

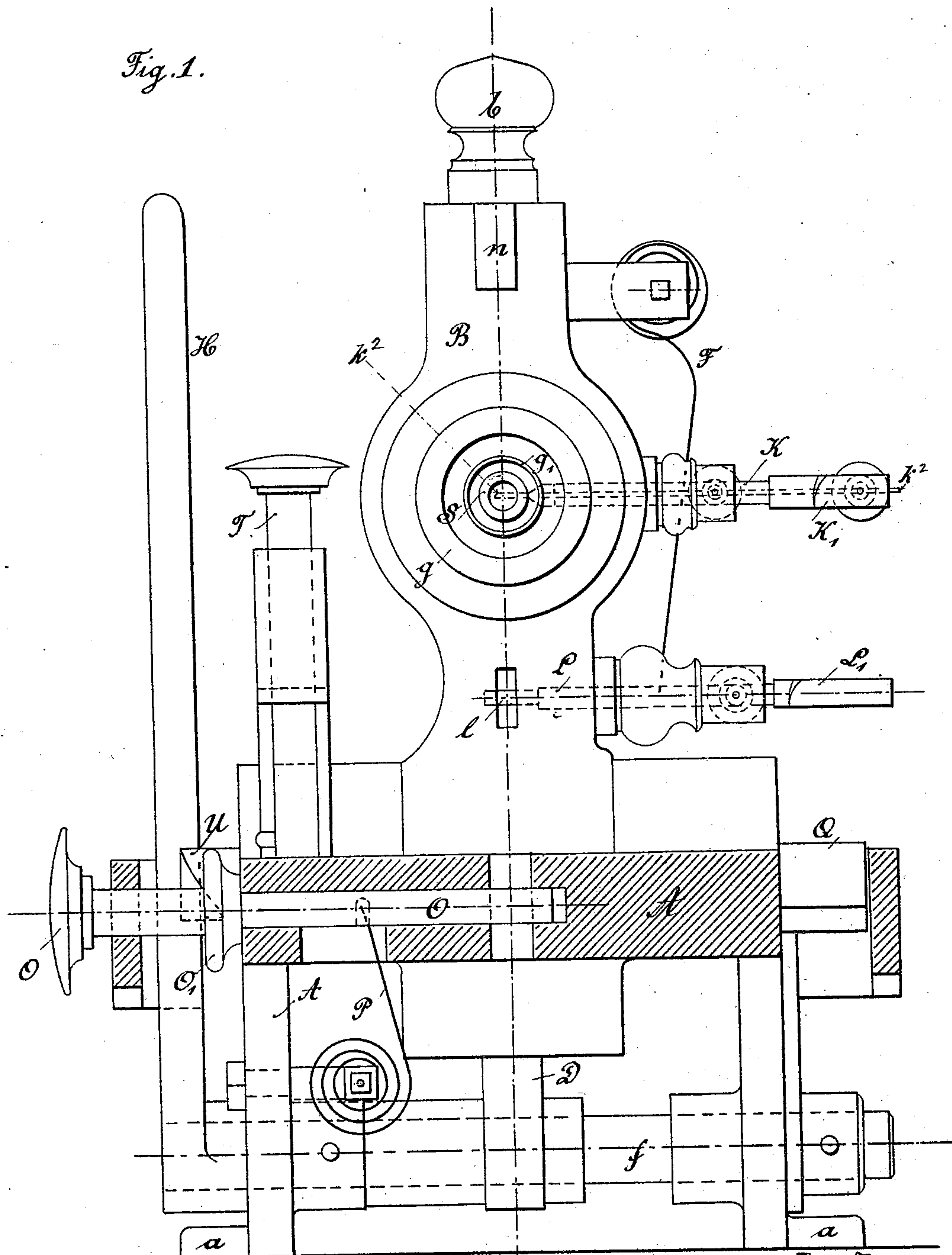
(No Model.)

6 Sheets—Sheet 1.

C. A. PFENNING.
BUTTON MACHINE.

No. 396,424.

Patented Jan. 22, 1889.



Witnesses:

Geo. H. Mather
Chas. S. McArthur

Inventor:

Carl August Pfennig,
By his Attorney,
Dickerson Foster & Freeman

(No Model.)

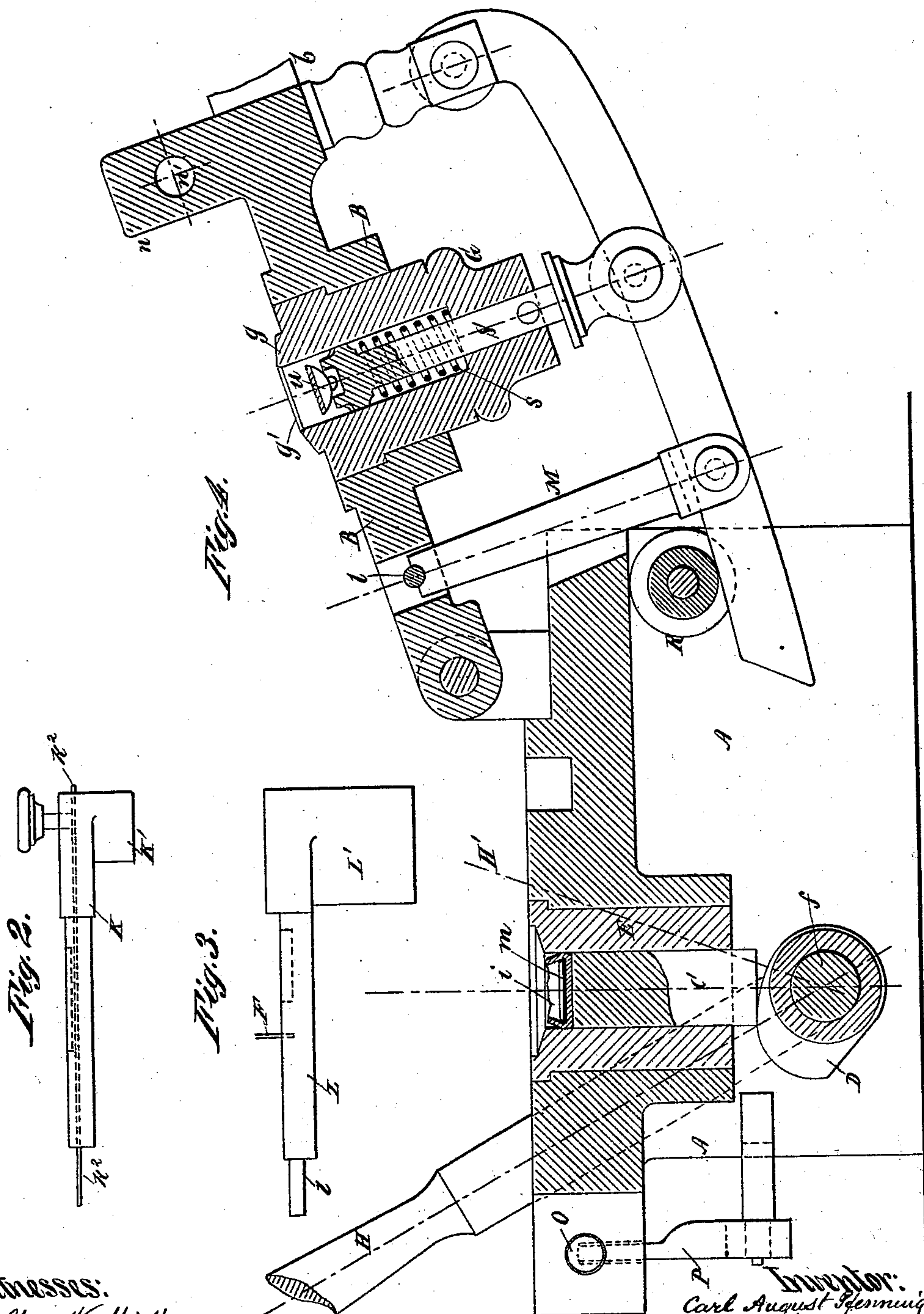
6 Sheets—Sheet 2.

C. A. PFENNING.

BUTTON MACHINE.

No. 396,424.

Patented Jan. 22, 1889.



Witnesses:
Geo. W. Miath
Ch. S. McArthur

Inventor:
Carl August Pfennig
By his Attorney
Dickerson Foster Freeman

(No Model.)

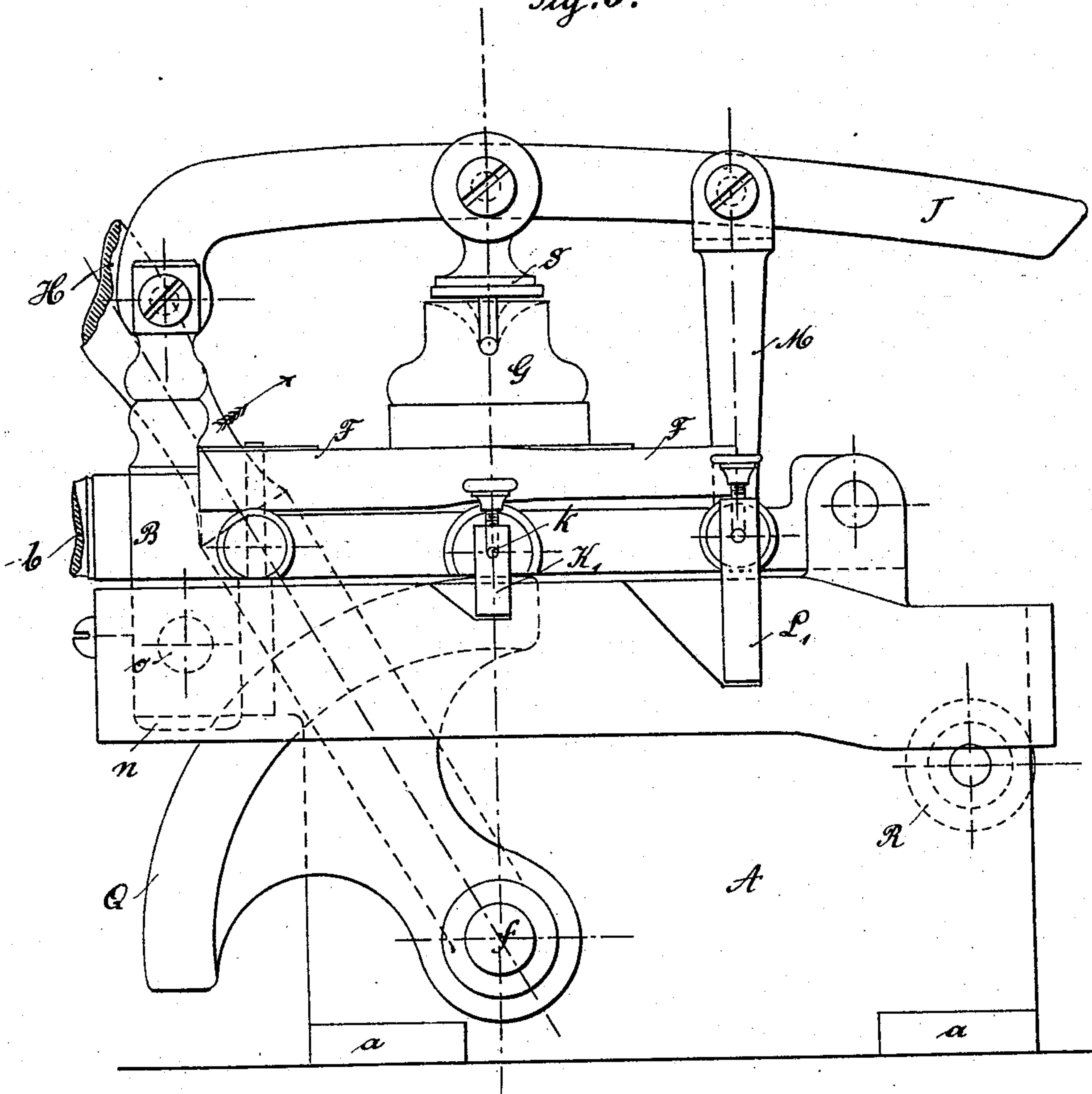
6 Sheets—Sheet 3.

C. A. PFENNING.
BUTTON MACHINE.

No. 396,424.

Patented Jan. 22, 1889.

Fig. 5.



Witnesses:

Geo. H. Mott
W. S. McArthur

Inventor:

Carl August Pfennig
By his Attorney
Dickerson Foster Freeman

(No Model.)

6 Sheets—Sheet 4.

C. A. PFENNING.
BUTTON MACHINE.

No. 396,424.

Patented Jan. 22, 1889.

Fig. 6.

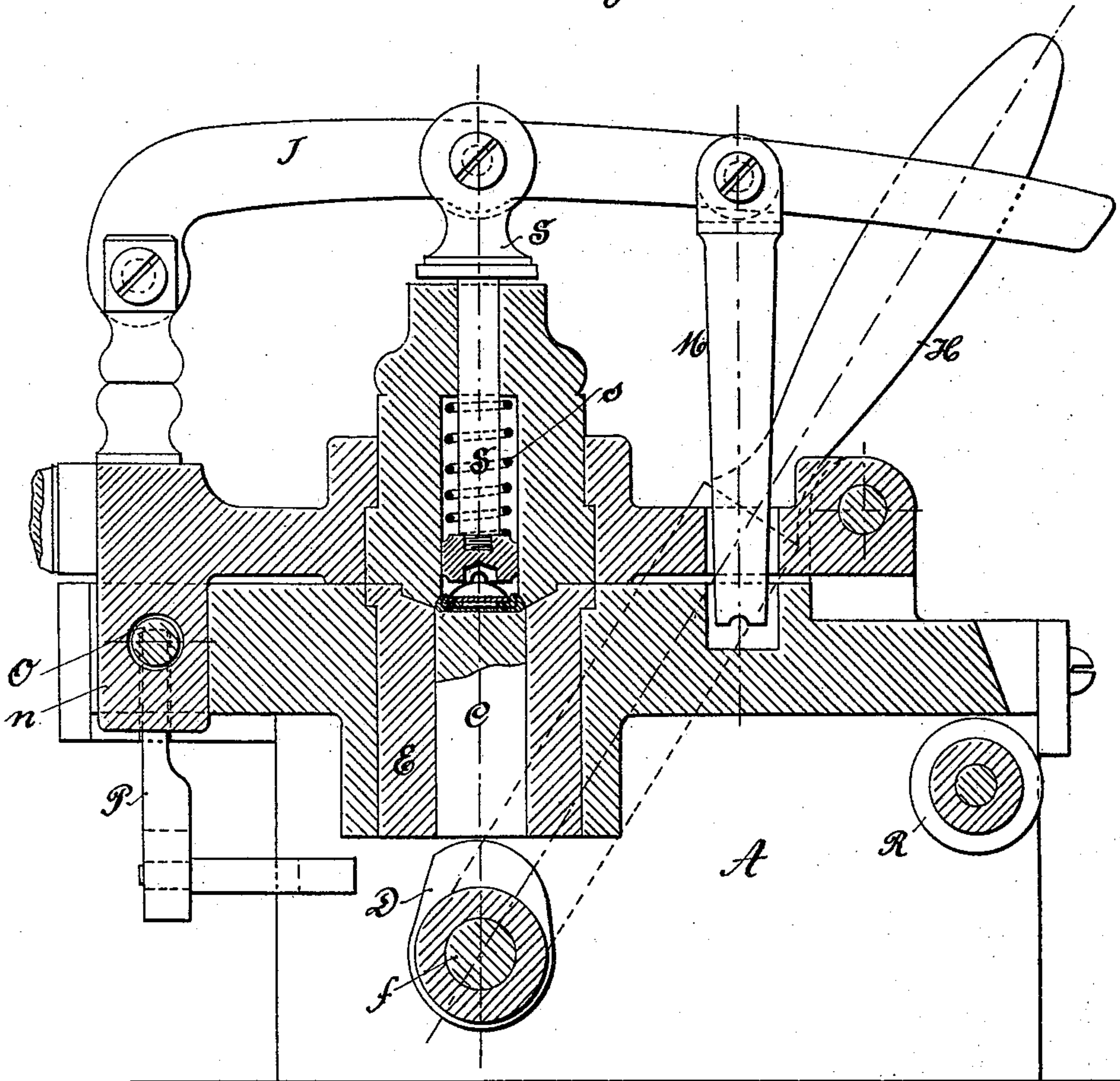
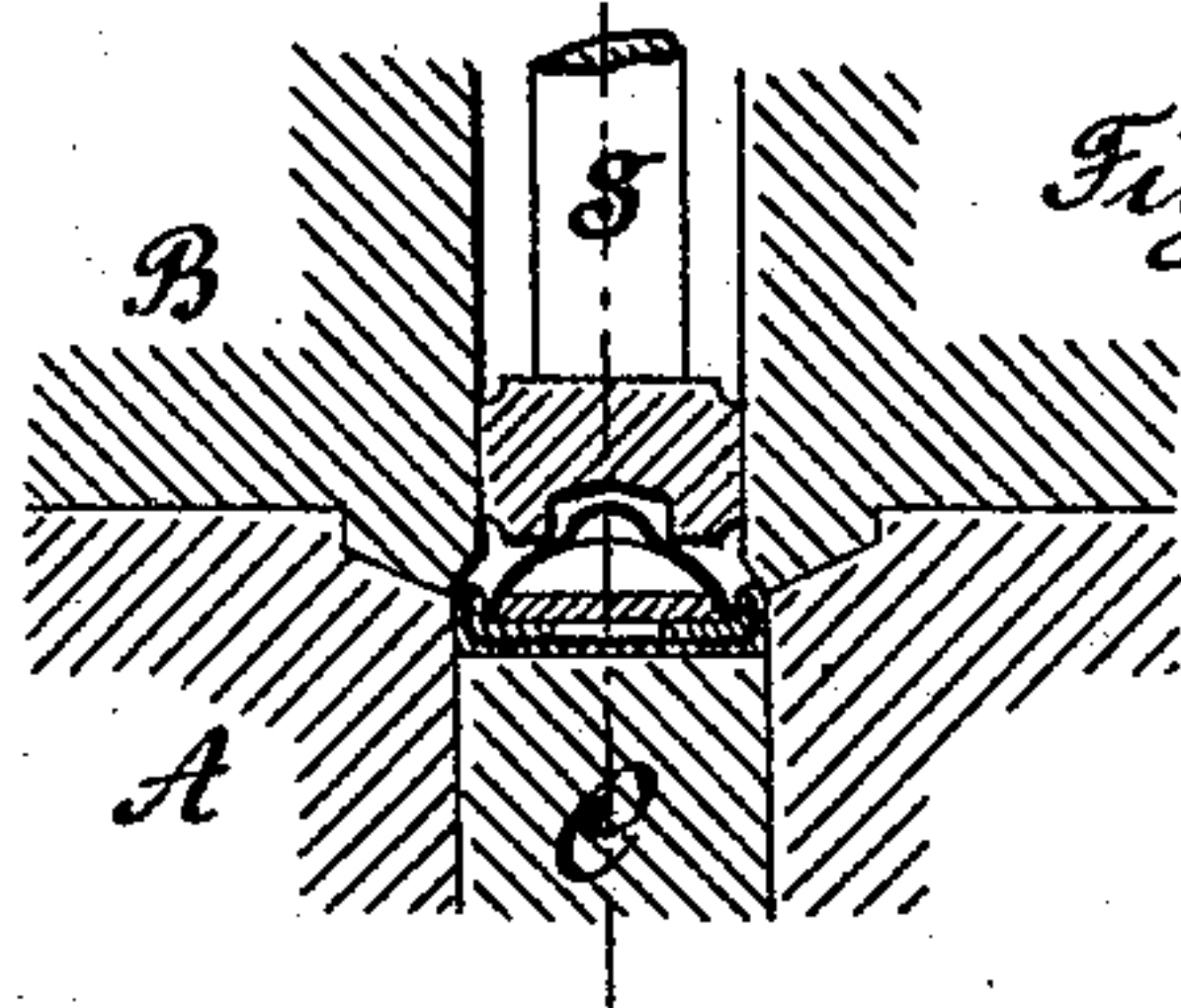


Fig. 9.



Witnesses:

Geo. H. Miatt
W. S. McArthur

Inventor

Carl August Pfennig
By his Attorney
Dickinson Foster & Freeman

(No Model.)

6 Sheets—Sheet 5.

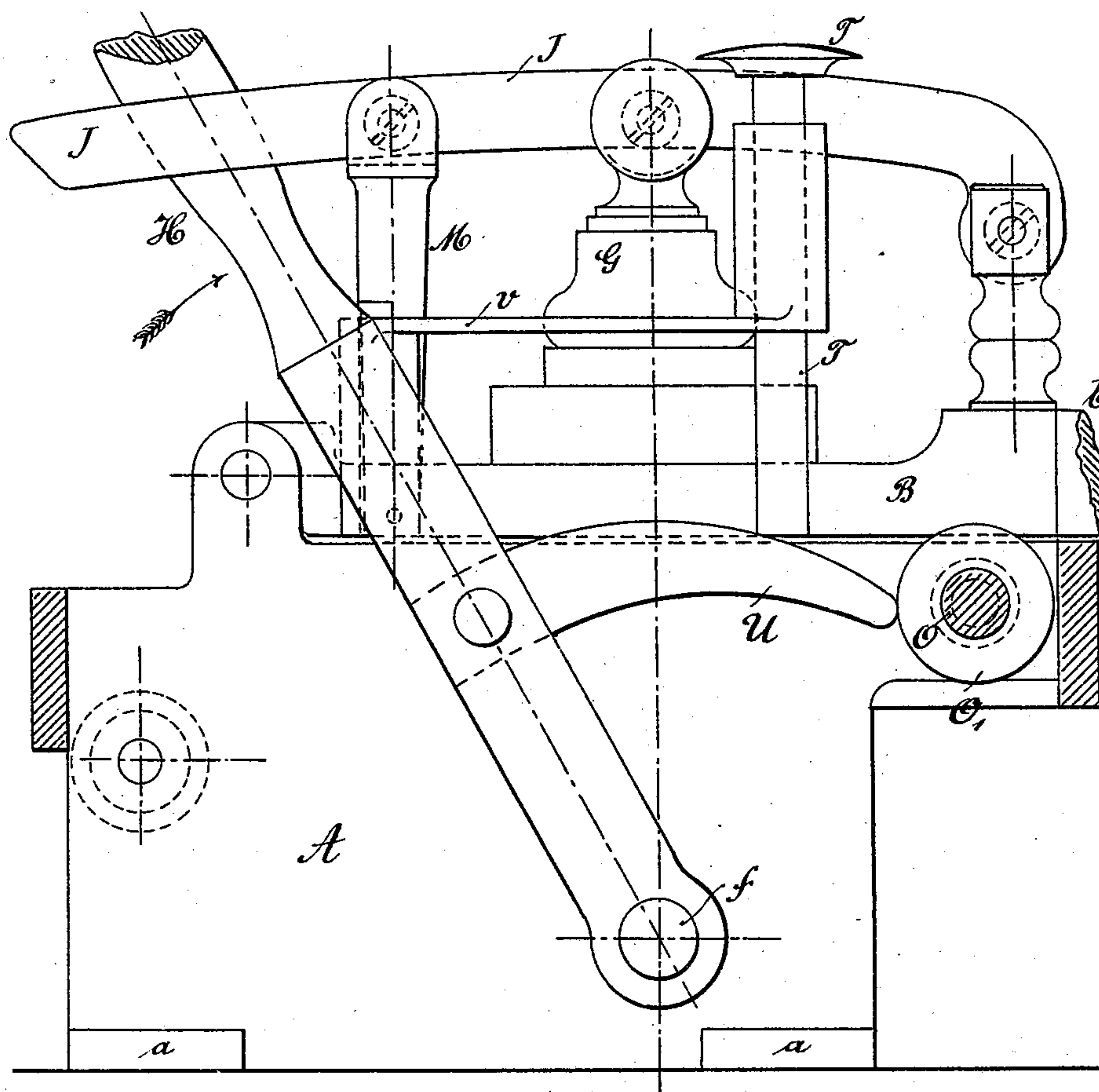
C. A. PFENNING.

BUTTON MACHINE.

No. 396,424.

Patented Jan. 22, 1889.

Fig. 7.



Witnesses:

Geo. H. Midth
W. S. McArthur

Inventor:

Carl August Spennings
By his Attorney,
Dickinson Foster & Freeman

(No Model.)

6 Sheets—Sheet 6.

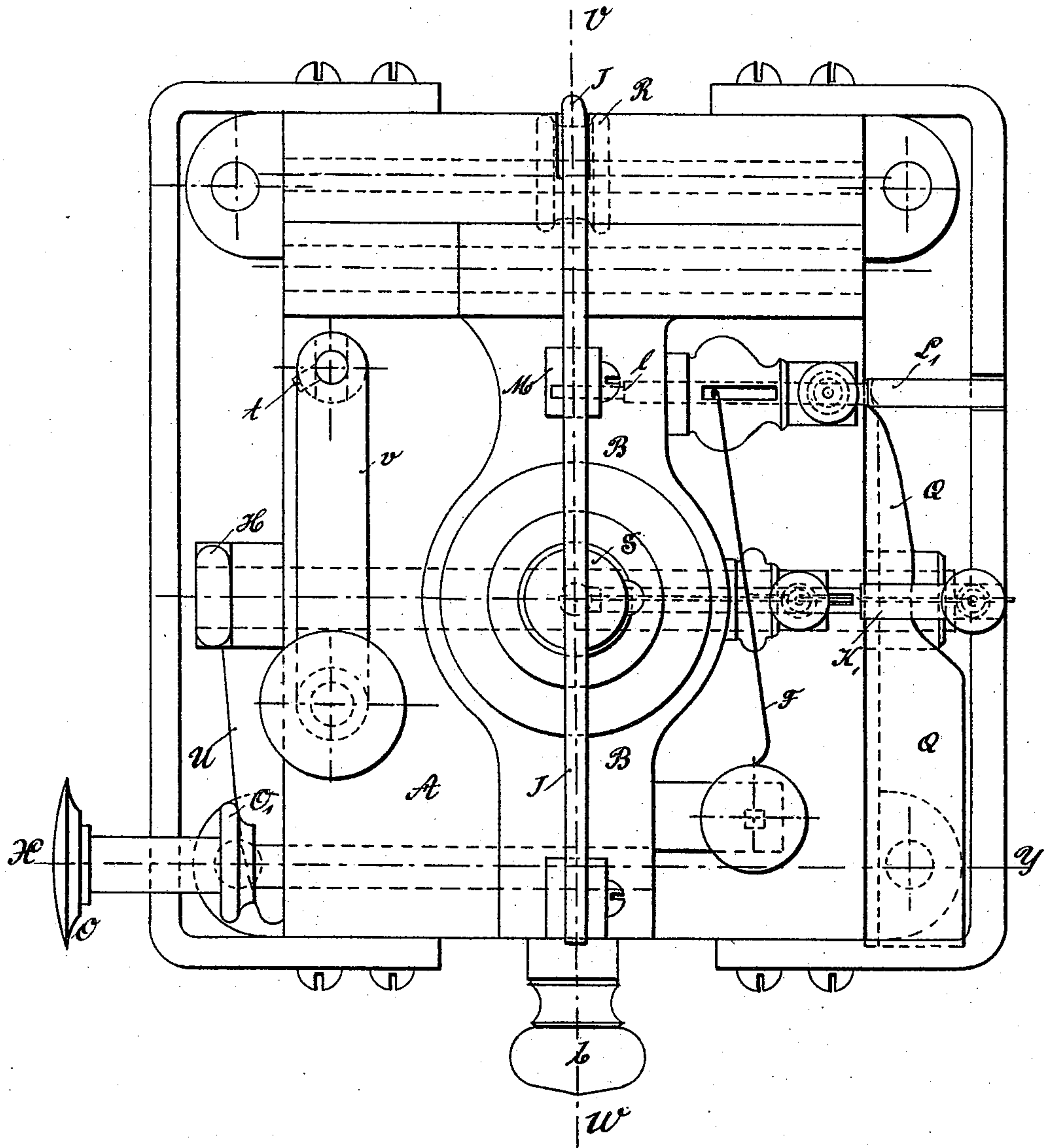
C. A. PFENNING.

BUTTON MACHINE.

No. 396,424.

Patented Jan. 22, 1889.

Fig. 8.



Witnesses:

Geo. H. Miatt

W. S. McArthur

Inventor:

Carl August Pfennig

By his Attorney

Dickinson Foster & Freeman

UNITED STATES PATENT OFFICE.

CARL AUGUST PFENNING, OF BARMEN RITTERSHAUSEN, PRUSSIA, GERMANY.

BUTTON-MACHINE.

SPECIFICATION forming part of Letters Patent No. 396,424, dated January 22, 1889.

Application filed April 5, 1888. Serial No. 269,672. (No model.)

To all whom it may concern:

Be it known that I, CARL AUGUST PFENNING, a subject of the German Emperor, residing at Barmen Rittershausen, in Rhenish Prussia, Germany, have invented a new and useful Apparatus for the Manufacture of Buttons, of which the following is a full, true, and exact description, reference being had to the accompanying drawings.

This invention relates to an improvement in machines for forming buttons, in which the movements of the various parts are to a large extent automatic, and in which, therefore, the machine is capable of rapid operation and the formation of buttons quickly.

In my drawings, Figure 1 represents an elevation of my machine, partly in section, showing the cover elevated; Fig. 2, a view of the detail of a locking-lever shown in Fig. 1; Fig. 3, a detail of another lever shown in Fig. 1; Fig. 4, a section at right angles to Fig. 1, showing the cover wide open; Fig. 5, an elevation of the right side of the apparatus, showing the cover closed; Fig. 6, a partial section of the same, showing the button-forming process; Fig. 7, an elevation of the left of the apparatus with the cover closed; Fig. 8, a plan view of the apparatus with the cover closed, and Fig. 9 a section of the button-forming mechanism.

The machine consists of two main parts—a framing, A, which can be fastened by the feet *a*, and the cover B, which is pivoted to this framing in such a way that it can be turned. The framing A is provided with a cylindrical aperture for the admittance of a cylinder, E, which has a central opening corresponding to the size of the button to be made. In this opening the movable core C fits exactly, which latter rests with its lower part on the circumference of an eccentric, D. The latter is fastened to an axis, *f*, which rests in the framing A and can be turned by the hand-lever H. The cover B likewise carries a cylindrical part, G, in a corresponding aperture. When the cover is closed, the latter rests exactly over the part E and ends with its projection *g* in a corresponding recess in the part E. The part G has a recess which contains the stamp S. The end of the latter, which projects from part G, is connected with the one-

armed lever J, which has the function to draw back or to drive into the aperture, respectively, the stamp, which is being continually pressed down by a spiral spring. The diameter of the aperture in the cover part G is somewhat smaller than that of the part E and in line with it. The beveled rim *g'* is located at the mouth of part G, Figs. 1, 4, and 6.

The cover B carries two pistons, K and L, which are represented in front view in Figs. 2 and 3. The first piston, K, serves for keeping the button lower part in the aperture of the cover part G, and for this purpose it is provided with a pin, *k*², which is pressed into the eyelet or into the lower part, called the "cloth-shank." The other piston, L, has the function of holding the stamp S, which is raised by means of lever J, in its raised position against the pressure of the spiral spring *s*, which works on the stamp. This is accomplished by the pin *l*, Fig. 1, which is attached to the piston, catching the rod M, which latter is fastened to the lever J. The automatic inward movement of the pin *l*, or, rather, of the piston L, is caused by a spring, F, Fig. 5, arranged over the latter, whose free end engages with a projection in a corresponding opening in the piston, Fig. 3. Finally, there is put on the cover a button, *b*, used for raising it, and a lug, *n*, which serves to lock the cover when it is closed, which is accomplished by the passing of the pin O, which latter is movable in the framing, through an opening, *n'*, of the lug. This aforementioned pin O, which movably rests in the framing and is destined for the locking of the cover, is continually being pressed inward by a spring, P.

In order to effect an outward movement of the pin, which is necessary to loosen the cover, on the forward movement of the hand-lever H, a wedge-shaped segment-piece, U, is provided on the lever H and a disk, O', on the pin. This disk is cone-shaped, with its point toward the framing in such a manner that a space is formed, in which rests the free point of the wedge-shaped segment-piece U, and a movement of the pin O is caused by the movement of the segment-wedge when the hand-lever H is moved forward in the direction of arrow, Fig. 7. On the other side of the framing a similar wedge segment-piece, Q, is

fastened on the end of the axis *f*, Figs. 1, 5, and 8. This one has the function of moving outward the piston L, as also the piston K, on the backward movement of the hand-lever in the direction of the arrow, Fig. 5. For this purpose the flanges L' and K', respectively, are fastened to the two pistons, behind which, at the described turning of the hand-lever, the segment-piece Q engages, which latter at first causes an outward-directed movement of the piston K, and then a like movement of the piston L. A roller, R, is also pivoted to the framing and is shown at the rear of the latter, Fig. 5. This roller is intended to perform the withdrawal of the stamp S at the time the cover B is opened. This is done by the sliding of the free end of the lever J, which is correspondingly sloping, over the roller while the cover is being turned, by which the lever J is lifted in the same proportion as the cover moves backward, and in this manner the stamp S in the part G is drawn back, Fig. 4. Together with the lever J the rod M, pivoted to it, is lifted, and when this is sufficiently moved the pin *l* of the piston L jumps under the end of the rod M, and thus locks up the stamp S. In place of the segment-pieces U and Q, other contrivances may also be employed for the moving of the pin O or the pistons K and L, respectively—as, for instance, wedge-shaped bars can be employed movable from the rod *f*.

In order to make a button by this machine, the cover B is opened, the hand-lever H having first been placed in the position of Figs. 4 and 5, and thereby the pin O is disengaged and the cover is drawn back so far that the before-mentioned locking of the stamp S by the piston L takes place. (Position shown in Fig. 4.) Then the cloth-disk is placed in the opening of the part E and pressed with the button upper part into the opening in the part E upon the stamp C. This is either done by hand or by means of a plunger, T, sliding in the movable arm *v* of the framing A. The plunger can be placed exactly over the center of the part E by the turning of the arm *v*. This position, as well as the outward movement, Fig. 8, is limited by a small pin, *t*, fastened in the axis of the arm. The core C takes its lowest position in the part E when the lever is forward, on account of the position of the eccentric D, Fig. 4. While being pressed in, the rim of the cloth-disk *i* is folded around the turned-up rim of the button upper part, *m*, as may be seen in Fig. 4. In the aperture of the cover part G upon the stamp S the mold-shaped button lower part, *u*, is now placed in its corresponding cavity and held in position by the pressure of the piston K and the pin *k*². If the cover is now closed, the button lower part, *u*, is thus prevented from falling out. The hand-lever H is now turned backward and takes the position of Fig. 5. In doing this and in removing the wedge-shaped segment-piece U from the disk O' the pin O has

bolted and firmly connected the cover B by its lug *n* with the framing A. At the same time the core C has been pressed upward by the eccentric D, and has forced the cloth-disk *i* with the button upper part, *m*, against the rim *g'* of the cover part G, whereby the beveled rim *g'* has caused a bending toward the middle of the cloth-rim *i*. Simultaneous with the movement of handle H a disengagement of the piston K and piston L has taken place by means of the segment-piece Q, which rotates with the rod *f* in the following manner: At first the piston K has moved outward the pin. The pin *k* has therefore released the button lower part, which latter has placed itself on the cloth *i*, which cloth is bent inward on the rim *g'*; but as in moving the hand-lever and the segment-piece Q forward a removal of the piston L has taken place, and thereby the disengagement of the stamp S, the button lower part, *n*, is pressed by the stamp into the button upper part, *m*, taking with it the rim of cloth *i* in consequence of the working of the spiral spring *s*. This position of the parts is especially represented in Fig. 9. Up to this point the hand-lever H has not quite reached its most backward position, for it rests in the position indicated in Fig. 4 by the dotted line H', and only by a complete pressing back of the lever into the position, Fig. 6, is the core C lifted so far by the eccentric D as to cause thereby a bending of the rim of the button upper part, *m*, over the lower part, *u*, which is exclusively done by the beveled rim *g'*, as can be seen in Fig. 6. Thus a firm connection of the button parts is effected.

The pressure of the stamp S is a yielding one in consequence of the application of the spring, so as to allow the stamp to move backward while the rim of the button upper part is being bent. If, now, the hand-lever H is again turned into the forward position, the cover B can be opened, and then the finished button can be removed after the lever has again been turned backward, whereby the core C carries the button out of the cavity of the part E. The cover while being opened is drawn so far backward that the locking up of the stamp S takes place. After the lever has been returned to its forward position, the button parts are put in and again connected, as described.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, in the herein-described button-forming mechanism, of a base carrying a core for forcing the button upward, a cover containing button-forming mechanism pivoted thereon, a lock for locking the cover upon the base, and a lever provided with connections, substantially as described, for raising the core and unlocking the cover, as set forth.

2. The combination, in the herein-described button-forming machine, of a cover containing button-forming parts and a bolt for lock-

ing the button-shank within the cover until it is dropped upon the parts beneath, substantially as described.

3. The combination, in the herein-described
5 button-forming machine, of a pivoted cover containing button-forming mechanism driven downward by a spring, a lever operating said spring and connected to the cover, and a roller
10 fixed to the base for operating the lever and raising the spring, substantially as described.

4. The combination, in the herein-described button-forming machine, of a pivoted cover containing button-forming mechanism driven
15 downward by a spring, a lever operating said spring and connected to the cover, and a roller fixed to the base for operating the lever and raising the spring, and a spring-lock for locking the spring when raised, substantially as described.

20 5. The combination, in the herein-described button-forming machine, of a base containing a longitudinally-movable button-forming core operated by an eccentric upon a shaft, a lever for operating said shaft, a bolt for lock-

ing the cover upon the base, and a connection, substantially as described, between the lever and the bolt for operating the lock between the cover and the base, as set forth. 25

6. The combination of the base A, cover B, lever H, and bolts K, L, and O, operated by 30 the movement of the lever H, substantially as described.

7. The combination of the base A, the cover B, pivoted thereon, the lever J, operating stamp S, and a roller, R, for operating the lever, substantially as described. 35

8. The combination of the base A, the cover B, pivoted thereon, the lever J, operating stamp S, a roller, R, for operating the lever, and an arm, M, and bolt L, substantially as described. 40

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CARL AUGUST PFENNING.

Witnesses:

CARL KRÜGER,

F. J. FALKENBACH.