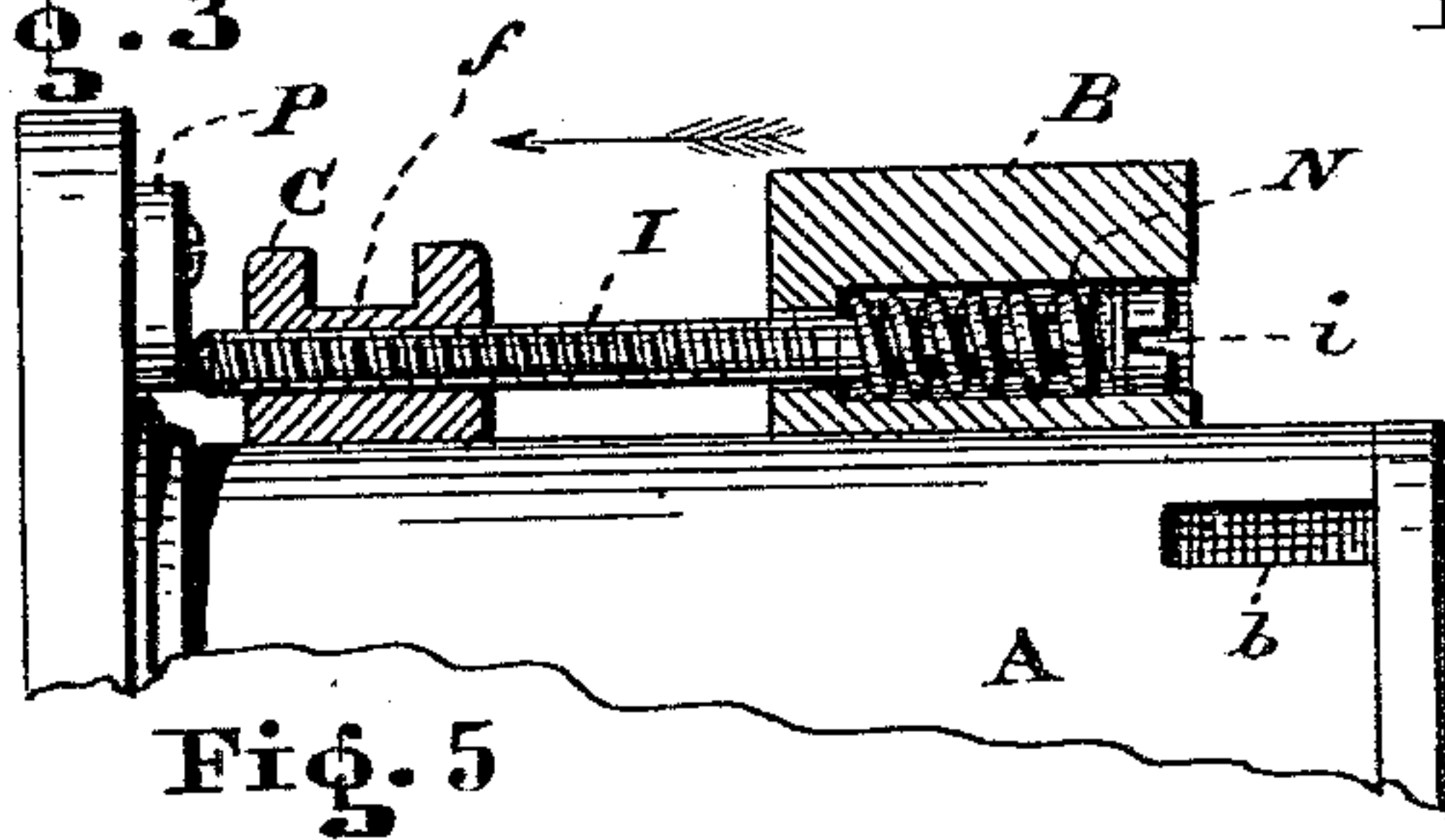
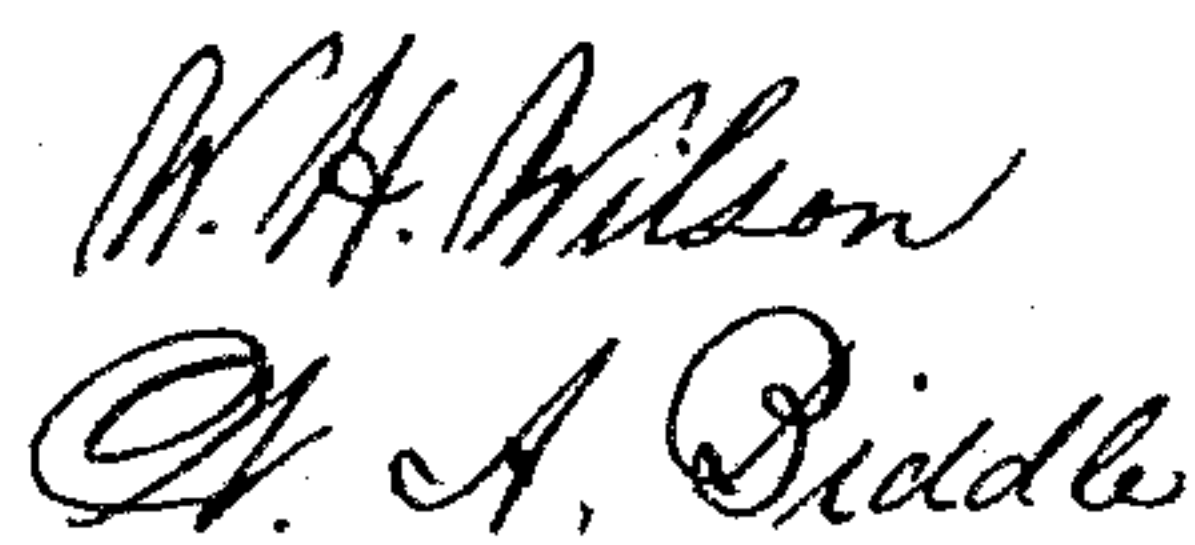
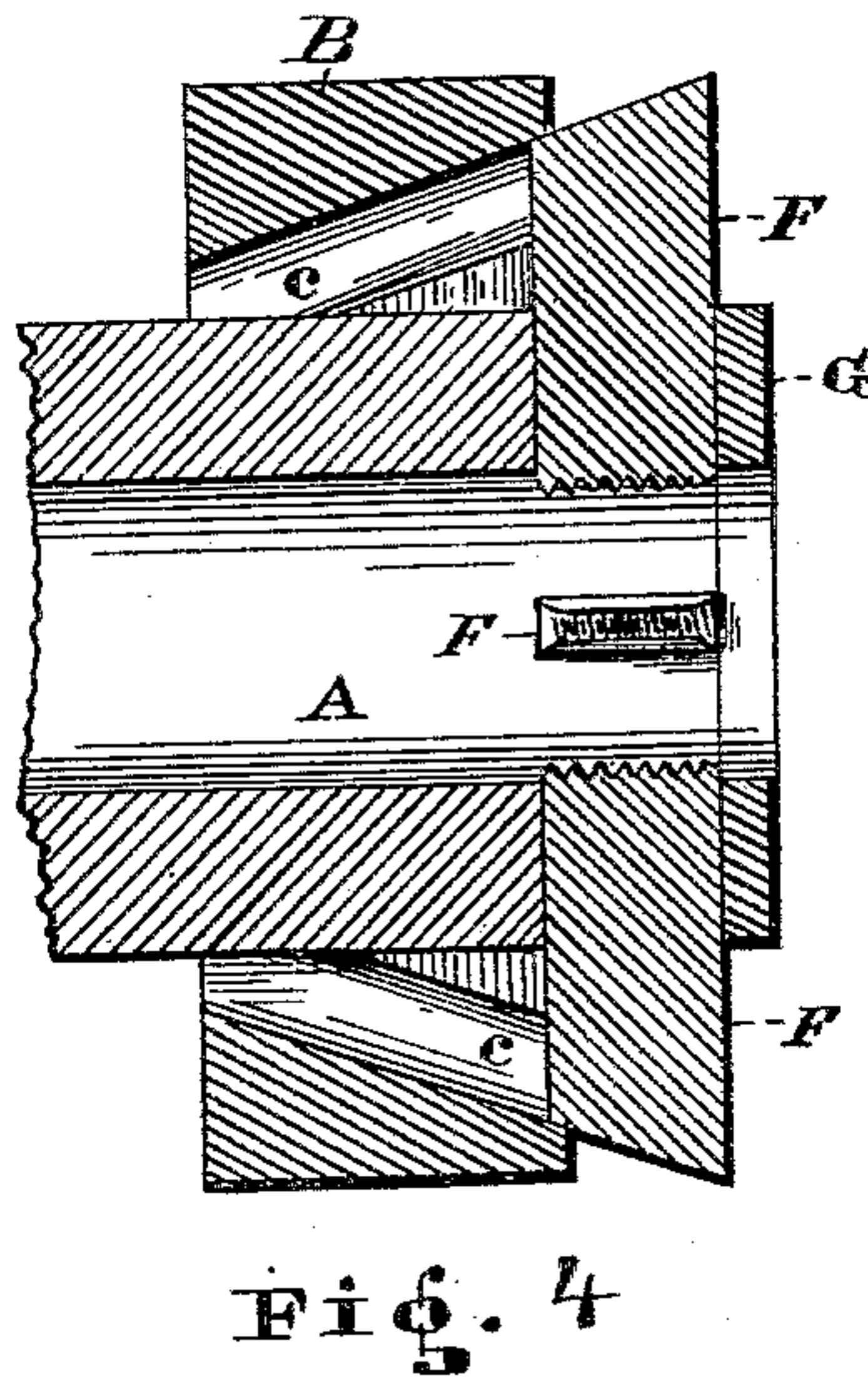
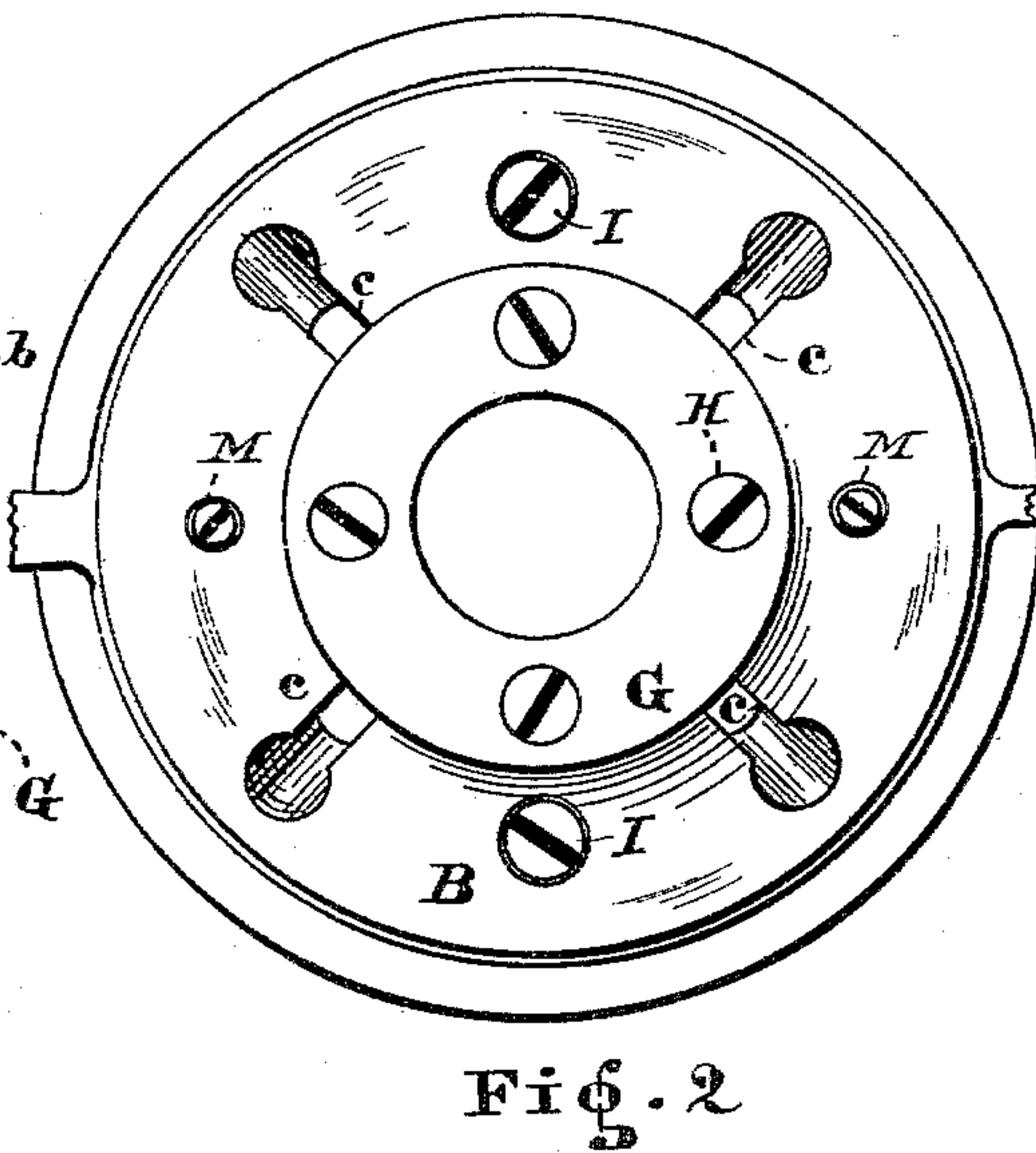


2 Sheets—Sheet 1.

No. 401,108.

Patented Apr. 9, 1889.



W. J. Baker  
W. H. Burnidge  
Attys.



(No Model.)

2 Sheets—Sheet 2.

W. J. BAKER.  
SCREW CUTTING DIE HEAD.

No. 401,108.

Patented Apr. 9, 1889.

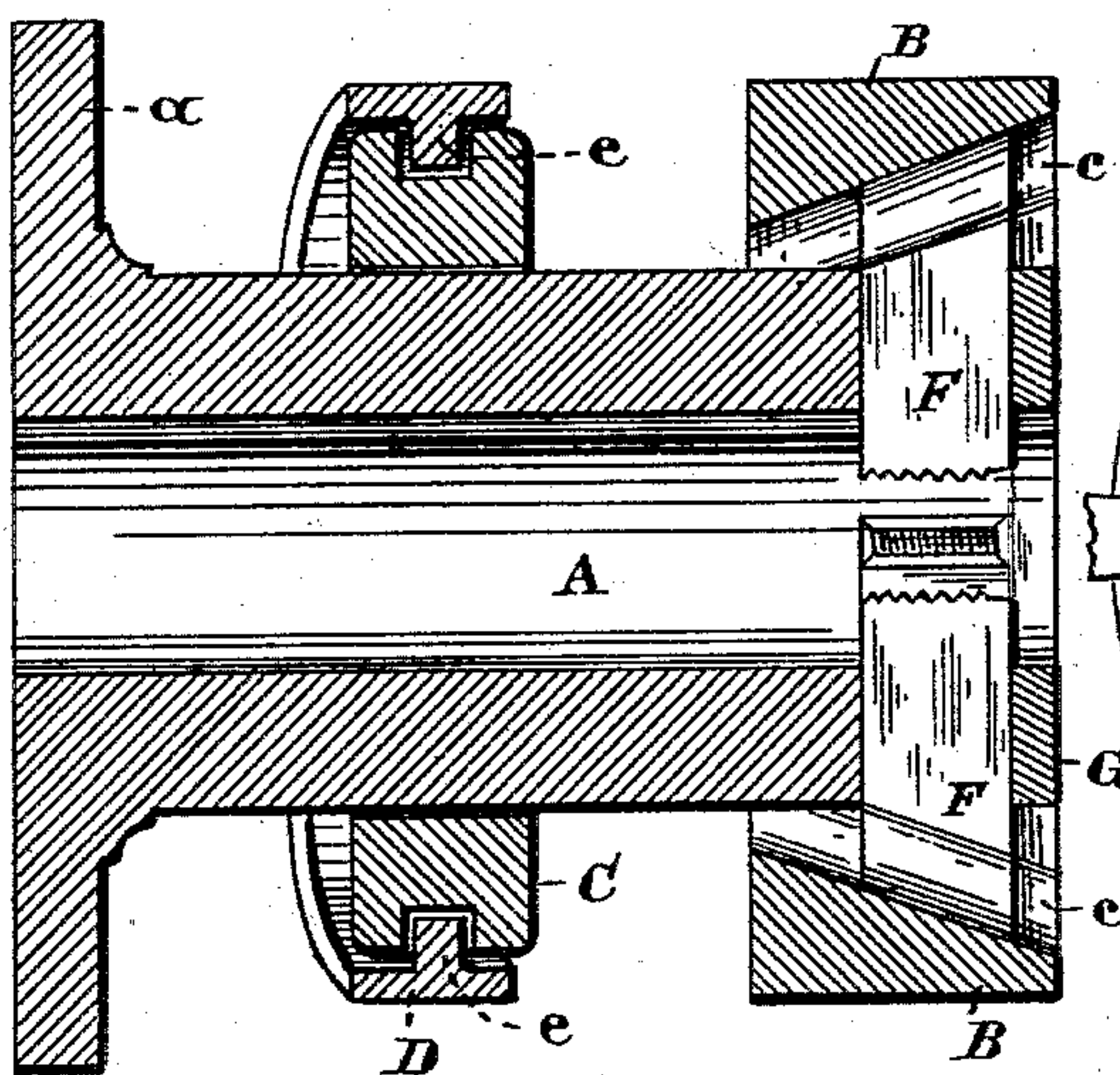


Fig. 6.

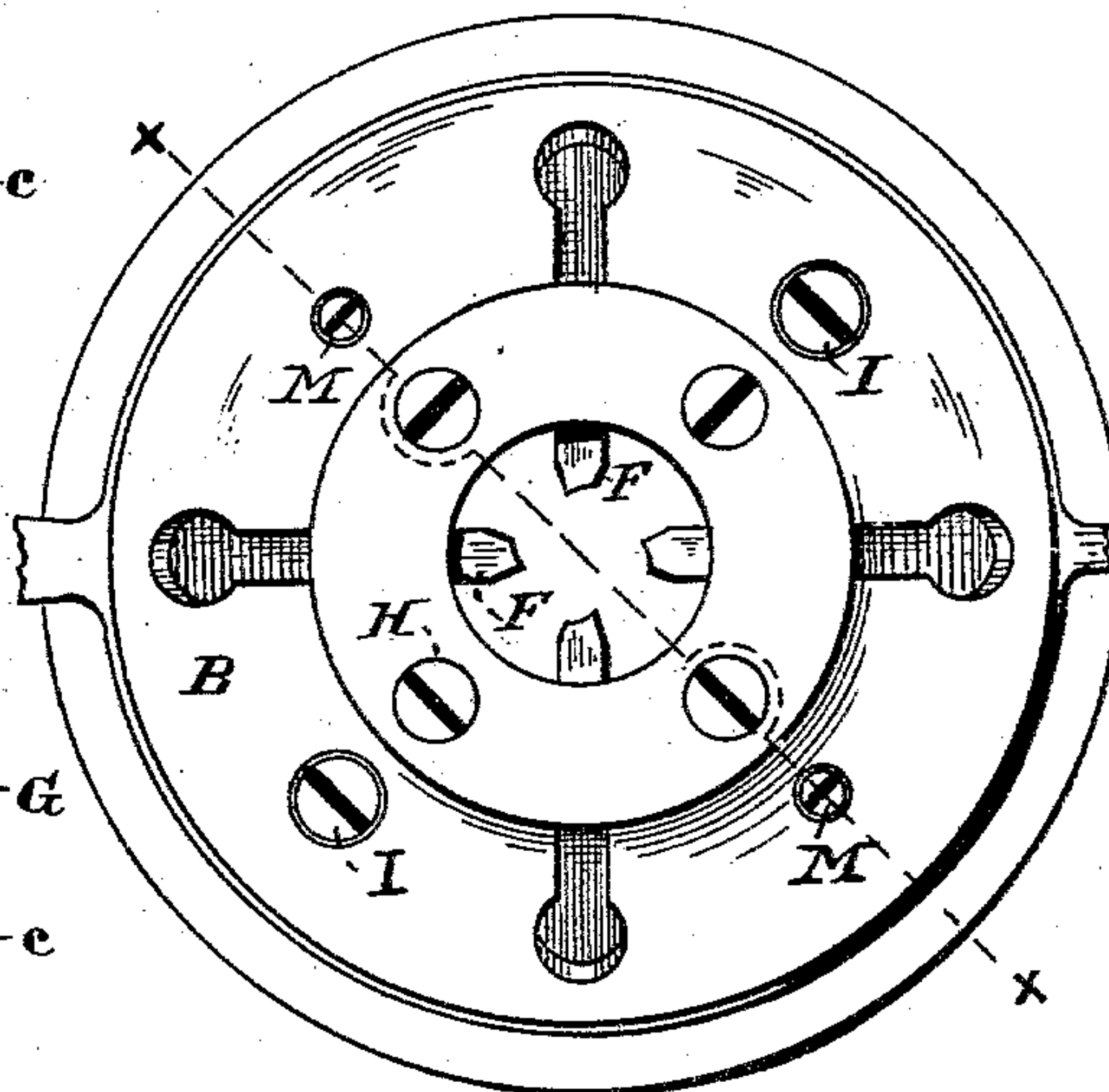


Fig. 7.

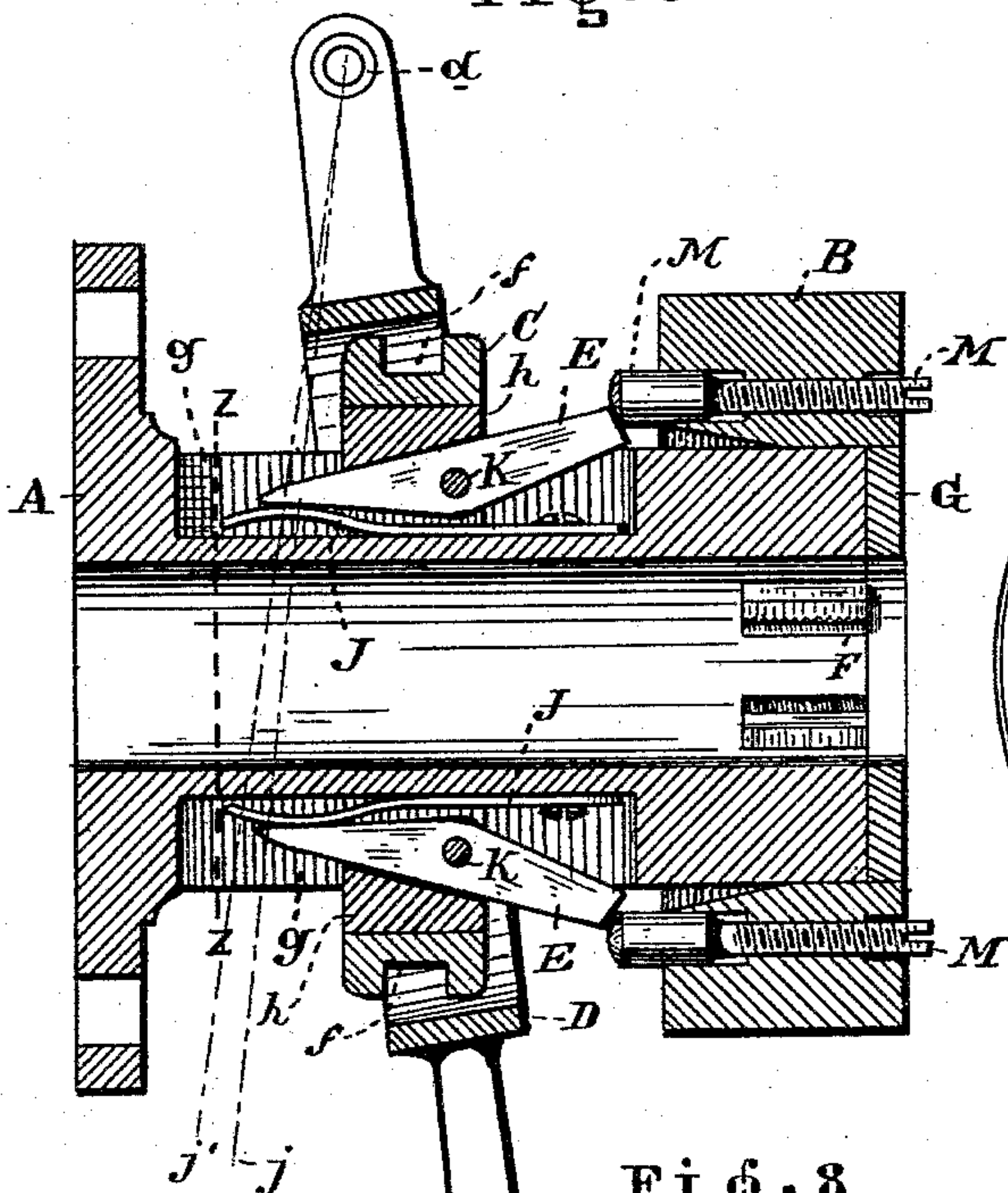


Fig. 8.

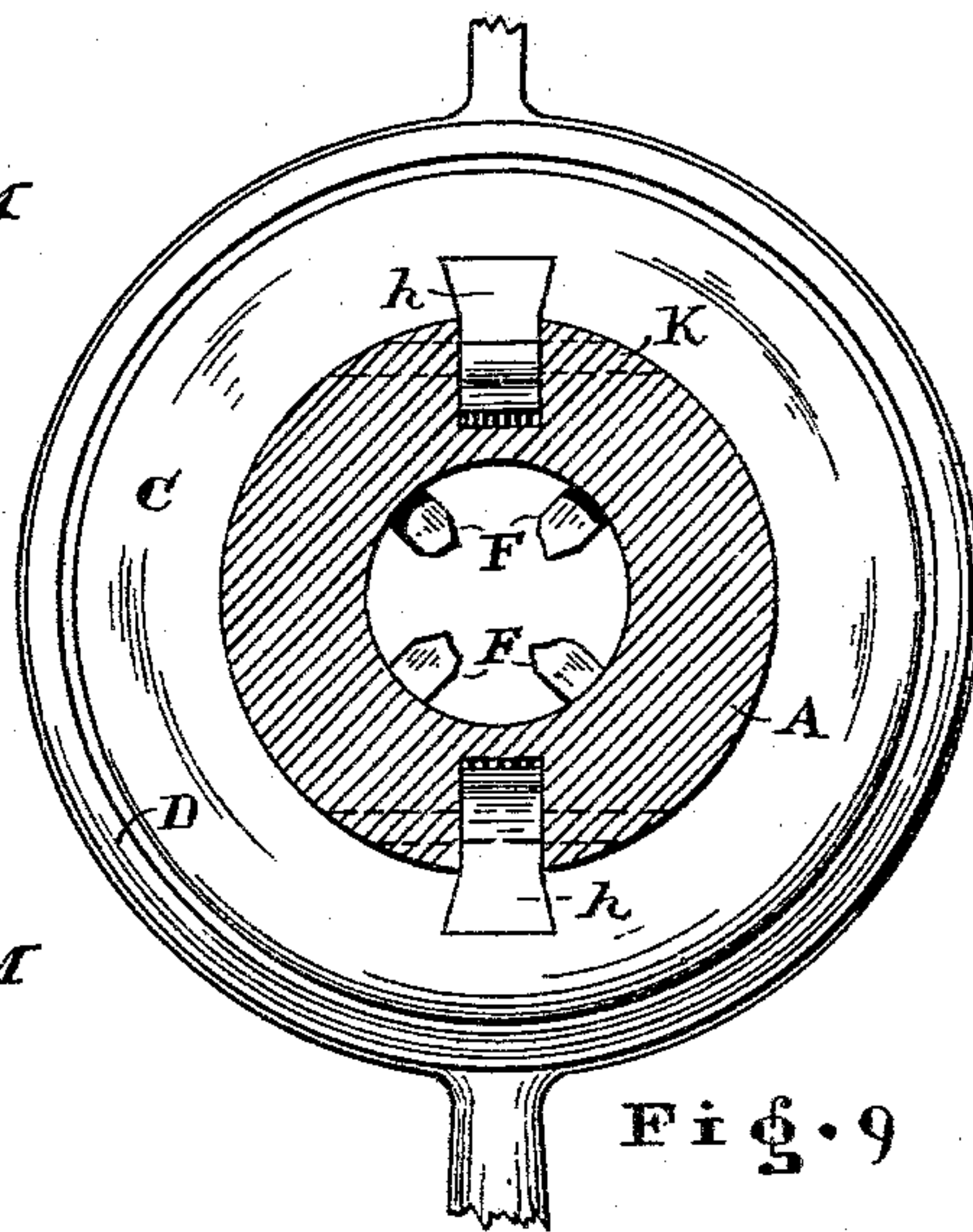


Fig. 9.

WITNESSES

W. A. Wilson.  
H. A. Biddle

INVENTOR

W. J. Baker  
W. H. Bunnick  
att



# UNITED STATES PATENT OFFICE.

WILLIAM J. BAKER, OF TIFFIN, OHIO.

## SCREW-CUTTING DIE-HEAD.

SPECIFICATION forming part of Letters Patent No. 401,108, dated April 9, 1889.

Application filed November 12, 1888. Serial No. 290,572. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM J. BAKER, of Tiffin, Seneca county, State of Ohio, have invented certain new and useful Improvements in Bolt Cutter-Heads, of which the following is a specification.

My invention relates to the means employed for operating the cutters or dies whereby the bolt is received, threaded, and withdrawn in such manner as to protect the dies or cutters from unnecessary wear and strain.

The improvement also relates to the novel means for guiding and also retaining and adjusting the cutters within the head to the bolt or article to be cut and for opening and closing them in practical operation, for the purpose and in the manner hereinafter fully set forth in the following specification, and shown in the annexed drawings specified.

Figure 1 is an exterior side view of the head before referred to without the cutters. Fig. 2 is a face view of Fig. 1. Fig. 3 is a central longitudinal section of the said head with the cutters or dies inserted and opened. Fig. 4 is a partial central section of the head, the dies, and the means for guiding them, Plate 1. Fig. 5 is a partial exterior view of the die or cutter-head and sectional view of parts connected therewith. Fig. 6 illustrates a longitudinal central section of the head with the dies closed. Fig. 7 represents a face view of Fig. 6. Fig. 8 is a central longitudinal section on line *x x* of Fig. 7. Fig. 9 is a transverse section on line *z z* of Fig. 8, looking toward the front end of the head, Plate 2.

Like letters of reference denote like parts in the drawings and specification.

As shown in Figs. 1 and 2, the cutters or dies are taken from out of the head to represent more fully the receptacle provided for them. The head consists of the barrel A, die-ring B, adjusting-sleeve C, shifter D, levers E E, and various minor parts, hereinafter referred to, in their relative arrangement with the mechanism of the head.

The barrel A is provided at one end with a flange, *a*, by means of which the barrel is connected with the revolving spindle of the machine with which the screw-cutting head is to be used, and in the free end thereof is arranged a series of slots, *b*, Figs. 1 and 5, for

the reception of the cutters F F F F, and shown therein in Figs. 3, 4, 6, and 7. As shown in the drawings, said slots *b* are made up by means of grooves in the barrel A and the follower-ring G, which is held securely to the barrel by the screws H, Figs. 2 and 3.

Fitted to the exterior of the barrel A is the die-ring B, having inclined grooves *c* in open relation with the bore thereof, and circular enlargements at the inner side of said grooves, which correspond with the head of the dies or cutters F to allow of a sliding movement of the dies within the said slots, Figs. 4 and 6.

The inclination of the circular terminals of the grooves *c* renders the cutters adjustable within the slots *b*—that is, the cutters or dies will open or close according to the direction in which the ring B is moved. In Fig. 4 the ring B is shown moved backward, which draws the cutters F outwardly. In Fig. 6 said ring has carried the cutters inwardly, while being moved forward to a point even, or nearly so, with the free end of the barrel. The ring B is connected with the sleeve C by means of the screws I, (shown in Figs. 1 and 5,) which sleeve is actuated by the shifter D, Figs. 1 and 3. The shifter D is pivoted at *d*, Fig. 8, to a fixed point of the apparatus, while the pins *e* engage in the annular recess *f* of the sleeve B, and thus carry the latter with it when the position of the shifter is changed. Simultaneously, while moving the ring B, said sleeve C actuates a locking device, consisting of the pivoted or swinging levers E and the reacting or releasing springs J, Figs. 3 and 8. Said levers E are located within the cavities *g* of the barrel A, and are held suspended by the pivots K K, which extend transversely through said barrel and a slot, as indicated by dotted lines in Fig. 9. Owing to the relative position and arrangement of the levers E E and springs J J, the springs tend to retain the levers within the cavities or level with the periphery of the barrel, as seen in Fig. 3—that is, the action of the springs J J, in concert with the wedges *h h*, actuates the pivoted levers E E, as soon as the lever D is moved back, to open the dies F F F F to withdraw the bolt or article thereupon in consecutive order as they are threaded.

The wedges *h h* have a dovetail connection



with the sleeve C, and partly project into the cavity *g* to retain the sleeve constantly in line with its respective lever. When the sleeve C is drawn from the position as shown in Fig. 3 to that shown in Fig. 8, then the free ends of the levers E E are raised from out of the cavities *g* and brace up against the heads of the adjusting-screws M M, Fig. 8, when the ring B has advanced far enough toward the free end of the barrel. The adjusting-screws M M are threaded in the ring B and set according to the size of the bolt or article to be threaded or cut. The farther the ring B is moved toward the free end of the barrel the closer the cutters will be moved to each other, and vice versa. The levers E, when brought to bear under or against the screws M M, hold the ring B in a locked condition so long as the sleeve C is left to hold the levers in that adjusted position. The screws I I, Figs. 1 and 5, connect the ring B with the sleeve C. The connection, however, is rendered yielding or adjustable, resultant from the resiliency of the springs N, one of which is shown in place between the head of the screw I and the shoulder of the countersink *i* in the ring B, Fig. 5. The tendency of the two springs, corresponding with the spring N, before mentioned, is to push the ring toward the sleeve C, as indicated by arrow in Fig. 5. Thus the contact of the screws M and the levers E is induced by the action of the two springs within their respective countersinks, corresponding to N *i* in the ring B. (Seen in Fig. 5.) Two set-screws alike, one of which is seen at O, Fig. 1, are employed appositely to hold the ring B the required distance apart from the sleeve C, so that when the sleeve is adjusting the position of the pivoted levers E E, which levers slide independently on the heads of the screws M, as seen in Fig. 8, in which position the cutters are ready for operation, the movement of said sleeve is stopped at the proper point. In Fig. 6 the position of the ring B coincides with that shown in Fig. 8—that is, the cutters are moved toward each other, as required, for cutting the thread on the bolt when in the revolving head, and when the thread or screw is cut they are to be opened, as before stated, in order that the bolt may be quickly withdrawn to facilitate the operation and save the cutters from unnecessary wear or usage by unscrewing the bolt therefrom.

To open the cutters for the withdrawal of the threaded bolt, the ring B is moved rearward, as shown in Fig. 4. The shifter D is turned to a position indicated by the dotted lines *j*, Fig. 8, which position corresponds with that shown in Fig. 3. On turning the shifter rearward the springs N come again into action—that is, they will yield and allow the ring C to be drawn partly rearward until the springs J have had sufficient play to move the levers E back into their respective cavities *g*. Then the ring will slide rearward and draw the cutters open, as shown in Figs.

3 and 4. The springs N effect a conjoint action of the different operative parts above set forth in the manner described. Ordinarily the cutters or dies are opened far enough to allow of the bolt being freely drawn from out of the cutter-head. The cutters are prevented from sliding out of the head by means of the stop P, against which one of the screws I strikes and prevents the ring B from being drawn back so far as to allow the cutters to slide out of the said ring.

When it becomes necessary to remove the cutters or dies, then the stop P is turned aside, as shown in Fig. 1, in which case the shifter D can be turned back far enough to pass the ring B beyond the reach of the cutters, which may then be withdrawn from the head. The dotted line *j'* in Fig. 8 indicates the position of the shifter when the receptacles *b* will be in sight—that is, when the cutters may be inserted in the head or taken out therefrom.

What I claim for Letters Patent is, viz:

1. In a bolt-cutter head, the dies thereof having inclined circular enlargements opposite their thread-cutting ends in co-operative engagement with the grooved ring B, movably fitted and arranged to encircle the barrel of said cutter-head, substantially as and for the purpose set forth.

2. The combination, with a bolt-cutter head and the ring B, having inclined grooves with enlarged circular terminals fitting to correspondingly-shaped dies or cutters movable therein, of a sleeve, C, with a shifter, D, for moving said ring upon the barrel of the head, and the levers E E, pivotally arranged within cavities of said barrel for locking said ring, substantially in the manner and for the purpose described.

3. The combination, with the locking mechanism of a bolt-cutter head, the barrel A, provided with cavities, and pivoted levers E E, swinging therein, of the springs J, arranged for conjoint action in connection with the sleeve C and die-ring B, in the manner and for the purpose substantially as set forth.

4. In a bolt-cutter head, the arrangement of the barrel A, ring B, and levers E E, in combination with the springs J and N, the adjusting-screws M, connecting-screws I, and set-screws O, constructed substantially in the manner described, for the purpose set forth.

5. In a bolt-cutter head, the sleeve C, having in connection a wedge, *h*, for raising the levers E, located between the said sleeve and the die-ring B, arranged to encircle the barrel A and slide thereon, constructed and arranged in the manner and for the purpose substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM J. BAKER.

Witnesses:

W. H. BURRIDGE,  
B. F. EIBLER.