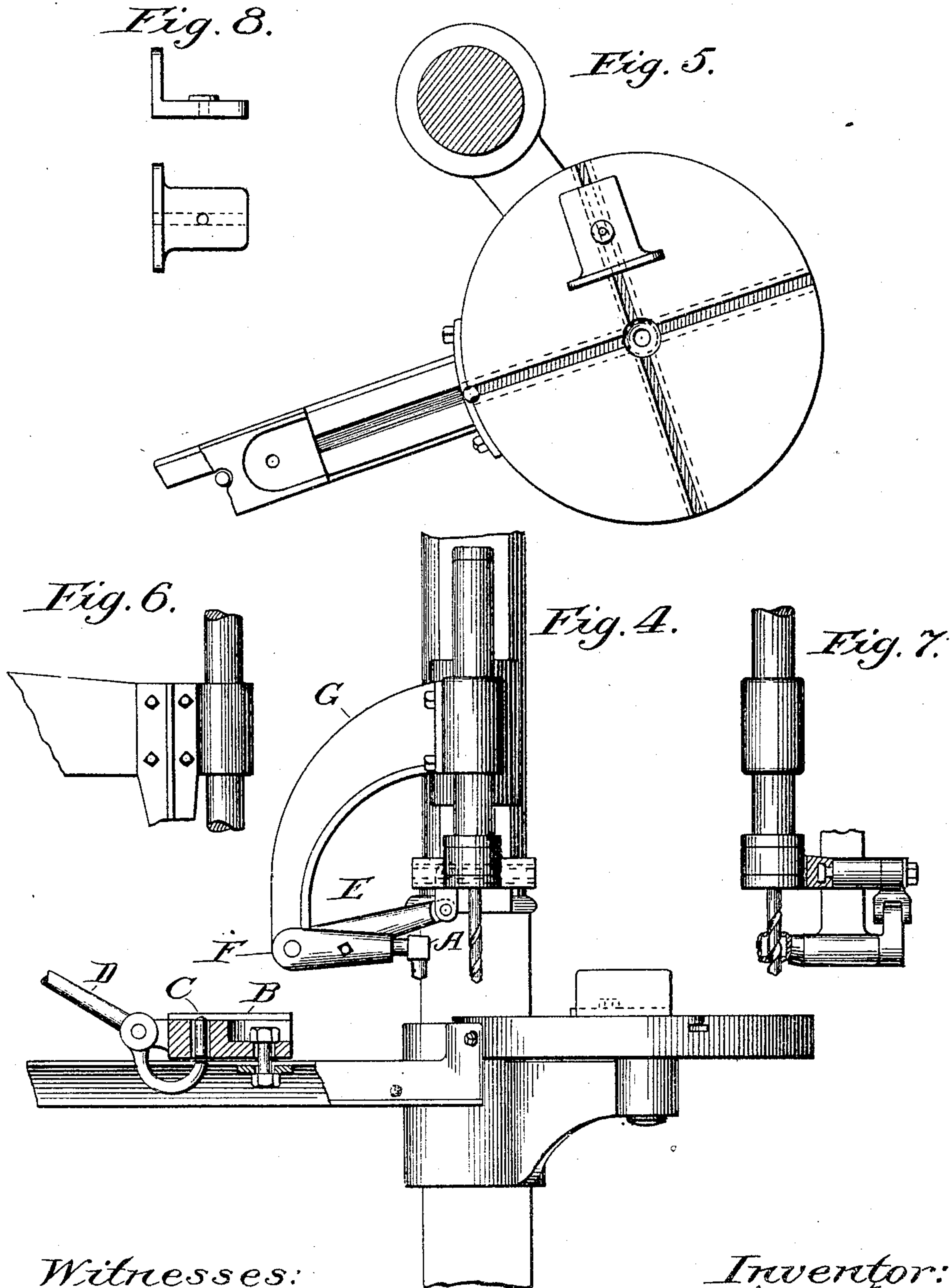
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2 SHEETS—SHEET 2.



Witnesses:
A. E. Miller
James Astor

Inventor:
Michael O'Brien

UNITED STATES PATENT OFFICE.

MICHEL L. O'BRIEN, OF JOLIET, ILLINOIS.

SPACING MECHANISM FOR PUNCHING OR DRILLING MACHINES.

SPECIFICATION forming part of Letters Patent No. 773,584, dated November 1, 1904.

Application filed August 9, 1901. Serial No. 71,457. (No model.)

To all whom it may concern:

Be it known that I, MICHEL L. O'BRIEN, a citizen of the United States, residing at Joliet, Will county, Illinois, have invented a new and useful Device for Accurate Spacing in Punching or Drilling Holes in Metal Plates when Set for any Particular Distance, of which the following is a specification.

The object of my invention is to secure correct spacing of the holes, so that when separate plates are brought together for riveting the holes in the said plates will exactly register. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation showing my spacing mechanism attached to a punching-press. Fig. 2 is a top plan view with the upper part of the press removed. Fig. 3 is an end elevation showing the means for spacing holes arranged in arc shape. Fig. 4 shows in elevation how the mechanism can be attached to a drill-press. Fig. 5 is a plan of the drill-table. Figs. 6, 7, and 8 are detail views showing, respectively, the manner of attaching the gage-bracket to the drill-frame, the gage-supporting arm to the drill, and the casting fastened to the drill-table for guiding the plate.

Similar letters refer to similar parts throughout the several views.

To the frame of a punching or drill press is attached a bracket G, in the lower end of which is journaled a shaft F. Upon this shaft is mounted an arm E, rigidly secured thereto by a set-screw M and at its opposite end pivotally secured to the sliding head of the punch. Upon the shaft is also fixed a guide punch-arm A, carrying at its extremity a depending point or pin adapted to engage a previously-formed hole, and thus act as a gage during the next action of punching or drilling the plate. The head carrying the gage-pin is formed upon the extremity of a rod adjustably mounted in the hollow punch-arm A. By varying the length of the arm A the gage-pin may be made to engage different spacings of holes up to the limit of the adjustment.

The engaging and releasing movement of the gage-pin is caused by the reciprocation of the drill-head. After the guide punch-arm A has

been set to its limit further adjustment of the spaces between the punch-holes may be obtained by means now to be described.

On a suitable bracket extending laterally from the punch or drill table I mount a carriage B, which can be moved any desired distance to or from the perforating-tool. In an aperture in the carriage B is mounted a pin C, normally withdrawn below the face of the carriage by a spring. A lever D, pivoted to the carriage, has a bent arm N, adapted to engage the bottom of the pin C and project it from the carriage, so as to engage one of the holes formed in the plate being operated on. This permits spacing by greater distance than by the mechanism first described. A stripper H holds the plate down while the press removes the punch and also gages the distance of the holes from the edge of the sheet. This stripper consists of a bifurcated arm adapted to embrace the punch as it descends and in its upward movement strip the sheet therefrom. The arm is bent downward at the rear of the bifurcation and slidably mounted on the punch or drill table. At its rear end it is in engagement with the pivoted lever I, which is held in adjusted position by an arc-shaped ratchet on the side of the punch-frame. When a row of holes is to be formed parallel to the edge of the sheet, the stripper is so adjusted that when the sheet is in engagement with the same the tool will perforate the sheet at the desired distance from the edge. The sheet now being fed along and the successive holes engaged by the pins A' or N, such holes will be formed uniformly at the proper distance from the edge.

As it is sometimes desirable to space a series of holes to be formed in a curved or circular plate I attach to the punch or drill frame a gage consisting of a bracket L and in this seat a screw K. Upon this is threaded a carrier provided with a gage-pin adapted to be adjusted to any desired position on the screw and so engage the holes formed as to insure a regular spacing of an arc-shaped series.

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

1. In a combination with the perforating

mechanism of a punch or drill, an adjustable gage-body movable toward or from the punching-dies, a gage-pin carried thereby, said gage-arm being positively connected to stationary
5 and movable parts and means for projecting said pin into engagement with a previously-formed hole, whereby accurate spacing may be secured, substantially as set forth.

2. In combination with the perforating
10 mechanism of a punch or drill, a gage adjustable to or from the perforating-die and having a pin to engage a previously-formed hole, and a stripper having a portion adapted to engage the edge of the sheet being punched
15 and thereby secure uniform spacing parallel to the edge, as set forth.

3. A spacing mechanism for a punching or

drilling press consisting of a bracket attached to the press-frame, a shaft journaled in such bracket, an operating-arm rigidly connected 20 to such shaft and yieldingly to the body of the tool-support, an adjustable gage-arm fixed to the shaft and carrying a gage-pin adapted to enter an aperture previously formed and thereby secure accurate spacing in punching 25 or drilling holes in metal plates.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

MICHEL L. O'BRIEN.

Witnesses:

JOHN M. HOLFRUM,
JAMES BYRNE.