

No. 711,972.

Patented Oct. 28, 1902.

J. HORMBY.
STENCIL PUNCH.

(Application filed Apr. 12, 1902.)

(No Model.)

2 Sheets—Sheet 1.

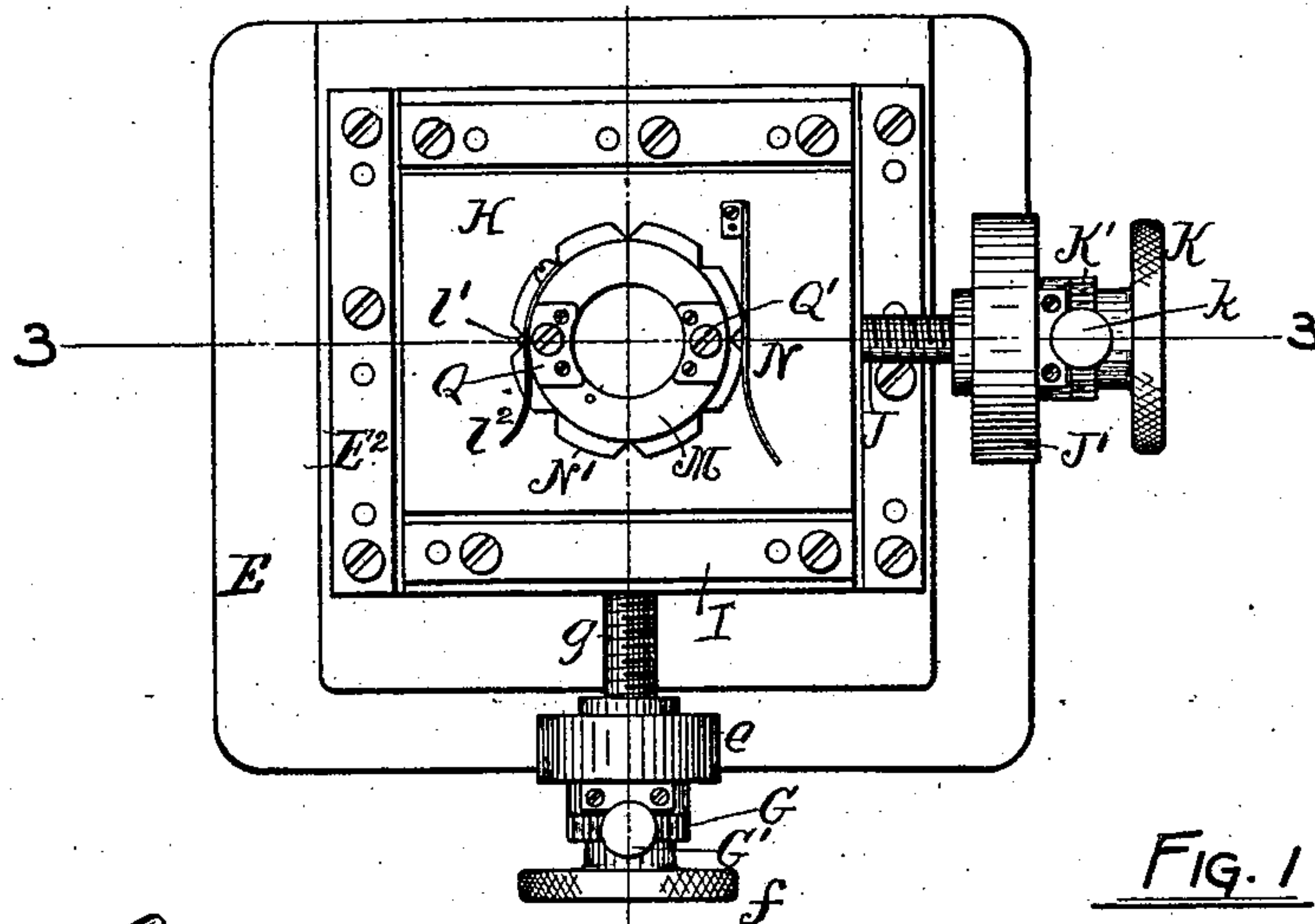


FIG. 1

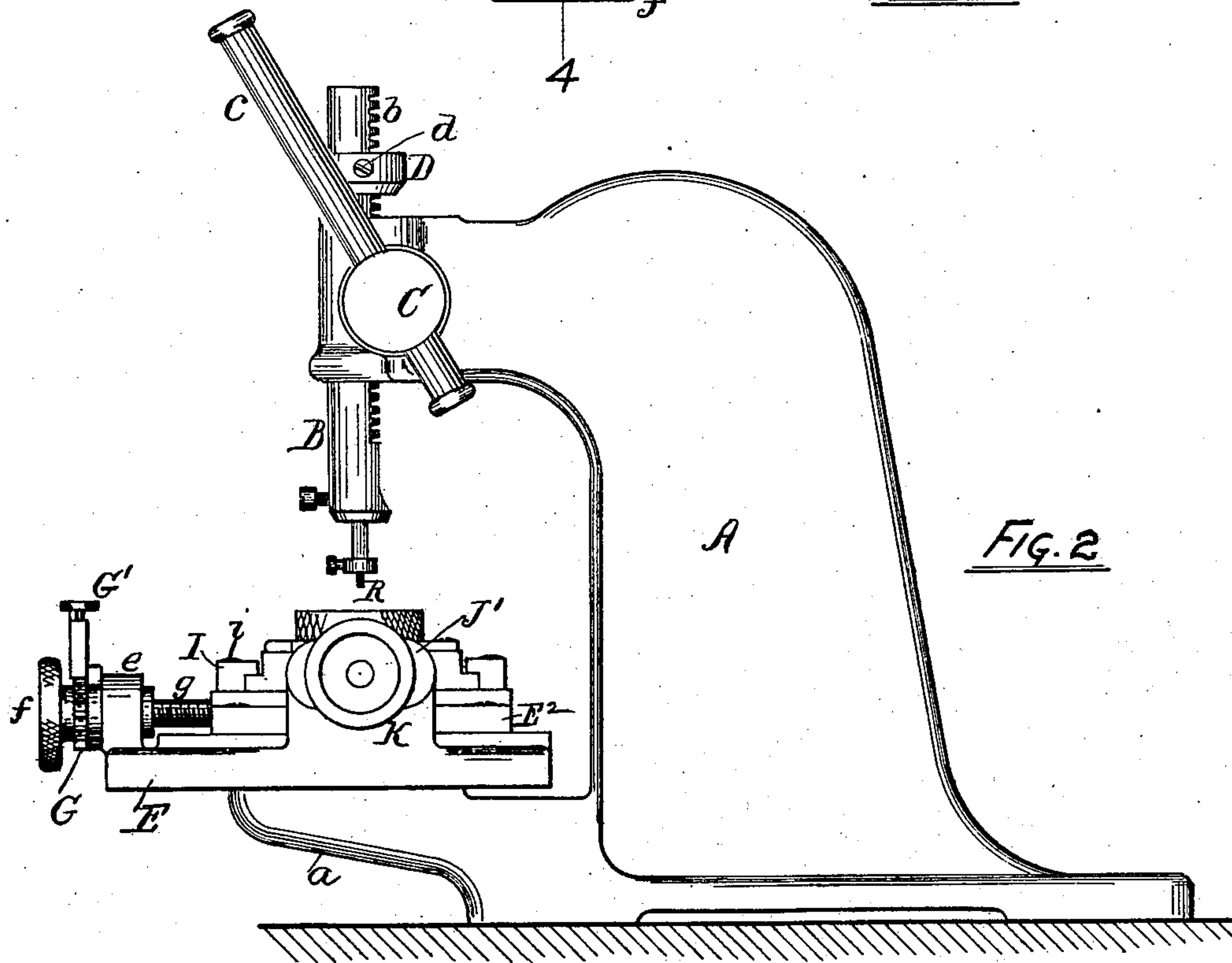


FIG. 2

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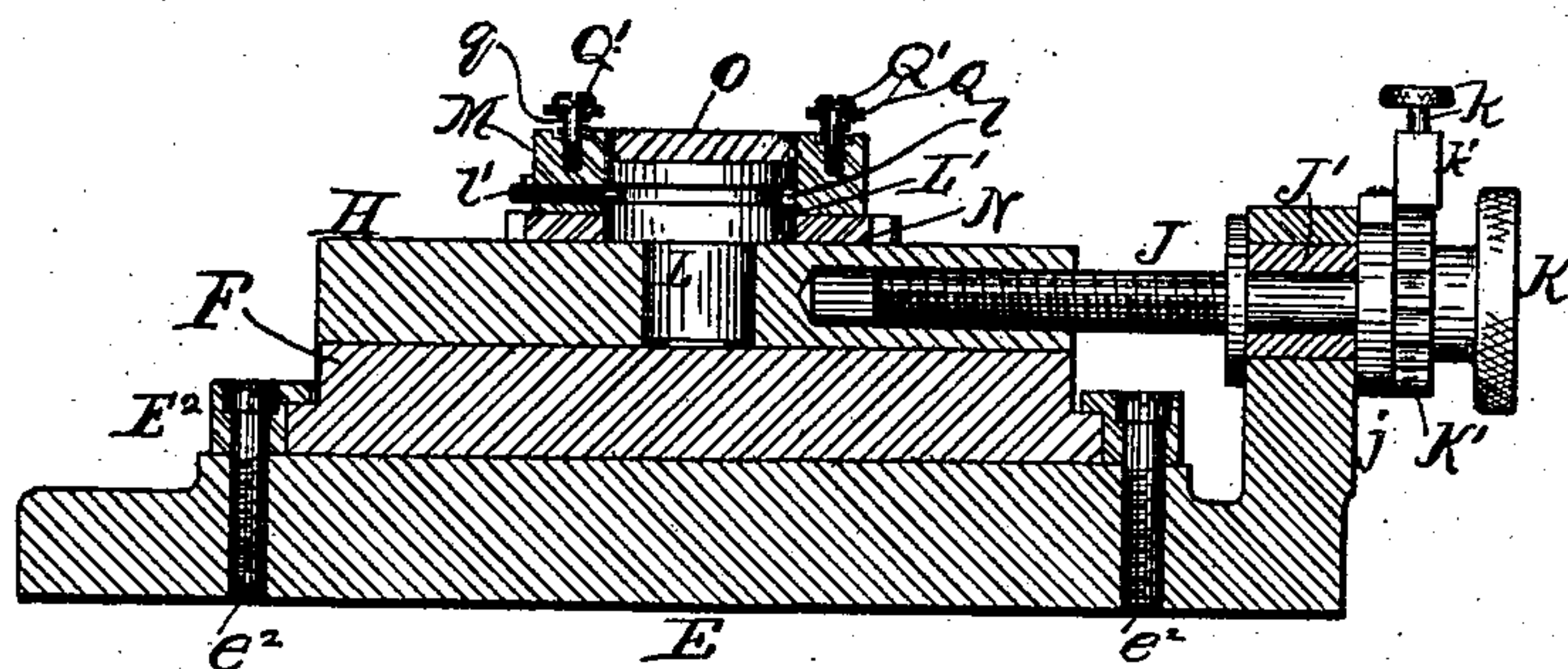


FIG. 3

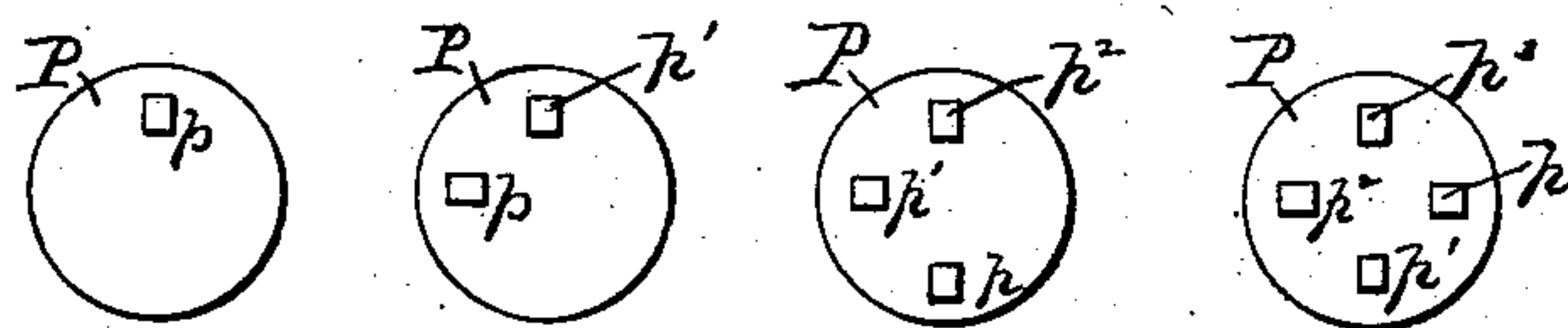


FIG. 5

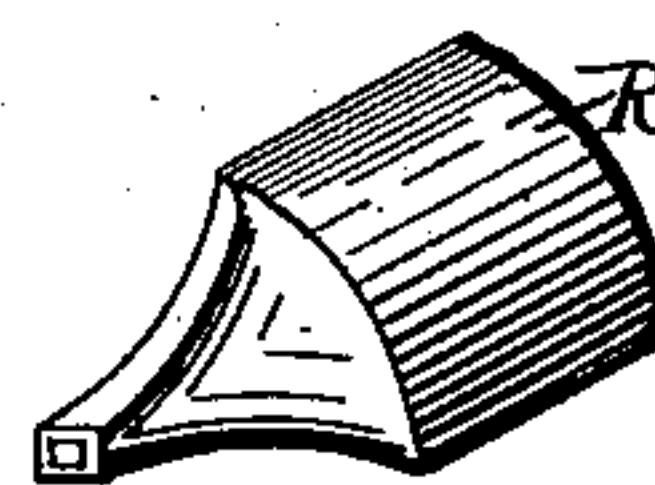


FIG. 6

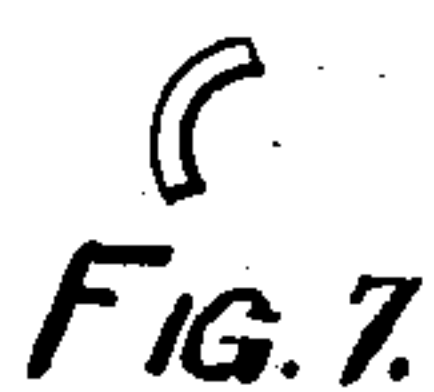


FIG. 7.



Fig.8.

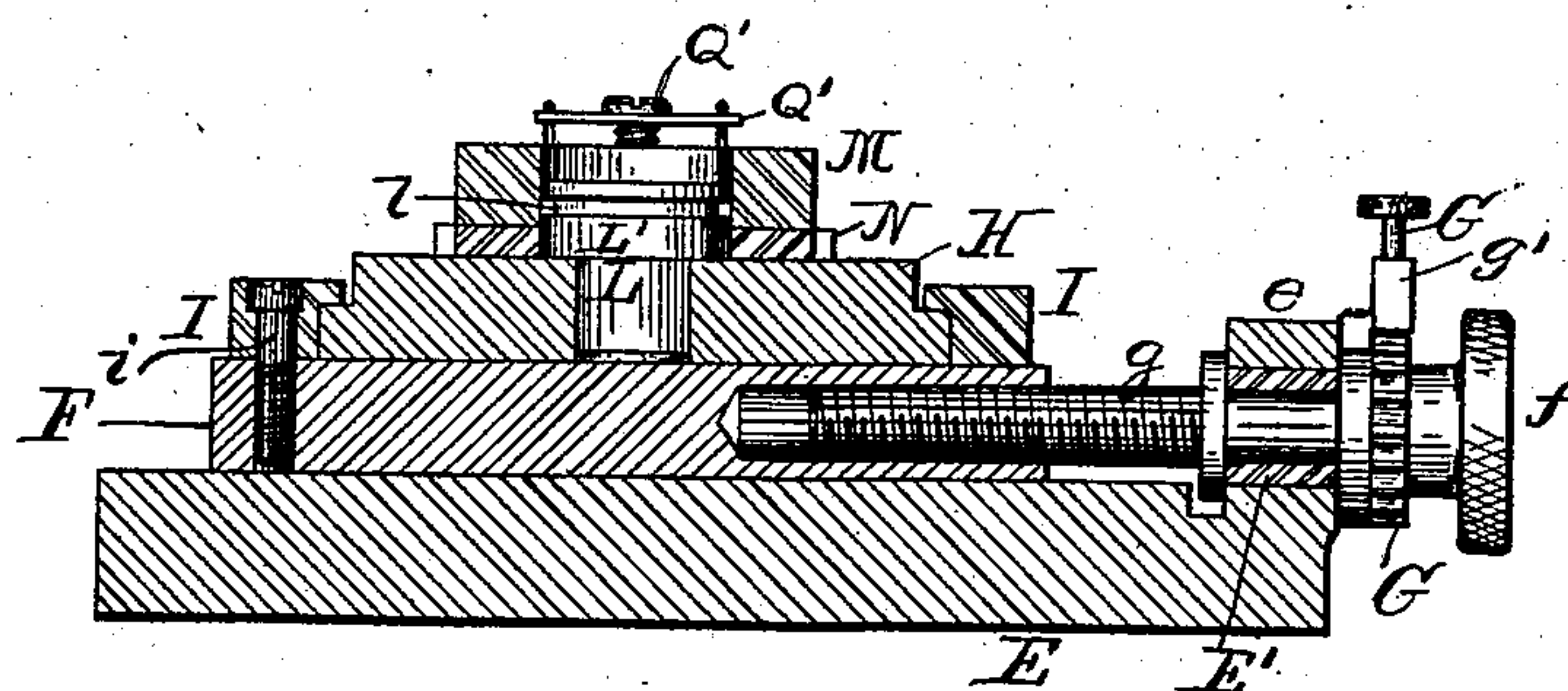
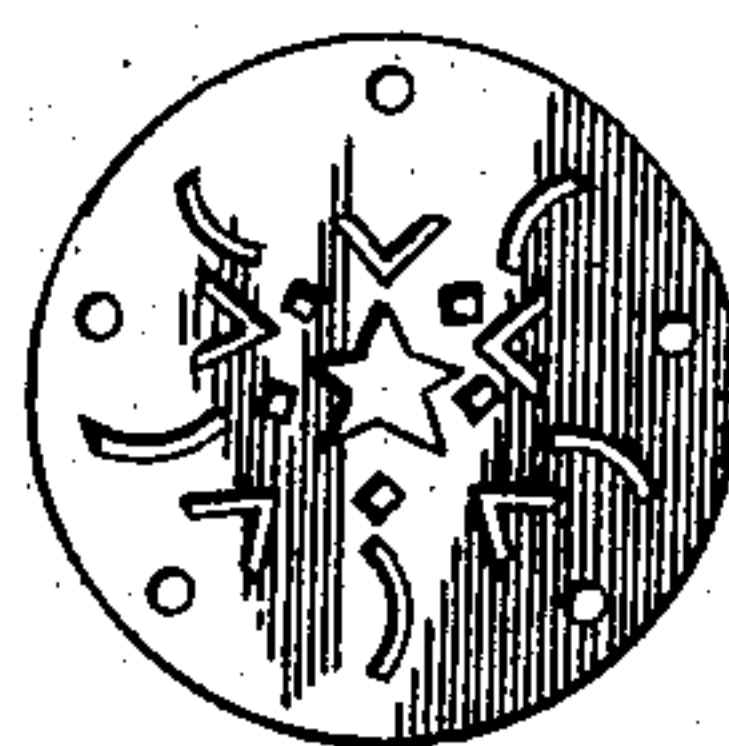


FIG. 4



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UNITED STATES PATENT OFFICE.

JOHN HORMBY, OF WOONSOCKET, RHODE ISLAND.

STENCIL-PUNCH.

SPECIFICATION forming part of Letters Patent No. 711,972, dated October 28, 1902.

Application filed April 12, 1902. Serial No. 102,642. (No model.)

To all whom it may concern:

Be it known that I, JOHN HORMBY, a citizen of the United States, residing at Woonsocket, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Stencil-Punches, of which the following is a specification.

This invention relates to means for cutting or making stencils, and while the stencils produced are intended for use in coloring or ornamenting vegetable, ivory, bone, or other buttons it will be readily apparent that they are applicable to any of the uses to which stencils have been put.

In coloring buttons or other uses of stencils it has heretofore been deemed necessary to provide a set of male and female dies, which are expensive and easily injured or broken, for each different pattern to be placed upon the article to be stenciled; and the special object of this invention is to provide means whereby the expense and trouble involved in such methods will be obviated and the button manufacturer or other stencil user enabled to make stencils for almost all uses by means of a single machine or punch.

With this object in view the invention consists in a stencil cutting or punching machine, the improved construction, arrangement, and combination of the parts of which will be first fully described hereinafter and afterward particularly pointed out in the appended claims.

In the accompanying drawings, which illustrate a machine embodying my invention, Figure 1 is a top plan view of the table of the machine. Fig. 2 is a view of the machine in side elevation. Fig. 3 is a vertical sectional view on the plane of broken line 3 3 of Fig. 1. Fig. 4 is a vertical sectional view on a plane at right angles to that of Fig. 3, as indicated by broken line 4 4 of Fig. 1. Fig. 5 is a plan view of a stencil-plate, illustrating the results of the progressive action of the machine. Fig. 6 is a detail perspective view of a punch detached from the machine. Figs. 7 and 8 are end views of punches of different designs. Fig. 9 is a view of a stencil-plate punched in a complex pattern possible with this invention.

Like reference characters mark the same

parts wherever they occur in more than one of the figures.

Referring to the drawings by letters, A indicates the main frame of the machine, of gooseneck form, in which is slidably mounted a punch-stock B, provided with rack-teeth *b* on one side engaging a pinion (not shown) on a shaft C, journaled in the frame and provided with a handle *c*, by which it may be rotated to reciprocate the stock B vertically, the downward motion being limited by a collar D, adjustable on the stock and securable by a set-screw *d*, said collar striking against the frame at the end of the downstroke of the stock. The lower part *a* of the frame in line with the guide of the punch-stock supports a plate or casting E, properly secured thereon, upon which is mounted a plate F, secured against vertical displacement by means of guide-bars *E*² and screws *e*², Fig. 3, which plate may be reciprocated in one direction on plate E by means of a screw *g*, threaded into one side of F and swiveled in a sleeve *E'* in an opening in an upwardly-projecting lug *e* of plate or casting E, Fig. 4. This screw is provided with a suitable head *f* and pinion or ratchet-wheel G, having beveled teeth to receive the correspondingly-shaped end of a spring-pawl G', slidably mounted in a bracket *g'*, secured to the lug *e*. A second plate H is mounted on plate F and held by guide-bars I, secured to F by screws *i*. This plate H is reciprocable on plate F in a direction at a right angle to the direction of plate F by means of a screw J, threaded in said plate H and swiveled in a sleeve J', mounted in an opening in an upwardly-projecting lug *j* of the casting E, Fig. 3, said screw being provided with a suitable head K for turning it and a pinion or ratchet-wheel K', with beveled teeth, between which engages the correspondingly-shaped end of a spring-pawl *k*, mounted in a bracket *k'*, secured to the lug *j*. In a central opening in plate H is secured a plug L, Figs. 3 and 4, having its upper portion enlarged, as at L', in the form of a head and provided with an annular groove *l* in its periphery to receive a pawl or pin *l'*, secured to a spring *l*² and passed through a radial opening in a clamp-ring M, which forms part

of or is slightly secured to an index-wheel or notched disk N', both ring and disk being mounted to turn upon head L' of plug L and held in any desired position by a spring-pawl N engaging in the notches of the index-wheel N'. In the opening of ring M and resting upon the top of the head L' of plug L is the female die O, (see Fig. 3,) preferably a block of wood, the top of which is flush with the top of ring M, upon which die and ring is placed the plate P, of which the stencil is made, preferably of thin sheet-brass or other metal, said plate being rigidly held by clamp-plates Q Q, pressed downward by screws Q' Q' and normally held raised against the heads of the screws by springs q.

R indicates the punch, whose operative end may be of any desired fanciful pattern or configuration, simple or complex—as, for instance, square, as shown in Fig. 6, curved, as in Fig. 7, V-shaped, as in Fig. 8, &c. This punch is suitably secured at the lower end of the punch-stock B.

In operation, with the parts in position as described, the plates F and H may be so adjusted as to bring the center of the stencil-plate directly under the punch, when by operating the punch a single hole will be punched through the plate and a complete stencil made. If, however, a stencil is to be cut in a pattern requiring a repetition of holes, the plates F and H are adjusted to bring the center of the stencil-plate into a position eccentric to the punch, when by reciprocating the punch a single hole is punched, as at *p* in Fig. 5, in an eccentric position. The index-wheel, ring M, and the female die are now rotated one step, the punch again reciprocated, and a second hole, as at *p'*, Fig. 5, is punched in the plate. This adjustment of the plate P and reciprocation of the punch being further repeated a circular series of holes is made in the stencil-plate, as shown at *p*² *p*³, Fig. 5. By again adjusting the plates F and H there may be made other circular rows of holes on the plate, nearer to or farther from the center than holes *p* *p'* *p*² *p*³, either by the same punch or by another punch of different pattern, until a quite complex and beautiful pattern of stencil may be made, according to the taste of the operator, an example of such a stencil being shown in Fig. 9. The patterns may be still further varied by adjusting the plates F and H without reference to the ring M and plate, by which means repetitions of holes may be made in straight lines in almost

any direction, and such straight-line patterns may be combined also with curved line or circular rows of holes.

It will thus be seen that I am enabled with a single machine and without complicated, expensive, and easily-destructible dies to form stencils having their openings simply arranged on in an endless variety of complex designs.

While I have described specific means for performing the several adjustments and operations, I desire it to be understood that I do not limit myself to such exact details, as many changes and variations might be made therein without departing from the spirit and scope of my invention.

Having thus fully described my invention, what I claim as new is—

1. The combination with a reciprocable punch moving in a fixed guide, of means for holding the plate to be punched comprising the female die, and means for moving the female die and work together in straight lines at right angles to each other.

2. The combination with a reciprocable punch moving in a fixed guide, of a female die for supporting the plate to be punched, means for moving the female die and the work together directly across the vertical axis of the punch, and means for holding the work in position to leave the center of the work-plate clear whereby diametric lines of holes may be punched across said plate.

3. The combination with a reciprocable punch moving in a fixed guide, of a female die for supporting the plate to be punched, means for moving the female die and work together in lines radiating from the center of the plate, and either straight or curved.

4. In a stencil-punching machine, the combination with the punch reciprocable in a fixed vertical guide, of a table or frame, a plate thereon adjustable in a straight line, a second plate on the first adjustable in a straight line, at a right angle to the line of adjustment of the first, a female die carried by the second plate and adjustable circularly thereon, and means for securing the plate to be punched upon the female die.

Witness my hand, this 31st day of March, 1902, in the presence of two subscribing witnesses.

JOHN HORMBY.

Witnesses:

EDWIN J. PENN, Jr.,
RALPH F. BUNKER.