

(No Model.)

M. C. HENLEY.
LAWN MOWER.

No. 438,156.

Patented Oct. 14, 1890.

Fig. 1

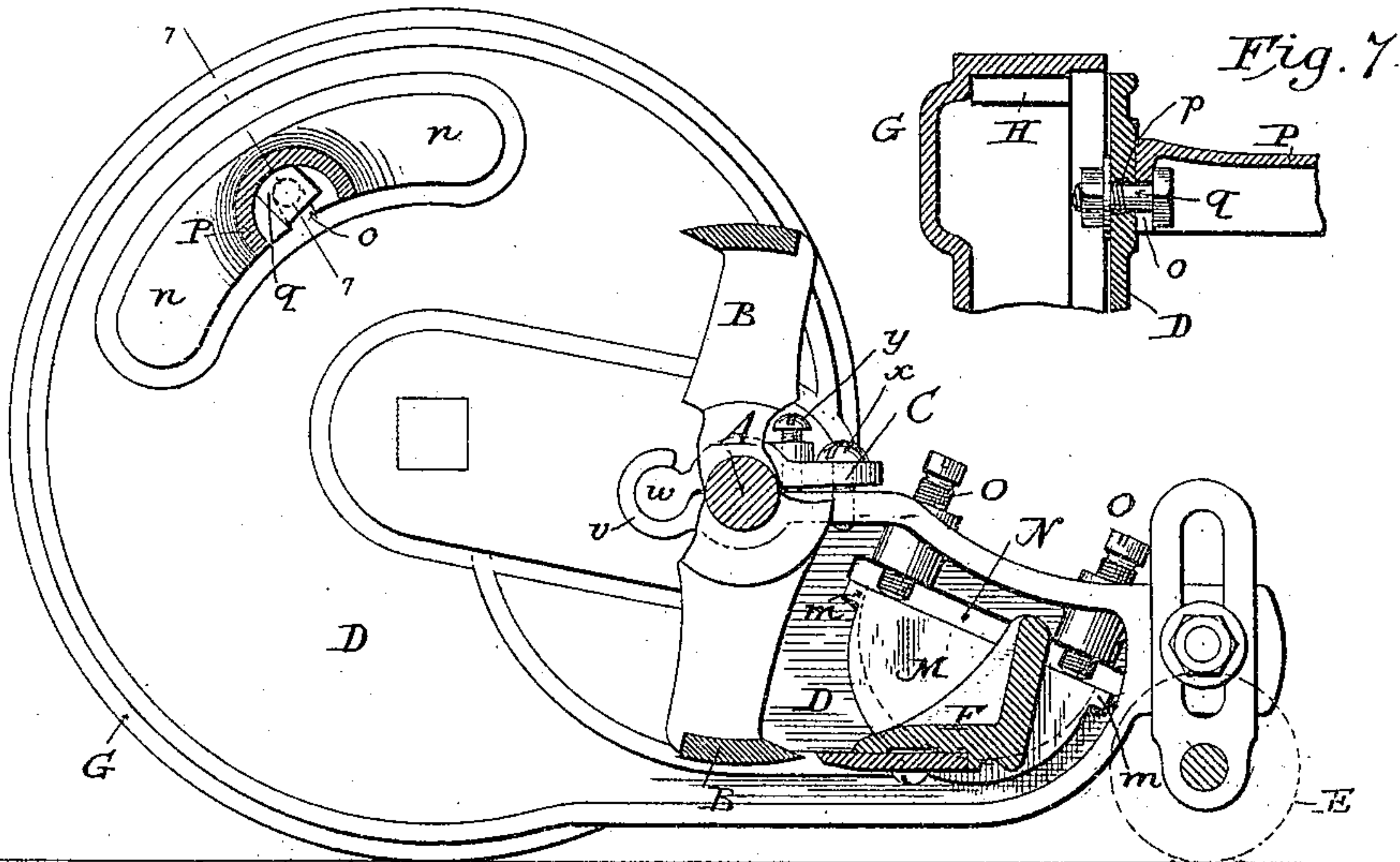


Fig. 7.

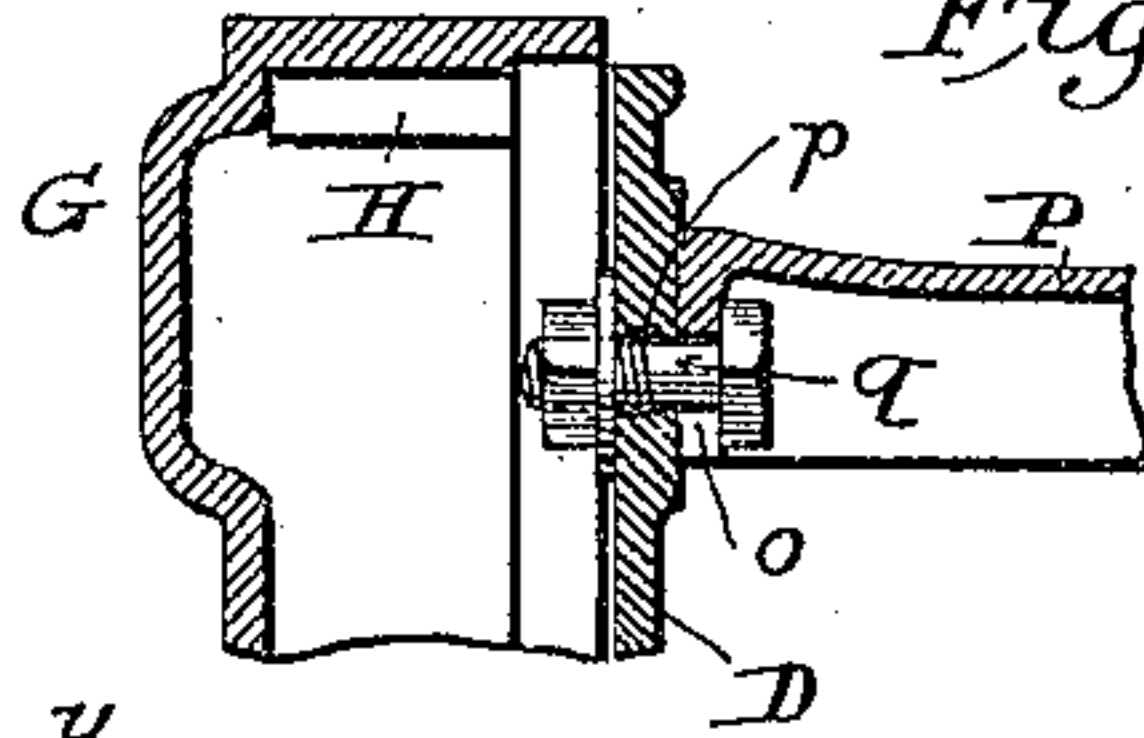


Fig. 8.

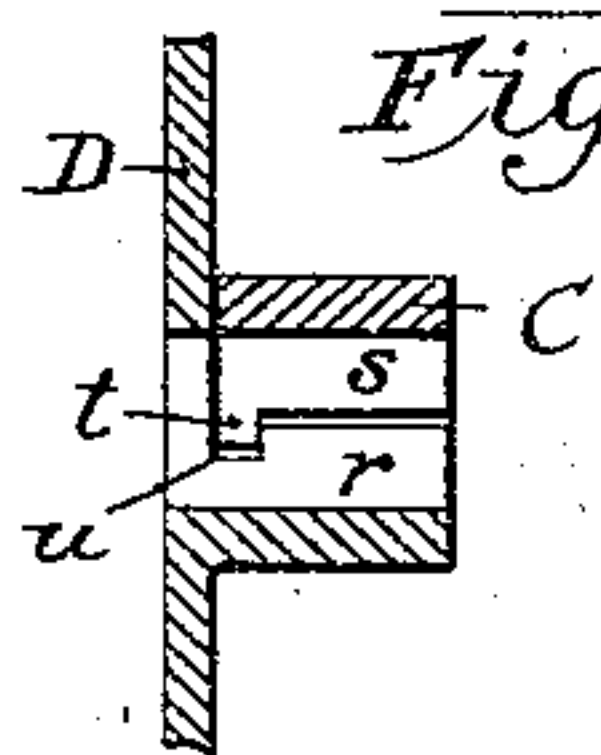


Fig. 2.

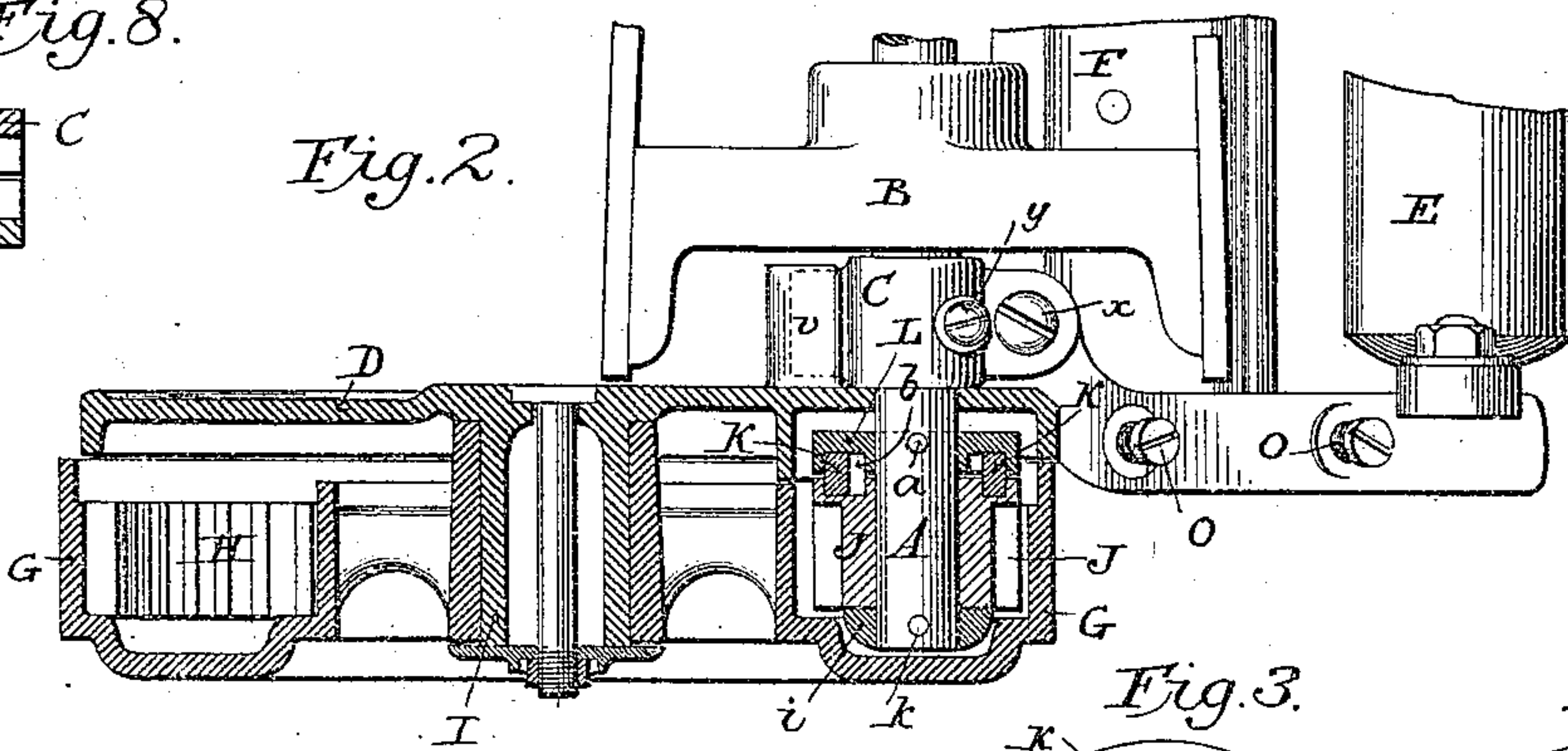


Fig. 3.

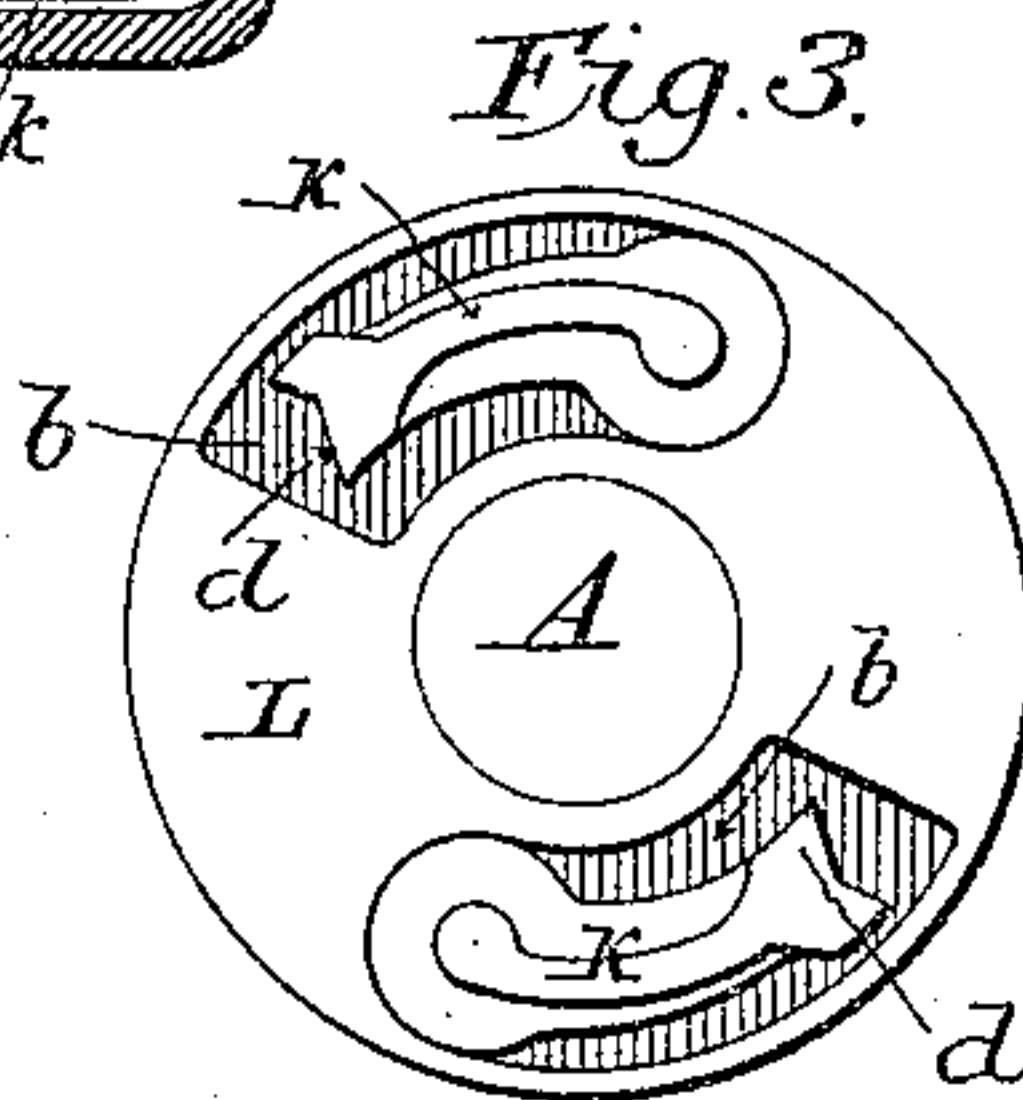


Fig. 4.

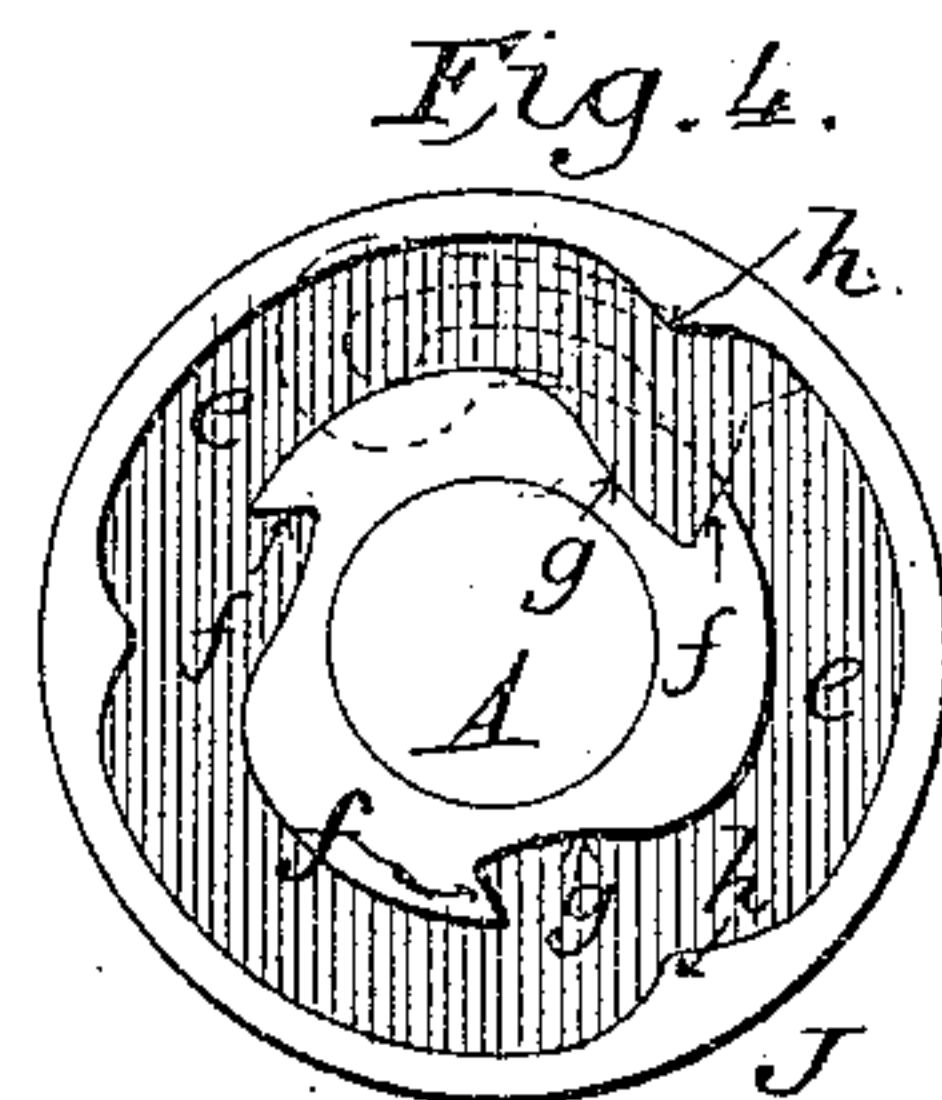


Fig. 6.

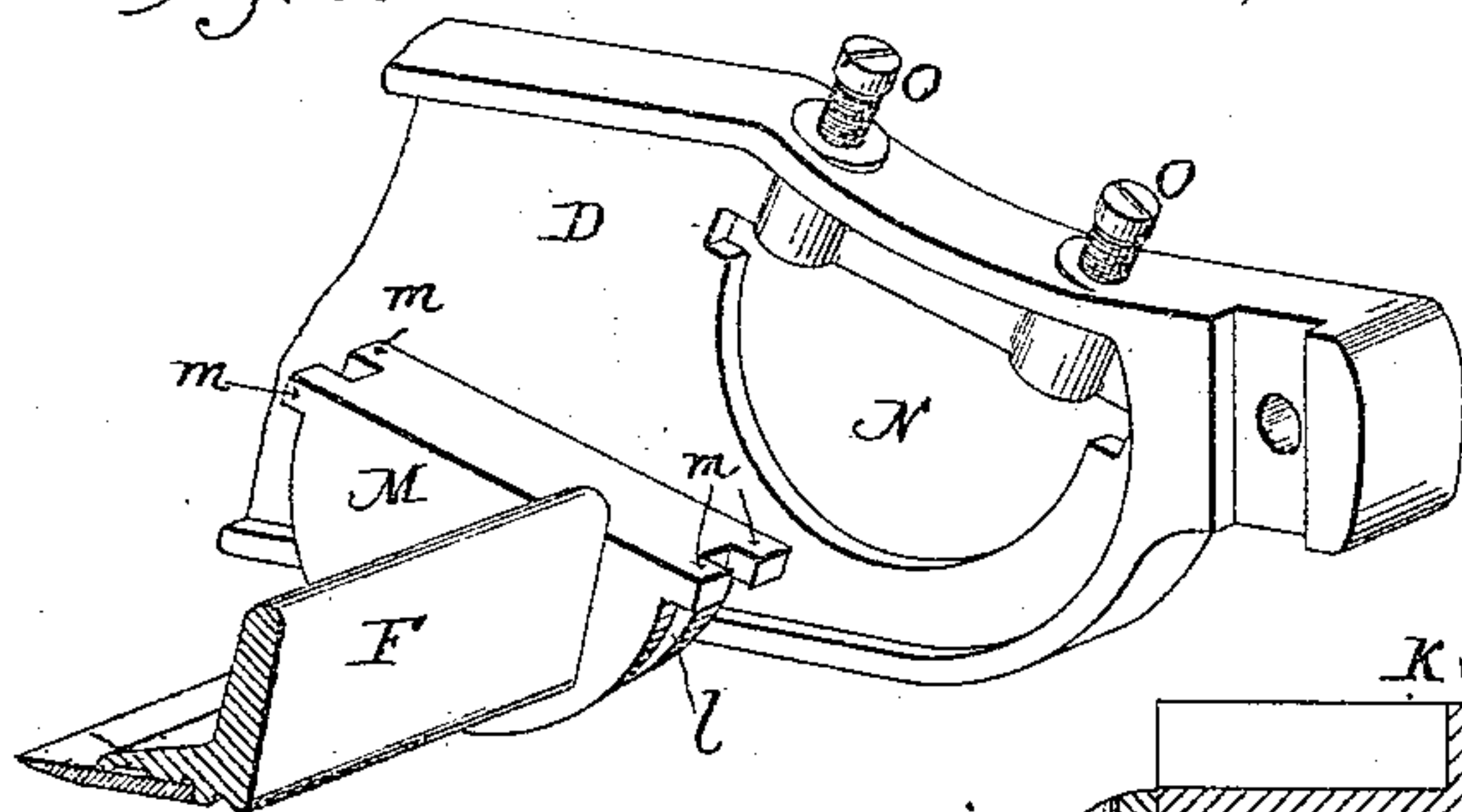
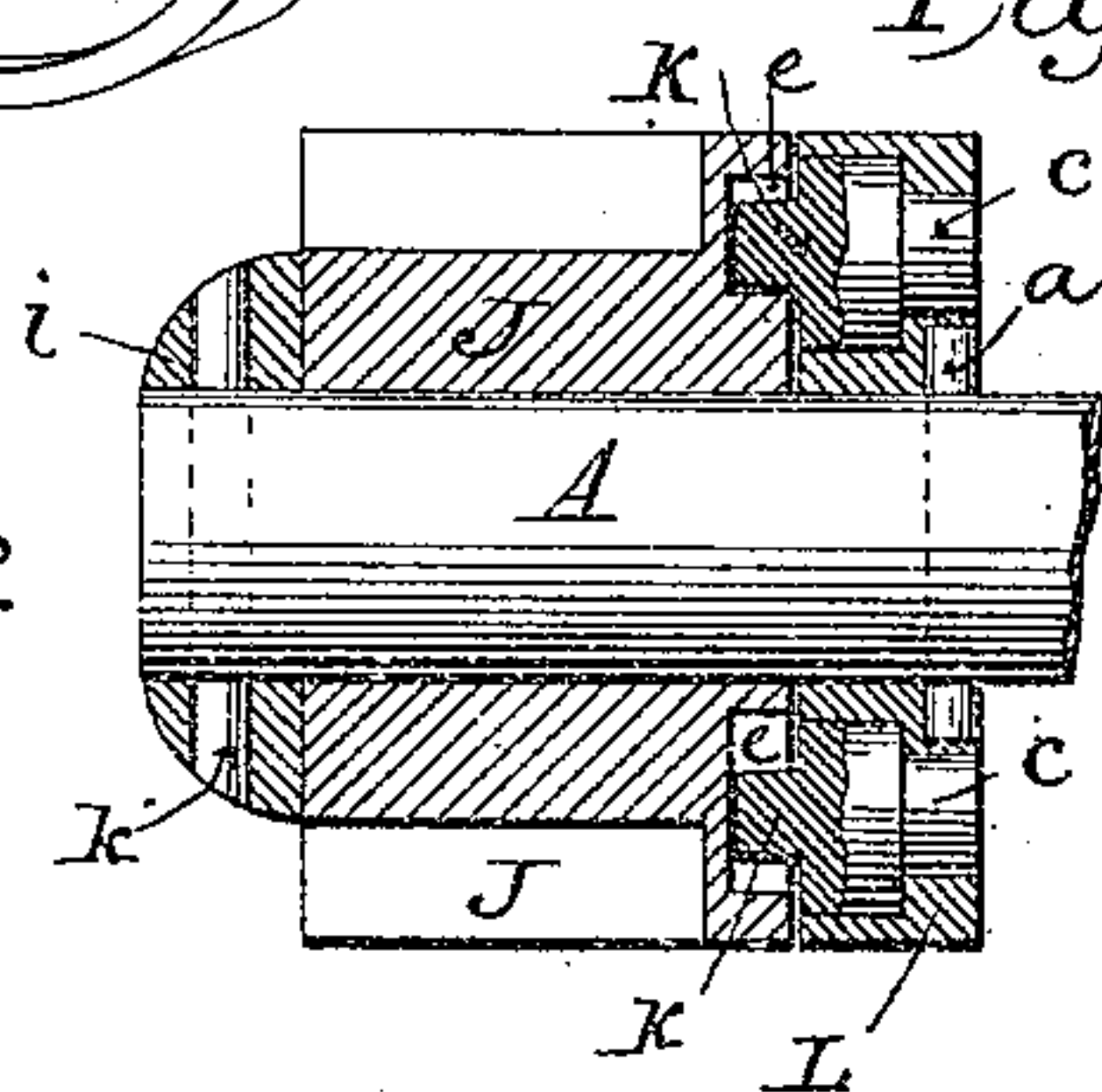


Fig. 5.



Attest:

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UNITED STATES PATENT OFFICE.

MICAJAH C. HENLEY, OF RICHMOND, INDIANA.

LAWN-MOWER.

SPECIFICATION forming part of Letters Patent No. 438,156, dated October 14, 1890.

Application filed December 19, 1889. Serial No. 334,300. (No model.)

To all whom it may concern:

Be it known that I, MICAJAH C. HENLEY, a citizen of the United States, residing at Richmond, in the county of Wayne and State of Indiana, have invented certain new and useful Improvements in Lawn-Mowers, of which the following is a specification.

My invention relates to lawn-mowers; and it consists in various features hereinafter set forth and claimed.

In the drawings, Figure 1 is a vertical sectional view of my improved mower at right angles to the cutter-bar; Fig. 2, a horizontal sectional view; Figs. 3, 4, and 5, views illustrating the construction of the clutch; Fig. 6, a view illustrating the manner of mounting the cutter-bar; Fig. 7, a sectional view on the line 7 7, Fig. 1; and Fig. 8, a sectional view of the bearing for the rotating cutter-shaft.

A indicates the cutter-shaft, provided with a cutter B and supported at or near its ends in bearings formed partly in the side frames or plates D and partly by plates C, as shown in Figs. 1, 2, and 8. It will be noticed upon reference to these figures that the side plates or frames are provided each with a semicircular seat or bearing-face *r*, and also with a hook or curved end portion *v*, while the plates C are each provided with a semicircular bearing-face *s*, corresponding to the face *r*, and with an enlarged end *w* to engage the hook *v* of the side plate. The plates C and D are further provided, respectively, with a lug *t* and a notch *u*, which, as clearly shown in Fig. 8, effectually prevent any lateral movement of the plate C relatively to the plate or frame D when the parts are in their proper working position. A screw *x* passes through the free end of plate C and screws into the plate or frame D, while a second screw *y*, carried by the plate C, merely rests upon the plate D, as shown in Fig. 1.

When it is desired to remove the knives B, it is only necessary to release the screw *x* and throw the free end of the plate C upward, so as to disengage the lug *t* from the notch *u*, the said plate C swinging or rocking upon its enlarged end *w*, which is made circular for that purpose, and after the plate C is thus raised it may be moved laterally with reference to and removed from the plate or frame D. It is not necessary that the plate C be

detached or removed to permit the removal of the shaft A and the knives carried thereby, as it is obvious that if the said plate C be raised high enough to allow the shaft A to pass out between it and the plate or frame D this will be sufficient.

The screw *y* is designed merely for the purpose of adjusting or regulating the approach of the plate C to the plate or frame D and prevents the screw *x* from causing the plate C to bind upon the shaft.

It is obvious that instead of forming the hook *v* upon the plate or frame D it may be formed upon the plate C; but as this involves merely a reversal of the arrangement shown I have not deemed it necessary to illustrate it. So, too, the set-screw might be mounted in the plate or frame D instead of in the plate C.

This part of the invention is clearly applicable to those machines that do not employ side plates or frames D such as I have shown, in which case the bearing *r* and hook *v* would be made in a separate casting and bolted to a part of the frame-work.

E indicates the adjustable roller, and F the cutter-bar, both of which are carried by the frames or plates D, the cutter-bar being mounted in the plates or frames in a manner hereinafter more fully described.

G G indicate the driving-wheels, which are provided with internal teeth H, and which are mounted and free to turn upon a hollow arm or stud-axle I, formed upon the plate D. The teeth H engage a small pinion J, mounted loosely upon the shaft A, as shown in Fig. 2, and designed to be locked to the shaft by means of pawls or dogs K K, carried by a collar L, which latter is secured to the shaft. This collar L, Figs. 2 and 3, has a groove in its rear face to receive a pin *a*, passing through the shaft, and is provided with recesses *b* in one face, in which the pawls are mounted. The said pawls each have a lateral arm or journal *c*, Fig. 5, upon which they may swing, and also have a laterally-projecting flange or nose *d*, Fig. 3, which is designed to enter a groove *e*, Figs. 4 and 5, formed in one of the faces of the pinion J. The inner wall of the groove is formed with abrupt shoulders *f* and inclined faces *g*, Fig. 4, and the outer wall is provided with a projection *h* opposite each of the inclined faces *g*. The construction may be re-

versed' and the pawls pivoted in the pinion instead of in the collar; but I prefer the form shown.

A washer *i* is applied to the outer end of shaft A against the outer face of the pinion, and is held in place by a pin *k* passing through the shaft and washer, as shown in Figs. 2 and 5, this construction preventing any end movement of the pinion or turning of the collar upon the shaft.

When the machine is going forward, the pinion will be turned in the same direction as the driving-wheel, with which it engages, and in thus turning forward the abrupt faces or shoulders *f* will come into contact with the nose *d* of either one of the pawls and lock the pinion to the collar and cause the rotation of the shaft A. When the driving-wheel and pinion are turned in the reverse direction, the inclined faces *g* of the pinion will ride backward under the pawls and will not lock said pinion to the collar and shaft, but will allow the pinion to turn freely upon the shaft. The projections *h* (when the machine is going forward) throw the pawls down into position to be engaged by the shoulders on the pinion.

The cutter-bar F, before mentioned, is provided at each end with a semicircular head M, which is provided with a groove *l* in its curved face, of a width equal to the thickness of the frame or plate D, and is further provided with ears *m m*, intersected by the groove, or set far enough apart to embrace the plate or frame D, as shown in Fig. 6. The heads M fit into openings N, formed in the plates or frames D, the form of the openings corresponding with that of the heads.

O O, Figs. 1, 2, and 6, are set-screws which are tapped into the frames D, and which are designed to bear upon the upper faces of the heads and hold the cutter-bar in position.

When the head M is placed in the opening N, the former is dropped down, so that the ears *m* shall embrace both faces of the frame D, and so also that the curved wall of the opening shall enter the groove *l* in the head, the depth and curvature of the groove being such as to permit of this dropping down of the heads. When the parts are in this position, (shown in Fig. 1,) with the screws bearing upon the heads, it will be seen that they form a rigid brace for the machine, and there is no possibility of the frames D D spreading apart, as they are embraced by the grooved heads, which latter cannot be separated from the frames without loosening the screws and raising the heads with the attached cutter-bar upward.

To further brace and stiffen the machine, I connect the plates or frames D D by means of a brace P, which, as shown in Figs. 1 and 7, is semicircular in cross-section. This brace is provided with lateral flanges or feet *n* to bear against the inner faces of the plates or frames D D, and is also provided with a hole or opening *o* to register with a hole or opening *p* in the plate D, a bolt *q* passing through the holes *o p* and binding the parts together.

Having thus described my invention, what I claim is—

1. In combination with a shaft A, provided with a fixed collar L, a pinion J, mounted loosely upon the shaft, a driving-wheel H, engaging the pinion J, a pivoted pawl K, carried by the collar, and a groove *e*, formed in that face of the pinion next to the collar and provided with projections *h* in its outer wall and inclined faces *g* and shoulders *f* on its inner wall, the free end of the pawl working in the groove *e*, all substantially as shown and described, whereby the shaft will be rotated only when the wheel H turns in one direction, but the gear H J remaining in engagement at all times.

2. In combination with the side frames or plates having openings N, a cutter-bar F, provided with heads M, (each having a groove *l* and ears *m* to embrace the plates,) and set-screws O, carried by the frames or plates.

3. In combination with a cutter-bar having semicircular heads, the side frames or plates provided with openings of corresponding form to receive the heads and set-screws to clamp them in position.

4. In combination with side frames or plates D D, each having an opening *p*, brace P, provided with feet *n* and with an opening *o*, and a bolt *q*, passing through the openings *o p*.

5. In a lawn-mower, in combination with a frame D, provided with a seat *r*, a plate C, provided with a seat *s*, an open hook *v*, formed upon one of said parts, and an enlarged end *w*, formed upon the other to make up a hinge-joint, a set-screw, and a clamping-screw, all substantially as shown and described.

6. In a lawn-mower, in combination with a frame D, provided with a seat *r* and a notch *u*, plate C, provided with seat *s* and lug *t* and hinged or pivoted to the frame, and a screw *x*, all arranged as shown.

In witness whereof I hereunto set my hand in the presence of two witnesses.

MICAJAH C. HENLEY.

Witnesses:

WILLIAM E. BELL,
FRANK H. WILLIAMS.