

(No Model.)

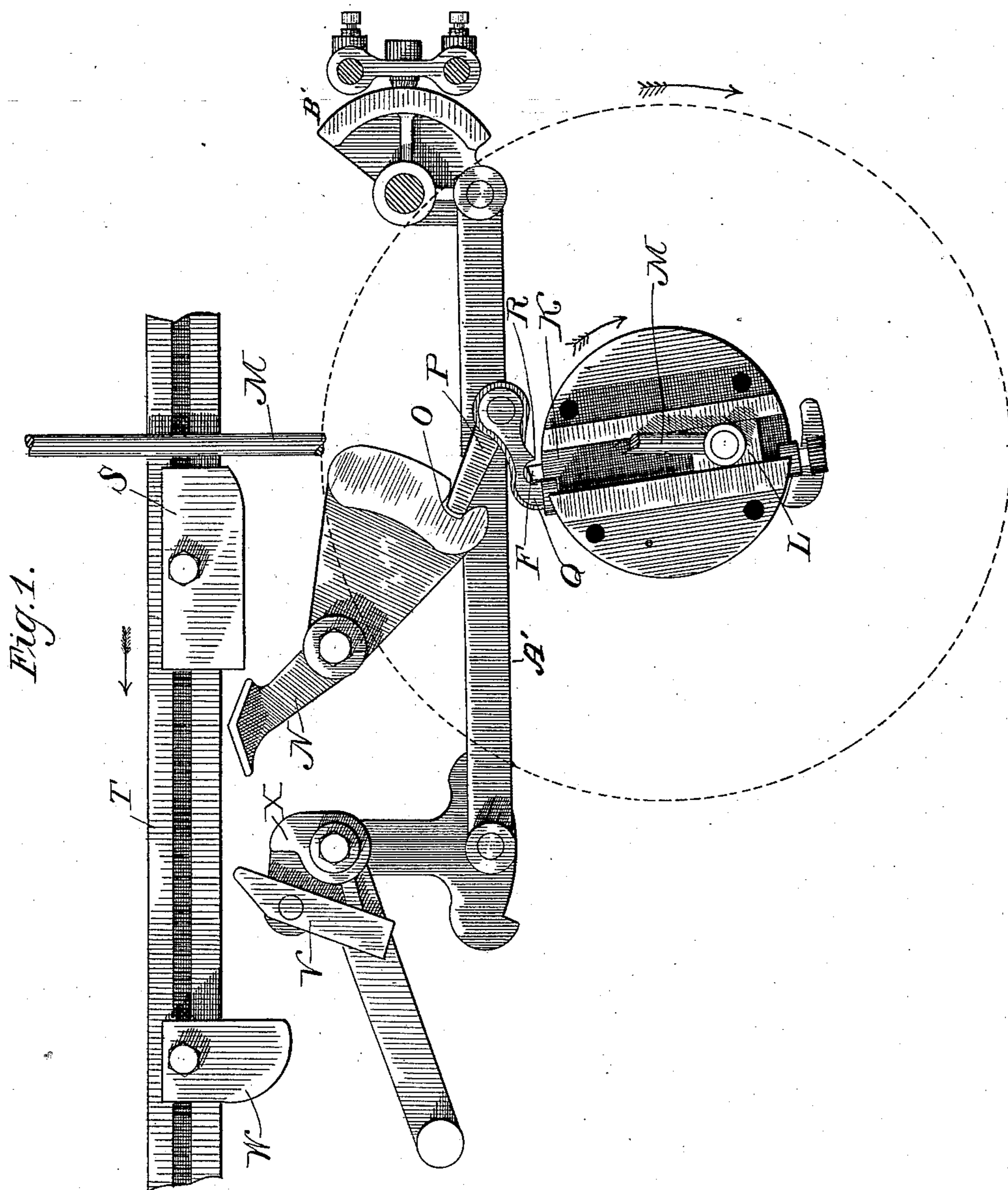
6 Sheets—Sheet 1.

E. P. & H. C. WALTER.

METAL PLANING MACHINE.

No. 308,716.

Patented Dec. 2, 1884.



*Witnesses*

S. S. Williamson  
W. W. Mortimer

*Inventors:*

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by Smith & Hubbard  
Attys.

(No Model.)

6 Sheets—Sheet 2.

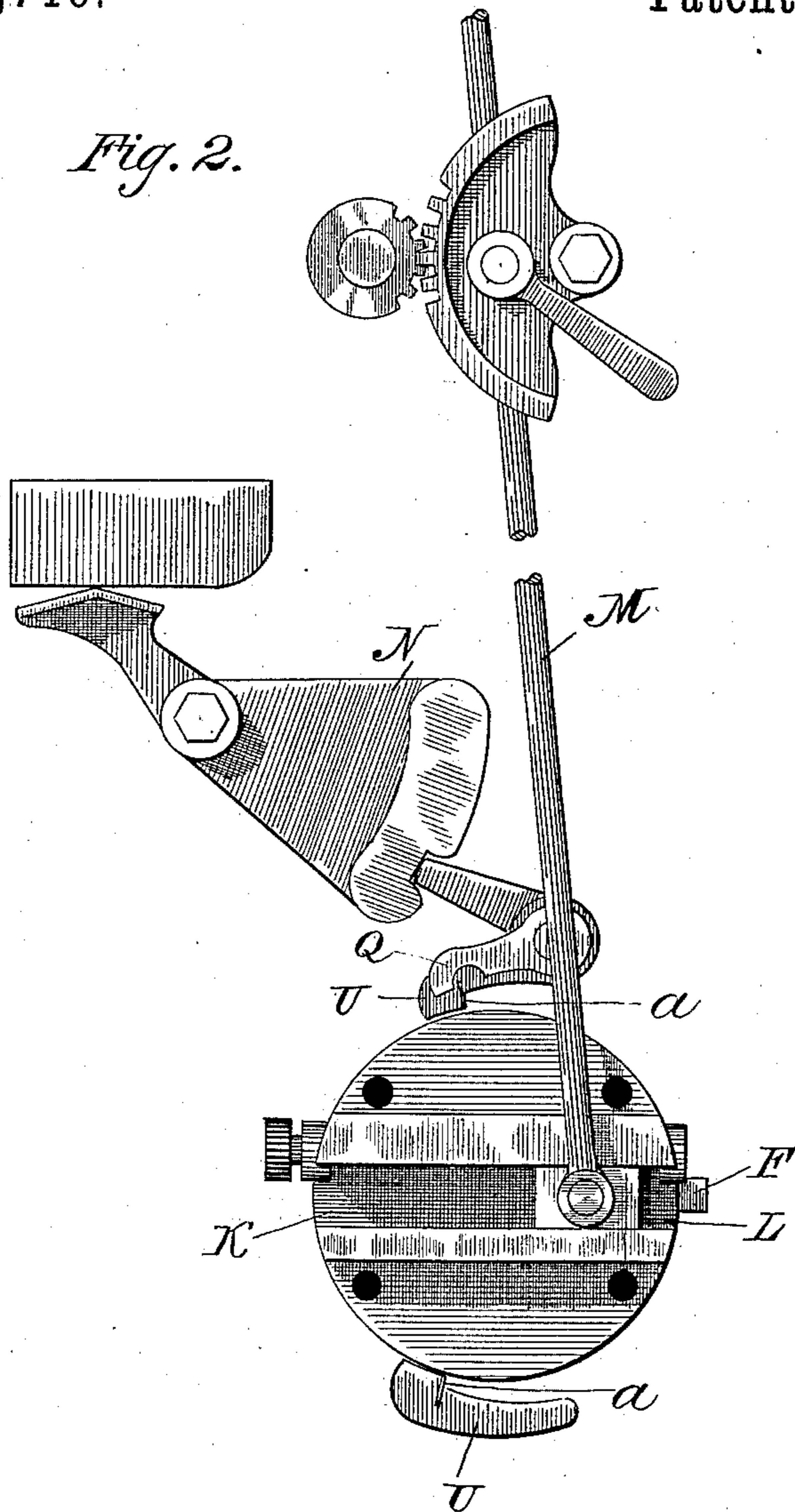
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*Fig. 2.*



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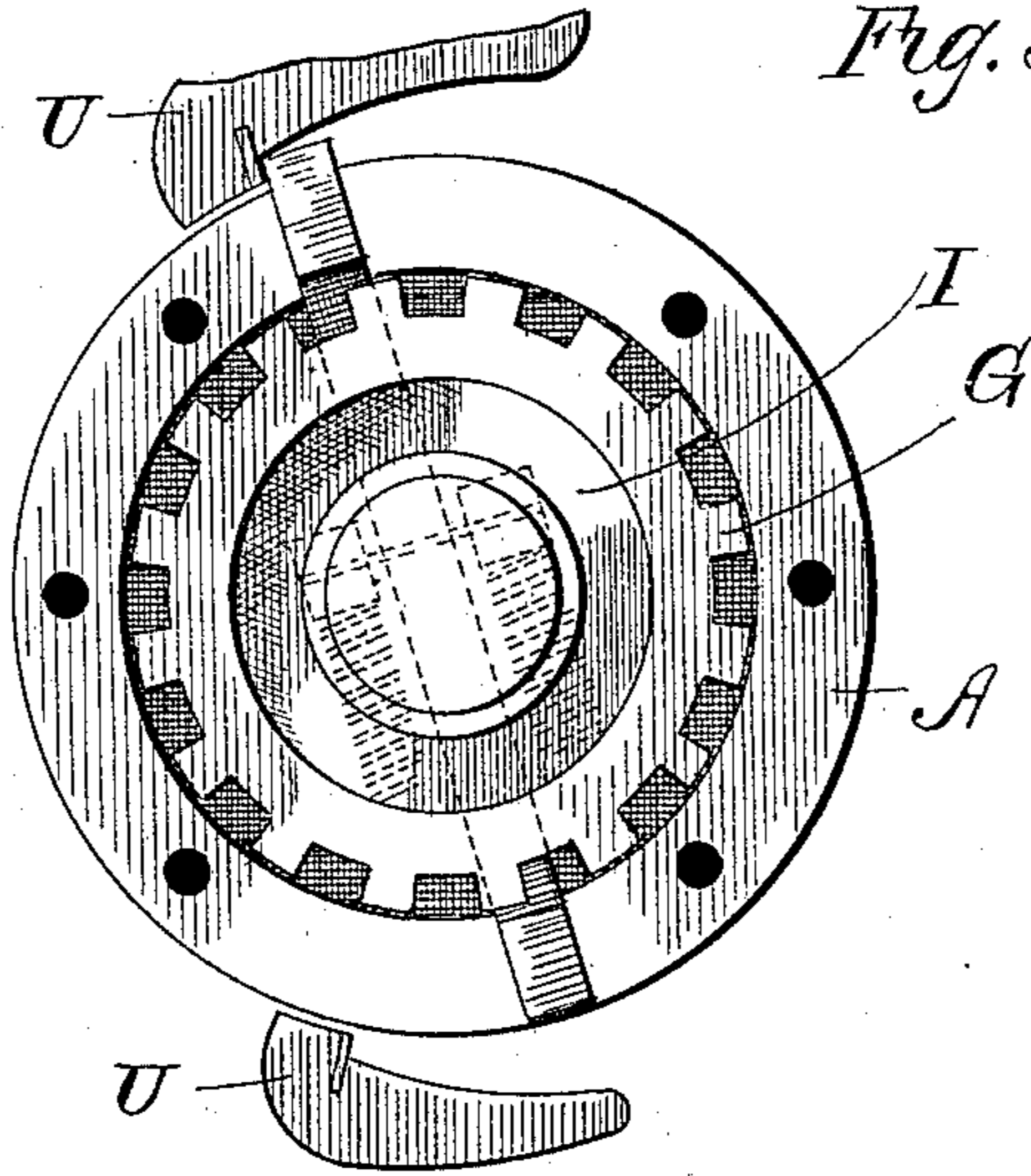
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METAL PLANING MACHINE.

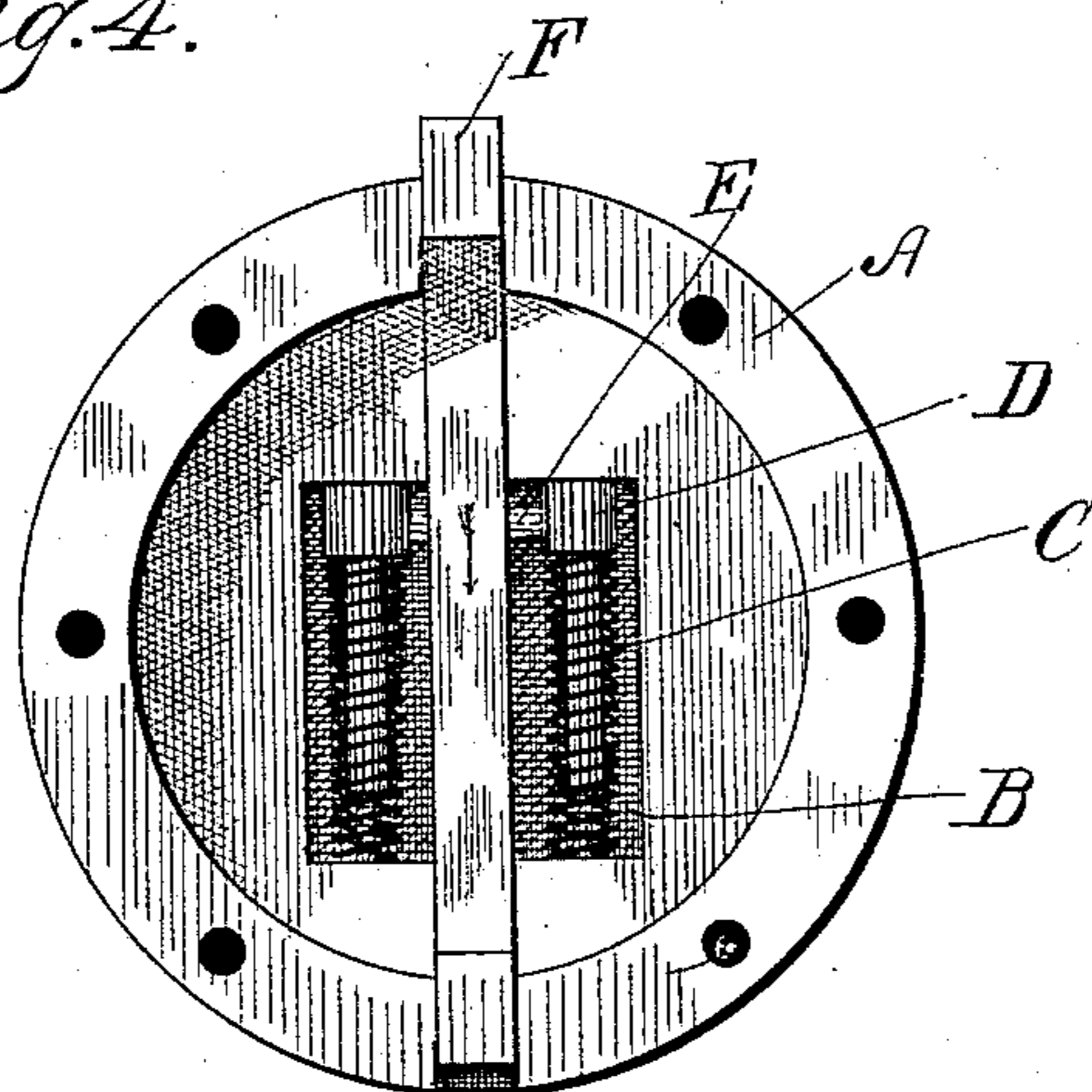
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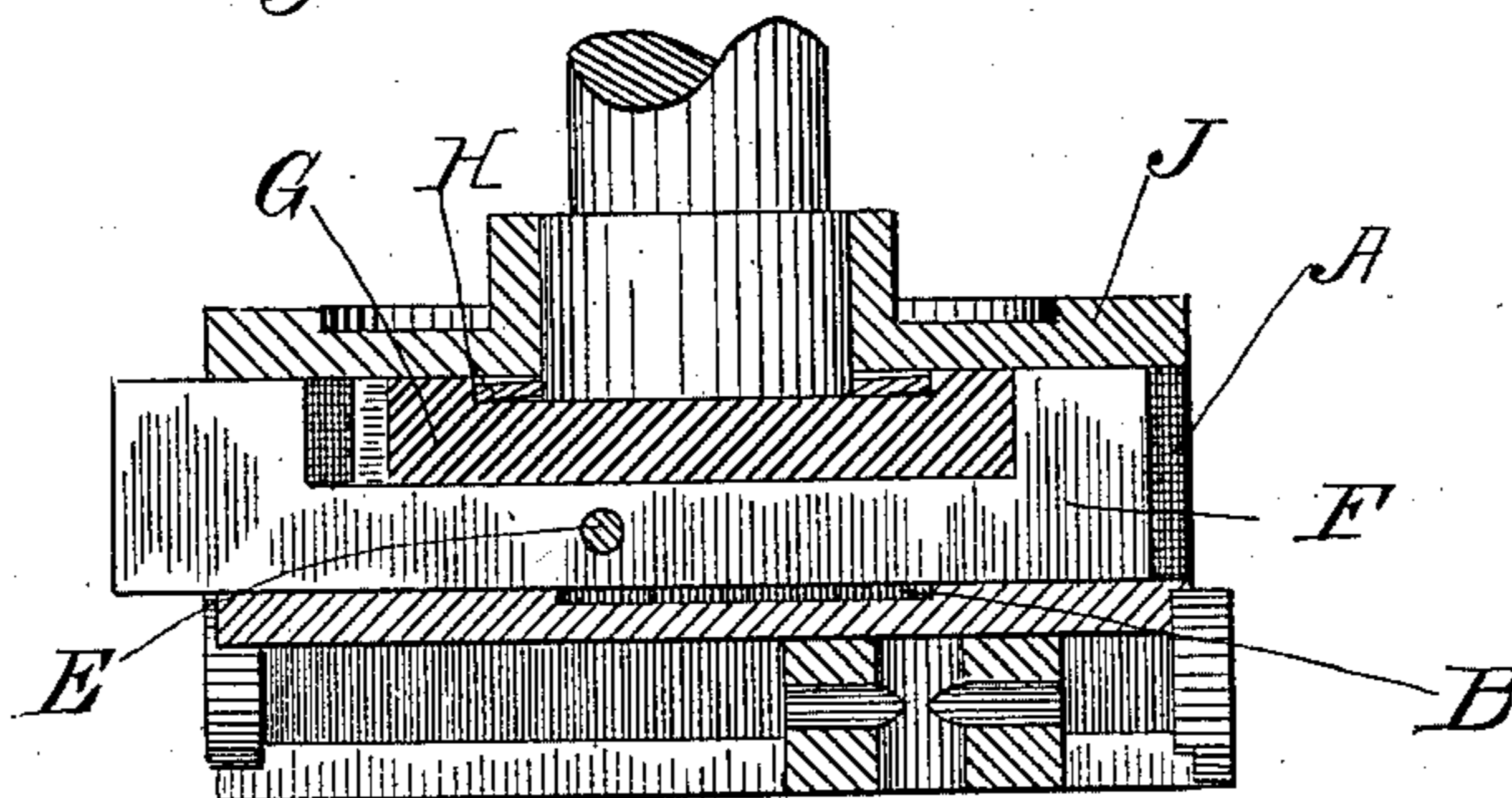
*Fig. 3.*



*Fig. 4.*



*Fig. 5.*



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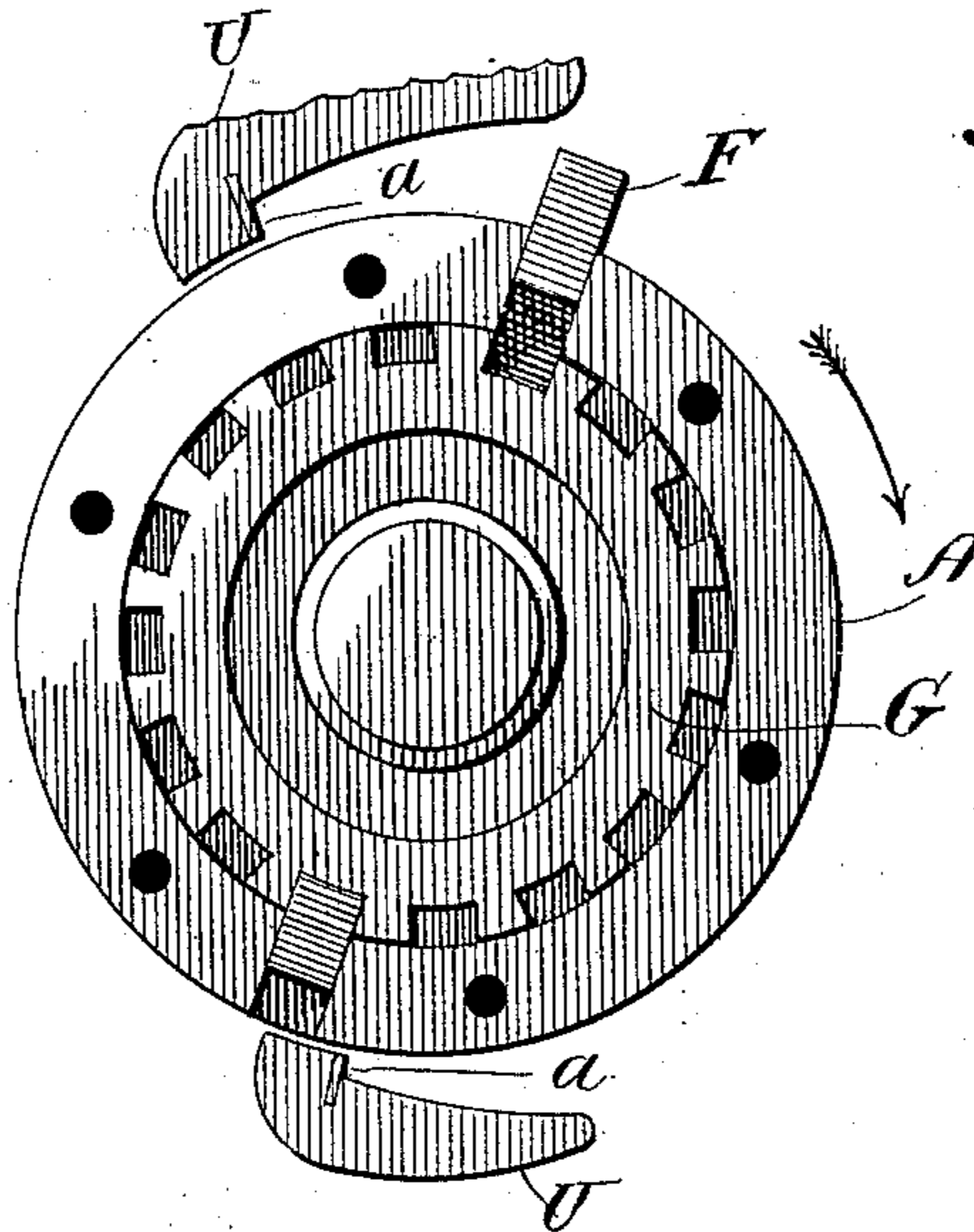
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METAL PLANING MACHINE.

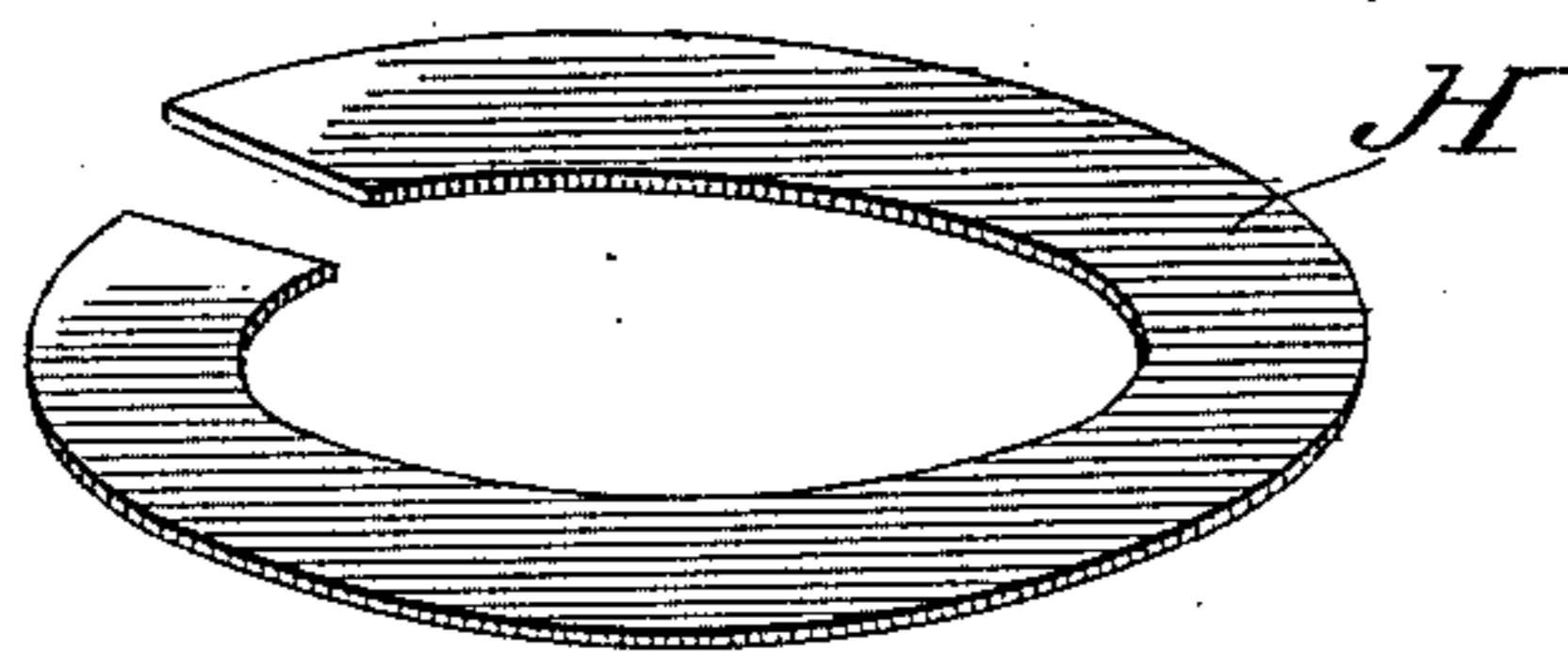
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*Fig. 6.*



*Fig. 7.*



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6 Sheets—Sheet 5.

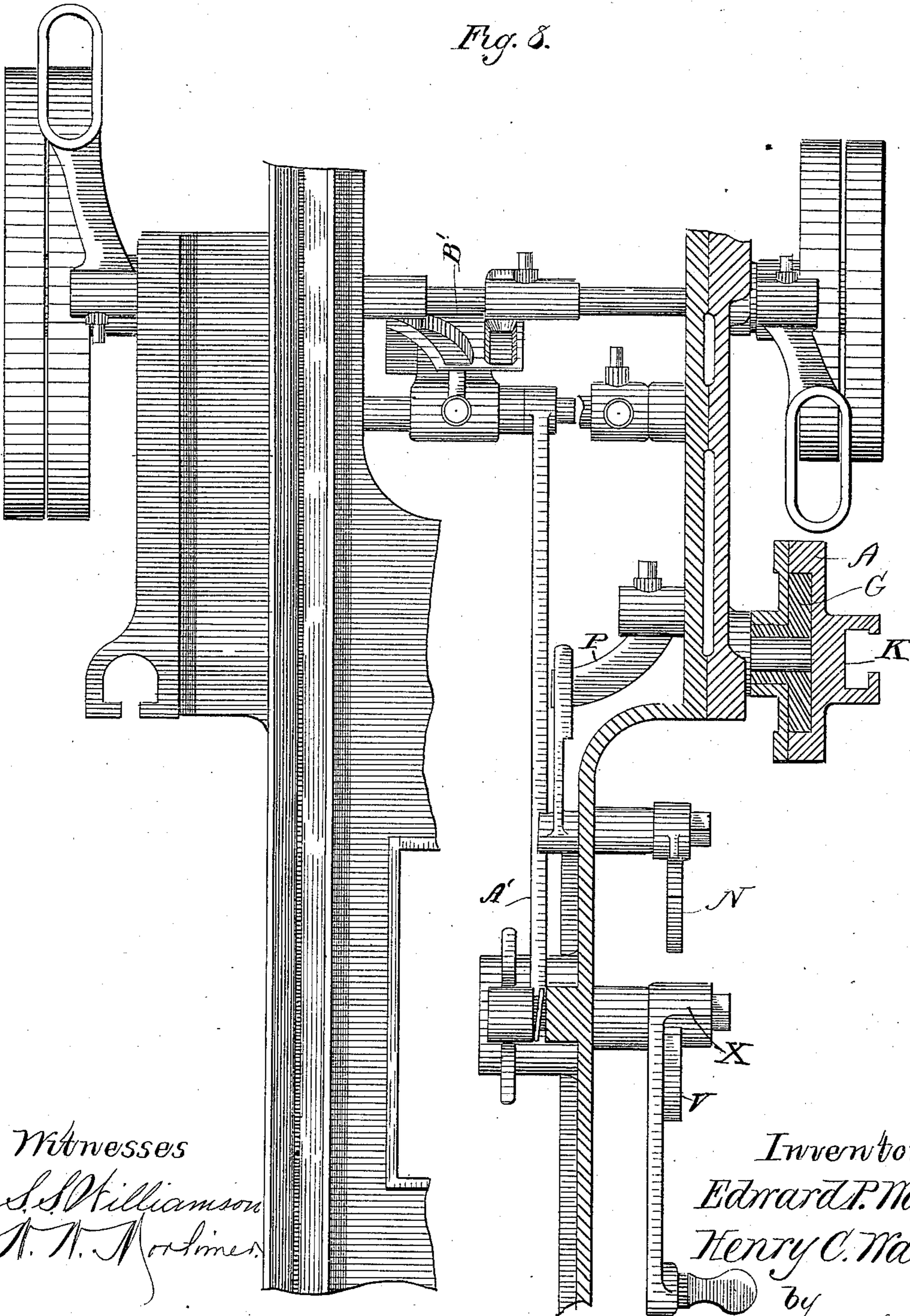
E. P. & H. C. WALTER.

METAL PLANING MACHINE.

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Patented Dec. 2, 1884.

*Fig. 8.*



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6 Sheets—Sheet 6.

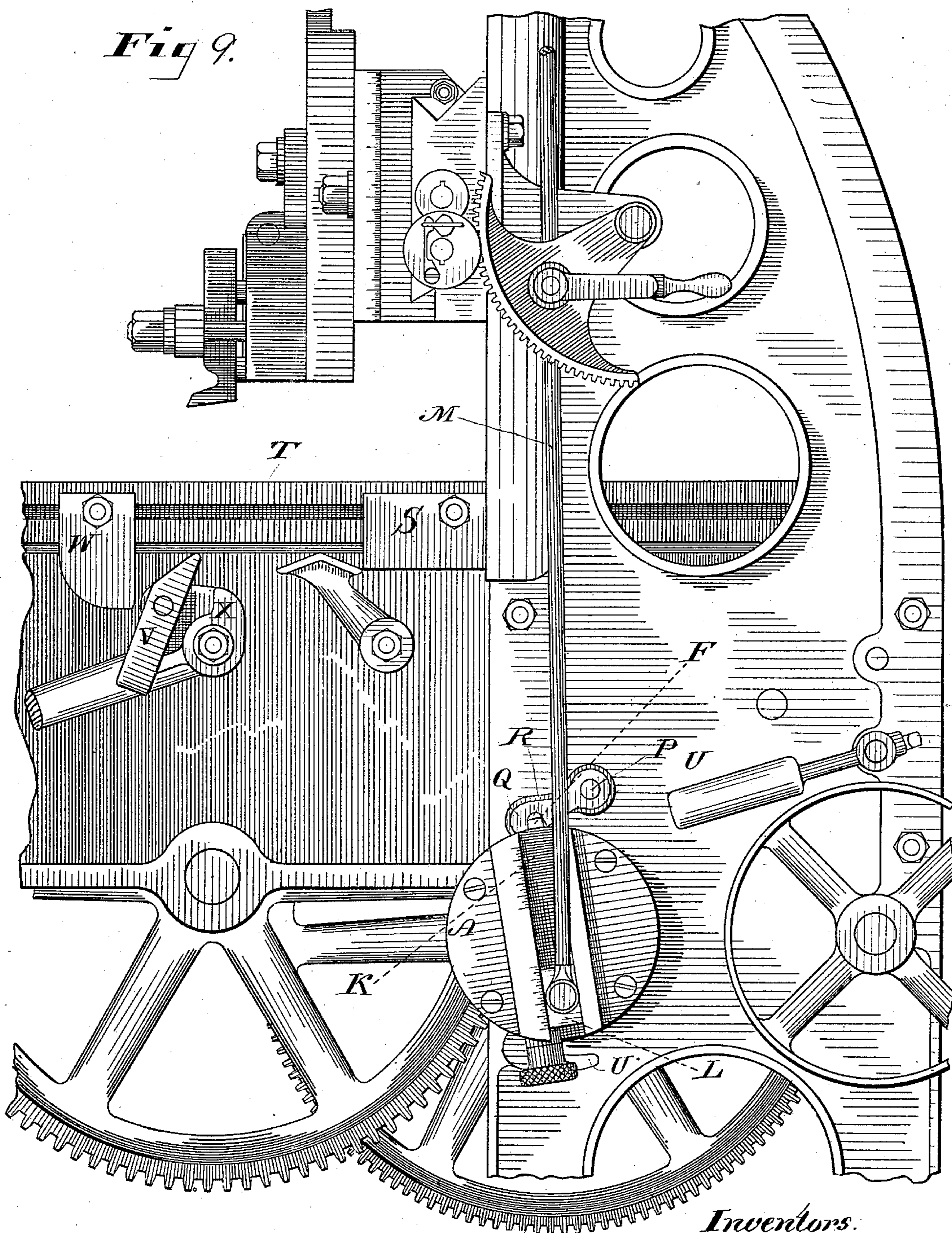
E. P. & H. C. WALTER.

METAL PLANING MACHINE.

No. 308,716.

Patented Dec. 2, 1884.

*Fig 9.*



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# UNITED STATES PATENT OFFICE.

EDWARD P. WALTER AND HENRY C. WALTER, OF BRIDGEPORT, CONN.

## METAL-PLANING MACHINE.

SPECIFICATION forming part of Letters Patent No. 308,716, dated December 2, 1884.

Application filed June 23, 1883. (No model.)

*To all whom it may concern:*

Be it known that we, EDWARD P. WALTER and HENRY C. WALTER, citizens of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Metal-Planing Machines; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to certain novel and useful improvements in planing-machines, and has for its objects, first, to regulate and control the movement of the feed-disk, whereby the feeding mechanism shall operate immediately after the cessation of the backward movement of the table, or just before the cutting-tool takes hold of the work, thereby preventing the tool from dragging upon the work during said movement and becoming worn; and, second, to enable the shaft which operates the feed-disk to turn with comparatively little friction to overcome when the feed-disk is not operating; and with these ends in view our invention consists in the details of construction and combination of elements hereinafter fully and in detail explained, and then specifically designated by the claims.

In order that those skilled in the art to which our invention appertains may understand fully how to make and use our improvement, we will proceed to describe the same in detail, referring by letters to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a side elevation of our improvement in operative position; Fig. 2, a detail side elevation of the feed-disk, rod attached thereto, catch-dog, and rock-lever, and showing said dog out of engagement with the lock-bar; Fig. 3, a detail view illustrating the relative position of the toothed wheel, lock-bar, and spring mechanism for actuating the latter, and the inclined lugs which operate the lock-bar; Fig. 4, also a detail view showing more clearly the construction and relative arrangement within the disk of the lock-bar and spring mechanism for operating the same; Fig. 5, a central vertical section of the feed-disk, showing the relative position of all the parts therein when they are properly assem-

bled; Fig. 6, a detail view showing the lock-bar in engagement with the toothed wheel; Fig. 7, a detail perspective view of the spring-metal washer; Fig. 8, a plan view with the frame and disk in section, and showing the relation existing between our improvement and the shipping mechanism; and Fig. 9, a side elevation of a planer equipped with our improvement.

Similar letters denote like parts in the several figures of the drawings.

A is the feed-disk, of any ordinary pattern. Within this disk is a rectangular recess, B, having interiorly arranged therein coil-springs C around pins D, the latter connected by a cross-pin, E, passed through the lock-bar F. This bar extends centrally throughout the disk, and projects at one end beyond the circumference of the disk, for the purpose presently set forth. When the said lock-bar is moved in the direction indicated by the arrow, the pins D will be forced down against the action of the spring, owing to the fact that they are shorter than said spring. The lock-bar, therefore, has a spring action.

G is a toothed wheel secured to the shaft which operates the feed-disk, and seated within the latter immediately over the lock-bar, which is cut away to accommodate said wheel, so that when the latter is in position within the disk the upper surface of the wheel will be flush with the upper surface of the lock-bar, as will be seen by reference to Fig. 5.

H is a spring-washer, which is placed in the recess I in the face of the wheel G, and directly over this is secured to the disk the cap-plate J. It will be readily understood that the spring-washer acting directly against the wheel and the cap-plate, any rotary motion of said wheel will be by friction communicated to the cap-plate, and therefore to the disk itself, the purpose of which will be hereinafter explained.

K is a guideway on the outside of the disk, and within it is the ordinary shoe, L, attached to the rod M; but it is not deemed necessary to enter into any detailed description of the relations and functions of these parts and their connection with the feeding mechanism, as they are not of our invention, but are common to many planers now in use.

N is a rock-lever pivoted within the frame

of the machine, and having a recess, O, at its inner end.

P is a shaft journaled within the frame of the machine, and provided at its inner end with an arm which is adapted to engage with the recess O in the rock-lever, and at its outer end with a catch-dog, Q, having a slot, R, therein, and adapted to engage with the lock-bar F, as shown at Fig. 1, so that when the lever N is depressed the catch-dog will be thrown upward. The upper end of the lever is inclined, and extends within the field of operation of the shipping-block S, and therefore the latter will, as the table T moves backward, depress said lever and operate the catch-dog. The said rock-lever is so located that the shipping-block will operate upon the same immediately as the backward movement ceases.

U U are lugs which project from the frame of the planer, and are in the position relative to the feed-disk, as shown at Fig. 3. The inner portions of these lugs are inclined, as shown.

The normal position of the lock-bar is as illustrated at Figs. 4 and 6, and in the latter it is shown in engagement with the toothed wheel, which will accordingly carry the disk around during this engagement. The bar as it is carried around by the disk will strike one of the lugs U and be forced down against its spring-action and out of engagement with the toothed wheel. The lugs are shouldered, as seen at *a a*, so that the projecting lock-bar will abut against the shoulders and prevent the disk from being carried around by friction during the continuous movement of the toothed wheel in the same direction. When the lock-bar has abutted against the upper lug, U, the timing of the action of the shipping-block on the lever N is such that the dog Q will drop and the said bar enter the slot R in the dog, as shown at Fig. 1. When the block S strikes the lever N during the backward movement of the table, the dog will be raised, and the lock-bar being thus released the disk will make a half-revolution until said bar strikes the lower lug U. As the table continues to move backward the block S will strike the stop V, and the movement of the shaft will be reversed, said block meantime not leaving the lever N, so that the dog continues to be held in a raised position and the disk is left free to revolve back again to its former position, where it is held by the abutment of the lock-bar against the upper lug U. This latter movement of the disk causes the planing-tool to be fed, so that it will be readily understood that said feeding takes place at the termination of the backward movement of the table, or, in other words, just before the tool commences work, in contradistinction to feeding the tool just after it has finished work. The toothed wheel G is secured on one extremity of the driving-shaft of the planer. When the rotation of the disk has been arrested by the abutment of the lock-bar F

against either of the lugs U, as the case may be, the said wheel will be left free to revolve with its shaft, owing to the fact that there is now no connection between the wheel and the disk, since the action of the lower inclined surface of the lug will have forced the bar out of engagement with the teeth of said wheel, and the friction of the spring-washer H is easily overcome. This operation of the wheel relative to the disk is absolutely necessary, because in many planers the reverse movement of the driving-shaft does not take place until after the disk has ceased to revolve. The lugs U U are cast integral with the frame, or rigidly attached thereto, and are located opposite to each other—one above and the other below the disk—and serve merely as abutments, as hereinbefore set forth.

The operation of our improvement is as follows: When the several parts are in the position shown at Fig. 1, the table has just finished its forward movement. As the table travels backward the shipping-block S will strike the lever N and the dog Q will be raised, and the disk thus released will be carried around in the direction indicated by the arrow, Fig. 1, either by friction or by reason of the engagement of the lock-bar with the toothed wheel, as the case may be, since the bar may or may not happen to be opposite one of the spaces between the teeth. As the disk is carried around its motion will be arrested by the abutment of the bar against the shoulder *a* on the lower lug U, (see Fig. 2,) and the disk will remain in this position until the block S strikes the stop V and operates the rod A', which causes the switch-cam B' to operate in the well-known manner, thereby reversing the movement of the table, when the disk will be turned back to its former position, and the shipping-block in its forward travel leaving the lever N, the dog Q will fall over and upon the lock-bar, as before set forth. When the shipping-block W strikes the stop X, the table will run in an opposite direction, and the operation of the several parts be repeated, as above described.

The feed mechanism operates in the ordinary way—namely, at the downward stroke of the rod M—and from the foregoing it will be readily understood that the upward stroke of said rod is taken when the block S depresses the lever at the backward movement of the table, and the downward stroke occurs when said block strikes the stop V, or, in other words, just as the forward movement of the table commences. The action of the catch-dog prevents the disk from turning, and thereby operating the rod M when it is necessary that the latter, in order to bring about the desired result, should remain stationary.

It has been customary in planing-machines to place a leather washer between the cap-plate and the disk in order to accomplish the rotation of the disk by friction; but when the disk is not operating the shaft is of course revolving, and has to overcome this friction,

which is considerable, and therefore a great deal of power is practically wasted. It is, however, necessary that the disk should turn when the block S operates on the lever N, at the beginning of the backward movement of the table, in order that the rod M may be thrown upward, since the feeding occurs at the downward stroke of said rod. For this purpose we place a metallic spring-washer, H, one or both of whose ends are spread, so as not to lie in the same plane with the body of the washer, in the recess I in the toothed wheel. The cap being secured to the disk immediately over this washer, motion will be imparted from the wheel to the disk by friction, and the disk will be turned thereby until the lock-bar is free from the upper or lower lug, U, as the case may be, so that when any resistance is offered to the movement of the disk—as, for instance, the accomplishing of the feeding—the friction will be easily overcome and the disk will remain stationary until the lock-bar engages with the said wheel, when both the disk and wheel will revolve together. The object of the frictional movement of the disk is to bring the lock-bar away from the lugs, so that it will be free to enter the toothed wheel at the proper time.

By the use of our improvement it will be readily understood that the feed-disk operates with a positive, constant, and uniform movement, which of course insures a perfect feed, while at the same time a saving of power is accomplished.

We do not wish to limit ourselves to the particular style of stops shown in the drawings, and fully described and claimed in another application of even date herewith and bearing Serial No. 98,983, as any ordinary stop may be used; also, since the construction and arrangement of the lever and catch-dog are such as to effect only the feeding just before the forward movement of the table, we are enabled to make the feed at the usual time by simply dispensing with the rock-lever and catch-dog mechanism, and at the same time obtain a positive movement of the disk during the operation of feeding and a movement by friction at other times.

Having thus described our invention, what

we claim as new, and desire to secure by Letters Patent, is—

1. In a metal-planing machine, the feed-disk having arranged therein the spring lock-bar and toothed wheel, in combination with mechanism for operating said bar and wheel, substantially as set forth.

2. In a metal-planing machine, the feed-disk having arranged therein the toothed wheel and spring lock-bar, in combination with the lugs on the frame of the machine, whereby said bar is caused to engage with the wheel at intervals, substantially as shown and described.

3. In a planing-machine, the feed-disk having lock-bar, as described, projecting above the periphery of said disk, in combination with means for holding said bar at intervals, whereby the disk is stationary at such times and the feeding accomplished at the termination of the backward movement of the table, substantially as described.

4. The feed-disk A, recessed, as shown, and having interior thereof the pins D, within the coil-springs C, lock-bar F, connected to said pins by the cross-pin E, and toothed wheel G, secured to the actuating-shaft, in combination with the inclined lugs U, substantially as set forth.

5. The spring-metal washer, in combination with the toothed wheel, cap-plate, lock-bar arranged within the feed-disk, and the lugs, substantially as set forth.

6. In a metal-planing machine, the feed-disk having arranged therein the spring lock-bar and toothed wheel, in combination with the lugs, the dog and means for operating the same, and mechanism for revolving the toothed wheel, substantially as set forth.

7. In a metal-planing machine, the pivoted lever N, having recess O, in combination with the rock-shaft P, dog Q, and lock-bar F, substantially as described.

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

EDWARD P. WALTER.  
HENRY C. WALTER.

Witnesses:

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S. S. WILLIAMSON.