

No. 700,261.

Patented May 20, 1902.

J. L. THOMSON.
RIVETING MECHANISM.

(Application filed July 11, 1901.)

(No Model.)

2 Sheets—Sheet 1.

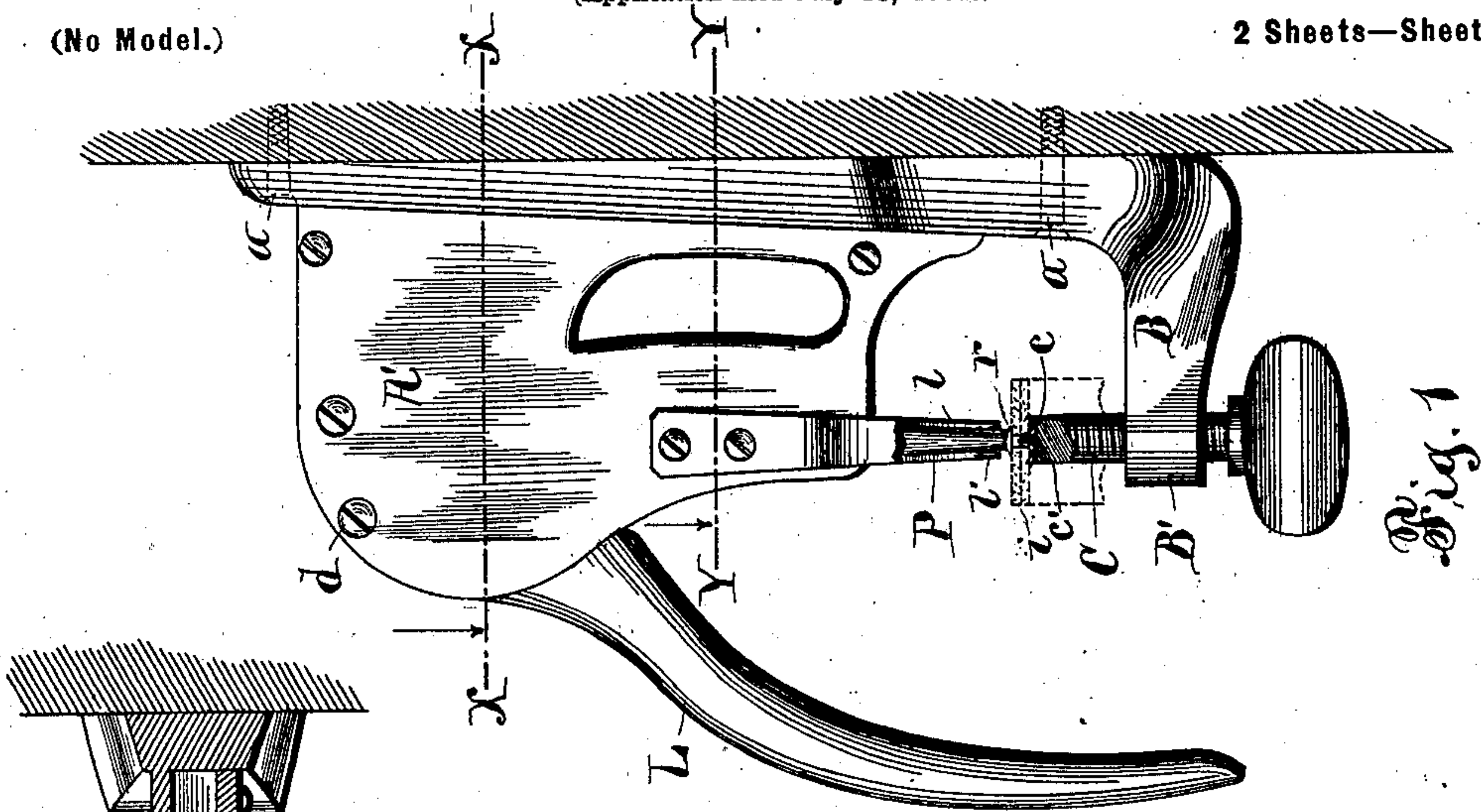


Fig. 1

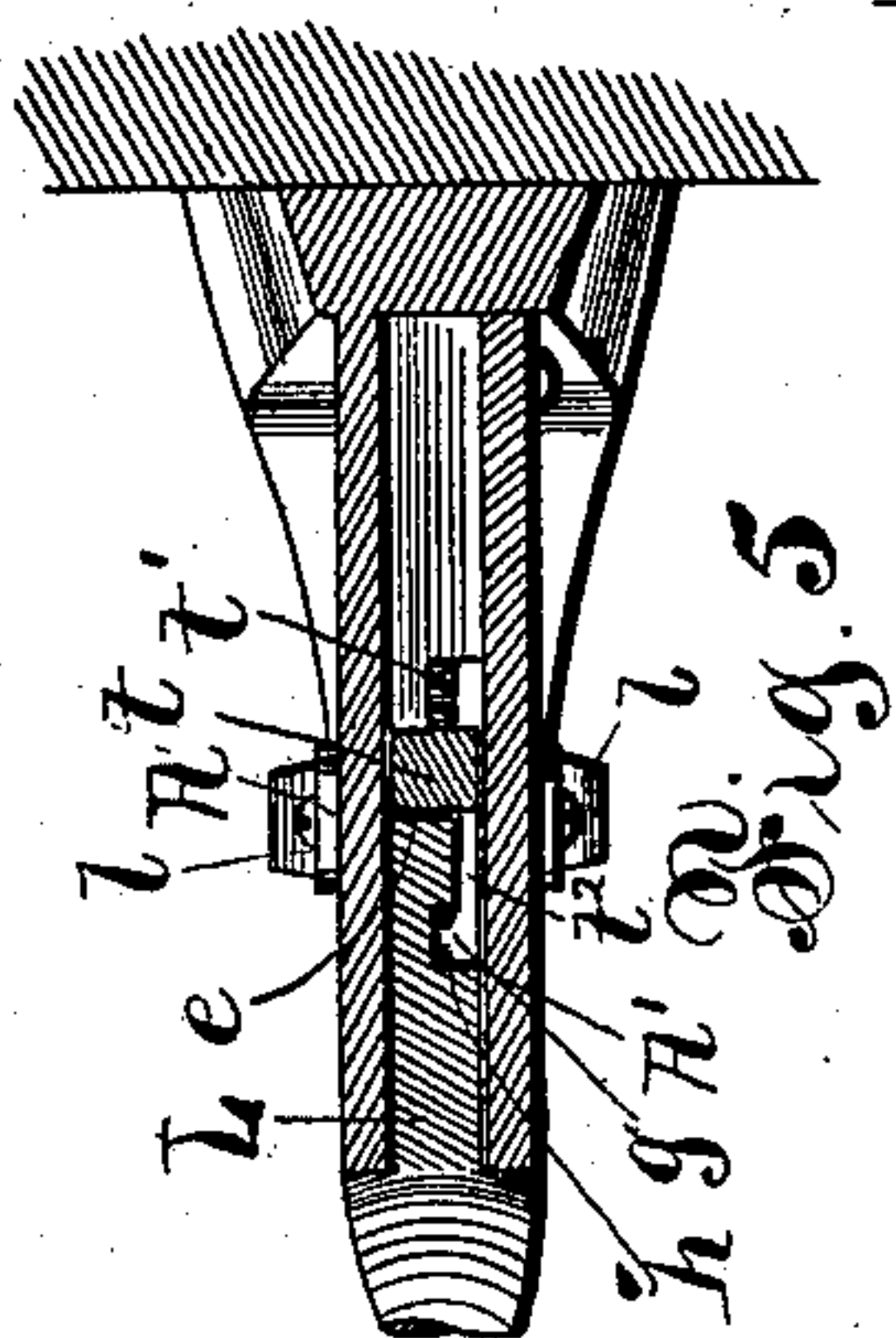


Fig. 5

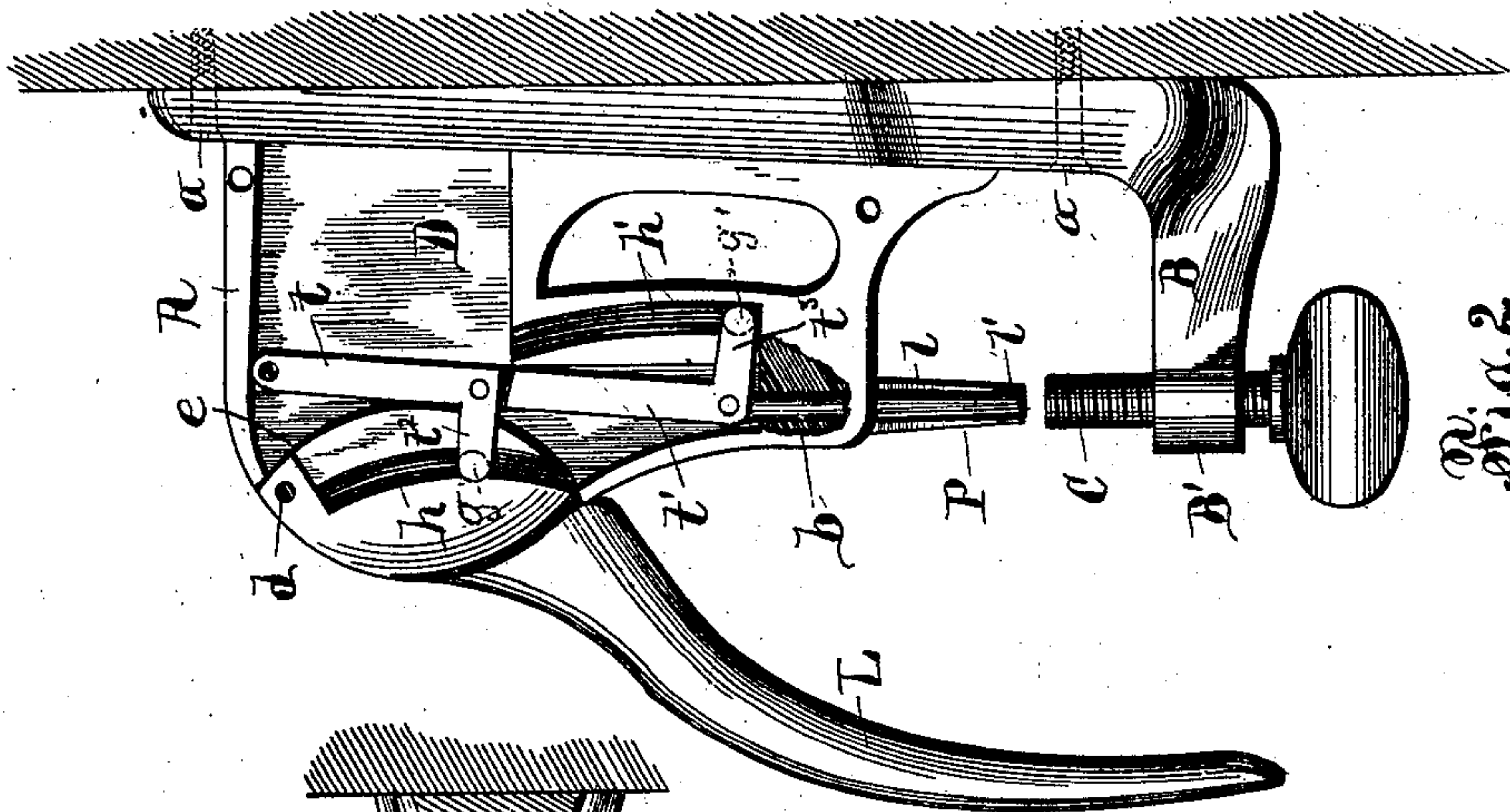


Fig. 2

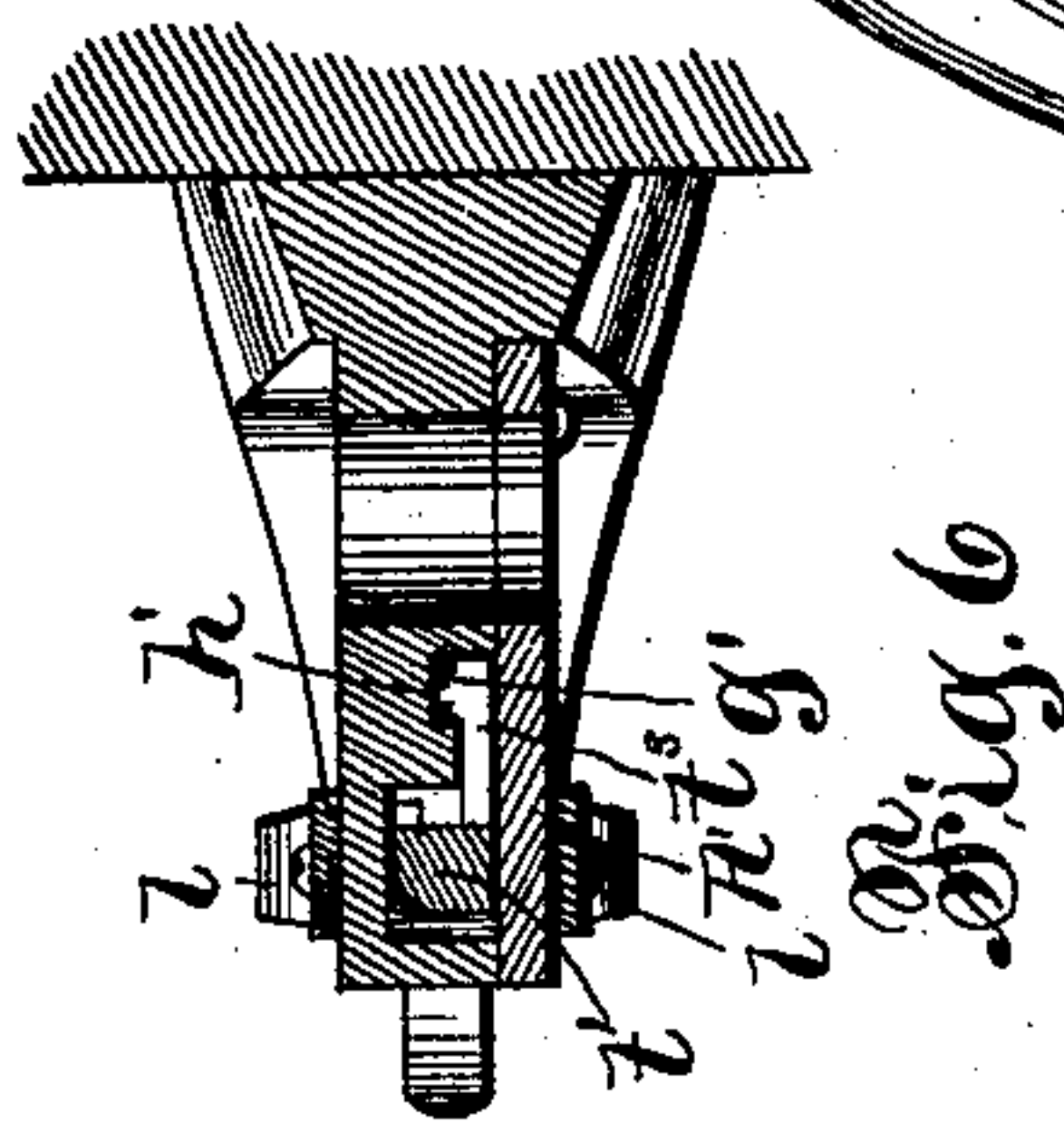


Fig. 6

WITNESSES:

Wm. Hawley.

J. J. Laass

INVENTOR

Judson L. Thomson

By E. Laass

ATTORNEY.

No. 700,261.

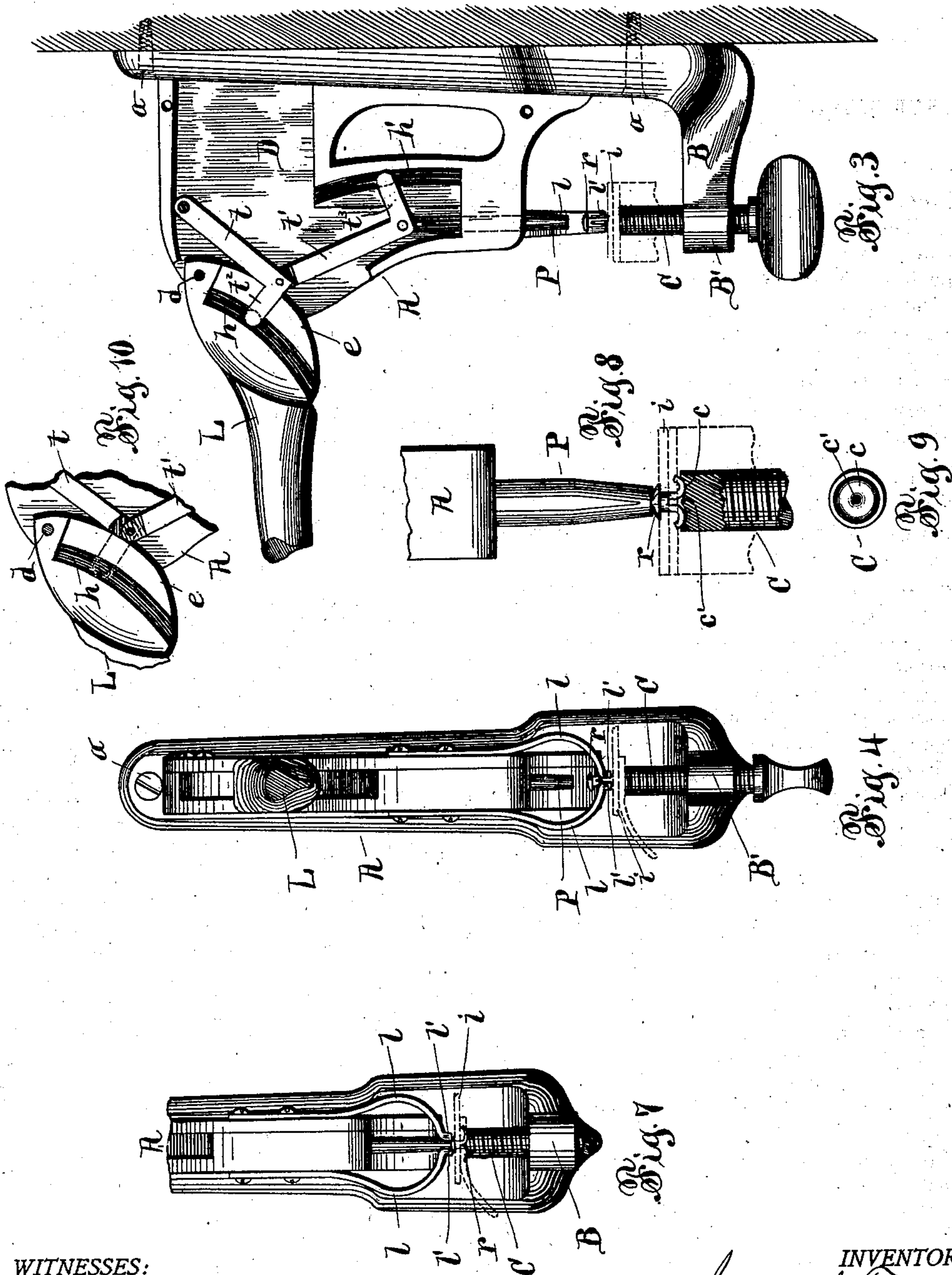
Patented May 20, 1902.

J. L. THOMSON.
RIVETING MECHANISM.

(Application filed July 11, 1901.)

(No Model.)

2 Sheets—Sheet 2.



WITNESSES:

Wm. Hawley
J. J. Laessle

INVENTOR

Judson L. Thomson
By C. Laessle
ATTORNEY.

UNITED STATES PATENT OFFICE.

JUDSON LUVATOR THOMSON, OF CLAYTON, NEW YORK, ASSIGNOR TO
J. L. THOMSON MANUFACTURING COMPANY, OF NEW YORK, N. Y.,
A CORPORATION OF NEW YORK.

RIVETING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 700,261, dated May 20, 1902.

Application filed July 11, 1901. Serial No. 67,858. (No model.)

To all whom it may concern:

Be it known that I, JUDSON LUVATOR THOMSON, a citizen of the United States, and a resident of Clayton, in the county of Jefferson, in the State of New York, have invented new and useful Improvements in Riveting-Tools, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

The object of this invention is to provide a simple, inexpensive, convenient, and efficient tool for fastening rivets to articles to be united thereby; and to that end the invention consists in the novel construction and combination of the component parts of the riveting-tool hereinafter described, and set forth in the claims.

In the accompanying drawings, Figure 1 is a side view of a riveting-tool embodying my invention. Fig. 2 shows the same with the side plate of the head removed to illustrate the riveting mechanism carried in said head. Fig. 3 shows the tool in position for receiving the rivet to be fastened to articles placed upon the anvil. Fig. 4 is a front view of the tool. Figs. 5 and 6 are transverse sections, respectively, on lines X X and Y Y in Fig. 1 viewed in the direction of the arrows. Fig. 7 is a fragmentary front view showing the plunger in its operative position upon the rivet clenched for fastening the articles resting upon the anvil. Fig. 8 is an enlarged detail view illustrating the construction of the anvil and its effect upon the rivet. Fig. 9 is a plan view of the anvil, and Fig. 10 is a detail view illustrating more clearly the operation of the lever on the toggle-arms.

Similar letters of reference indicate corresponding parts.

A designates the head or frame which supports the riveting mechanism. The back of this head is formed flat to allow it to rest snugly on the side of a post or other suitable stationary support, to which it is rigidly secured, preferably in a vertical position, by means of screws, as indicated by dotted lines *a a* in Figs. 1, 2, and 3 and in full lines in Fig. 4 of the drawings. The said head is formed with a removable side plate *A'* to permit access to the interior of the head when

necessary. The lower end of the head *A* is formed with a laterally-projecting foot *B*, which is formed with a screw-threaded vertical eye *B'*, in which is adjustably supported a screw *C*, constituting the anvil of the riveting-tool. By turning said screw it is raised or lowered, as may be required, to accommodate rivets of different lengths to be operated on. Said anvil is designed for clenching the prongs of bifurcated or so-called "split" rivets, and for that purpose the face of the anvil is formed with an annular groove *c*, which is concaved in cross-section and surrounds a central conical projection *c'*, as shown in Figs. 8 and 9 of the drawings.

The interior of the head *A* is formed with a pocket or recess *D*, at the lower end of which is a vertical channel *b*, extending through the head and in line with the anvil *C*, as shown in Fig. 2 of the drawings. In said channel slides the plunger *P*, which is thus axially in range with the subjacent anvil. This plunger is operated by means of a lever *L*, pivoted at one end to the upper part of the head *A*, as shown at *d*, and is formed with a cam *e*, which faces toward the head. From said lever motion is transmitted to the plunger by means of toggle-arms *t t'*, pivoted to each other and disposed in the cavity *D* of the head. The toggle-arm *t* is extended upward and pivoted at its upper end to the upper portion of the head and the other toggle-arm *t'* is extended downward and pivotally connected to the upper end of the plunger *P*. The toggle-arm *t* is movably connected to the lever *L* by means of a lateral extension *t²*, formed on the lower end of said toggle-arm and terminated with a lug *g*, which engages a guide-groove *h*, formed in the side of the pivoted end portion of the lever *L* and parallel with the cam *e*. The lower end of the other toggle-arm *t'* is formed with a lateral extension *t³*, which is terminated with a lug *g'*, engaging a groove *h'*, formed in the head *A* and curved similar to the groove *h*. The plunger *P* is pushed toward the anvil *C* by the operator depressing the lever *L*, which presses with its cam *e* on the joined ends of the two toggle-arms and forces said arms from a deflected to a rectilinear position, and in the operation the con-

nections of the toggle-arms $t t'$ with the guide-grooves $h h'$ controls the direction of the movement of said toggle-arms, so as to obviate binding and undue friction of the plunger P in the channel b .

One of the salient features of my invention is the aforesaid operation of the toggle-arms $t t'$ by means of the cam e on the pivoted lever L bearing directly on the said toggle-arms. It will be observed that when the toggle-arms are in their deflected position, as shown in Fig. 3 of the drawings, which position requires the greater power to press them toward the rectilinear position, the power of the lever L is at its maximum, owing to the bearing of the toggle-arms on the cam e being near the pivot or fulcrum d of the lever. The connection of the extension t^2 with the guide-groove h in the lever L serves to draw the toggle-arms into their deflected position, and thus retract the plunger P by the upward movement of the lever.

To sustain the rivet r in position to be forced through the articles lying on the anvil C, as indicated by dotted lines i in Figs. 3 and 4 of the drawings, I interpose between the anvil and plunger suitable supporting-arms $l l$, which are attached to the head A and are formed at their free ends with fingers $l' l'$, shaped to hold between them the shank of the rivet. The supporting-arms are formed of spring-steel and sufficiently flexible to allow the head of the rivet to be forced down from the hold of the fingers $l' l'$ in the operation of the plunger, driving the rivet through the articles i .

What I claim as my invention is—

1. The combination of a stationary head supporting the riveting mechanism, an anvil secured to said head, a plunger guided in the head in line with the anvil, toggle-arms pivoted respectively to the head and to the plunger, a lever fulcrumed on the head and operating the toggle-arms, guides on the lever and on the head and lateral extensions on the toggle-arms engaging said guides and controlling the direction of the movement of the toggle-arms as set forth.

2. The combination of the head supporting the riveting mechanism, an anvil secured to the head adjustably for rivets of different lengths, a plunger guided in the head in line with the anvil, a rivet-supporter interposed

between the plunger and anvil, toggle-arms pivoted respectively to the head and to the plunger, a lever fulcrumed on the head and operating said toggle-arms, guides on the lever and on the head and lateral extensions on the toggle-arms engaging said guides and controlling the direction of the movement of the toggle-arms as set forth.

3. The combination of the head supporting the riveting mechanism, an anvil secured to the head adjustably for different lengths of rivets, a plunger guided in the head in line with the anvil, a lever pivoted at one end to the upper part of the head, a curved guide-groove in the side of the pivoted end of the lever, a similar guide-groove in the lower portion of the head, a toggle-arm pivoted to the upper part of the head and formed at its lower end with a lateral extension terminated with a lug engaging the guide-groove in the lever, and a toggle-arm pivoted at its upper end to the lower end of the first-mentioned toggle-arm and connected at its lower end to the plunger and formed thereat with a lateral extension terminating with a lug engaging the guide-groove in the head substantially as shown and set forth.

4. The combination of the head supporting the riveting mechanism, the anvil secured to the head adjustably for different lengths of rivets, the spring-arms terminating with rivet-supporting fingers over the anvil, the plunger guided in the head in line with the anvil, the lever pivoted at one end to the upper part of the head and formed with a cam facing toward the head and with a guide-groove parallel with said cam, a guide-groove in the lower portion of the head, toggle-arms pivoted respectively to the upper part of the head and to the plunger and bearing at their junction on the cam of the lever, a lateral extension formed on the lower end of the upper toggle-arm and terminated with a lug engaging the guide-groove in the lever, and a lateral extension formed on the lower end of the lower toggle-arm and terminated with a lug engaging the guide-groove in the head, all constructed and combined as shown and set forth.

JUDSON LUVATOR THOMSON. [L. S.]

Witnesses:

LORETTA WHEELER,
JULIA SMITH.