

J. L. A. BOREL & E. GRANGE, NÉE BOREL.
MACHINE FOR MANUFACTURING PRESS BUTTONS OR THE LIKE.

APPLICATION FILED OCT. 12, 1917.

1,298,165.

Patented Mar. 25, 1919.

2 SHEETS—SHEET 1.

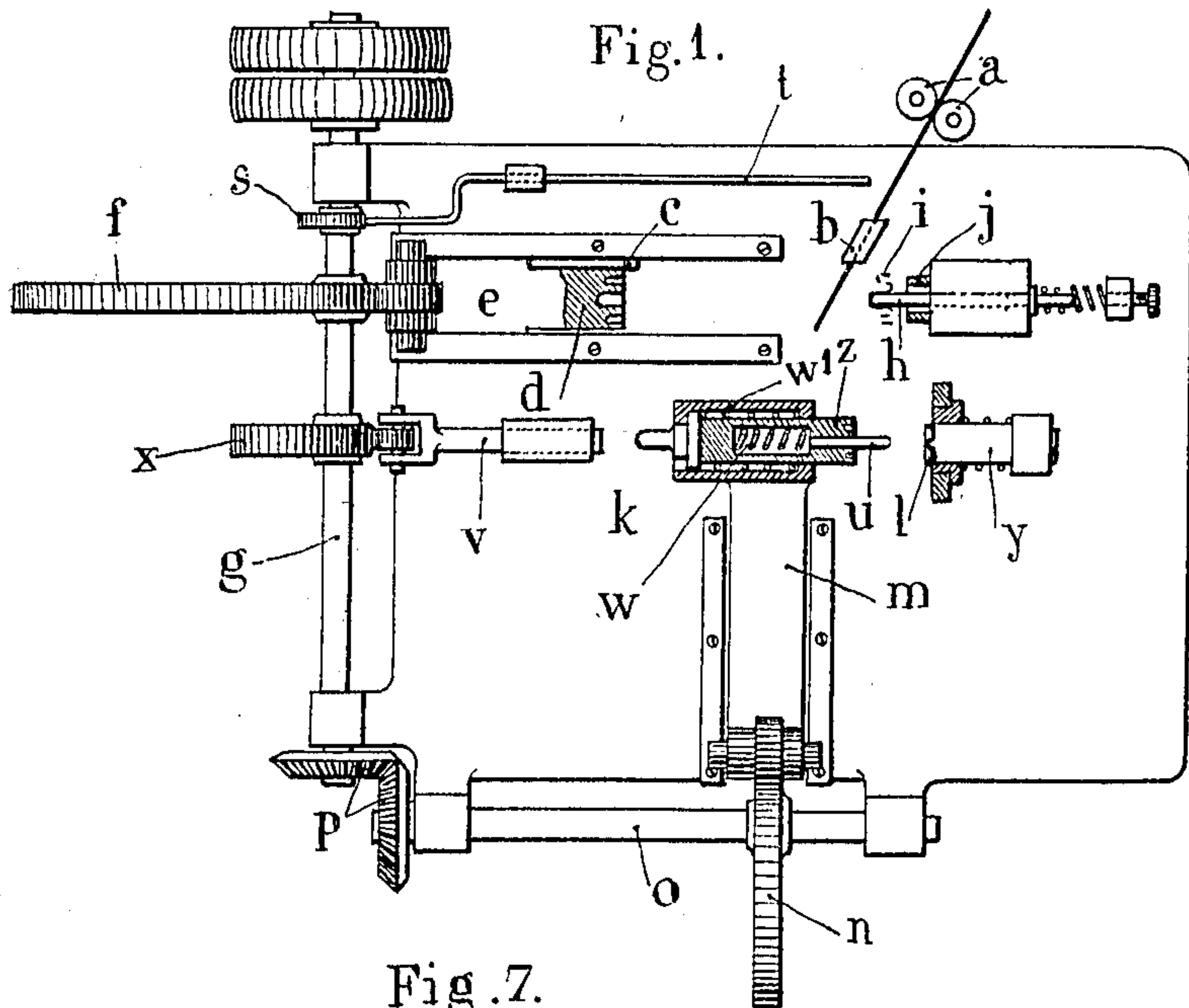


Fig. 7.

Fig. 8.

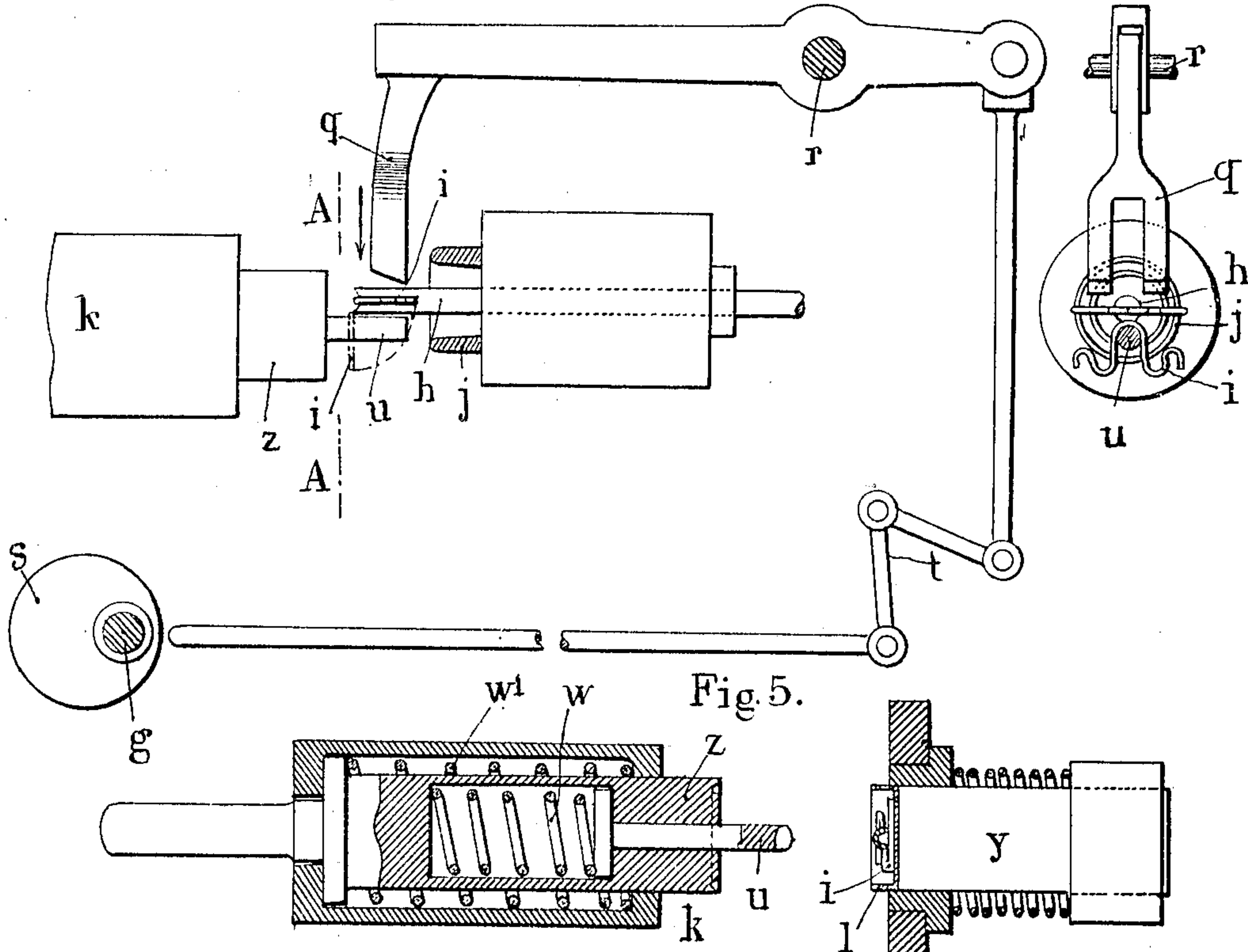


Fig. 5.

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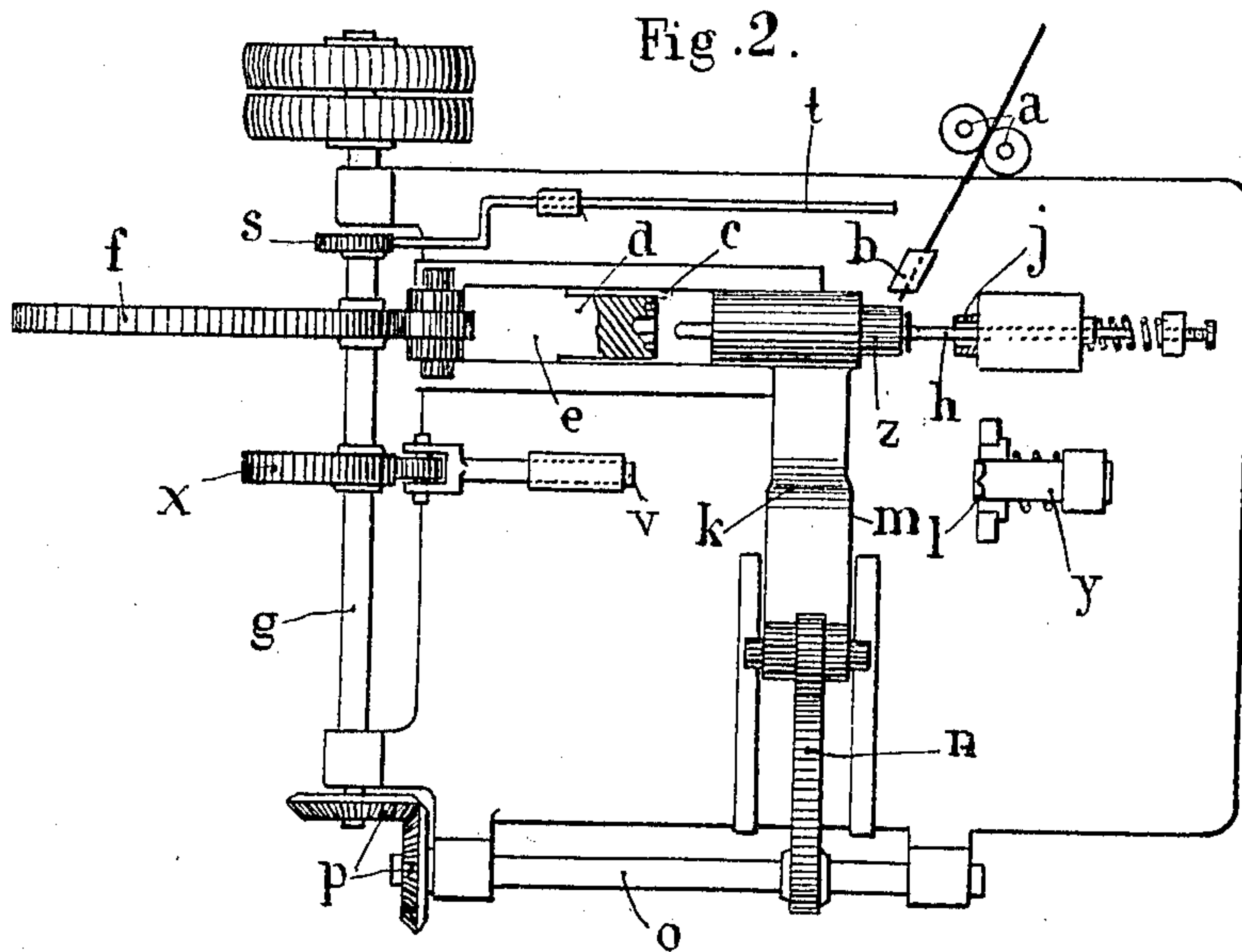


Fig. 9

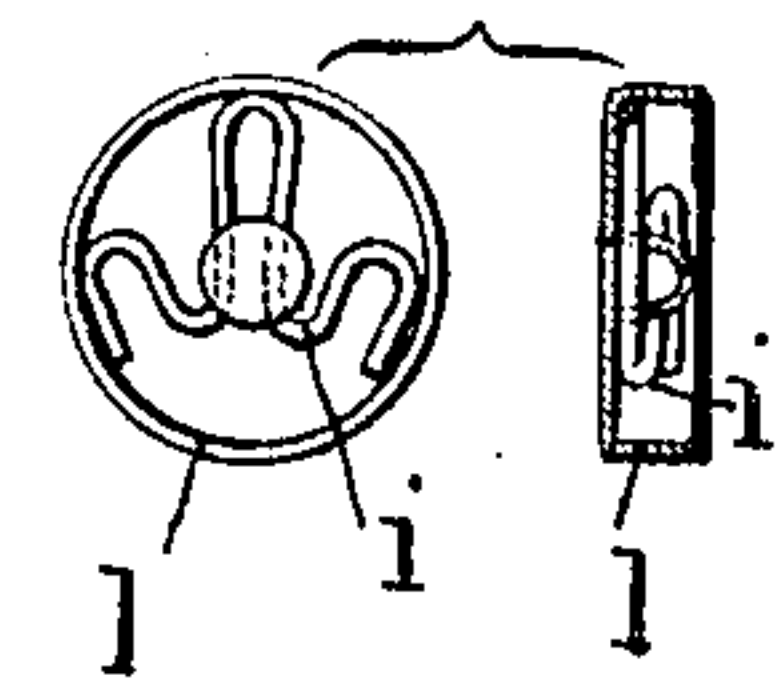


Fig. 10.

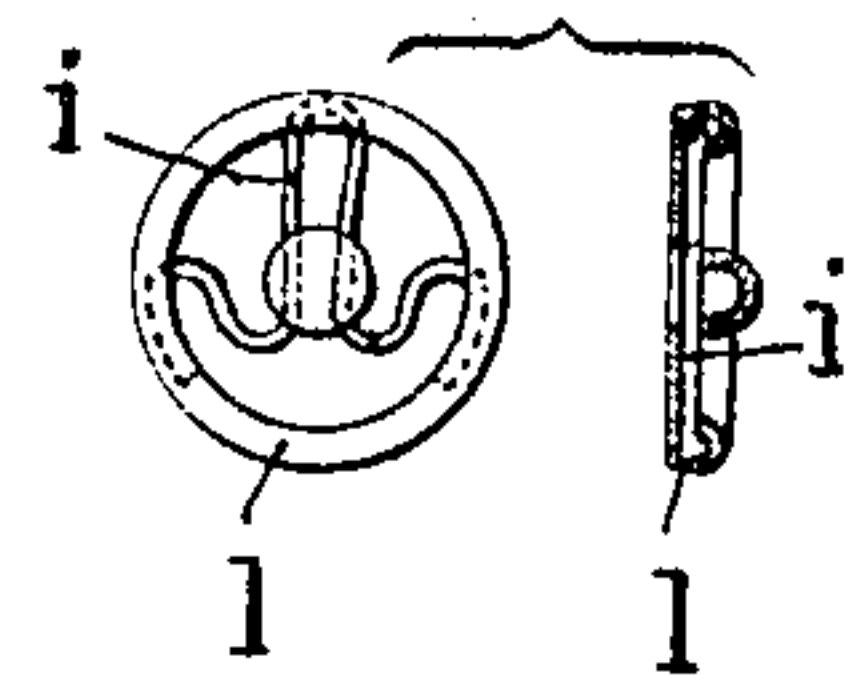


Fig. 3.

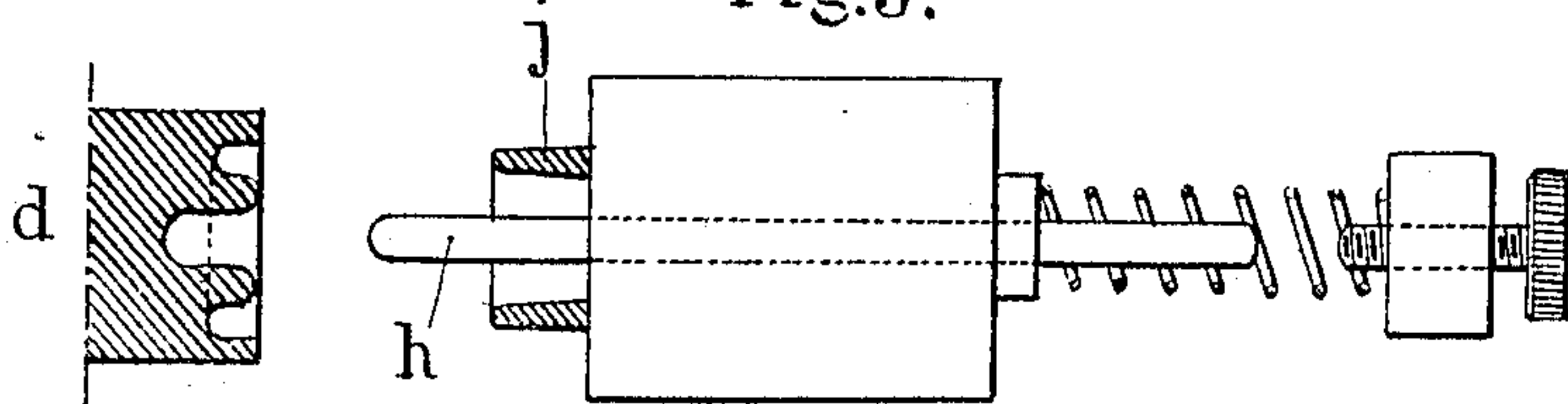


Fig. 4.

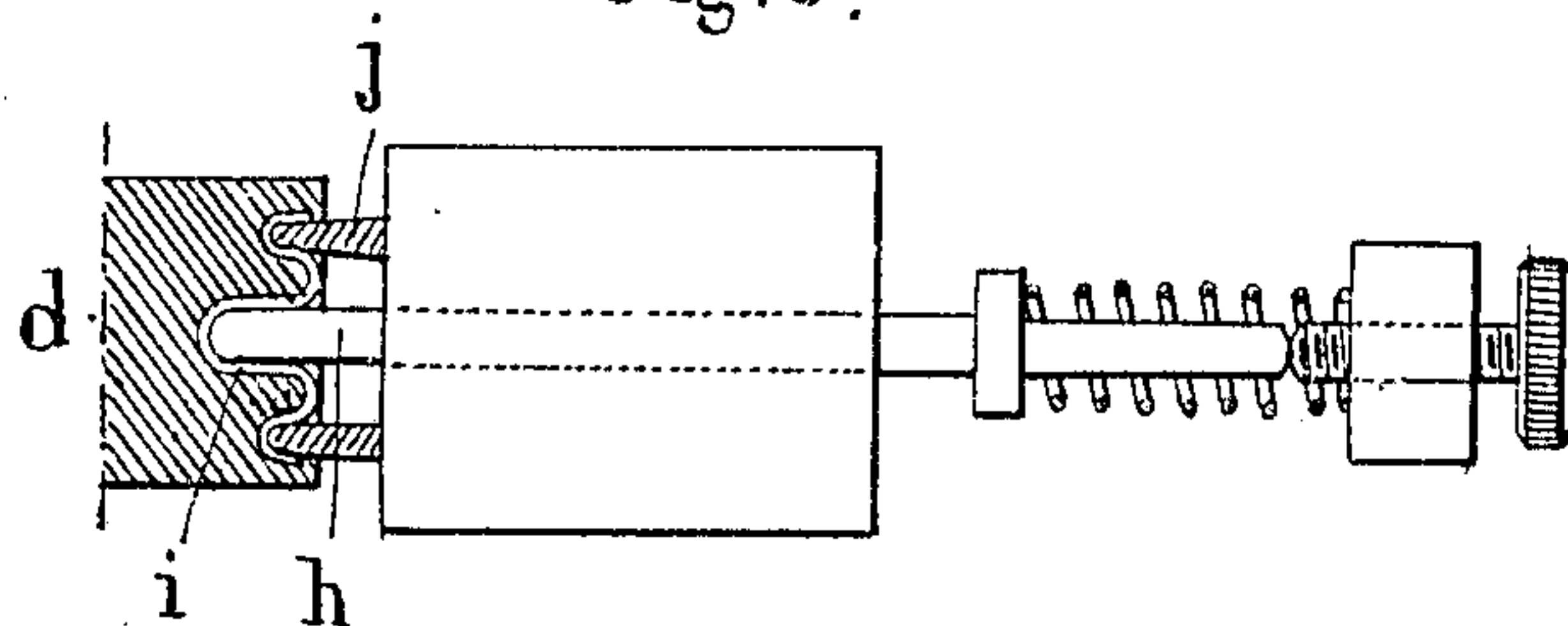
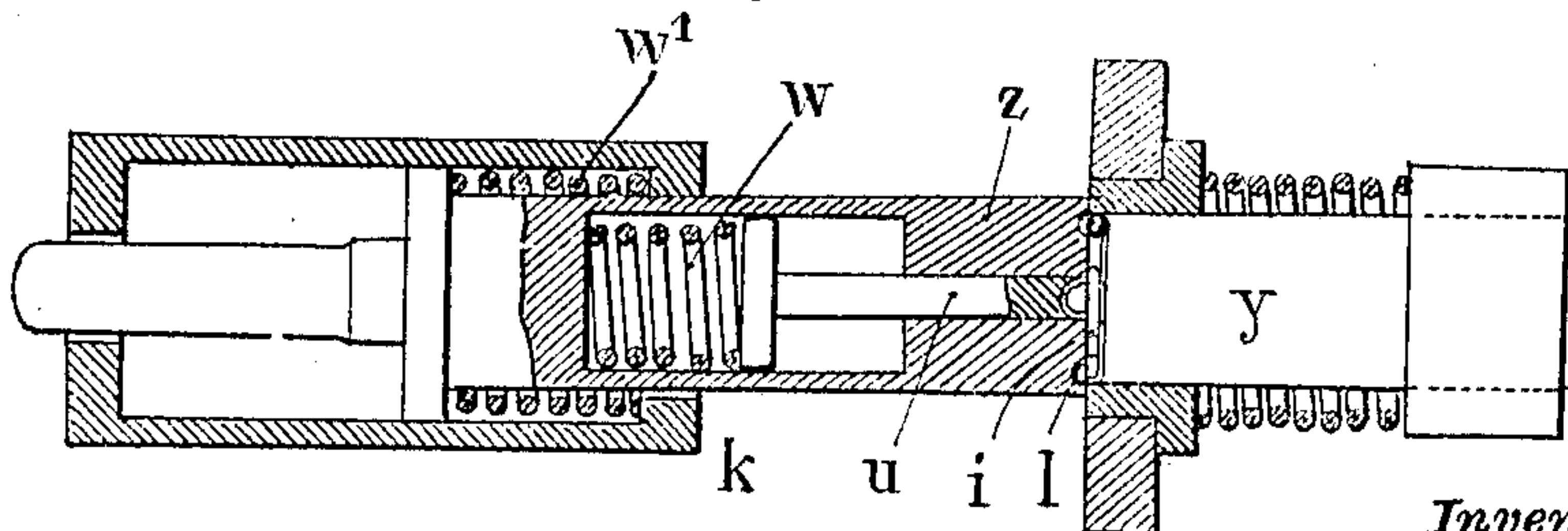


Fig. 6.



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UNITED STATES PATENT OFFICE.

JOSEPH LOUIS ADHEMAR BOREL AND EMILIE GRANGE, NÉE BOREL, OF ANNECY, FRANCE.

MACHINE FOR MANUFACTURING PRESS-BUTTONS OR THE LIKE.

1,298,165.

Specification of Letters Patent.

Patented Mar. 25, 1919.

Application filed October 12, 1917. Serial No. 196,310.

To all whom it may concern:

Be it known that we, JOSEPH LOUIS ADHEMAR BOREL and EMILIE GRANGE, née BOREL, citizens of the Republic of France, residing at 2 Rue Notre Dame, Annecy, Haute Savoie, in the Republic of France, have invented certain new and useful Improvements in Machines for Manufacturing Press-Buttons or the like, of which the following is a specification.

The present invention relates to devices for manufacturing press buttons of the kind comprising a cap-like member containing a retaining spring, wherein the wire for the spring is first shaped in a device comprising a rod the end of which holds the shaped spring in a plane passing through the axis of the rod, whereupon a second rod is brought into proximity with the first rod and the spring is transferred from the first to the second rod, whereupon the latter is withdrawn and serves to guide the spring to the cap like member when the spring is forced into the latter.

One of the greatest difficulties encountered in the manufacture of press buttons comprising a cap like member and a spring, consists in the insertion of the latter two branches of which have to be inserted in two openings made laterally in the said cap like member, the said spring being manufactured on the same machine.

According to the present invention use is made of the property possessed by lightly stamped metal springs of remaining on the end of the pressure member that has formed them, and in such a manner that the said springs may be transferred from the said pressure member when convenient.

By way of example the invention will now be described with reference to the accompanying drawing in which:—

Figure 1 is a plan of the machine as a whole not in operation.

Fig. 2 is a plan of the machine as a whole in operation at the moment when the spring is descending under the action of the movable fork.

Fig. 3 shows in plan a view of the device not in operation that serves for the shaping of the spring.

Fig. 4 shows in plan a view of the device in operation that serves for the shaping of the spring.

Fig. 5 shows, in elevation not in operation,

the device that serves to put the spring in its place and turn the edge of the cap like member over the spring.

Fig. 6 shows, in elevation, in operation, the device illustrated in Fig. 5.

Fig. 7 shows in elevation a general view of the parts that serve to displace the spring for the purpose of making it pass from the parts that construct it to the parts that put it in its place.

Fig. 8 is a cross section along the line A A of Fig. 7.

Fig. 9 shows a front view and a section of a spring arranged in the cap like member of a press button before turning the edge of the cap like member over the spring.

Fig. 10 shows a front view and a section of a spring fitted into the cap like member of a press button.

It will be seen from the drawing, the machine forming as a whole the subject matter of the present invention is provided with a wire feeding device *a*, with a counter shear *b*, and a shear *c*, and a matrix *d* arranged in a carriage *e*. The matrix *d* is actuated by a cam *f*, keyed on to the driving shaft *g*.

The matrix *d* engages the cut piece of wire and is carried with it against the shaping device, the spring *i* is shaped by the rod *h* and the sleeve *j*, then the spring remains engaged horizontally astride of the nose of the rod *h*, as shown in dotted lines in Fig. 1, when the matrix *d* is withdrawn.

The device *k* as a whole serves for the placing of the spring *i* in the cup like member and for turning the edge of the cap like member over the said spring, by means of a horizontal movement, directly under the shaping device. This movement of the device *k*, takes place integrally with the carriage *m*, by means of a cam *n* keyed on to a shaft *o* that receives its motion from the main shaft *g* by means of bevel wheels *p*.

The said tool *k* being directly under the shaping device, a fork *q*, pivoted at *r*, Fig. 7, operated by an eccentric *s* and a system of levers *t*, pushes the spring *i*, which descends from the nose of the rod *h*, by describing a circular arc of 90° from right to left and takes up a position vertically astride of the rod *u*.

At this moment the fork *q* ascends, and the carriage *m* withdraws the device *k* to the position shown in Fig. 1, while a counter punch *v* actuated by a cam *w* carries a rod

u toward a matrix y in which the cap like member of the button is suitably placed; a punch z surrounding the rod u pushes the spring i into the said cap and turns the edge of the latter over the spring i , which is in this way held in its place. As shown in Figs. 5 and 6 the rod u is provided at its outer end with a cavity capable of accommodating the stud arranged centrally of the cap like member.

Springs W , W' withdraw the rod u and the punch z respectively while the device k as a whole is withdrawn and the operation is completed.

It will be understood that various changes may be made in the machine illustrated in the drawings without departing from the scope of the invention defined in the appended claims.

What we claim and desire to secure by Letters Patent of the United States is:—

1. A device for mounting the retaining spring in the cap like member of press buttons, comprising, in combination:—means for shaping the wire of which the spring is to be formed, under such conditions that the spring, after being shaped, remains engaged on the extremity of a rod in a plane passing through the axis of the latter, a spring carrying rod capable of being brought underneath the said rod, a movable fork for the purpose of disengaging the spring from the said rod and of engaging it on the spring carrying rod in such a way as to place it astride of the latter, and means for pushing away the spring when it has in this way been placed on the rod, and of engaging it in the cap like member of the button and of turning the rim of the cap like member over the spring engaged therein.

2. A device for mounting the retaining spring in the cap like member of press buttons, comprising in combination:—a shaping device and matrix arranged in such a way as to effect the formation of the wire of which the spring is to be formed under such conditions that the spring, after being shaped, remains engaged on the extremity of the rod in a plane passing through the axis of the latter, a spring carrying rod capable of being brought underneath the said rod, a movable fork for the purpose of disengaging the spring from its shaping rod and of engaging it on the spring carrying rod, in such a way as to place it astride of the latter, a setting or flanging matrix in which the cup-like member of the button is engaged and opposite to which the rod carrying the shaped spring is brought, a setting or flanging punch in which the spring-carrying rod is resiliently mounted, the object of the rod being first to push the spring into the cap-like member of the button, which is presented to it by the aforesaid matrix, and then to turn the rim of the said cap like member over the spring engaged therein, and means for communicating to the setting or flanging device and to the spring carrying rod a transverse movement of translation for the purpose of receiving the shaped spring and a longitudinal movement for the purpose of putting the spring in position and of turning in the rim of the cap like member.

3. A device for mounting the retaining spring in the cap like member of press buttons, comprising in combination:—feed rollers for the wire; means for cutting the wire; a shaping matrix; and means for communicating a reciprocating movement to the said matrix; a shaping rod arranged opposite to the shaping matrix, a sleeve concentric with the said rod and cooperating with it and with the said matrix for the purpose of shaping the wire of which the spring is to be formed, under such conditions that the spring, after being shaped, remains engaged on the extremity of the shaping rod in a plane parallel to the axis of the latter, a spring carrying rod arranged in such a way as to admit of being brought underneath the said shaping rod, a movable fork for the purpose of disengaging the spring from its shaping rod and of engaging it on the spring carrying rod, in such a way as to place it astride of the latter: a setting or flanging matrix in which the cap-like member of the button is engaged and opposite to which the rod carrying the shaped spring is brought, a setting or flanging device in which the said spring carrying rod is resiliently mounted, the object of the rod being first to push the spring into the cap like member of the button, which is presented to it by the aforesaid matrix, and then to turn the rim of the said cap like member over the spring engaged therein, and means for communicating to the setting or flanging device and to the spring carrying rod a transverse movement of translation for the purpose of receiving the shaped spring and a longitudinal movement for the purpose of putting the spring in position and of turning in the rim of the cap like member.

In testimony whereof we affix our signatures in presence of two witnesses.

JOSEPH LOUIS ADHEMAR BOREL.
EMILIE GRANGE, NÉE BOREL.

Witnesses:

LÉON MARTIN,
J. ORCEL.