

(No Model.)

2 Sheets—Sheet 1.

R. M. ATWATER & E. HERCKNER.

MOLD FOR GLASSWARE.

No. 405,863.

Patented June 25, 1889.

FIG. 1

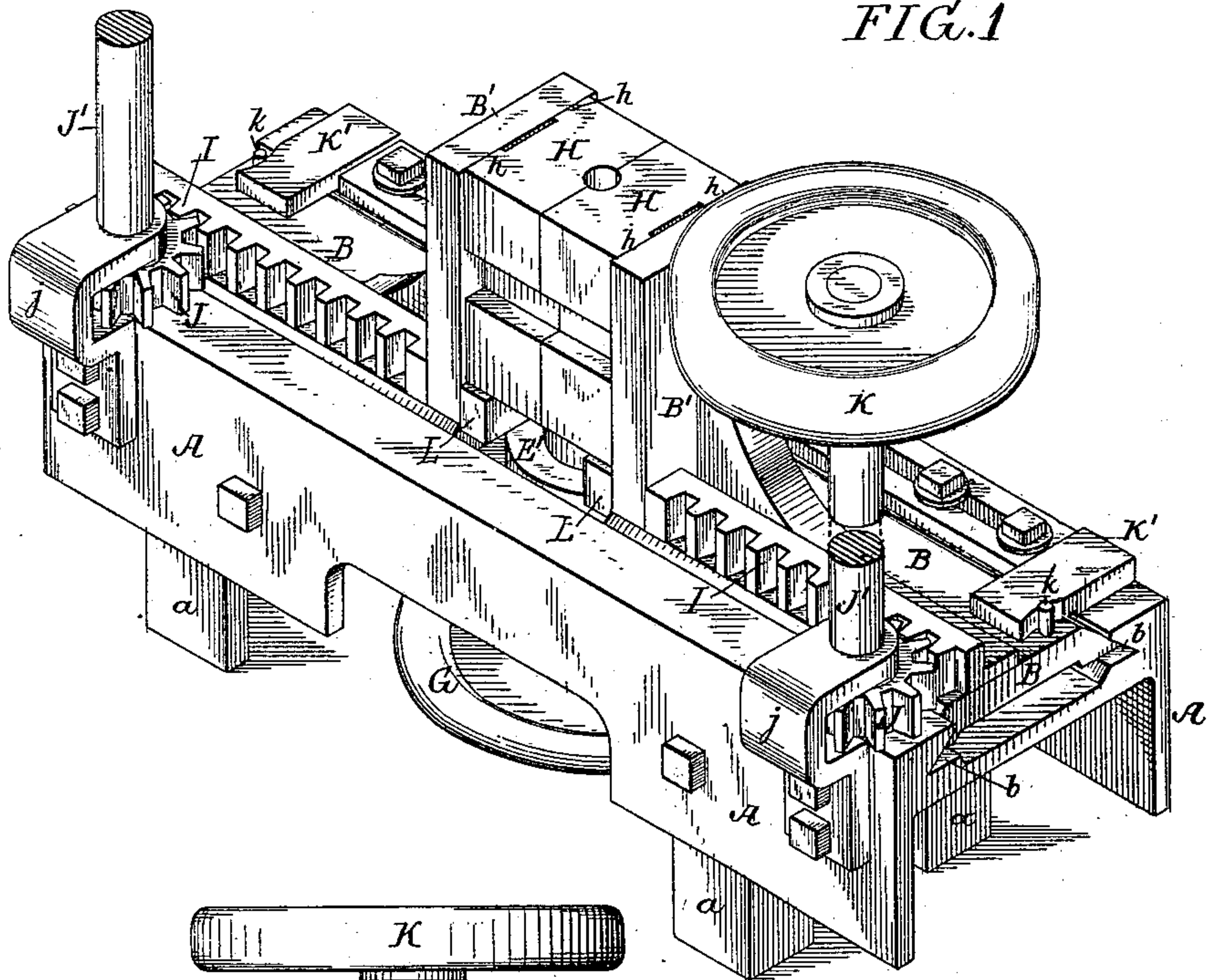


FIG. 2.

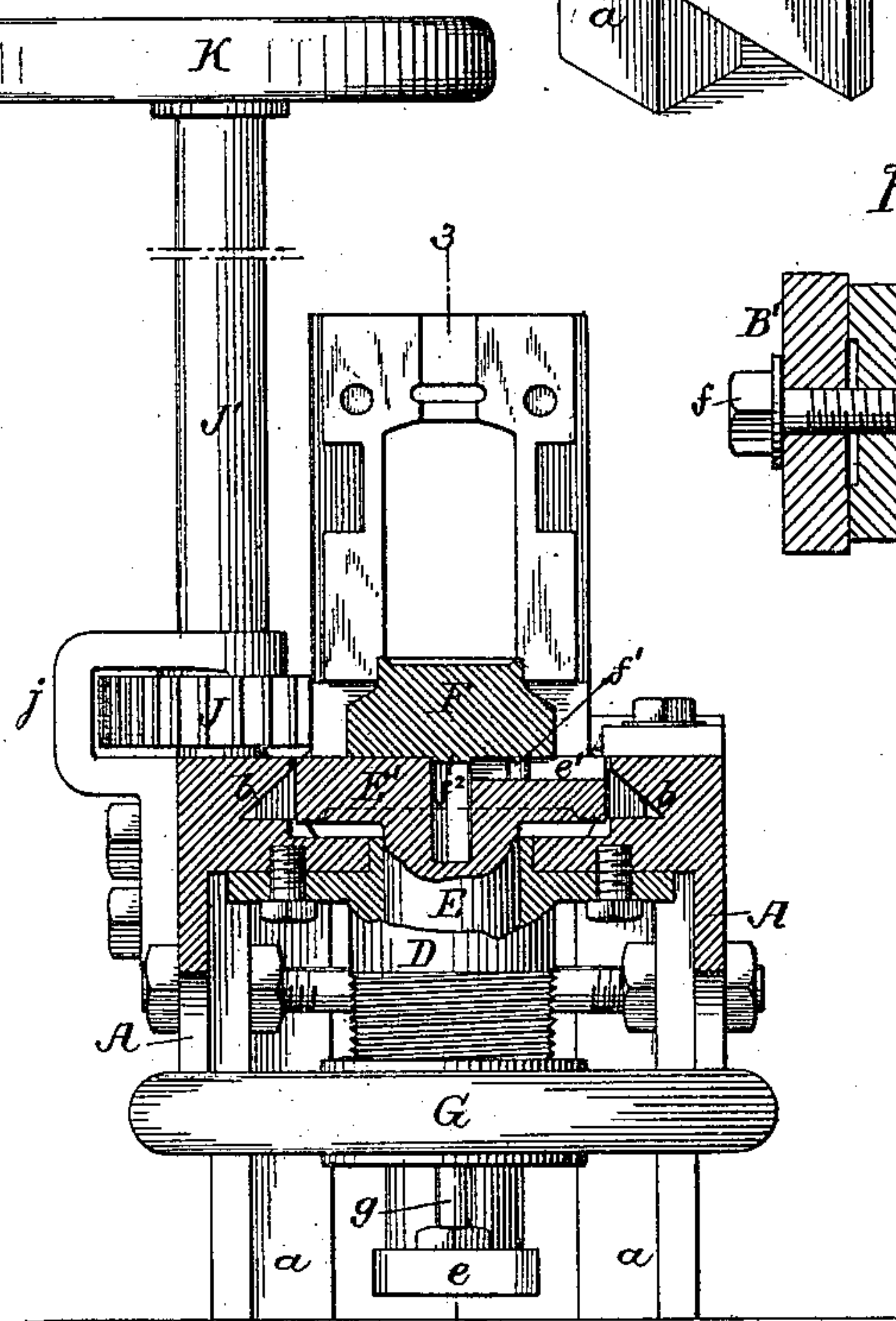
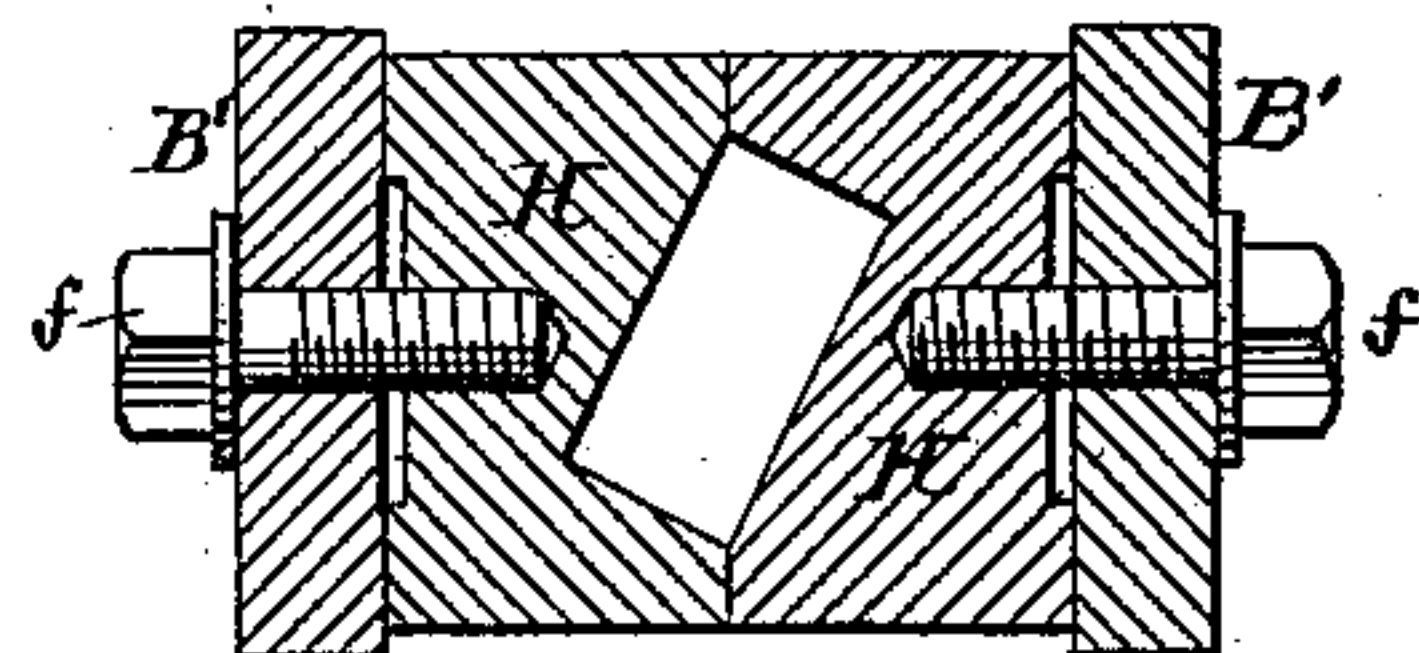


FIG. 4.



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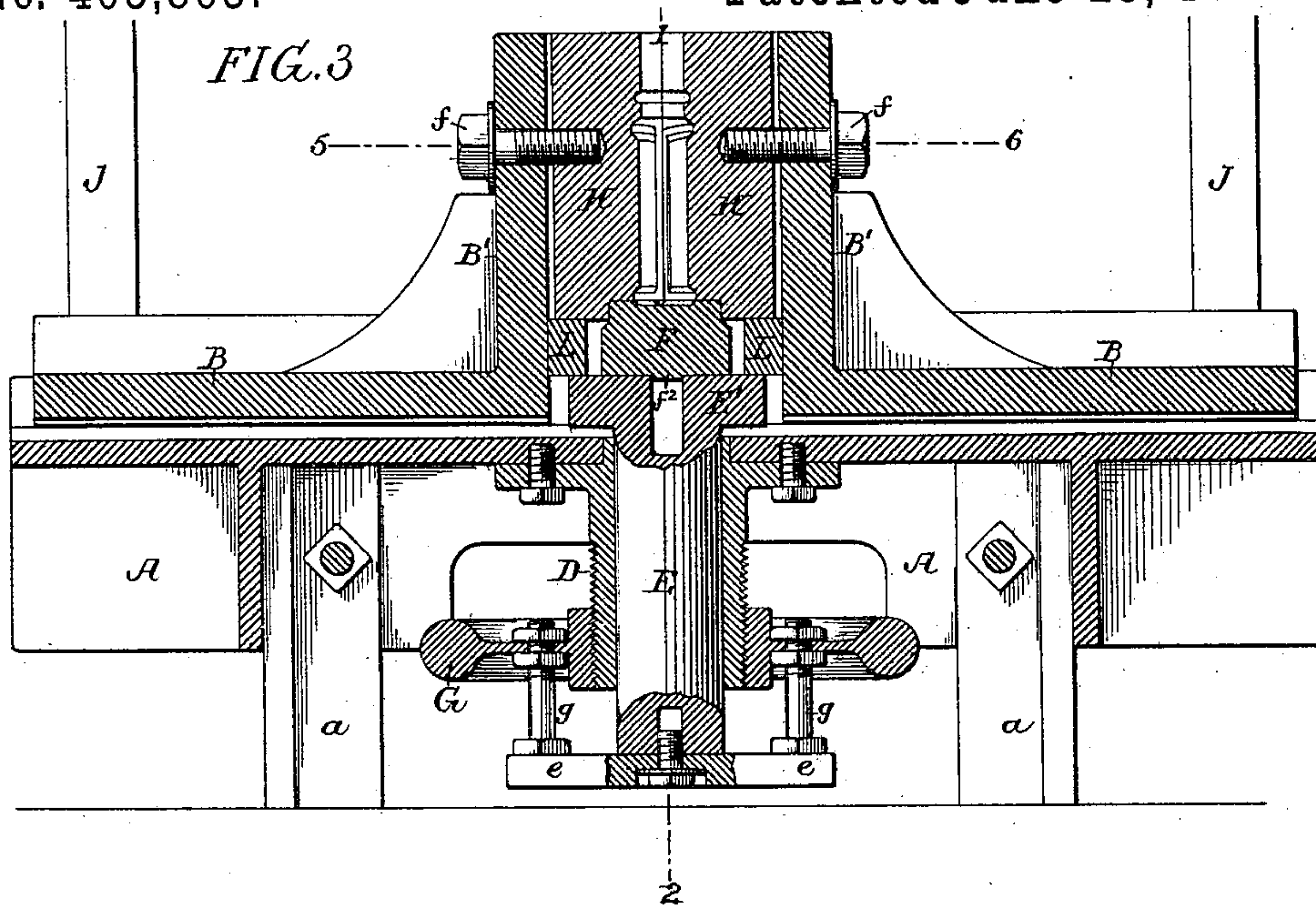
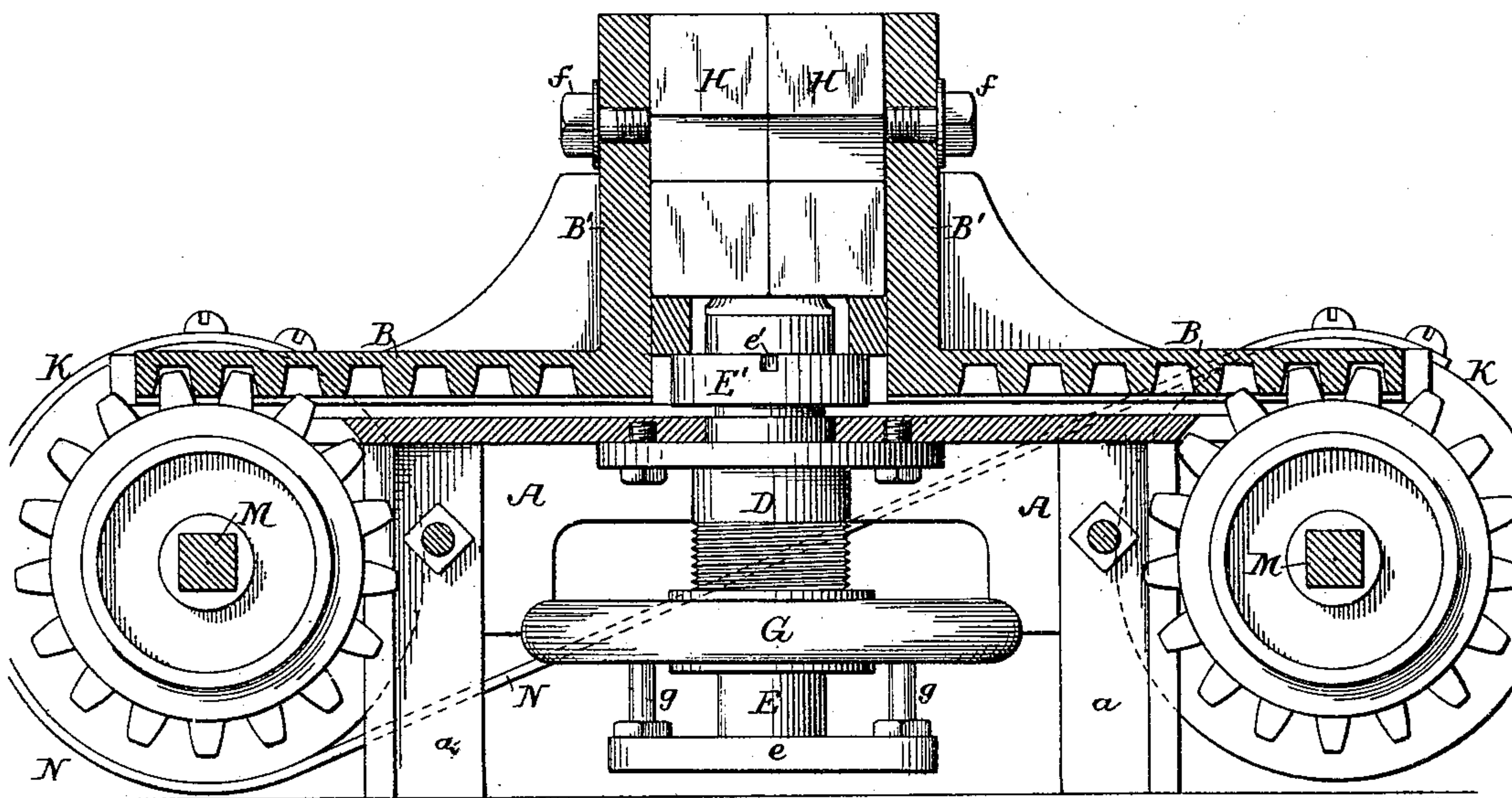


FIG. 5.



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UNITED STATES PATENT OFFICE.

RICHARD M. ATWATER AND EMIL HERCKNER, OF MILLVILLE, NEW JERSEY,
ASSIGNORS TO WHITALL, TATUM & CO., OF PHILADELPHIA, PENNSYLVANIA.

MOLD FOR GLASSWARE.

SPECIFICATION forming part of Letters Patent No. 405,863, dated June 25, 1889.

Application filed September 10, 1887. Serial No. 249,344. (No model.)

To all whom it may concern:

Be it known that we, RICHARD M. ATWATER and EMIL HERCKNER, both citizens of the United States, and residents of Millville, Cumberland county, New Jersey, have invented certain Improvements in Molds for Glassware, of which the following is a specification.

The main object of our invention is to so construct a mold for glassware as to facilitate the manipulation of the mold and the molding and removal of the glass, to permit the interchange of dies therein, to reduce the weight of metal required in the mold itself, and to lessen its cost.

In the accompanying drawings, Figure 1 is a perspective view of our improved glass-mold. Fig. 2 is a transverse section on the line 1 2, Fig. 3. Fig. 3 is a longitudinal section on the line 3 4, Fig. 2. Fig. 4 is a sectional plan view on the line 5 6, Fig. 3; and Fig. 5 is a longitudinal section of a modification of our invention.

A is the bed-plate of the apparatus supported on suitable legs *a a*, secured thereto by bolts or other suitable fastenings. In the face of this bed are two undercut grooves *b b*, to which are adapted the bases of two sliding frames B B, which carry the dies.

Projecting downwardly from the center of the base-plate A is a bearing D for the plunger E, which carries the bottom die F, as described hereinafter. On the bearing D is an external screw-thread, to which is adapted a screw-thread on a hand-wheel G, connected to the plunger E, in the present instance, through the medium of a plate *e* and bolts *g*, so that as the wheel is turned the plunger will be raised or lowered for the purpose of fitting the lower die snugly to the side dies.

The two sliding frames B B have vertical brackets or extensions B', to which the side dies H H of the mold are secured. These side dies are rectangular in form and have their back portions grooved, forming two bearings *h h*, which fit neatly against the vertical brackets B'. In the present instance we have shown the side dies secured to these brackets by means of screw-bolts *f f*; but it will be understood that any suitable fastening device may be used in their stead. On the upper

surface of each slide, as shown in Fig. 1, is a rack I, which engages with a pinion J on a vertical shaft J'. Each shaft is provided with a suitable hand-wheel K at a height convenient to be operated by the attendant. The shafts J are adapted to bearings *j*, secured to the bed of the machine, and they also have a bearing in the base of the machine itself. By turning the hand-wheels K in one direction the dies are drawn toward each other, and when turned in the opposite direction the dies are separated from each other.

To prevent the dies from passing over the center when moved toward it, we provide each slide with pins *k k*, which engage with stops K', adjustably secured to the base of the machine. These stops can be adjusted for dies of different thicknesses, as will be readily understood.

The dies H H rest upon suitable brackets L L, so that one screw for each bracket is only necessary to fasten the dies firmly to the slides.

The bottom die F is loose on the head E' of the plunger E, which has in its face a groove *e'*, to which is adapted a pin *f'*. The bottom die F has also a small central extension *f''*, which rests in an orifice in the head E'. This lower die does not fit snugly in the head, but has a slight play, so that when the dies H H come together the lower die will seat itself, making a snug fit.

By having the mold part on a horizontal line, as shown and described, the dies can be readily removed from the machine and other dies placed in their stead, or, as is often the case, where in druggists' bottles a name is required on one half of the die, that half can be removed and replaced with a die having another name without duplicating the entire mold. The longitudinal sliding dies retreat from the molded bottle more equally and directly than in a pivoted mold, and by their movement in a right line, instead of around a pivot, allow of panels and recesses being made in the sides of blown or pressed articles with sides having less bevel. Furthermore, by this construction expensive parts and fittings are dispensed with and the weight of metal required in ordinary molds decreased.

In Fig. 5 we have shown a modification in

which the racks are on the under side of the slide B and are worked from transverse shafts M, which have their bearing in the base of the machine.

5 The hand-wheels may be connected together by a strap N, Fig. 5, when found necessary, so that when one wheel is turned to open the mold the other wheel is turned also through the medium of the strap, and when
10 the other wheel is moved to bring its mold to the center the opposite mold is also brought to the center by the same strap.

We claim as our invention—

1. The combination of the base carrying
15 the removable lower die with sliding frames carrying removable side dies, said frames being movable from and toward each other in a straight line, substantially as described.

2. The combination of the base and two
20 frames adapted to slide thereon with racks on each frame, and shafts J', carrying pinions controlling the racks and having a handle

within convenient reach of the attendant, substantially as specified.

3. The combination of the sliding frames 25 having die-supporting brackets L secured thereto, with dies H, resting upon said brackets, and securing devices by which the dies are attached to the sliding frames, substantially as described.

4. The combination of the sliding frames 30 carrying dies, each frame being provided with pins k, with adjustable stops K' on the base, against which the pins strike when the dies are at the limit of their inward movement, 35 substantially as set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

RICHARD M. ATWATER.

EMIL HERCKNER.

Witnesses:

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