

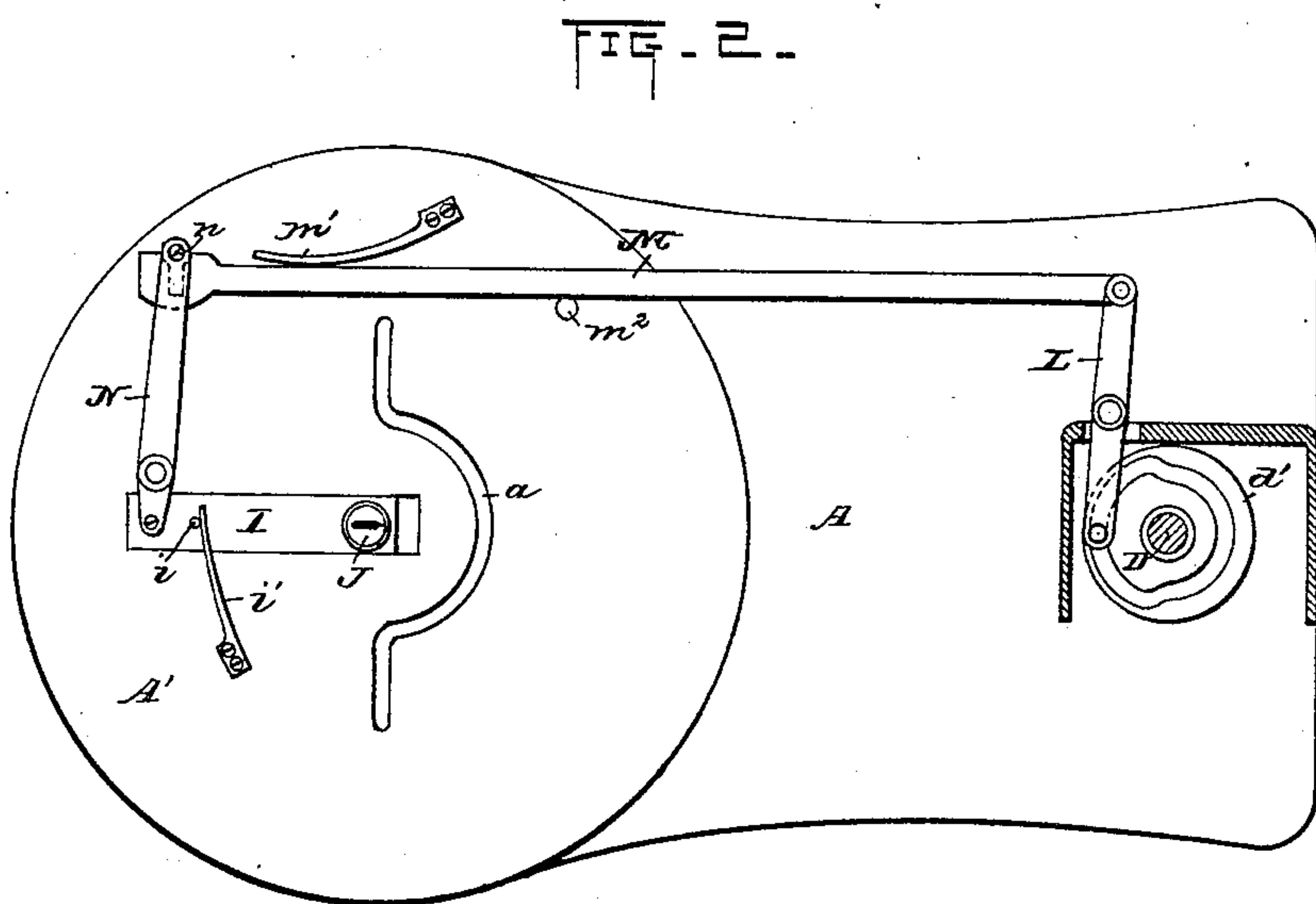
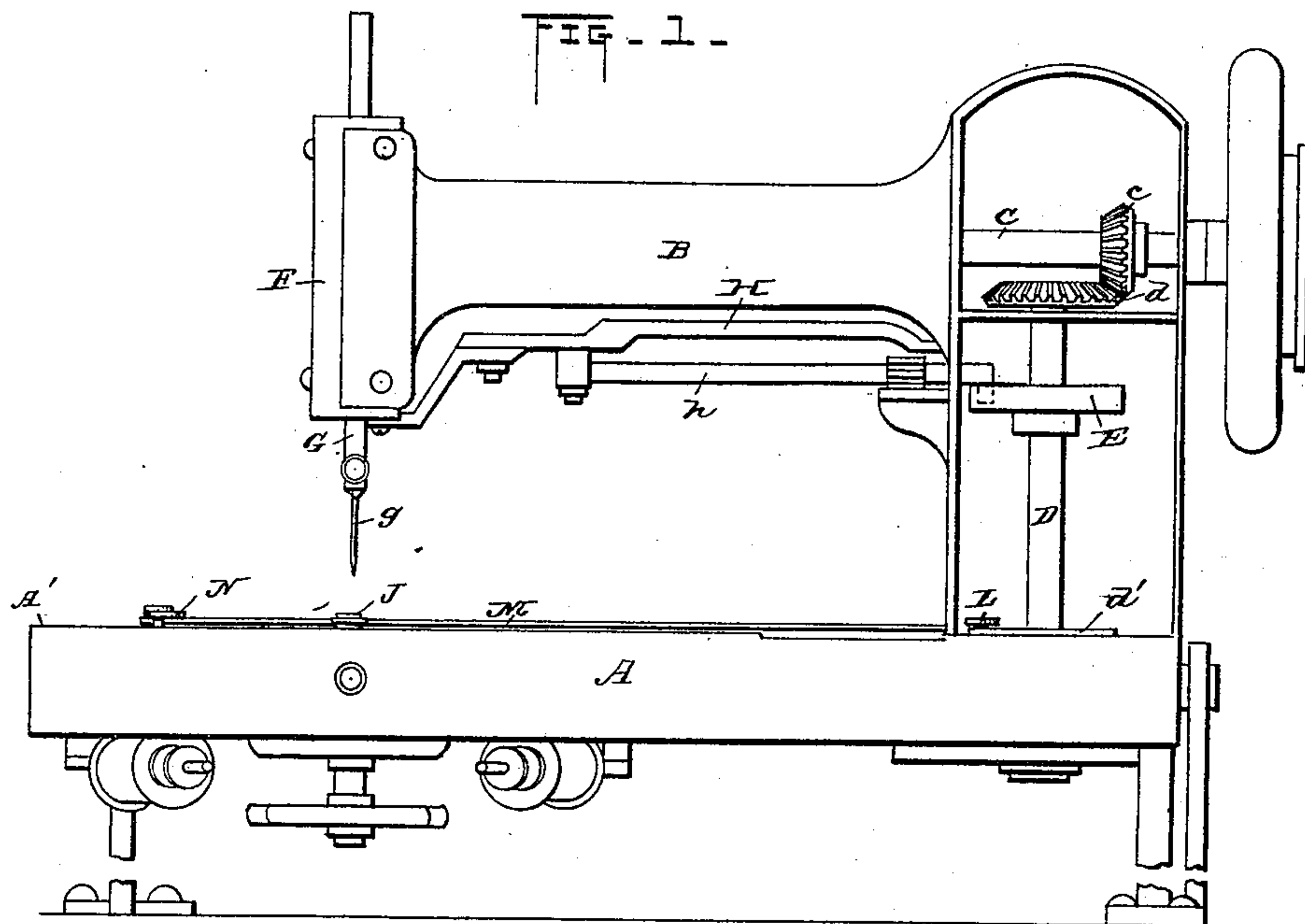
(No Model.)

2 Sheets—Sheet 1.

J. Q. A. HOUGHTON.
BUTTON HOLE SEWING MACHINE.

No. 449,074.

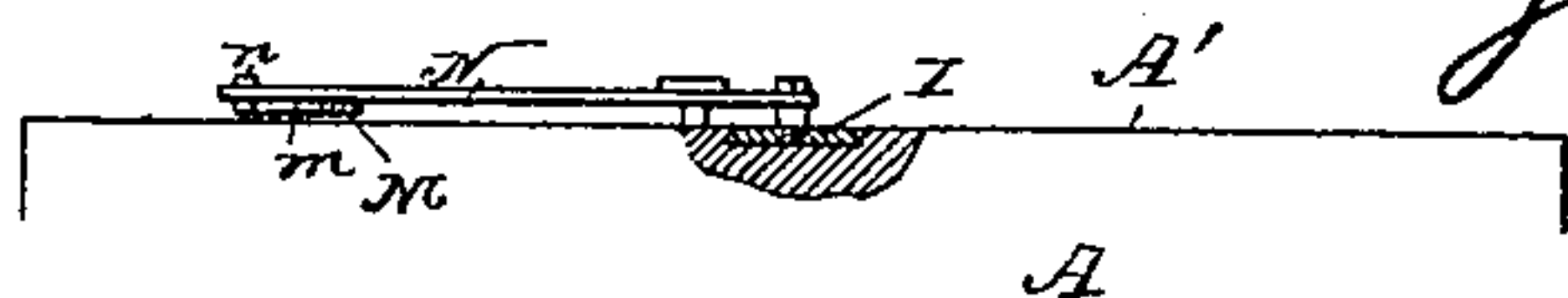
Patented Mar. 24, 1891.



Witnesses.

E. D. Smith
C. R. Sherman

FIG. 3.



INVENTOR.

John Q. A. Houghton
by Henry C. Laver
Atty.

(No Model.)

2 Sheets—Sheet 2.

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FIG. 3

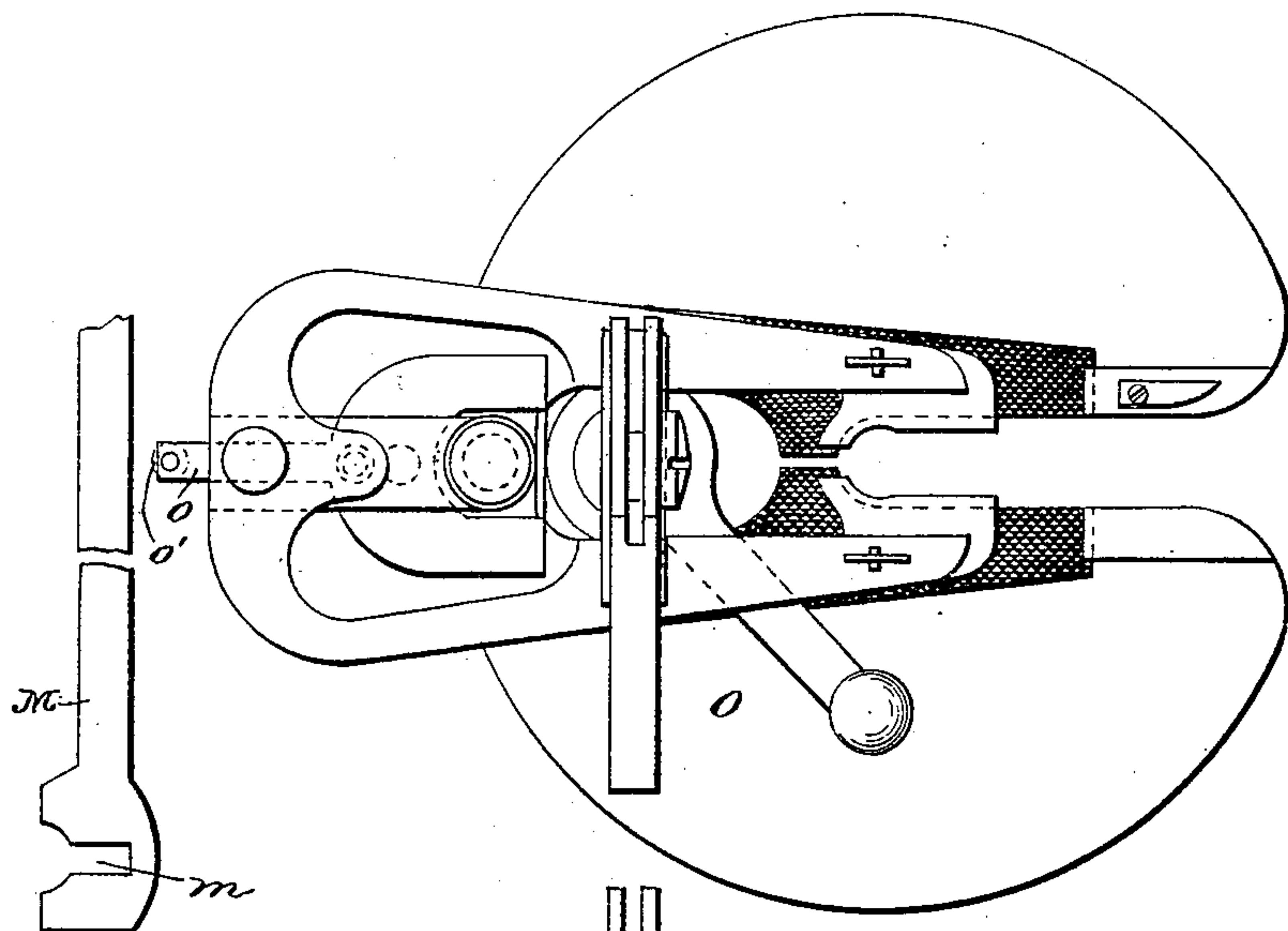
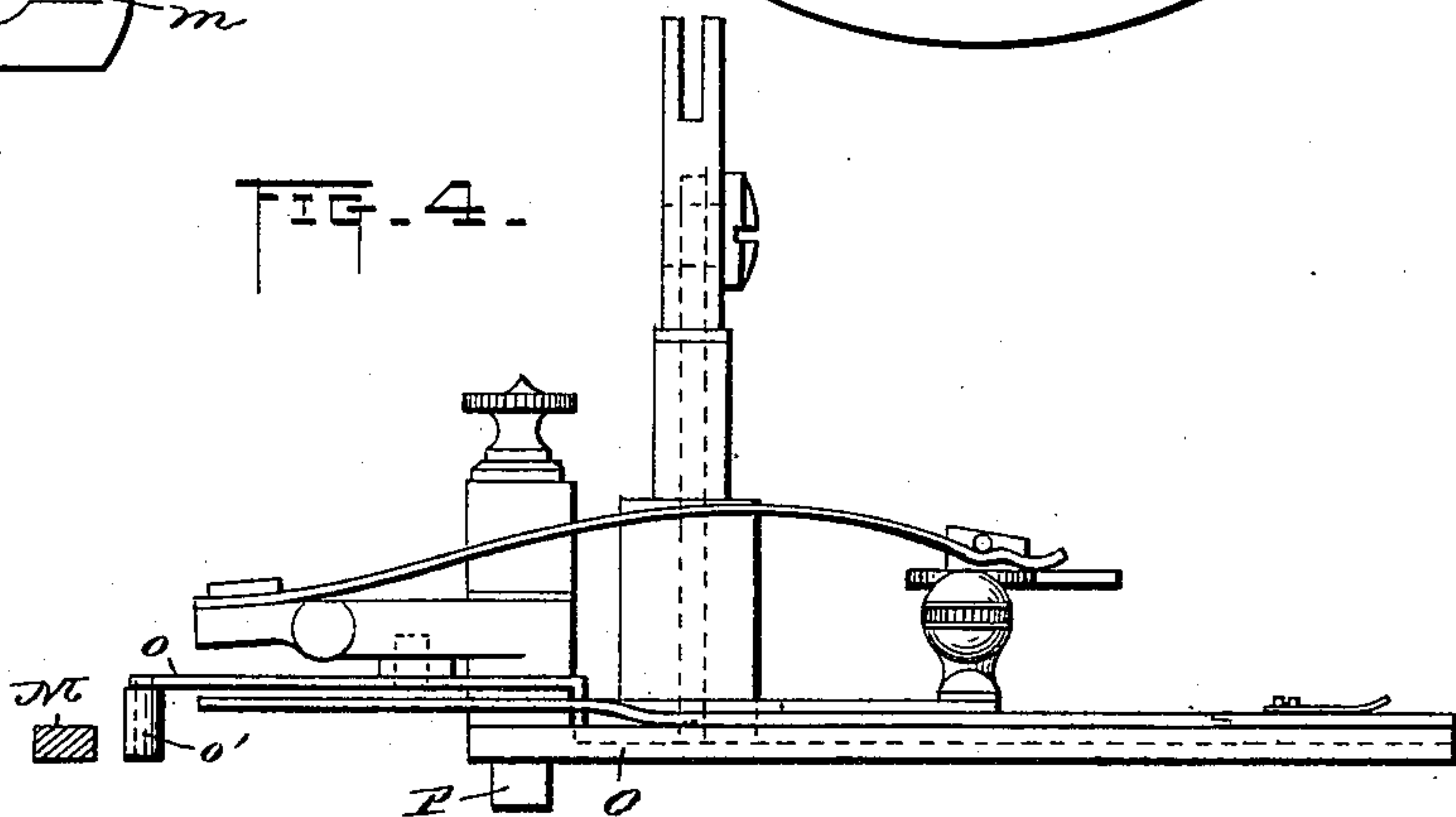


FIG. 4.



Witnesses.
E. Smith
A. R. Schuman

Inventor.
John Q. A. Houghton
by Henry Calver
Atty.

UNITED STATES PATENT OFFICE.

JOHN Q. A. HOUGHTON, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR
TO THE SINGER MANUFACTURING COMPANY OF NEW JERSEY.

BUTTON-HOLE SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 449,074, dated March 24, 1891.

Original application filed February 3, 1887, Serial No. 226,336. Divided and this application filed September 13, 1890. Serial No. 364,870. (No model.)

To all whom it may concern:

Be it known that I, JOHN Q. A. HOUGHTON, a citizen of the United States, formerly of Baltimore, Maryland, but now residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Button-Hole Sewing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This application is a division of my application, No. 226,336, filed February 3, 1887.

The object of my invention is to provide a simple automatically-operating mechanism for forming barring-stitches across the ends
15 of eyed button-holes when they have been otherwise completed.

To this end my invention consists in certain combinations of parts, as will be hereinafter indicated by the claims appended to this
20 specification, by which the button by which the work-clamp is guided is reciprocated to cause said work-clamp to be moved back and forth across its line of feed to form barring-stitches across the ends of the button-holes.

25 In the drawings, Figure 1 is a side view of a button-hole sewing-machine with my invention applied thereto. Fig. 2 is a plan view of the work-plate thereof with the work-clamp removed and with the vertical shaft and the
30 vertical portion of the arm in section. Fig. 3 is a plan view of the work-clamp and of the forward end of the operating-rod. Fig. 4 is an elevation of the work-clamp, showing the operating-rod in section; and Fig. 5 is a detail end view of the work-plate, showing the
35 button-carrying slide in section and its operating-lever in elevation.

In the machine herein shown the bed-plate A, work-plate A', arm B, driving-shaft C, vertical shaft D, gears *c* and *d*, connecting said
40 shafts, cam E on said vertical shaft, horizontally-moving needle-head F, needle-bar G, needle *g*, and connections H *h* between said needle-head and cam are or may be of any
45 well-known form. Any usual looping mechanism co-operating with the needle and any common form of work-clamp feeding mechanism may also be employed.

The work-plate A' has the usual guiding-
50 slot *a*, through which passes the ordinary

feeding-pin P of the work-clamp O. J is the guiding-button for the work-clamp, and said button, instead of being fixed to the work-plate, as is usual, is mounted on a sliding
55 plate I, movable in ways in the work-plate, said plate I having a pin *i*, against which presses a spring *i'* to hold said plate stationary, except when it is to be positively reciprocated.

On the vertical shaft D is a cam *d'*, into
60 the groove of which enters a pin carried by a lever L, the outer end of which is jointed to a rod M, having at its forward end a slot
65 *m* to receive a pin *n* at the rear end of a lever N, pivoted to the work-plate and jointed at its forward end to the sliding plate J. The slot *m* is wide enough at its outer end so
70 that the rod M may reciprocate without striking the pin *n*; but when the said rod is moved rearward, so that the inner or narrower part
75 of said slot comes opposite said pin, the movement of the said rod will be imparted to the lever N, and thus to the plate I and the guiding-button J, to reciprocate or vibrate the work-clamp.

The rod M is normally held in the position
80 shown in Fig. 2 by the spring *m'*, which presses said rod against the stop-pin *m*². When in this position the wide outer part of the slot
85 *m* registers with the pin *n* of the lever N. The work-clamp O is provided with an extension *o*, having a depending pin or roller-stud *o'*, and when in the operation of the machine the last side of the button-hole is nearly finished the said pin or roller-stud will come in
90 contact with the operating-rod M and move said rod rearward against the stress of the spring *m'*, so that the narrow part of the slot
95 *m* will come opposite the pin *n*, and the movement of the said operating-rod will be imparted to the lever N, and the plate I thus reciprocating the latter and the button J, carried
100 thereby, and thereby vibrating the work-clamp on its feeding-pin P as a center to form barring-stitches across the end of the button-hole, the parts being so timed that the lateral or
vibrating movements of the clamp will be in opposition to the horizontal movements of the needle-bar and needle to make the barring-stitches long enough to extend entirely across

the two rows of stitches at the end of the button-hole. When three or four barring-stitches have been made, the machine will be stopped either by the operator or automatically by any well-known or suitable stopping mechanism.

I do not claim, broadly, the combination, with a button-hole-stitch-forming mechanism and work-clamp, of a movable guiding-button which is reciprocated laterally to vibrate or reciprocate said work-clamp to form barring-stitches across the ends of worked button-holes; but

What I do claim, and desire to secure by Letters Patent, is—

1. In a button-hole sewing-machine, the combination, with a stitch-forming mechanism, a work-clamp, and its feeding mechanism, of a guiding-button for said work-clamp, a sliding plate by which said button is carried, a lever jointed at one end to said sliding plate and provided with a pin at its opposite end, an operating-rod arranged above the work-plate and having a slot at its forward end to engage said pin, a lever to which the rear end

of said rod is jointed, a rotating cam for operating said last-named lever, a spring to press against said rod, and a roller-stud or projection on the said work-clamp to engage said rod and move it into position to engage the pin on said first-named lever, substantially as set forth.

2. In a button-hole sewing-machine, the combination, with the stitch-forming mechanism, the work-clamp having the pin or roller *o'*, and feeding mechanism for said clamp, of the sliding plate *I*, the guiding-button *J*, carried thereby, the lever *N*, jointed to said sliding plate and having the pin *n*, the operating-rod *M*, having the slot *m* with wide and narrow portions, as shown, the spring *m'*, the stop-pin *m²*, the lever *L*, the cam *d'*, the shaft *D*, the driving-shaft *C*, and the gears *d* and *c*, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN Q. A. HOUGHTON.

Witnesses:

A. S. BROWNE,
CARLETON E. SNELL.