

(No Model.)

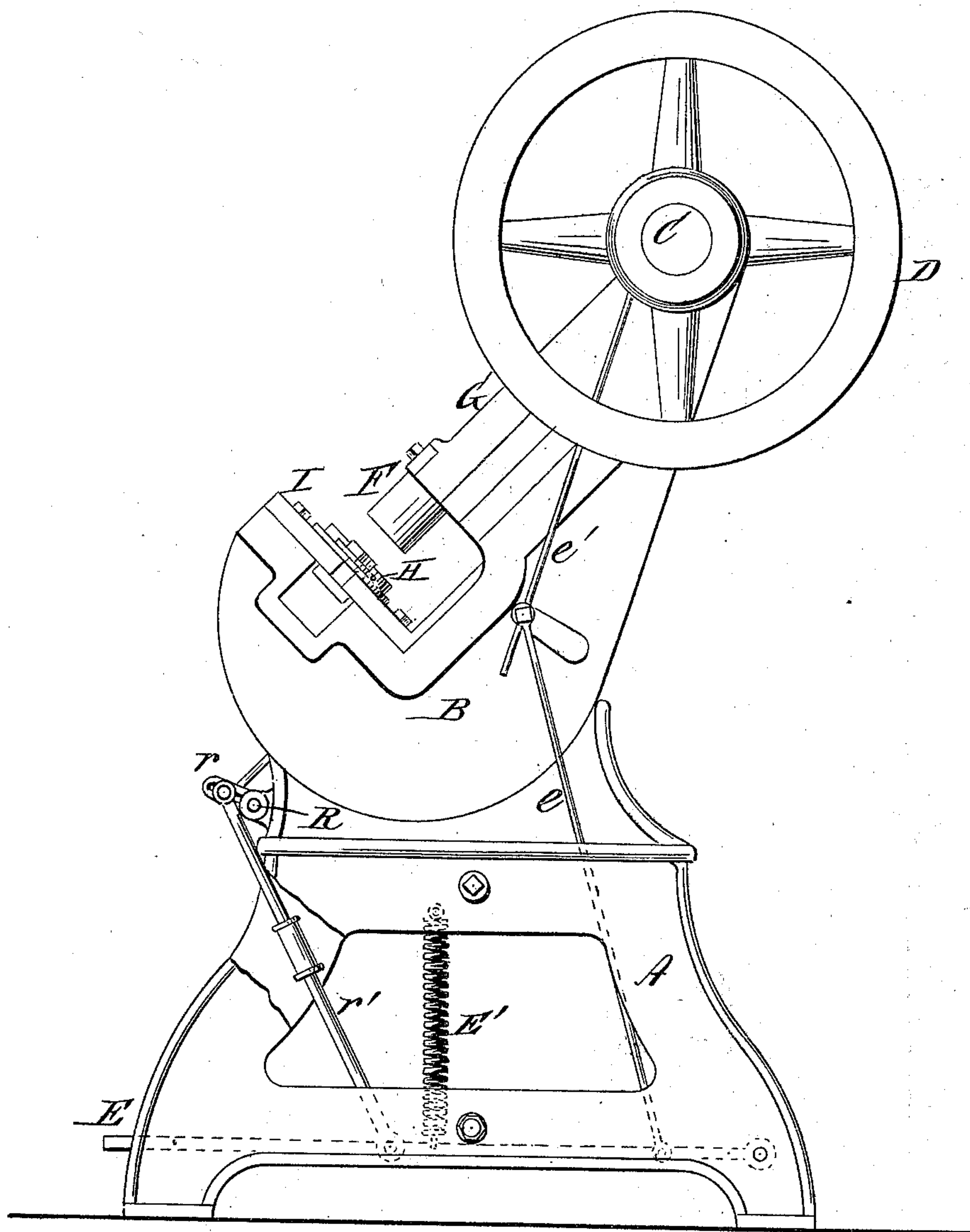
O. S. FELLOWS.
STAMPING PRESS.

4 Sheets—Sheet 1.

No. 555,942.

Patented Mar. 10, 1896.

Fig. 1.



Witnesses:

W. Gardner
E. Matt

Inventor:

Oliver S. Fellow
By his Attorney
George William Matthews

(No Model.)

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Fig. 2.

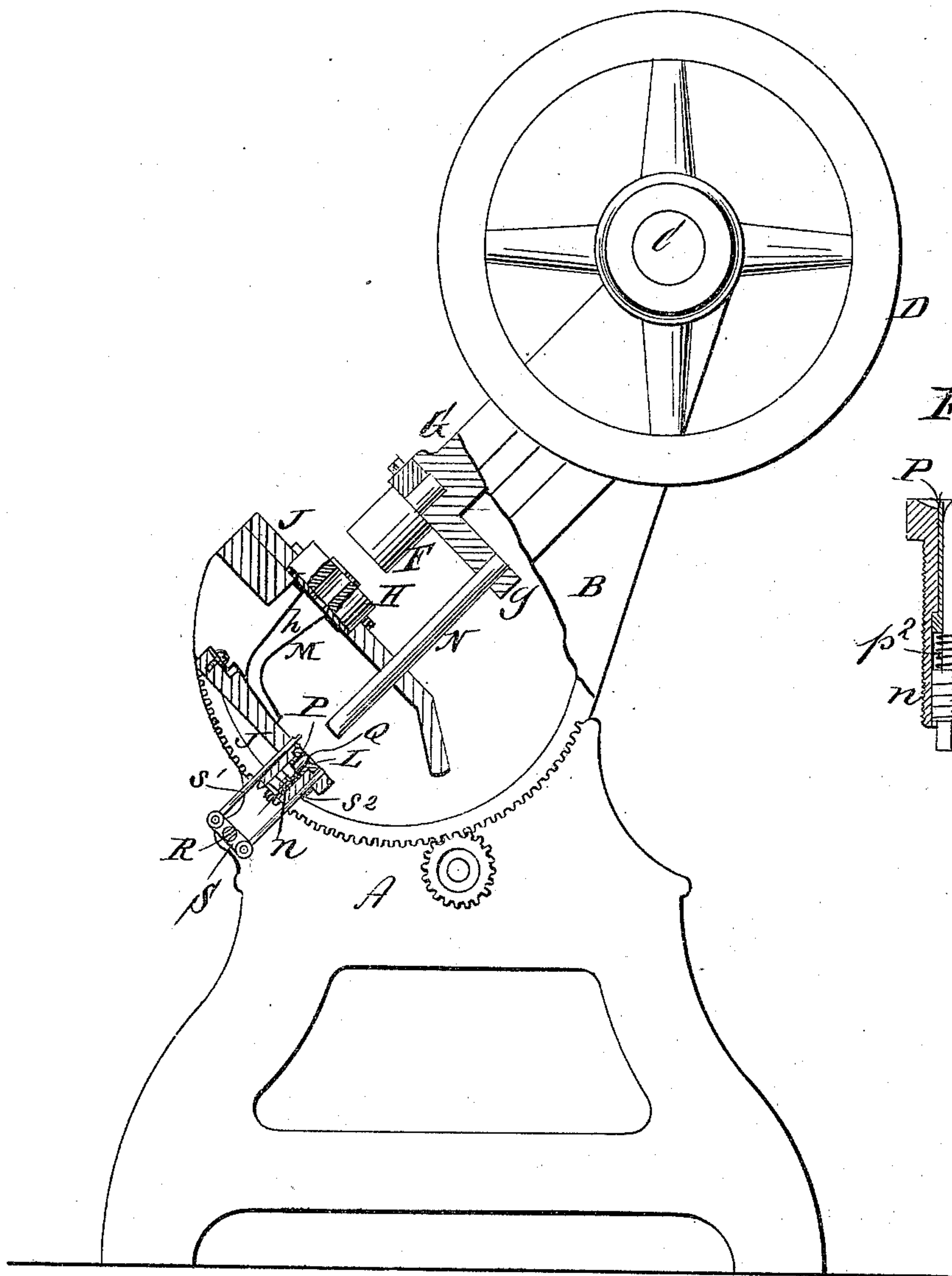
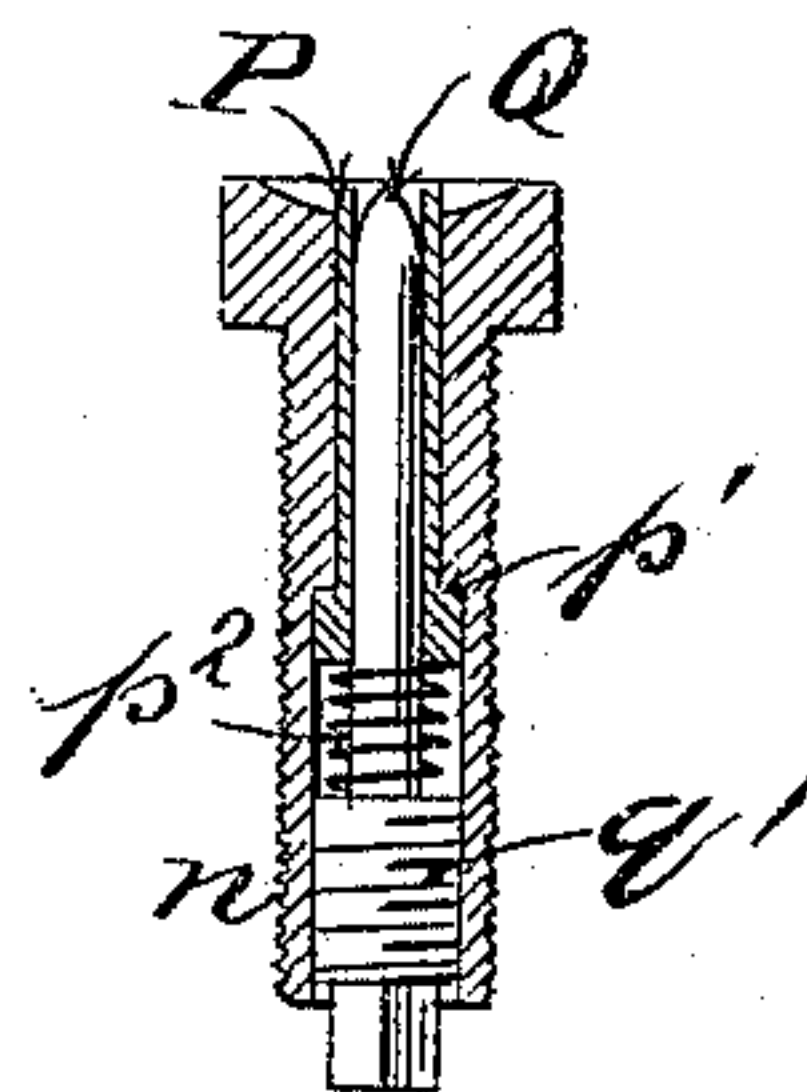


Fig. 3.



Witnesses:
O. W. Gardner
E. Matt.

Inventor:
Olin S. Fellows
By his Attorney
George William Smith

(No Model.)

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Fig. 4.

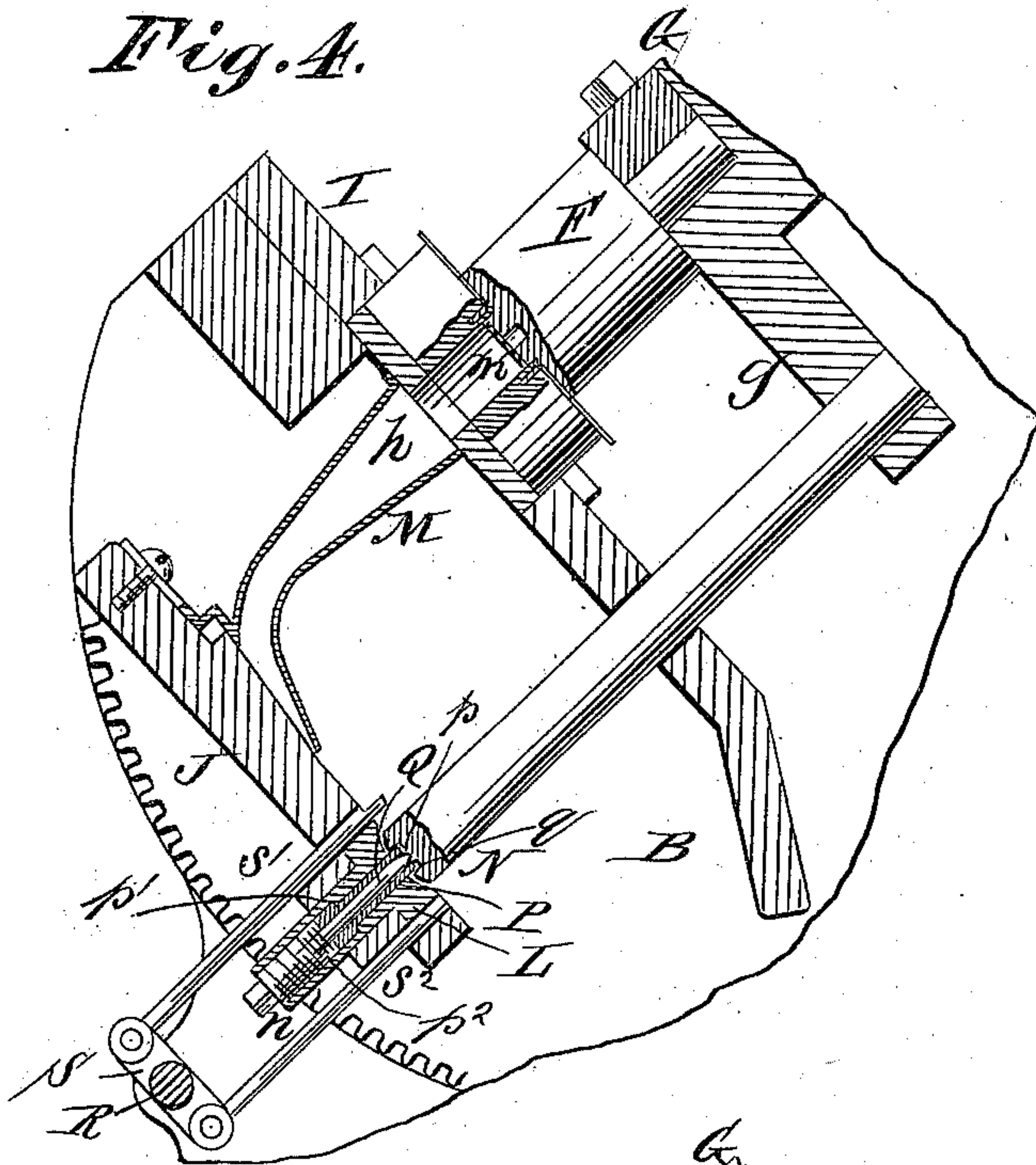
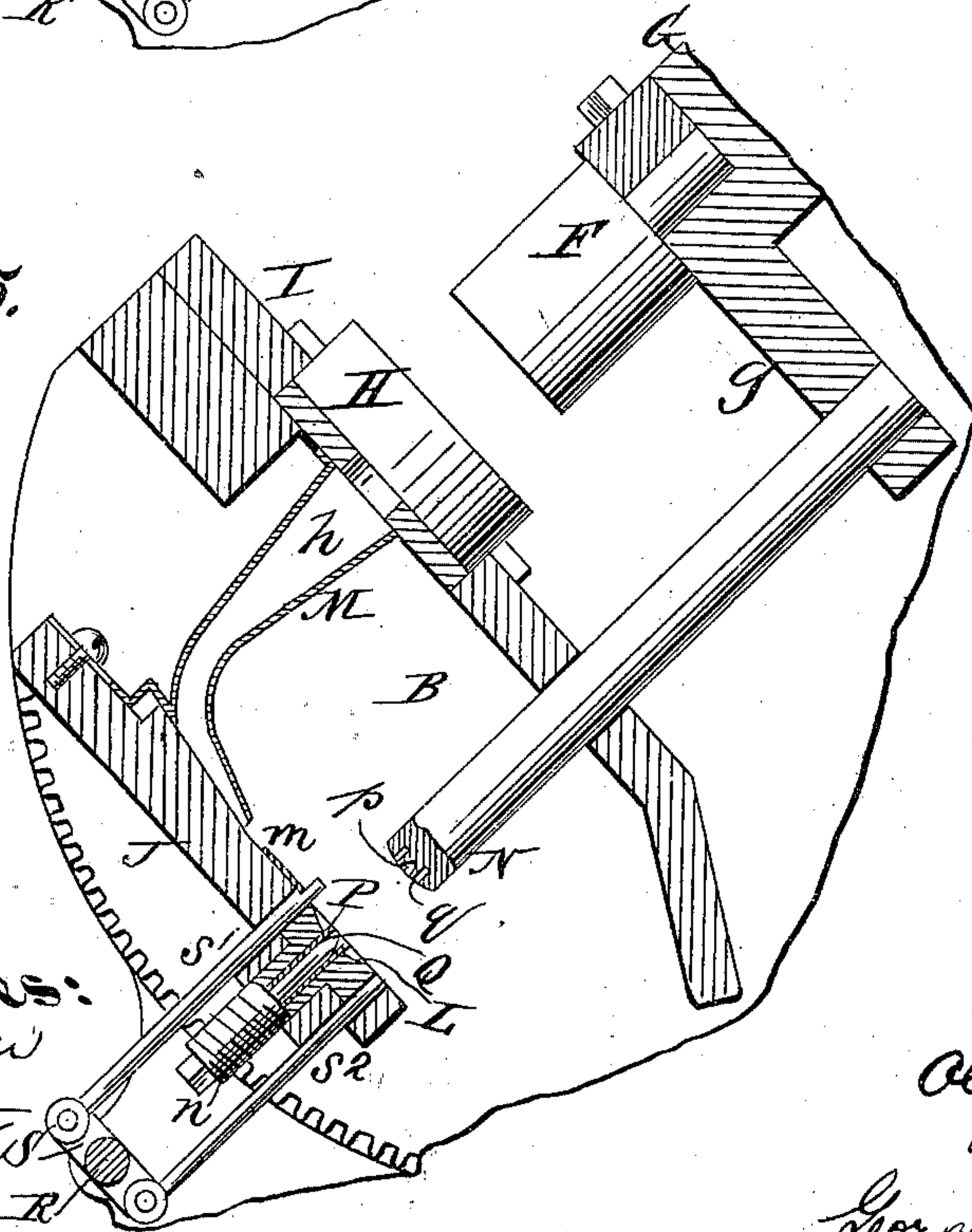


Fig. 5.



Witnesses:
W. Gardner
E. Pratt

Inventor:
O. S. Fellows
By his Attorney
George William Smith

(No Model.)

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Patented Mar. 10, 1896.

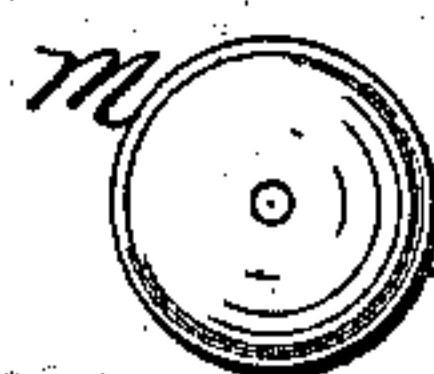
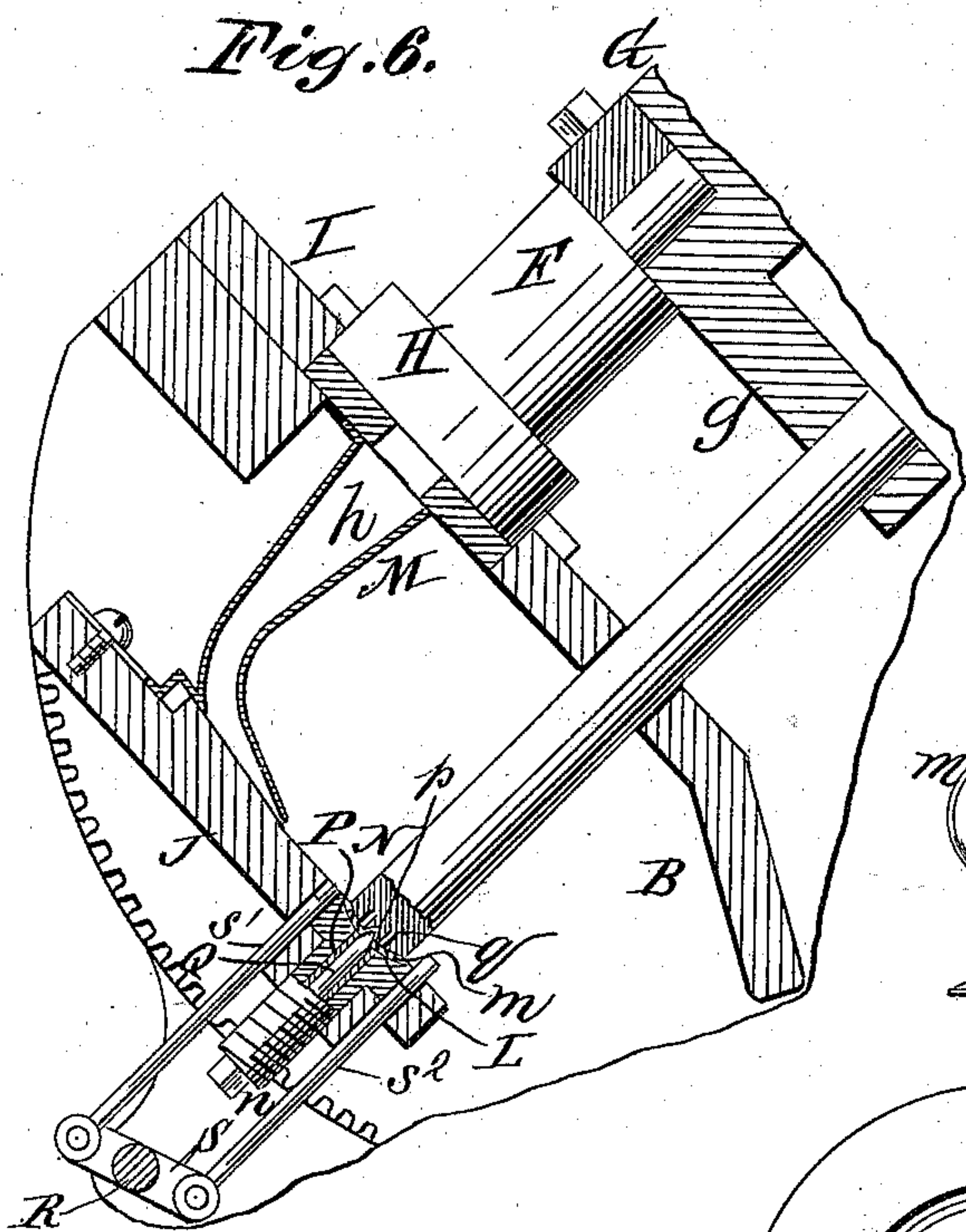


Fig. 11



Fig. 12

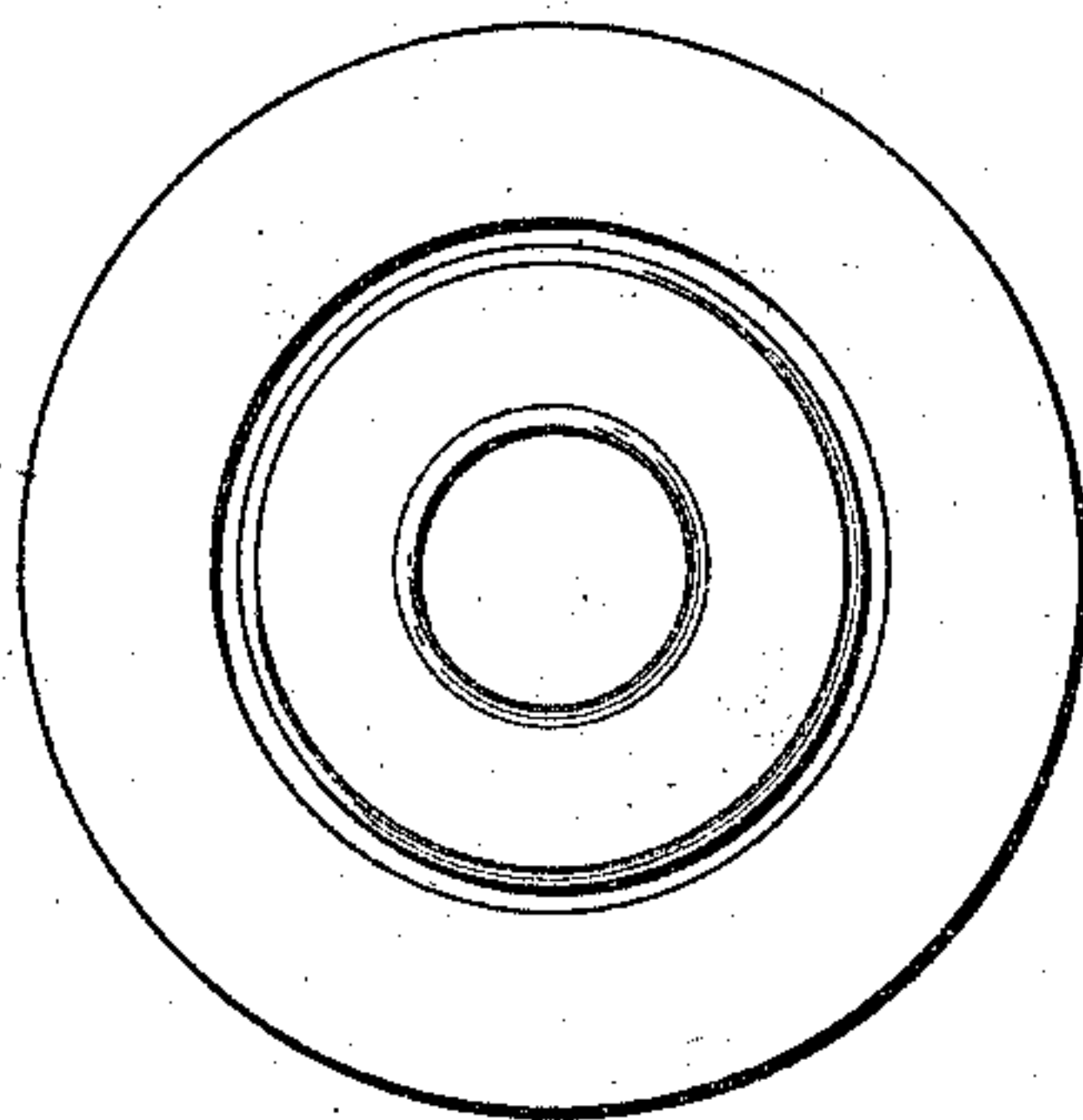


Fig. 8.

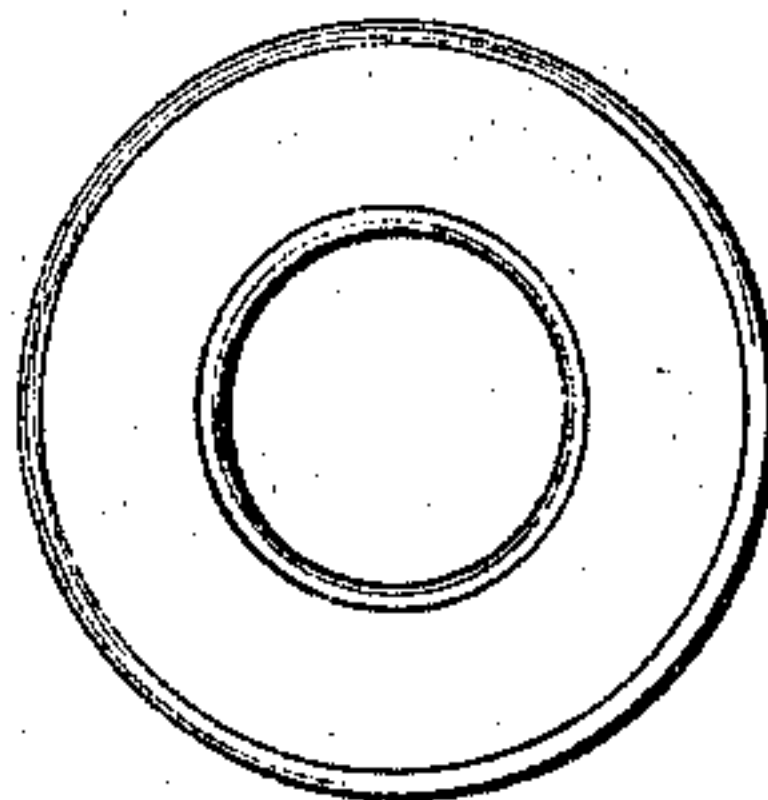
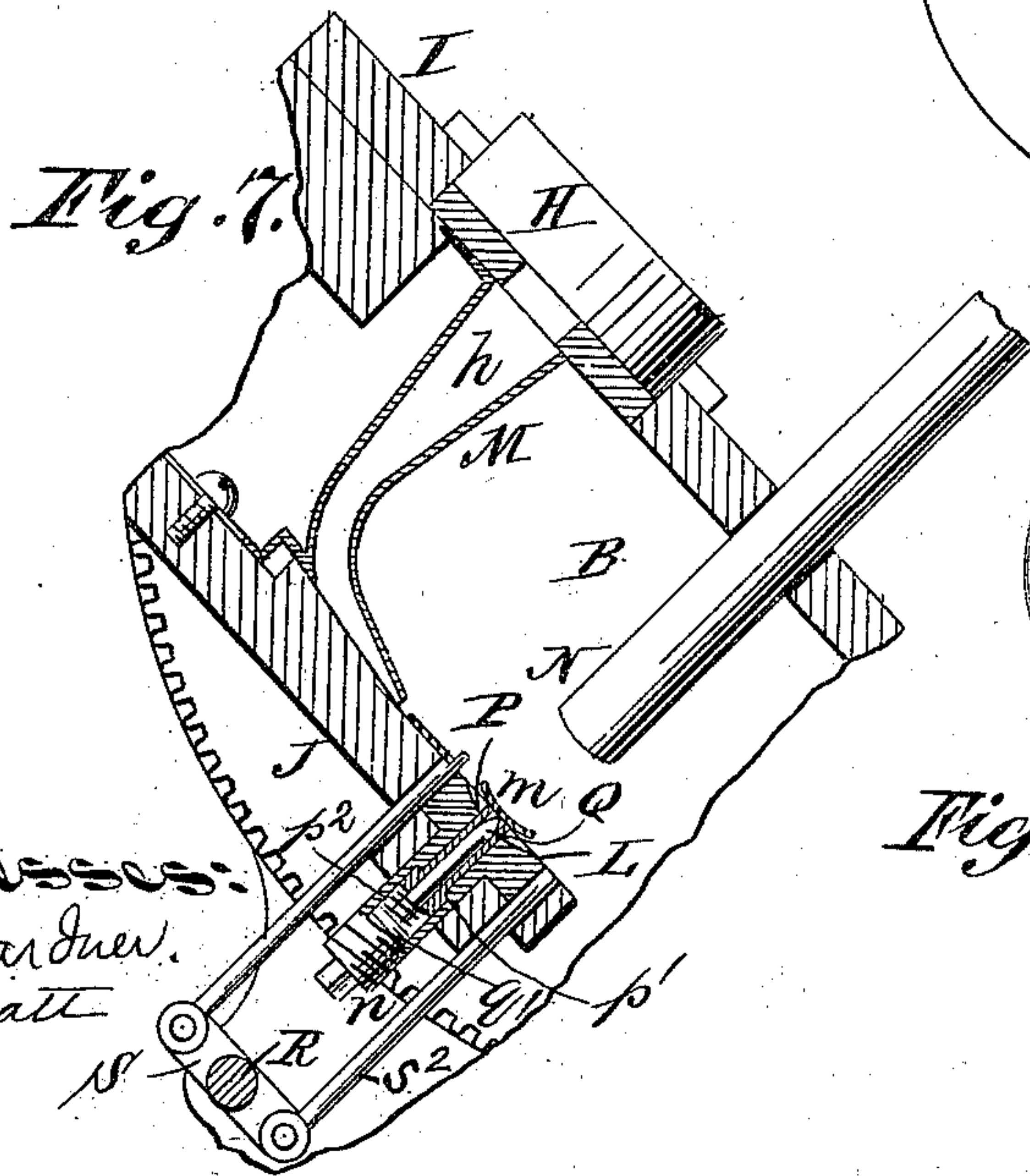


Fig. 9.



Fig. 10.

Inventor:

Olin S. Fellows

By his attorney,

George William Smith

Witnesses:

W. W. Gardner.

O. Matt

UNITED STATES PATENT OFFICE.

OLIN S. FELLOWS, OF MIDDLETOWN, NEW YORK.

STAMPING-PRESS.

SPECIFICATION forming part of Letters Patent No. 555,942, dated March 10, 1896.

Application filed June 21, 1895. Serial No. 553,499. (No model.)

To all whom it may concern:

Be it known that I, OLIN S. FELLOWS, a citizen of the United States, residing at Middletown, in the county of Orange and State of New York, have invented certain new and useful Improvements in Presses, of which the following is a specification sufficient to enable others skilled in the art to which the invention appertains to make and use the same.

My improvements relate to presses used in cutting and stamping sheet metal; and the invention consists essentially in so constructing the parts of the press that the waste created by the action of the main dies at one stroke of the plunger is utilized and stamped into a prescribed shape by auxiliary dies at the next stroke of the plunger. I thus utilize the waste material for the production of a useful article automatically—that is to say, the waste is guided and controlled automatically and all preliminary handling or manipulation dispensed with, thereby materially lessening the cost of production.

In the accompanying drawings, Figure 1 represents a side elevation of my improved press; Fig. 2, a sectional elevation thereof; Fig. 3, a sectional detail, upon an enlarged scale, of the ejector removed from place. Fig. 4 is a sectional elevation, upon an enlarged scale, of the operative parts of the press to which my invention is applied, showing the first operation. Fig. 5 is a similar view showing the dies retracted; Fig. 6, a similar view showing the supplementary action of the auxiliary die upon the waste blank; Fig. 7, a similar view showing the auxiliary die retracted and the waste blank being ejected. Fig. 8 is a view of the under side of the main die. Fig. 9 is a view of a can end plate produced by the action of said die; Fig. 10, a view of the waste from the center of said end plate; Figs. 11 and 12, respectively, side and edge views of the finished product from the waste.

In carrying out my invention it may be applied to the production of various small articles, as washer-rings, cup-shaped disks or caps, or any special form or construction that may be cut or stamped out of the waste created by the action of the main dies.

I have herein shown my invention as adapted to the production of the perforated cup-shaped disks used in connection with nails for securing tarred paper, &c., in position, and for similar uses, but I do not confine myself to the production of this article. Furthermore, the waste utilized in the press illustrated in the drawings consists of the central disk struck from the end plate for a sheet-metal can; but the waste left by the action of the main die in cutting the outer edge of the end plate or other article may be likewise utilized by a very slight modification of the apparatus.

In the accompanying drawings, A represents the lower frame or standard of an ordinary press, and B the upper frame or bed-plate mounted thereon adjustably by means that allow of its inclination.

C is the power-shaft provided with the balance-wheel D and with the usual clutching mechanism operated by means of the treadle E and connecting-rods *e e'*. The upper die, F, is secured to the slide or mandrel G, and the lower die, H, to the bolster-plate I in the usual manner.

Below the bolster-plate I is a secondary shelf or bolster-plate J supporting the lower auxiliary die, L. The situation of the lower auxiliary die, L, is at the rear of the axial line of the main dies F and H, and a conduit M conducts the waste *m* from the center of the lower die, H, to the surface of the auxiliary bolster-plate J in front of the said auxiliary die L, the upper frame, B, being inclined at such an angle that the blank *m* moves by gravity.

A rear extension *g* of the slide G carries the upper auxiliary die, N, which is in the same axial line as that of the lower auxiliary die, L. The lower auxiliary die, L, is provided with an ejector P and with a central punch Q, the point of which coincides with the recess *p* in the face of the upper auxiliary die, N. The face of the upper auxiliary die, N, is also formed with an annular groove *q* into which the edge of the ejector P enters upon the down-stroke of the said upper die, N, if no blank is interposed between the said upper die and the

lower auxiliary die, L. The ejector P consists of a tubular spring-bolt surrounding the central punch Q, and formed with the retaining-shoulder p' , which limits the outward thrust of the spring p^2 . The punch Q is made adjustable with relation to the face of the die L by the screw-thread q' on the shank of the die which engages with the female screw-thread in the sleeve or extension n of said lower die, L. This construction may be clearly understood by reference to Fig. 3.

A rock-shaft R situated horizontally and at right angles to the longitudinal axis of the auxiliary dies L N is supported upon suitable bearings in the frame A and is connected by a slotted arm r and connecting-rod r' to the treadle E, which latter is drawn upward by the spring E' . This rock-shaft R carries a cross-head S, to the opposite ends of which are pivotally connected check-rods $s' s^2$, one of which, s' , receives the blank m from the lower end of the conduit M and holds it until the depression of the treadle E, when the said check-rod s' recedes to allow the blank m to pass into position over the lower auxiliary die, L, the check-rod s^2 simultaneously moving upward to prevent the blank m passing beyond the said lower die and hold it upon the latter until the upper auxiliary die, N, descends and presses the blank into the lower die, L, and against the central punch Q.

The conduit M is made adjustable with relation to the dies in order to avoid delicacy of adjustment in controlling the descent and presentation of the blank m .

The operation is as follows: A sheet of metal having been presented between the main dies H and F, an end plate such as shown in Fig. 9 is punched therefrom upon the depression of the treadle E, the central disk or waste m falls through the open center h of the die H and into the conduit M, which deposits it upon the lower bolster-plate, J, in front of the check-rod s' , which has risen above the upper surface of the lower bolster-plate, J, upon the release of the treadle E through the medium of the rock-shaft R and connection. Upon the presentation of another sheet of metal to the main dies H and F and the depression of the treadle E, the first check-rod s' is depressed and the second check-rod s^2 elevated to receive and check the blank m upon the die L, so that upon the completion of this second downward stroke of the slide G and simultaneously with the stamping out of the second can-head the waste from the first blank will be shaped by and between the auxiliary dies L and N.

Upon the release of the treadle E the rock-shaft immediately depresses the check-rod s^2 and elevates the check-rod s' in time to receive the new disk of waste m , struck from the second end plate formed as above, and these operations are repeated continuously throughout the use of the machine. As the upper auxiliary die, N, descends it encounters

and forces down the metal blank m , the ejector P giving way before the pressure and the punch Q forcing its way through the center of the metal waste m . Upon the retractile movement of the die N the ejector forces the stamped piece of waste out of the lower auxiliary die, L, from which it falls into a suitable receptacle or is otherwise disposed of, as may be desirable.

I am aware that the idea of conducting the blanks themselves automatically from one set of dies to another for the purpose of subjecting them to further alteration in shape is old, and I do not herein seek to cover mechanism for controlling or shaping the blank proper, but confine myself to means for automatically receiving and manipulating the waste detached from the blank during its formation by the main dies, thus producing two distinct separate articles at each stroke of the press in place of one, as heretofore.

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

1. In a stamping-press, the combination of the main dies for forming a blank which is sustained temporarily thereby, a conduit for receiving and conducting a portion of the waste from said blank to auxiliary dies, and said auxiliary dies arranged and constructed to impart a prescribed shape to said waste from the main dies, substantially in the manner and for the purpose described.

2. In a stamping-press, the combination of the main dies for forming a blank which is sustained temporarily thereby, a conduit for receiving and conducting a portion of the waste from said blank to auxiliary dies, said auxiliary dies arranged and constructed to impart a prescribed shape to said waste from the main dies, and means for adjusting said intermediate conduit with relation to the dies, substantially in the manner and for the purpose described.

3. In a stamping-press, the combination of main dies for forming a blank which is sustained temporarily thereby, a conduit for receiving and conducting a portion of the waste from said blank to auxiliary dies, said auxiliary dies arranged and constructed to impart a prescribed shape to said waste from the main dies, and automatic checking mechanism for controlling the passage of said waste and feeding it to the auxiliary dies, substantially in the manner and for the purpose described.

4. In a stamping-press, the combination of the main dies, auxiliary dies, intermediate conduit for conducting waste from the main dies to the auxiliary dies, and the waste-checking device for feeding the waste to the auxiliary dies consisting of the check-rods s' , s^2 , on opposite sides of the auxiliary dies, mounted upon the rock-shaft R, said rock-shaft R, and crank r , mounted on the frame of the press, and the connection-rod r' , and treadle E, the whole arranged and operating

substantially in the manner and for the purpose described.

5 In a stamping-press, the combination with the auxiliary dies L, N, of the central punch Q, tubular ejector P, surrounding said punch Q, provided with the limiting-shoulder p' , and compressible spring p^2 , the whole ar-

ranged and operating substantially in the manner and for the purpose described.

OLIN S. FELLOWS.

Witnesses:

D. W. GARDNER,

GEORGE WILLIAM MIATT.