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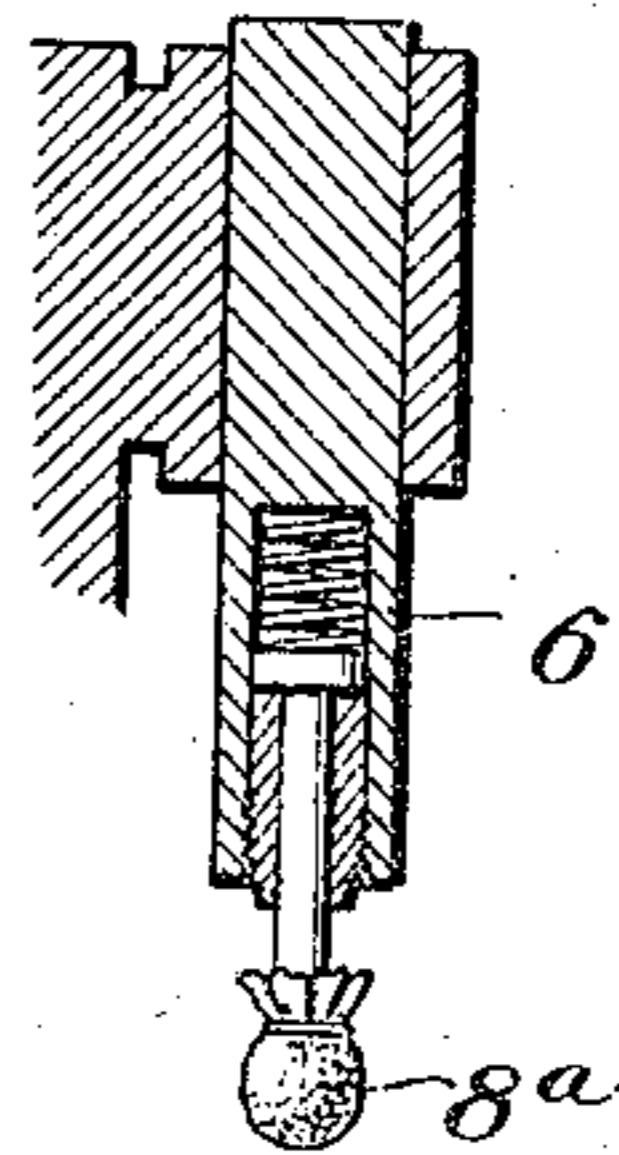
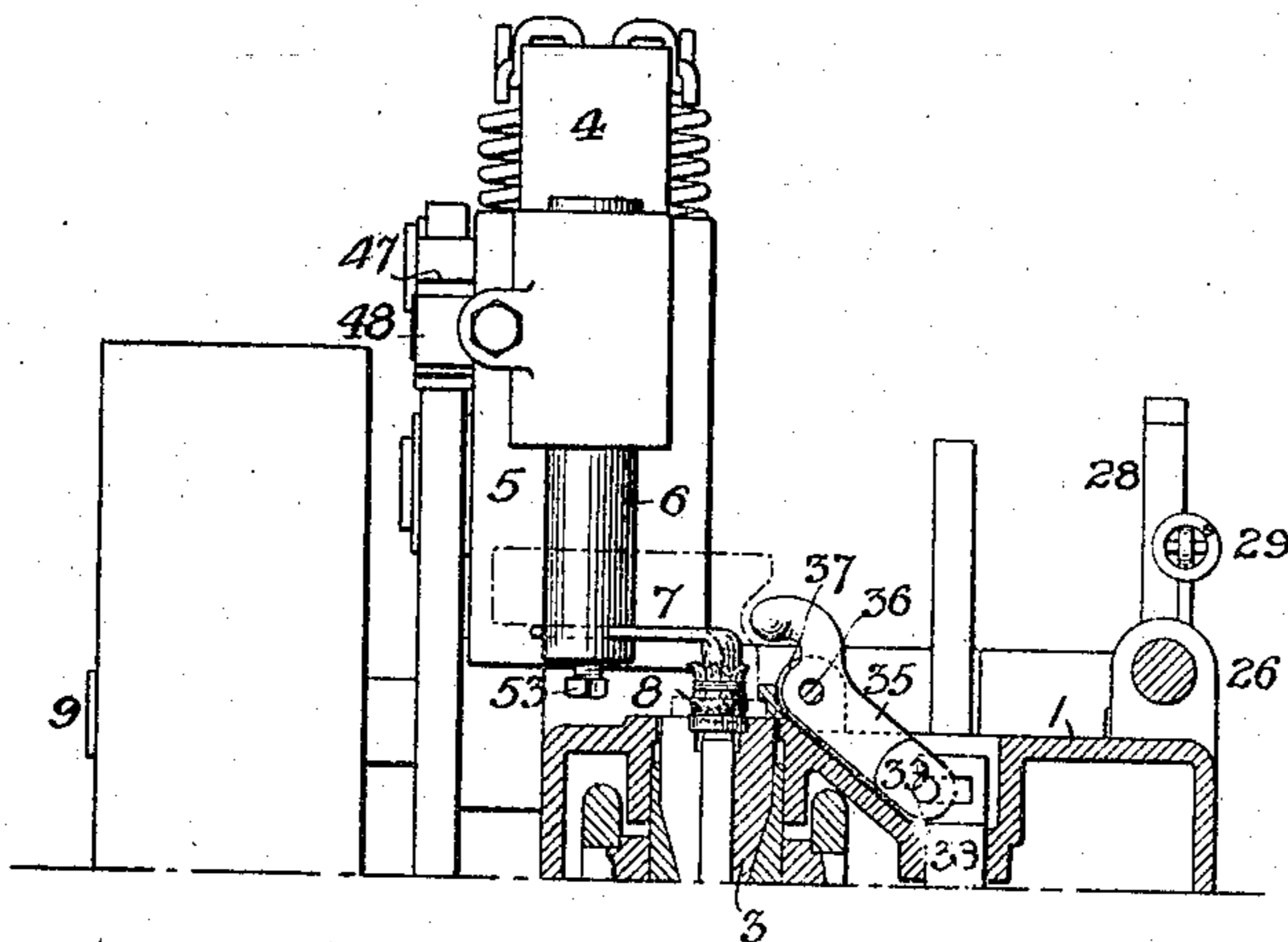
PATENTED JULY 2, 1907.

A. W. MORRIS.  
BUTTON POLISHING MACHINE.

APPLICATION FILED MAY 12, 1904.

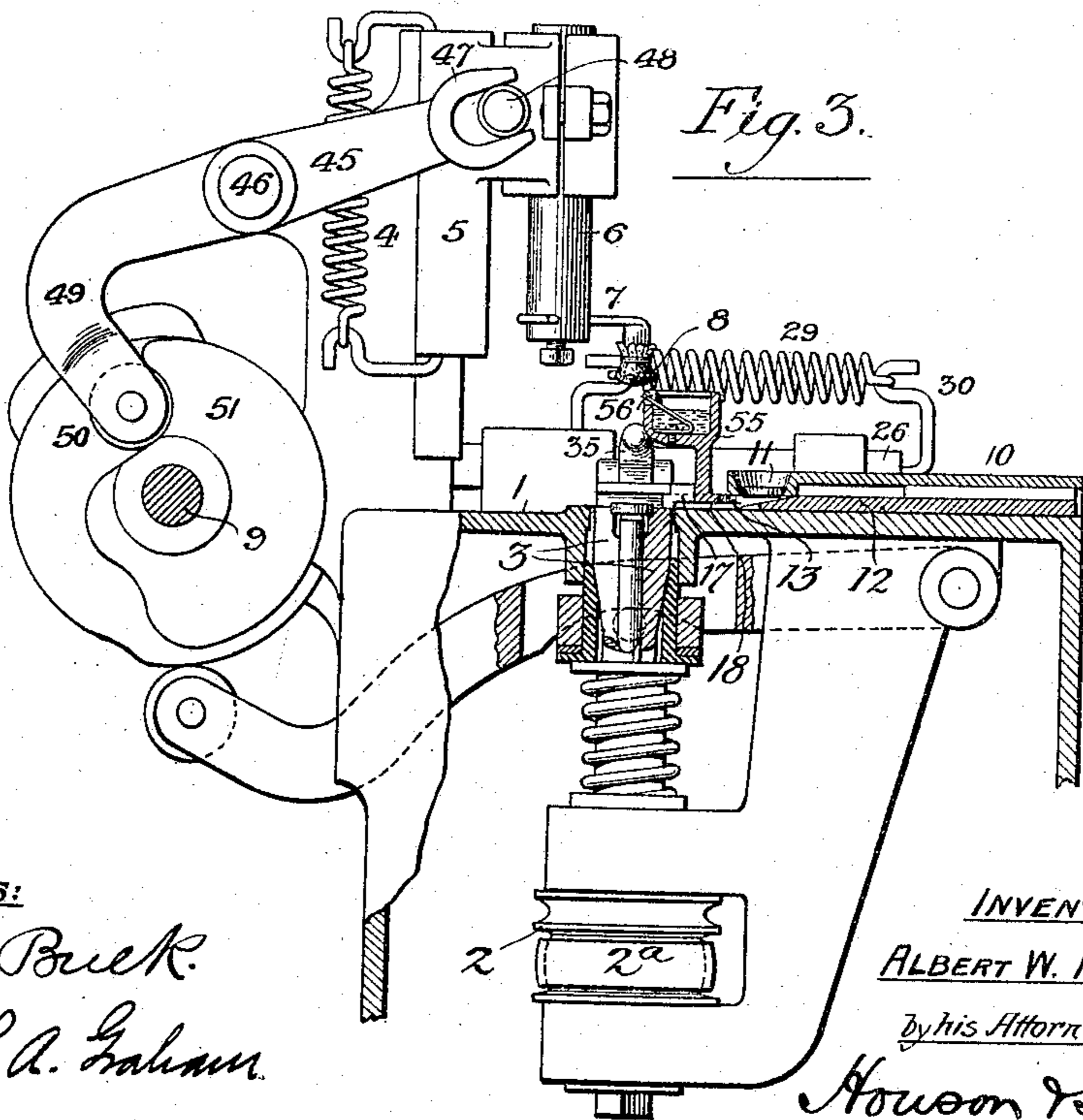
2 SHEETS—SHEET 1

*Fig. 1.*



*Fig. 5.*

*Fig. 3.*



WITNESSES:

Louis Buck.  
Frank L. A. Graham.

INVENTOR:

ALBERT W. MORRIS

By his Attorneys.

Hudson & Hudson

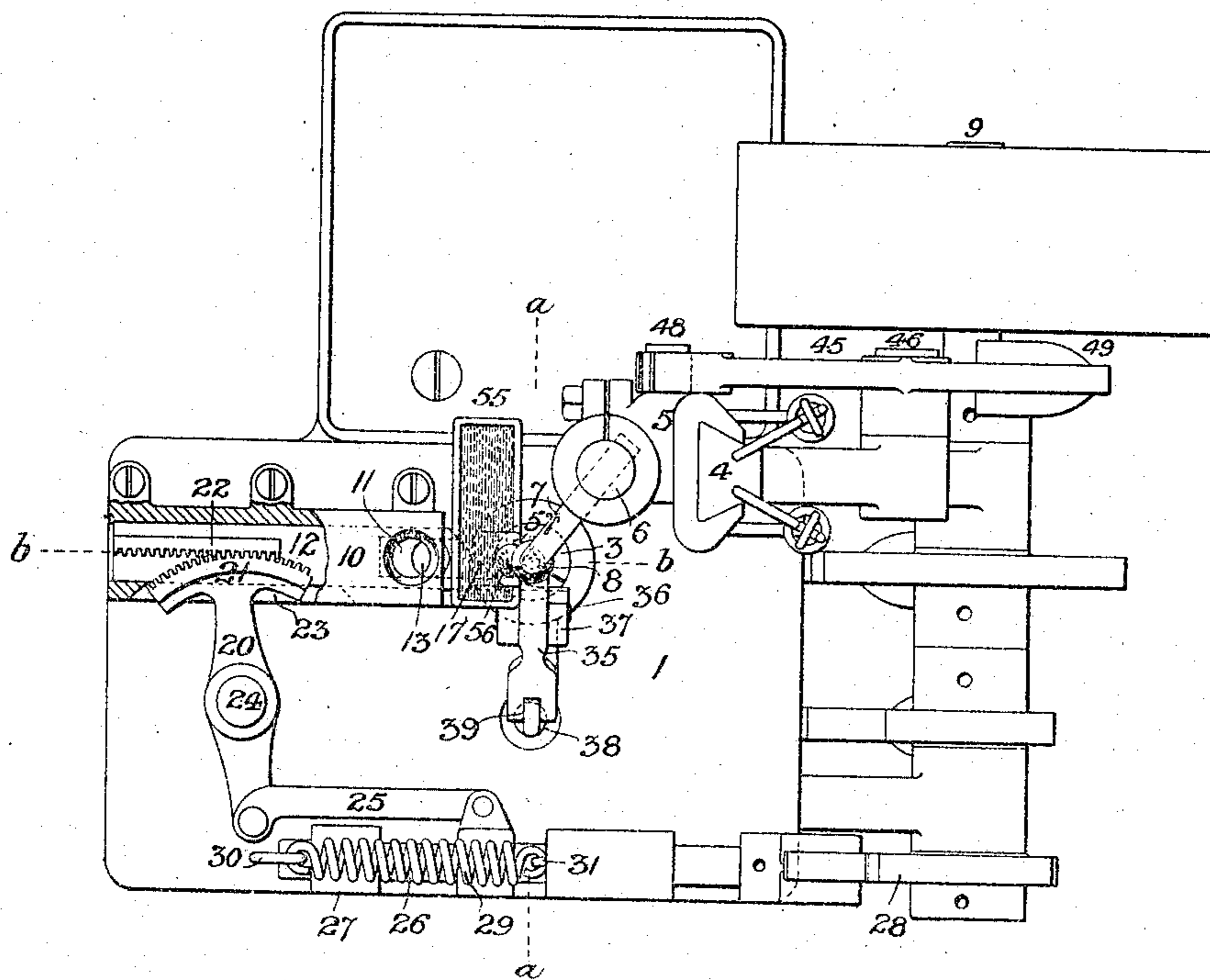
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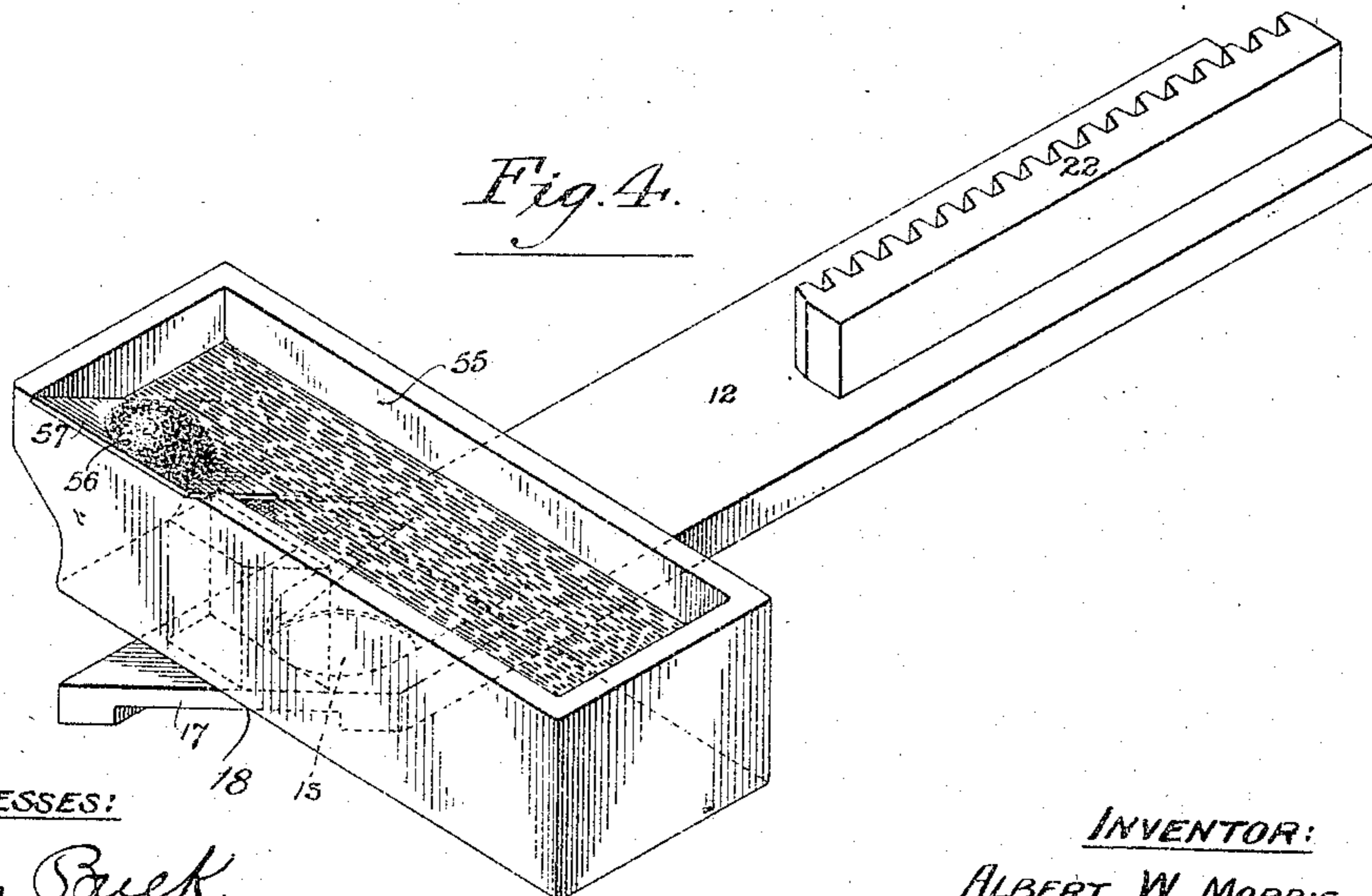
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2 SHEETS—SHEET 2.

*Fig. 2.*



*Fig. 4.*



WITNESSES:

Louis Beck.  
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# UNITED STATES PATENT OFFICE.

ALBERT W. MORRIS, OF CAMDEN, NEW JERSEY ASSIGNOR OF TWO-THIRDS TO STOKES AND SMITH CO., OF CAMDEN, NEW JERSEY, A CORPORATION OF NEW JERSEY.

## BUTTON-POLISHING MACHINE.

No. 858,615.

Specification of Letters Patent.

Patented July 2, 1907.

Original application filed July 2, 1902, Serial No. 114,069. Divided and this application filed May 12, 1904. Serial No. 207,583.

*To all whom it may concern:*

Be it known that I, ALBERT W. MORRIS, a citizen of the United States, and a resident of Camden, New Jersey, have invented certain Improvements in Button-Polishing Machines, (being a division of an application filed July 2, 1902, Serial No. 114,069,) of which the following is a specification.

The object of my invention is to provide means for polishing buttons or button blanks after they have been turned in any usual or well known manner, before or after they have been drilled.

The improvements comprising the polishing means forming the subject of my invention have been applied to a machine constructed in accordance with that shown and described in my application for patent before referred to. It will be understood, however, that my present improvements may be embodied in a special machine designed simply to polish the blanks.

My invention is fully shown in the accompanying drawings, in which:

Figure 1, is a sectional elevation illustrating means for setting the buttons or button blanks in a suitable chuck, preliminary to the polishing operation, taken on the line *a-a*, Fig. 2; Fig. 2, is a plan view of this mechanism; Fig. 3, is a sectional view illustrating details of the invention, taken on the line *b-b*, Fig. 3; Fig. 4, is a perspective view of the button or blank setting member, illustrating also a detail of the polishing mechanism and Fig. 5, is a view illustrating a modification of my invention.

As in my machine above referred to, the turned buttons or button blanks are fed to the chuck in regular order and are thereby brought into position to be operated upon by the polishing means.

In the accompanying drawings, 1 represents the bed plate of the machine suitably supported. Mounted beneath the bed plate and adjustably supported is a suitable chuck 3 adapted to receive the button or button blanks, which chuck may be driven in any usual or well-known manner, in this instance being provided with a pulley 2 driven by a belt 2<sup>a</sup> from any suitable source of power. Carried by the bed plate is a standard 4, on which is mounted a sliding holder 5 carrying an adjustable post 6 having an adjustable arm 7 carrying a polishing member or pad 8. The arm 7 is preferably of spring metal and the holder 5 is lowered by suitable mechanism so as to bring the polishing member into engagement with a button or button blank. In lieu of mounting the polishing member on an arm such as 7, I may arrange the post 6 directly over the blanks in the chuck and mount a spring pressed finger in the lower end of the same, such finger carrying a suitable polishing member or pad 8<sup>a</sup>, such arrangement being shown in Fig. 5. All the moving parts of the machine are driven from the main shaft 9.

To feed the buttons or button blanks to the chuck, I may employ mechanism substantially similar to that shown in my pending application above referred to. Mounted on the bed plate 1 of the machine is a housing 10 having a beveled opening 11, for the reception of the blanks. These buttons or blanks may be introduced by the operator one at a time into the opening 11, although it is obvious that the said buttons or blanks may be fed to the slide piece 12, described hereinafter, in the manner described in my patent above referred to. The housing 10 is arranged directly in line with the center of the chuck 3 and arranged within said housing and adapted to be moved back and forth therein is a slide-piece 12, having an aperture 13, which rests under the opening 11 when the slide-piece is in the retracted position, and receives from the same one button or blank at a time. This slide is moved forwardly at predetermined intervals by suitable mechanism and deposits the button or blank directly over or within the jaws of the chuck. The slide is shown in plan view in Fig. 2, and is beveled at 17 in order that when moving forward with the button or blank it can push out of the way a button or blank previously polished and ejected by the chuck but not thrown from the bed plate, and it is also provided with a groove 18 on the under side, as shown in Figs. 3 and 4, which enables its end to ride over the button or blank after the latter has been seated in the chuck.

The sliding member is moved from and towards the chuck to feed the buttons or button blanks thereto, by means of a lever 20 carrying a toothed segment 21, which meshes with a rack 22 formed on the top of said sliding member, the housing for the same being cut away or apertured at 23 for the free movement of said toothed segment. This lever 20 is pivoted at 24 and at the opposite end is connected to a link 25, which link is attached to a slide arm 26 arranged to move in fixed bearings 27; the movement of said arm being controlled by a cam 28. A spring 29 is connected to a hook 30 at the end of said slide arm and to a fixed member 31 on the top of the bed plate. The cam 28 is so formed that while it provides a gradual forward movement of the slide to effect the deposit of the button or blank directly over or within the jaws of the chuck, it permits a quick release of the slide arm 26 in order that the spring 29 may effect the return movement of the lever 20 and reset the sliding member 12 as quickly as possible. This movement is effected entirely automatically and the sliding member 12 engages a button or blank at each operation and moves the same forward towards the chuck. The chuck for holding the buttons or button blanks in position for polishing is supported from beneath the bed plate of the machine and is constantly rotated during the operation of said machine. This movement necessitates the entrance of said buttons or

button blanks into the chuck during this rotation, which will be effected in the manner shortly to be described.

I prefer to employ a chuck constructed and operated in all respects exactly similar to that shown and described in my prior application above referred to, which will have means for closing its jaws against the buttons or button blanks and means for opening said jaws and discharging the buttons or button blanks as soon as the polishing operation has been completed. While the sliding member 12 moves the buttons or blanks to a position directly above or adjacent to the open jaws of the chuck, it is necessary that means be provided for positively seating said buttons or blanks within the chuck, and this is accomplished in the following manner: As I have already said the chuck is constantly revolving as the buttons or button blanks are fed to the same, and the sliding member for feeding the buttons or blanks to the chuck delivers said buttons or blanks directly over the opening of the latter. The opening is spread, however, due to the fact that the clamping means for the chuck are in the lowered or inactive position and in order to set said buttons or blanks within the chuck I provide the finger 35, pivoted at 36 to ears 37 carried by the base plate of the machine. The finger 35 is operated by means of sliding rod 38 secured at 39 to one end of said finger, which rod in turn is moved by a lever controlled by a cam on the main driving shaft 9 of the machine in the same manner as the similar mechanism is operated in my application above referred to. This lever 39 is arranged to lower the setting finger against the button or blank by action of its cam, and this cam then releases the finger, and a spring, suitably mounted and connected, acts quickly to lift the finger from the blank so that the polishing member may be brought into operative position. As soon therefore as the sliding member has deposited the button blanks to the chuck, the operating means has moved the finger 35 so as to press its free end upon the button or blank and set it in the jaws of the chuck. The cam is so timed that the finger will be released as soon as the button or blank has been set in the chuck at the same time the clamping device for said chuck will be brought into the operative position with relation thereto and the button or blank will be securely held. All this operation takes place during the rapid rotation of the chuck and hence the movement of the parts must be quick and accurate.

The polishing mechanism and its operation is as follows: The movement of the sliding carrier 5 mounted on the standard 4 and having the adjustable post 6 is effected by means of a lever 45 pivoted at 46 to said standard. This lever has a yoked end 47 which engages a pin 48 on the sliding carrier, and a goose-neck 49 at the opposite end having a friction roller 50, which is engaged by the cam 51 mounted on the main driving shaft 9. This cam effects the vertical movements of said holder which are timed so as to agree with the entrance of button blanks in place. The post 6 carries the arm 7, which may be of spring metal and which has at one end a rouge pad or polishing member 8. The arm 7 is adjustable in the tool post by means of a set screw 53. Carried by the slide-piece 12 is a rouge cup 55 having a scraper 56, and this cup will be carried forward by the slide-piece as the latter moves the buttons or blanks to the chuck so that on the downward move-

ment of the post 6 the pad or polishing member 8 will enter the cup 55 and receive sufficient rouge or other polishing material to act upon the buttons or blanks. As the pad is withdrawn from the cup, the latter is retracted by the movement of the slide piece 12 and the excess of material on said pad will be removed by the scraper 56, which is carried by a spring arm 57 suitably secured within the cup. As soon as the slide piece withdraws the cup out of the way of the pad 8, the operating mechanism causes the latter to descend and engage a button or blank mounted in the chuck. The cup 55 as shown herewith is formed integral with the slide piece 12, but it will be understood that I may make it in a separable piece and secure it to said slide piece 12 without departing from my invention. The movement of the parts carrying the pad 8 is controlled directly by the cam 51, and said pad is moved into and out of the cup and then onto the blank, the contact of the latter during its rapid rotation being sufficient to effect the polishing of the same. Instead of having a arm such as 7 for carrying the pad 8, the post 6 may be disposed in line with the center of the chuck and have a central depending finger, spring pressed, and carrying a suitable pad for engagement with the button or blank in the chuck, as before described. Such construction, however, necessitates certain modifications in the mechanism for feeding the buttons or blanks and in the means for applying the polishing substance to the pad, all of which, however, is contemplated by my invention. The cams and all the parts of the mechanism are so adjusted that the various steps in the operation of polishing will be carried out without interference of the parts of the mechanism.

Having thus described my invention, I claim and desire to secure by Letters Patent:

1. The combination in a machine for polishing buttons or button blanks, of a rotating chuck for holding the same, and a flexibly mounted polishing pad arranged to be brought into engagement with the button or blank while in said chuck.
2. The combination in a machine for polishing buttons or button blanks, of means for feeding the blanks, a rotating chuck for holding the same, a flexibly mounted polishing pad, and means for moving said polishing pad into engagement with the buttons or blanks.
3. The combination in a machine for polishing buttons or button blanks, of means for feeding the buttons or blanks, a rotating chuck for holding the same, a flexibly mounted polishing pad, means for moving said polishing pad into engagement with the buttons or blanks, and means for applying polishing material thereto.
4. The combination in a machine for polishing buttons or button blanks, of means for feeding the buttons or blanks, a continuously revolving chuck for holding the same, a flexibly mounted polishing pad held normally above said chuck, means for moving said polishing pad into engagement with the buttons or blanks, and means for applying polishing material thereto.
5. The combination in a machine for polishing buttons or button blanks, of means for feeding the buttons or blanks, a chuck for holding the same, a polishing member held normally above said chuck, means for operating the polishing member, a receptacle for polishing material movable from and towards the polishing member, and means for dipping said polishing member within the receptacle.
6. The combination in a machine for polishing buttons or button blanks, of means for feeding the buttons or blanks including a slide-piece, a chuck for holding said buttons or blanks, a polishing member held normally above said chuck, means for operating the polishing member, a receptacle for polishing material mounted on the

slide piece and means for dipping said polishing member within said receptacle.

7. The combination in a machine for polishing buttons or button blanks, of means for feeding blanks including 5 a slide piece, a rotating chuck for holding the same, a polishing member held normally above said chuck, means for operating the polishing member, a receptacle for polishing material carried by the slide piece, means for dipping said polishing member within said cup, and means 10 for removing the excess of polishing material therefrom.

8. The combination in a machine for polishing buttons or button blanks, of means for feeding blanks including a slide piece, a rotating chuck for holding the same, a polishing member held normally above said chuck, means 15 for operating the polishing member, a receptacle for

polishing material carried by the slide-piece, means for dipping said polishing member within said cup, and a flexible wiper mounted within said receptacle to remove the excess of polishing material.

9. The combination in a machine for polishing buttons 20 or button blanks, of a rotating chuck for holding the blanks, a polishing member movable into and out of engagement with said blanks, means for operating the same, and a flexible mounting for said polishing member.

In testimony whereof, I have signed my name to this 25 specification, in the presence of two subscribing witnesses.

ALBERT W. MORRIS.

Witnesses:

MURRAY C. BOYER,  
JOS. H. KLEIN.