

C. J. DORTICUS.  
PHOTOGRAPH BURNISHER.

(Application filed Aug. 18, 1900.)

(No Model.)

2 Sheets—Sheet 1.

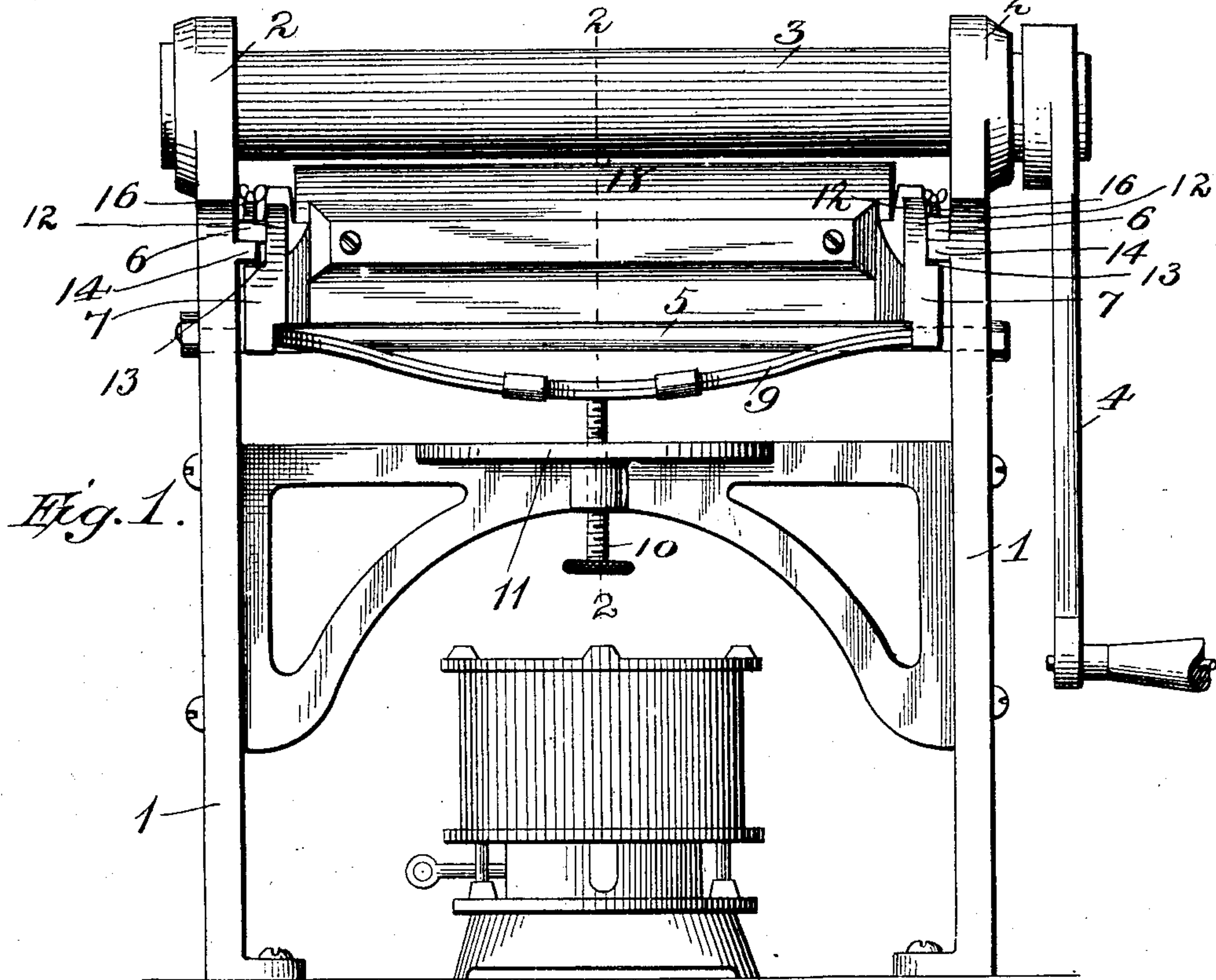
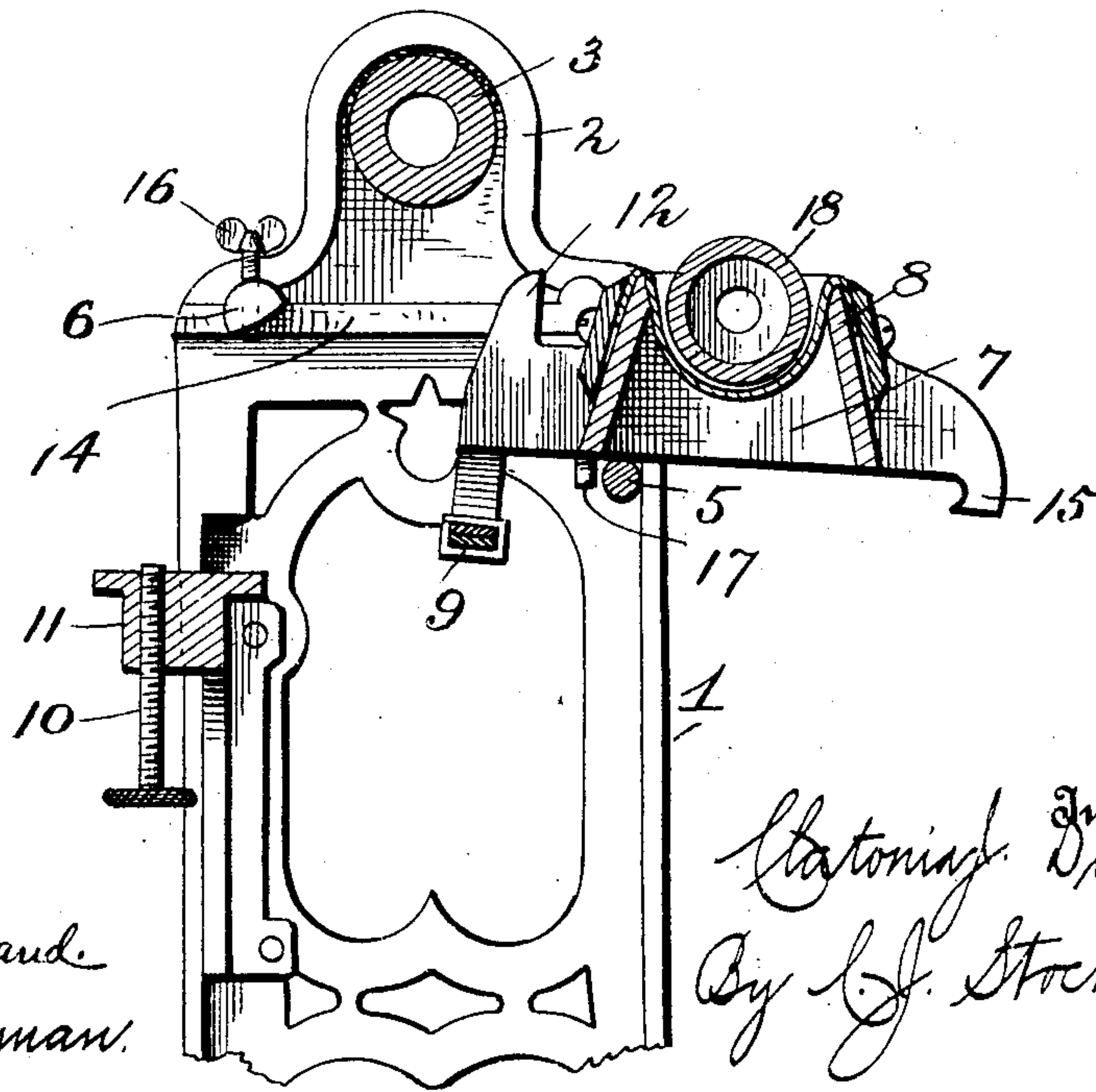


Fig. 2



Witnesses  
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C. J. DORTICUS.  
PHOTOGRAPH BURNISHER.

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2 Sheets—Sheet 2.

Fig. 3

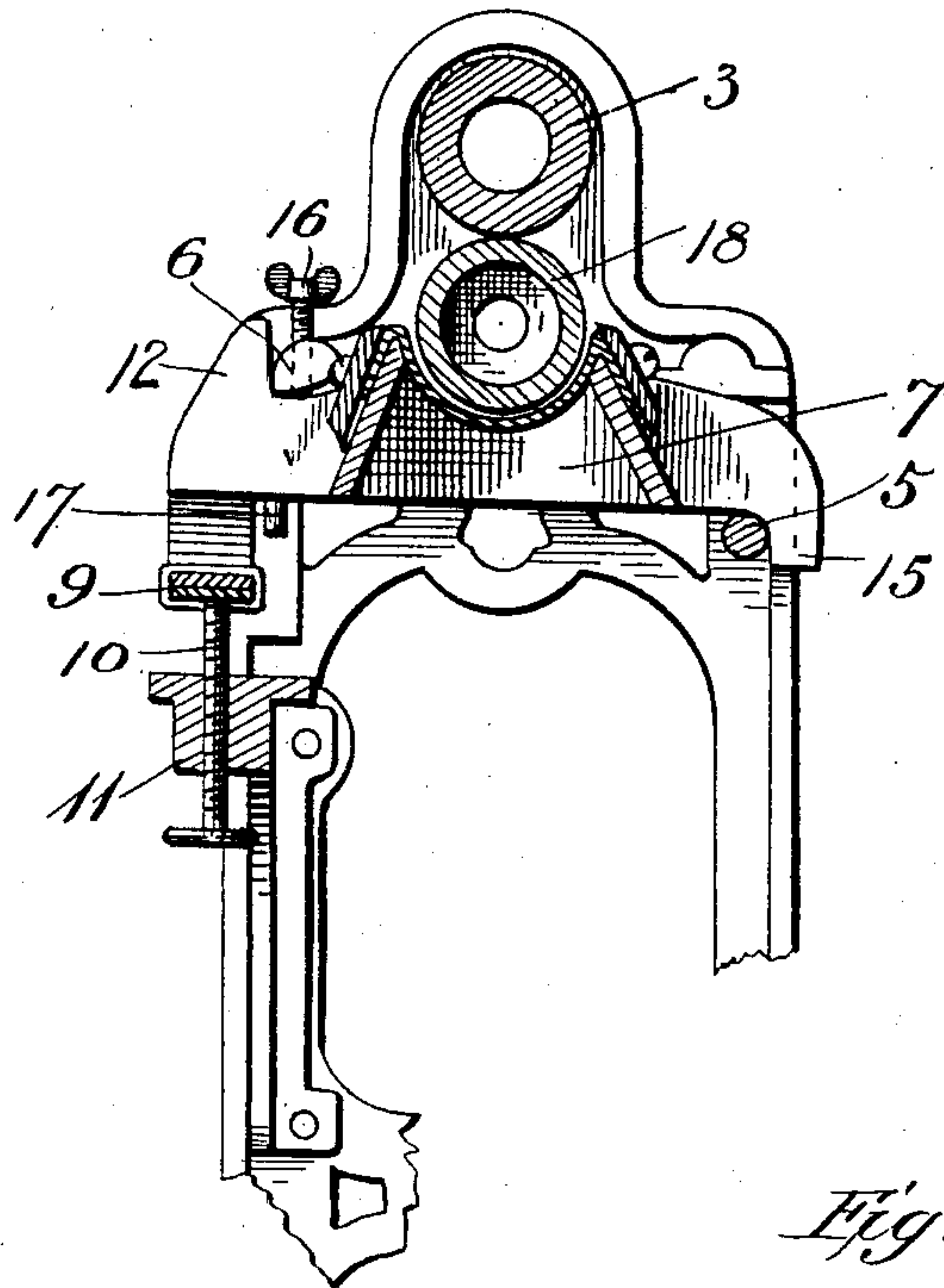


Fig. 6.

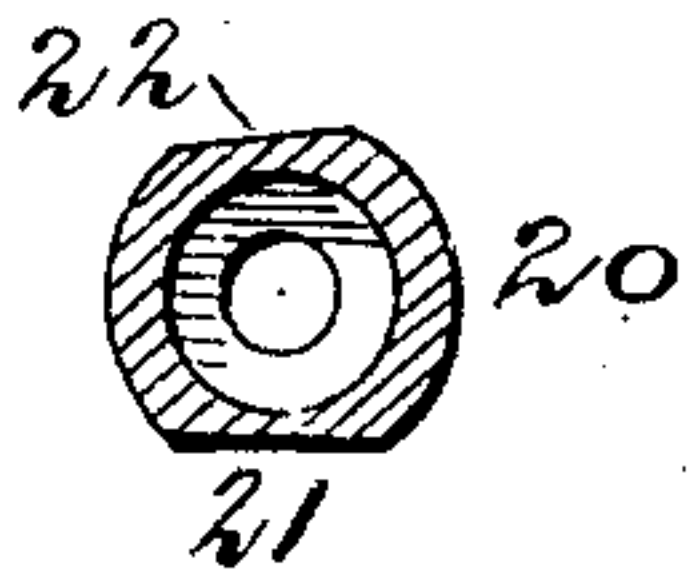


Fig. 5.

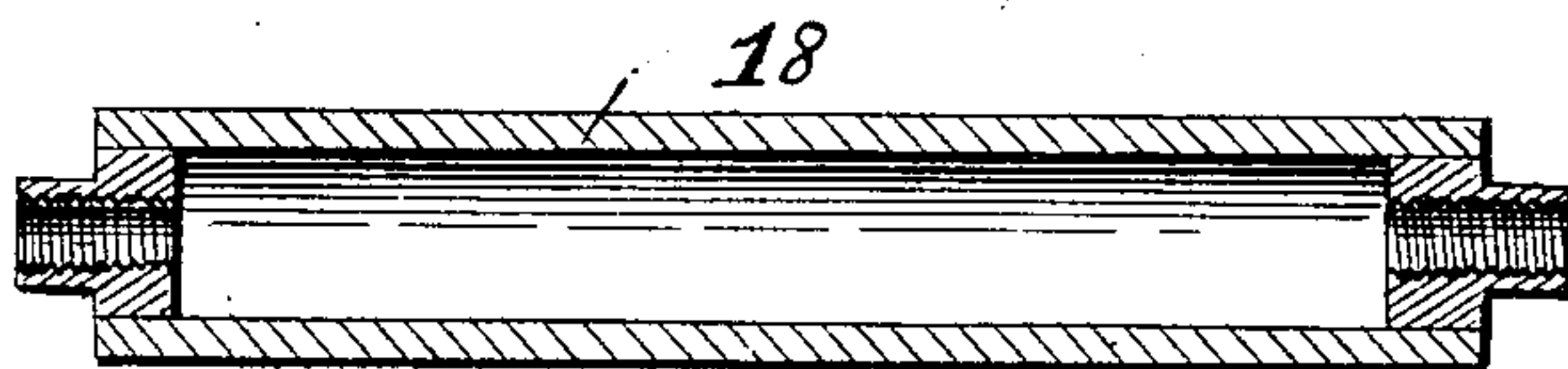


Fig. 4.

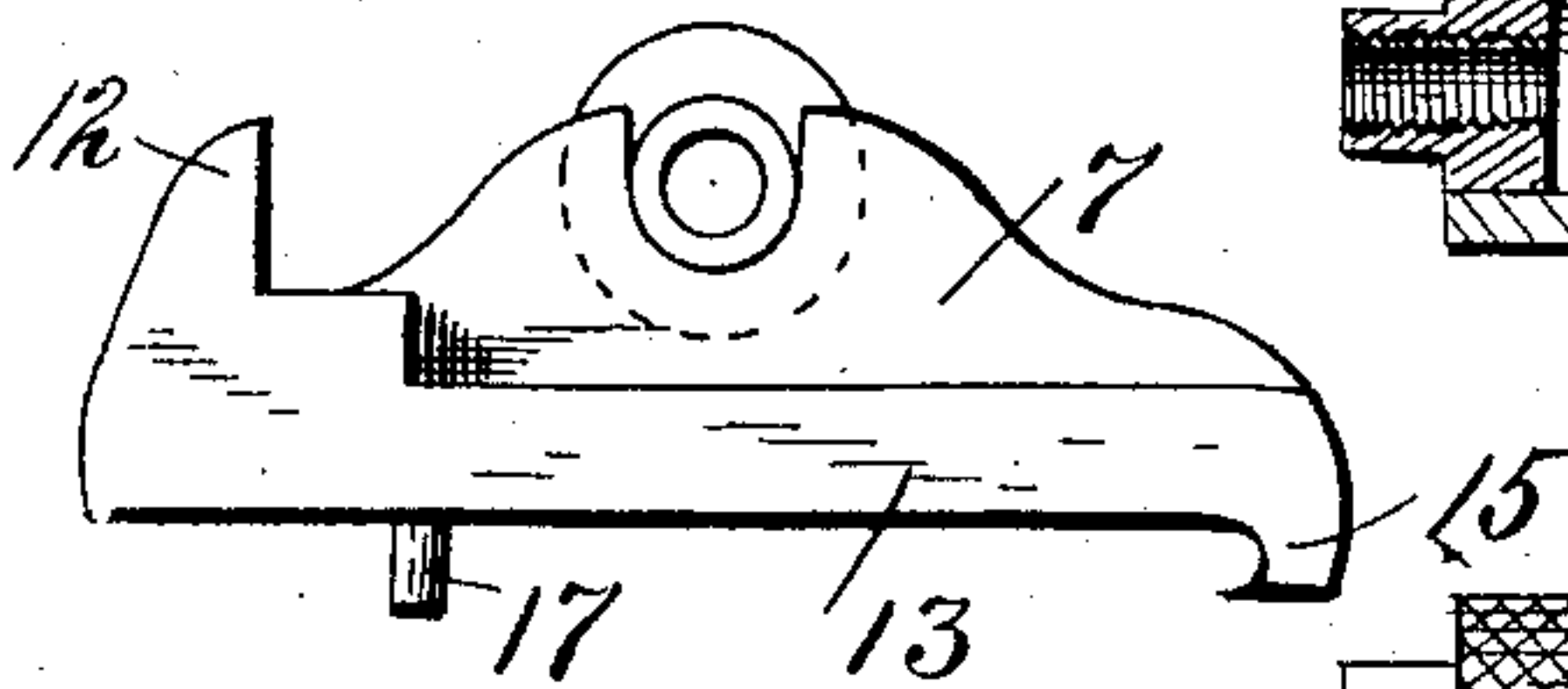


Fig. 7.

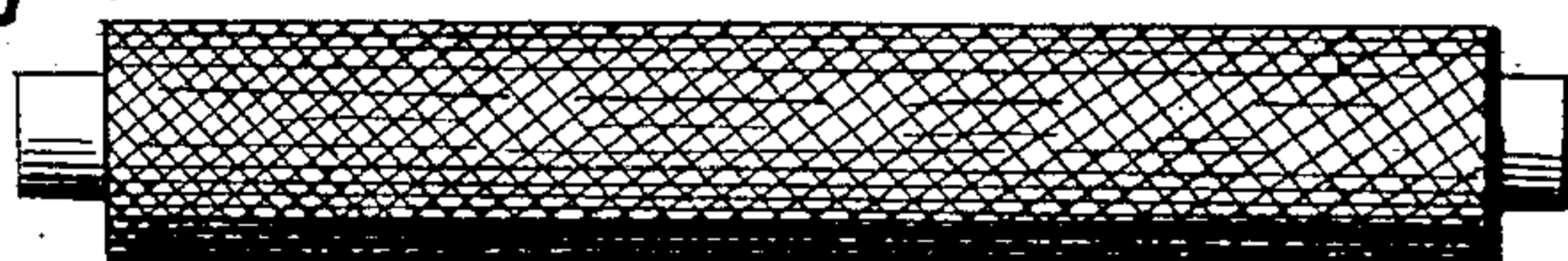


Fig. 8.

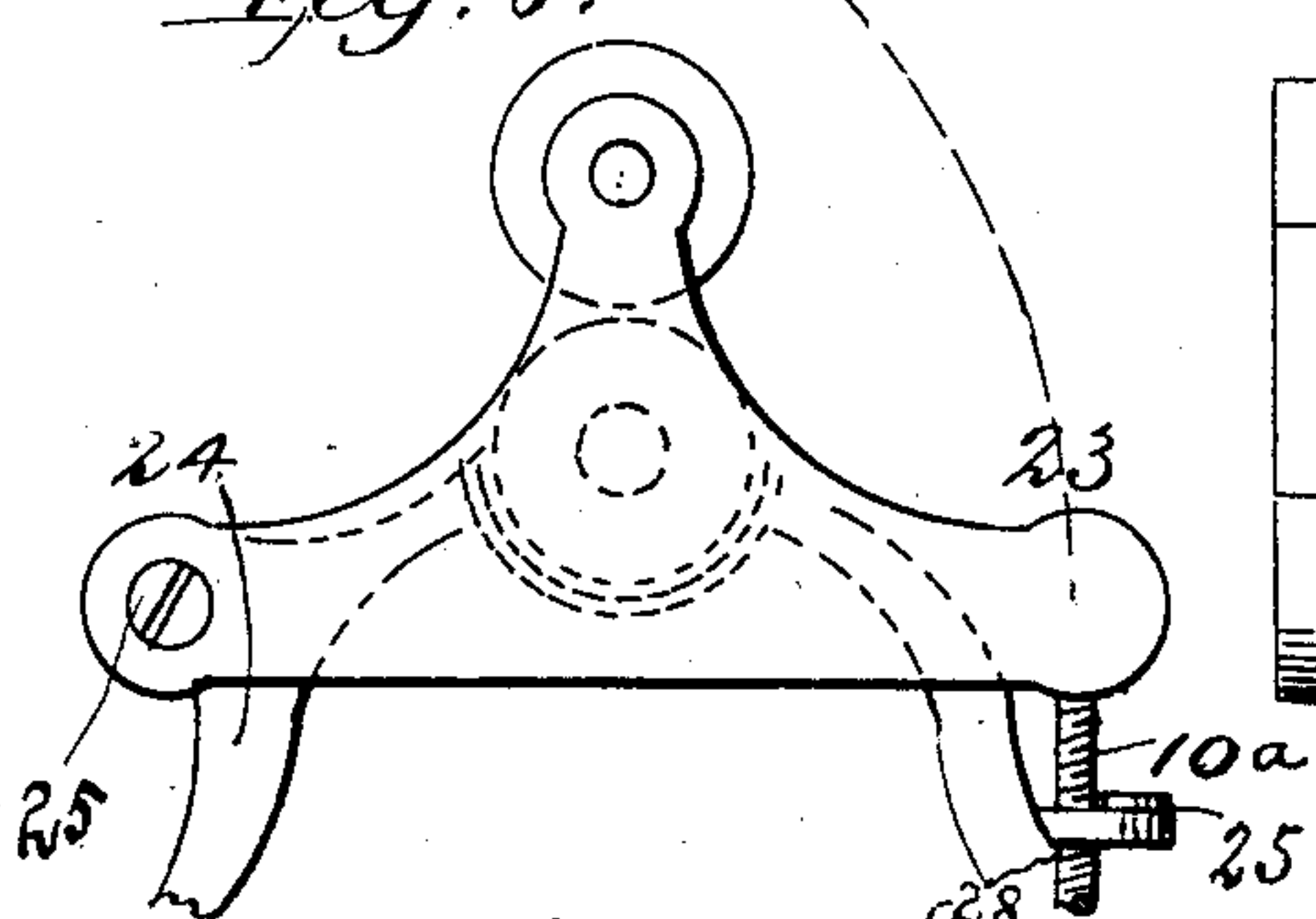


Fig. 9.

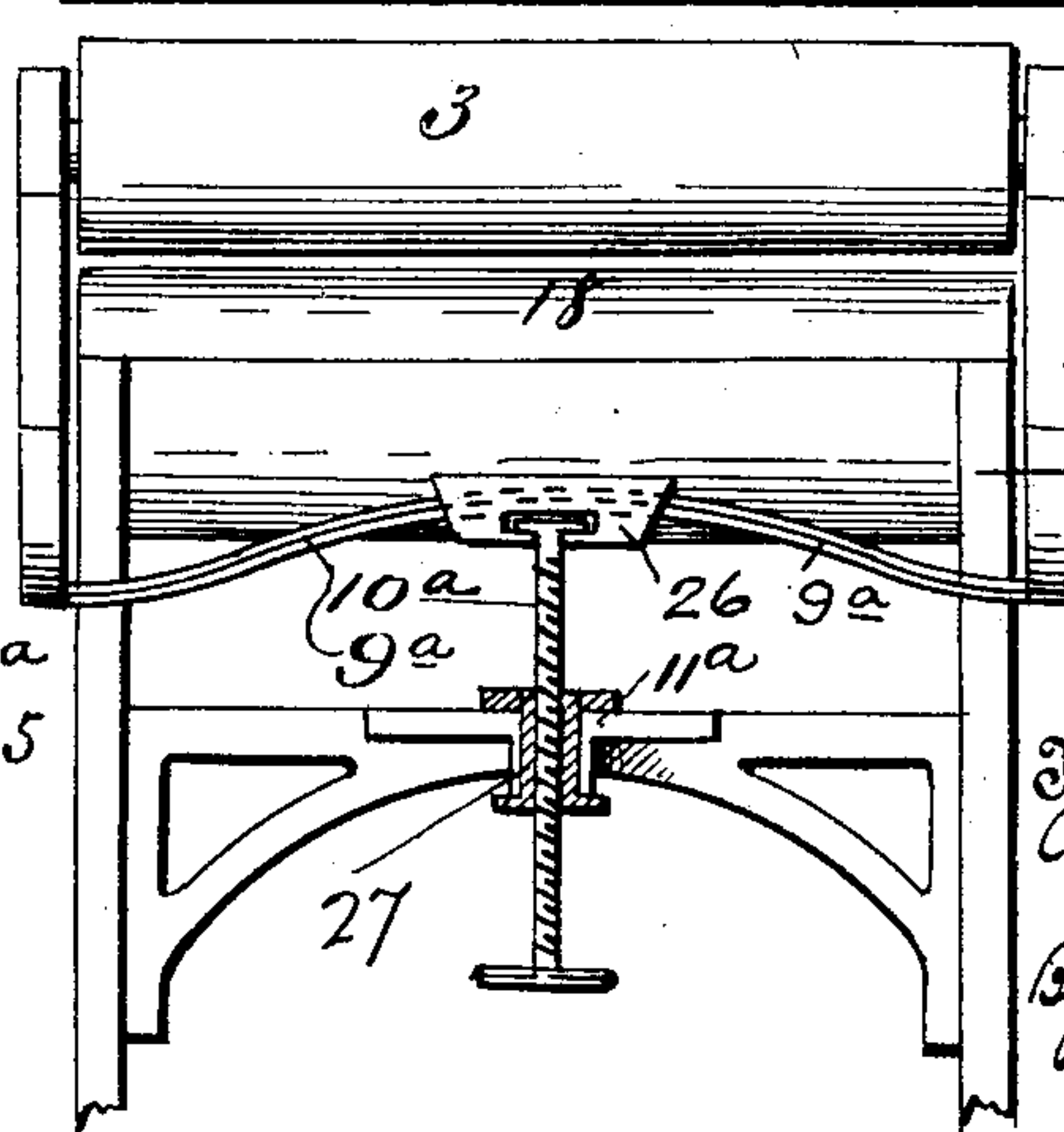


Fig. 10  
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# UNITED STATES PATENT OFFICE.

CLATONIA J. DORTICUS, OF NEWTON, NEW JERSEY, ASSIGNOR TO THE  
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## PHOTOGRAPH-BURNISHER.

SPECIFICATION forming part of Letters Patent No. 709,757, dated September 23, 1902.

Application filed August 16, 1900. Serial No. 27,104. (No model.)

*To all whom it may concern:*

Be it known that I, CLATONIA J. DORTICUS, a citizen of the United States, residing at Newton, in the county of Sussex and State of New Jersey, have invented certain new and useful Improvements in Photograph-Burnishers; and I do 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, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

This invention has relation to improvements in burnishers for photographic use, and in the preferred detailed embodiment of the device as shown in the accompanying drawings it contains many advantageous features, which may be stated as follows:

First. Friction has been deemed to be a condition which must be present in a considerable amount to secure best results in burnishing. For this reason it has been thought necessary in rotary burnishers to gear the rotary burnishing-tool with the feed-roller by means of toothed intermeshing gears, of which the one on the feed roller has more teeth than the one on the burnishing-roller, so as to cause the latter to revolve with greater speed than the feed-roller, and thereby impart friction to the surface of the photographic print. These gears not only add to the expense of the machine and make it difficult to operate the same, but they are otherwise very detrimental in that adjustment of the rollers to the thickness of the photographs destroys to a greater or less extent the perfect engagement of the teeth, thereby causing irregular rotation, which produces wavy parallel lines upon the photographic print. I have discovered that friction is not necessary in rotary burnishers when the print is in proper condition to be burnished by a rotary burnisher, and in accordance with this discovery I have produced a machine in which gears are omitted and rotation of the feed-roller is imparted to the rotary burnishing-tool by the photograph being burnished, thus obtaining the advantages of the rotary burnisher over the sta-

tionary burnisher without the disadvantages thereof.

Second. While I have stated that friction is not of advantage in rotary burnishers when the photographic print is in proper condition to burnish and the means employed in such burnishers to produce friction on the photographic print introduce grave disadvantages, yet there are conditions wherein friction is necessary to arouse the albumen or collodion in the paper—for example, when the photograph has been too rapidly dried or the albumen or collodion has become set or hard. Such photographs cannot be nearly as well burnished by present rotary burnishers as they can with stationary burnishing-tools, as the degree of friction which can be produced by said rotary tools (those having gearing between the feeding and burnishing rollers) is limited to less than that required for the best results and to less than that possible with stationary burnishing-tools. To enable said photographs to be well burnished according to my invention, it is contemplated to mount the burnishing-tool removably in a support therefor, so that a stationary burnisher may be substituted for a burnishing-roller, and vice versa, whenever desired, and to mount the support of the burnishing-tool or the feed-roller support so that it may be moved or swung away to give access to the burnishing-tool for the purpose of interchanging the same or for cleaning purposes. A device thus constructed embraces in the one machine both a rotary burnisher and a burnisher with a stationary burnishing-tool, thus providing the purchaser with both types of burnishers at a cost slightly exceeding that of either alone. The provision for such interchangeability of burnishing-tools is also contributed to by the elimination of gearing between the feed-roller and burnishing-roller, as it renders unnecessary certain adjustments which would be required in interchanging a burnishing-roller for a stationary burnishing-tool, and vice versa, if the rollers were geared together.

My invention also makes it possible to supply with the one machine various styles of rotary and stationary burnishing-tools capa-



ble of being interchanged one for another, such as a smooth rotary tool for ordinary work, a plain-surfaced stationary tool for ordinary work, an incline-surfaced stationary tool for both bending and burnishing at one operation, and a specially-designed rotary tool to produce half-tone effects on the photographic print.

My invention also contemplates the provision of a photograph-burnisher embodying in addition to and in combination with the features of omitted gearing and interchangeability of burnishing-tools a relative yieldability of the burnishing-tool support and the feed-roller in the operation of burnishing, whereby photographs of different thicknesses will be accommodated automatically and each will receive a perfect burnish without necessitating adjustment therefor, thus permitting the burnishing of the photographs to proceed uninterruptedly by eliminating the necessity of frequent adjustment to assure perfectly-burnished photographs and also reducing the liability of marring embossed mounts by eliminating the heavy pressure incident to all photograph-burnishers having the feed-roller and burnishing-tool maintained fixedly in their adjusted relation to each other during the operation of burnishing. A spring-support is the most desirable means for permitting such yieldability, and as it is necessary that the burnishing-tool and feed-roller be maintained in parallelism with each other in order to assure the same amount of pressure to all parts of the photograph and a uniform burnish throughout the same it is desirable that a single spring (which, however, may be composed of several leaves) be employed, instead of a plurality of independent springs, that it be secured at its opposite ends to that member of the device which is moved from the other member thereof to expose the burnishing-tool, and that it be engaged at its longitudinal center with an abutment, preferably adjustable to regulate the tension of the spring, which is so related to the spring and the main frame of the machine as that it will not interfere with said adjustment of the adjustable member of the device. In that form of the device in which the exposure of the burnishing-tool is effected by moving the tool-support from beneath the feed-roller said adjustable abutment is not attached to the spring, but simply bears against the same, and in that form of device in which the exposure is effected by adjustment of the feed-roller from over the burnishing-tool the adjustable abutment is attached to the spring and carried thereby in such adjustment and is mounted in the main frame in a way which permits it to be released therefrom, so as to partake of the movement of the spring and feed-roller support.

To these ends the invention consists severally, first, in a burnisher for photographic use characterized by the fact that the feed-

roller and burnishing-roller are not geared together and motion of the feed-roller is imparted to the burnishing-roller by the photographic print being burnished; second, in a combined rotary and stationary burnisher for photographic use characterized by the fact that the burnishing-tool is removably mounted in a support and said support, which is adapted to both rotary and stationary burnishing-tools, and the feed-roller are relatively movable to give access to said tool for the purpose of removing and interchanging the same; third, in a photograph-burnisher comprehending a feed-roller and a removably-supported burnishing-tool opposed to each other, said roller and tool being composed of rigid material and one of the same being yieldingly mounted, so as to accommodate different thicknesses of photographs automatically while burnishing, and said roller and tool being relatively movable out of line with each other to expose said tool and permit its removal from its support, and, finally, the invention consists in certain peculiarities in the construction of the parts and in certain novel combinations of elements substantially as hereinafter described, and particularly pointed out in the subjoined claims.

In the accompanying drawings, illustrating the preferred embodiments of my invention, Figure 1 is a front elevation of a photograph-burnisher containing my improvements. Fig. 2 is a vertical transverse section thereof on the line 2 2 of Fig. 1 with the burnishing-tool and its support moved back from beneath the feed-roller to give access to said tool. Fig. 3 is a similar section, on a similar line, but with the burnishing-tool and feed-roller in operative relation with each other. Fig. 4 is an end view of the tool-support and burnishing-tool detached from the remainder of the structure. Fig. 5 is a longitudinal section through a burnishing-tool, showing the interior structure thereof. Fig. 6 is a transverse section through one form of stationary burnishing-tool. Fig. 7 is a detail view of a burnishing-roller for giving half-tone effects. Fig. 8 is an end view of part of a modified structure wherein the feed-roller support is movable to give access to the burnishing-tool. Fig. 9 is a front elevation of the same, and Fig. 10 is a detail view showing a means by which the adjusting-screw may be disengaged from its support preliminary to adjustment of the feed-roller support.

Similar characters of reference designate similar parts in the several views.

1 designates the main frame of the device, having bearings 2 at its top for the journals of the feed-roller 3, which is provided at one end with a crank 4 for rotating it. In practice the feed-roller 3, in common with feed-rollers of other photograph-burnishers, will have a roughened exterior to overcome the tendency of the sensitized surface of the photographic print to adhere to the burnishing-tool when the albumen or collodion is heated.



At the rear end of the frame is a rod 5, and at the front ends of opposite ends of the frame are inwardly-extending lugs 6 6, the purposes of which will hereinafter appear.

5 The type of burnisher herein shown is that wherein the heat is furnished by an alcohol or other lamp X, situated beneath the burnishing-tool, and is applied to the circumference of the tool; but the invention is not restricted  
10 in all respects to said type of burnishers, as many of its features are susceptible of advantageous use with the forms of burnishers wherein the heat is applied to the interior of the burnishing-tool.

15 Movably mounted below the feed-roll are supports 7 for the burnishing-tools. In the embodiment herein shown these supports constitute ends of a fire-pan 8, against which the flame or heat of the lamp is directed, and  
20 they project forwardly and rearwardly beyond said fire-pan. To the ends of their forwardly-projecting parts is secured the ends of a curved spring 9, the longitudinal center of which bears upon an adjusting-screw 10.

25 Said screw is preferably threaded through an outward projection 11 from the frame 1, whereby it is remote from the lamp and from the heated burnishing-tool, and is therefore at all times cool, so that it can be manipulated without danger of burning the fingers.  
30 In all other burnishers with which I am acquainted the adjusting-screw is so located that it becomes highly heated and cannot be adjusted while the device is in use without  
35 danger or discomfort.

The front ends of the tool-supports 7 are provided with upwardly-projecting lugs 12, which engage the lugs 6 on the frame and prevent the burnishing-tool from being pressed  
40 rearward out of line with the feed-roller in the operation of burnishing. Said supports are also formed or provided with flanges 13, which engage beneath similar flanges 14 on the frame, and thereby limit upward adjustment of the supports and prevent the front  
45 end of the same from rising too far during the operation of moving the burnishing-tool and its supports rearward to give access to said tool. The rear ends of the supports may  
50 be provided with downwardly-extending lugs 15, which engage the rod 5, and thereby limit forward movement of the supports to the place wherein the burnishing-tool will be directly in line with the feed-roll.

55 It will be seen that the spring 9 will act yieldingly to support the fire-pan or tool-supports, and consequently the burnishing-tool therein in its adjusted relation to the feed-roller, so as to enable said tool automatically  
60 to yield, and thereby accommodate various thicknesses of photographs, thereby rendering unnecessary frequent adjustment of the tool and assuring that each photograph will be perfectly burnished and each mount,  
65 whether embossed or not, will be unmarred, which are results not attained by previous burnishers for photographic use. The spring

9 of the present device will also keep the burnishing-tool in parallelism with the feed-roller during the operation of burnishing and  
70 will tend to keep it in said relation when the device is not in use; but as an additional means for keeping the burnishing-tool in parallelism with the feed-roller the lugs 6 6 may  
75 be provided with adjustable screws 16 16 to engage the supports 7. When the parts are in position for use, the tool-supports will be supported at the front by the spring 9 and at the rear by the rod 5. When access to the  
80 burnishing-tool is desired, it is only necessary to lower the adjusting-screw 10 until the lugs 12 are disengaged from lugs 6 and then press the tool-supports bodily rearward until stopped by the rod 5, during which rearward  
85 movement said supports slide upon said rod and their front portions are prevented from rising too far by the coöperation of said flanges 13 and 14, as stated. If desired, a stop-pin 17 may depend from the fire-pan to  
90 engage said rod and limit rearward movement of said parts.

The burnishing-tools are each removably mounted at the ends in said supports. The tool 18 is a rotary burnisher having a smooth surface. The tool 19 is a rotary burnisher  
95 having series of intersecting diagonal grooves or otherwise formed to provide series of projections which in use will give to the print a half-tone effect, and the tool 20 is stationary and preferably has two differently-formed  
100 surfaces, one, 21, being plain and horizontal for ordinary work, and the other, 22, being formed smooth and in a continuous incline from one end to the other for the purpose of both burnishing the print and curving the  
105 photograph at one operation. It has been proposed to both burnish and curve photographs at one time by a tool having a concave surface, but it has been found in practice that such tools are not successful for use on  
110 various thicknesses of cards. This limitation is eliminated by forming the burnishing-surface of the tool in a continuous incline from one side to the other and with the front side thereof in the lowest plane. It will be  
115 observed on reference to Fig. 5 that the several burnishing-tools are hollow and are open to air at both ends and that the openings at the ends of the tool are of less diameter than the opening in the body of the tool. The purpose of this construction is to assure a continuous draft of air entirely through the roller and the formation of a column of heated air at the top of the chamber in the tool, which is of great advantage, as I have found in practice that by this means the heat will be uniform throughout all parts of the roller, thus  
120 burnishing, as far as the action of heat is concerned in such operation, all parts of the photograph uniformly.  
125

While the principal advantage derivable from mounting the tool-supports movably in the frame and the tools removably in said supports consists in enabling a series of in-  
130



terchangeable tools such as described to be furnished with the one machine, yet such structure is further advantageous in that it enables the burnishing-tool to be cleaned  
 5 more thoroughly and with greater ease than is possible with the burnishers heretofore produced.

In Figs. 8, 9, and 10 is shown a modification wherein the feed-roller instead of the  
 10 tool-support is movable to give access to the burnishing-tool and is yieldingly supported to accommodate various thicknesses of cards automatically. In the construction shown in said figures the feed-roller is carried by a  
 15 frame part 23, which is formed separate from the lower part 24 of said frame and overlaps the upper ends of the latter, and said frame part 23 is pivotally secured at the rear ends of its sides to said part 24, as shown at 25.  
 20 The spring 9<sup>a</sup> extends from one side to the other of the frame part 23 and has a block 26 at its center, in which is pivotally mounted the upper end of a screw 10<sup>a</sup> for adjusting the tension of said spring. Said screw 10<sup>a</sup> is  
 25 threaded through a collar 27, which is mounted in an open-ended slot 28 in the flange 11<sup>a</sup> of the frame and has flanges at its ends to engage said frame-flange 11<sup>a</sup> and hold it against vertical movement. Upon said flange 11<sup>a</sup> is  
 30 pivoted a hook 25, which crosses the slot 28 and normally closes the outer end thereof. The tension of the spring 9<sup>a</sup> is adjusted by turning the screw 10<sup>a</sup>, and when access to the burnishing-tool is desired it is only necessary  
 35 to turn the hook 25, so as to open the slot 28, and then pull the screw and the collar through said slot until disengaged from the flange 11<sup>a</sup>, after which the frame part 23 may be turned on its pivots 25 in the direction of the arrow,  
 40 thus exposing the burnishing-tool.

It will be evident that the full measure of advantages is possessed only by the complete detail embodiment hereinabove described; but I do not wish to be understood as being  
 45 limited to said complete embodiment, as the invention possesses many generic features susceptible of independent use, and such changes and others may be made without departing from the spirit of the invention.

50 Having thus described the invention, what I believe to be new, and desire to secure by Letters Patent, is—

1. The herein-described means for burnishing photographs, embracing two rollers, to  
 55 bear on opposite surfaces of the photograph, one of said rollers acting to feed the photograph and engaging the card side thereof, and the other of said rollers being heated when in use and constituting the burnishing-  
 60 roller of the device and engaging the print side of the photograph, said burnishing-roller being free to rotate under the influence of the moving photograph being fed in contact with it and being rotated thereby at the same  
 65 speed as the feed-roller, whereby the friction on the photograph produced by gearing con-

necting the two rollers is eliminated, as and for the purposes set forth.

2. The herein-described means for burnishing photographs, embracing two rollers, to  
 70 bear on opposite surfaces of the photograph, one of said rollers acting to feed the photograph and engaging the card side thereof, and the other of said rollers being heated when in use and constituting the burnishing-  
 75 roller of the device and engaging the print side of the photograph, said burnishing-roller being free to rotate under the influence of the moving photograph being fed in contact  
 80 with it and being rotated thereby at the same speed as the feed-roller, whereby the friction on the photograph produced by gearing connecting the two rollers is eliminated, and means for supporting one of said rollers yieldingly with relation to the other. 85

3. The herein-described means for burnishing photographs, embracing two rollers, to  
 bear on opposite surfaces of the photograph, one of said rollers acting to feed the photo-  
 90 graph and engaging the card side thereof, and the other of said rollers being heated when in use and constituting the burnishing-roller of the device and engaging the print  
 95 side of the photograph, said burnishing-roller being free to rotate under the influence of the photograph moving in contact with it and being rotated thereby at the same speed as the feed-roller, whereby the friction on the photograph produced by gearing connecting  
 100 the two rollers is eliminated, a spring supporting one of said rollers yieldingly with relation to the other, and an adjusting-screw engaging said spring.

4. A combined rotary and stationary photograph-burnisher, comprehending, in combination, a feed-roller and a support for the burnishing-tool, relatively adjustable to give access to the burnishing-tool, said support being adapted to both rotary and stationary  
 105 burnishing-tools, and a burnishing-tool adapted to said support and removably mounted therein. 110

5. A combined rotary and stationary photograph-burnisher, comprehending, in combination, a feed-roller and a support for the burnishing-tool, relatively adjustable to give access to the burnishing-tool, said support being adapted to both rotary and stationary  
 115 burnishing-tools, a spring attached to the adjustable part at its ends and yieldingly supporting the same during the burnishing operation, an adjustable abutment for said spring mounted so as not to interfere with said adjustment, and a burnishing-tool adapted to said support and removably mounted therein. 125

6. A combined rotary and stationary photograph-burnisher, comprehending, in combination, a feed-roller and a support for the burnishing-tool, relatively movable to give access to the burnishing-tool and said support  
 130 being adapted to both rotary and stationary burnishing-tools, and a burnishing-roller jour-



naled in said support and adapted to be removed therefrom, said burnishing-roller being disconnected from said feed-roller.

7. In a photograph-burnisher, the combination with a frame, a feed-roller, and a burnishing-tool, of a support for said tool, engaging said frame and slidably mounted to permit it to be moved bodily rearward thereon from beneath said feed-roller, for the purpose set forth.

8. In a photograph-burnisher, the combination with a feed-roller, and a burnishing-tool, of a support for said tool, slidably mounted to permit it to be moved from beneath said feed-roller to thereby afford access to said burnishing-tool, a spring attached at its ends to said support, and an abutment for the center of said spring.

9. In a photograph-burnisher, the combination with a feed-roller, and a frame, of a support for the burnishing-tool engaged with said frame and slidably mounted thereon so as to permit it to be moved bodily rearward out of line with said feed-roller, and a burnishing-tool removably mounted in said support.

10. In a photograph-burnisher, the combination with a feed-roller, a slidably-mounted support for the burnishing-tool, a burnishing-tool removably mounted in said support, a spring yieldingly supporting said tool-support and having its ends attached to the same, and an adjustable abutment which bears against the center of said spring.

11. In a photograph-burnisher, the combination with the feed-roller, and a burnishing-roller disconnected from said feed-roller, of a support for said burnishing-roller slidably mounted to enable the burnishing-roller to be carried out of line with said feed-roller to thereby afford unobstructed access to said burnishing-roller.

12. In a photograph-burnisher, the combination with the feed-roller, and a burnishing-roller disconnected from said feed-roller, of a support for said burnishing-roller, slidably mounted to enable the burnishing-roller to be carried out of line with said feed-roller to thereby afford unobstructed access to said burnishing-roller, and a spring attached at its ends to said support and yieldingly supporting the burnishing-roller during the burnishing operation, and an adjustable abutment for the center of said spring.

13. A combined rotary and stationary photograph-burnisher, comprehending, in combination, a feed-roller, a support for the burnishing-tool, slidably mounted to permit it to be moved out of line with said feed-roller to give access to the burnishing-tool and adapted to both rotary and stationary burnishing-tools, and a burnishing-tool removably mounted in said support.

14. A combined rotary and stationary photograph-burnisher, comprehending, in combination, a feed-roller, a support for the burnishing-tool slidably mounted to permit it to be moved out of line with said burnishing-tool,

a spring attached at its ends to said support, an adjustable abutment bearing against the center of said spring, and a burnishing-tool removably mounted in said support.

15. In a photograph-burnisher, the combination with the frame and feed-roller, of a support for a burnishing-tool, mounted to be moved from beneath said feed-roller, a spring engaging the front end of said burnishing-tool support and supporting the same yieldingly with relation to the feed-roller, an adjusting-screw engaging said spring, a burnishing-tool removably mounted in said support, a rod to support the rear end of the burnisher-support, and cooperating guide-flanges and stop-lugs on the tool-support and frame.

16. A combined rotary and stationary photograph-burnisher, consisting of a frame, a feed-roller, a support for a burnishing-tool adapted to both rotary and stationary tools and mounted to be moved from beneath said feed-roller, a burnishing-tool adapted to said support and removably mounted therein, a spring engaging the front end of said support and supporting the same yieldingly with relation to the feed-roller, an adjustable abutment for said spring, means for supporting the rear end of said tool-support, and cooperating guide-flanges and stop-lugs on the frame and tool-support.

17. A combined burnishing and bending tool for photograph-burnishers having a burnishing-surface provided with means for determining its position within the burnisher, the relation of the burnishing-surface to said means being such that the burnishing-surface will be permanently inclined when mounted in the burnisher.

18. The combination with a feed-roller and a tool-support, of a stationary burnishing-tool mounted in said support and having its axis alined with that of said feed-roller, said burnishing-tool having its upper surface formed to present a continuous incline from its front to its rear side and its said rear side arranged at a greater distance from said support than its front side.

19. A burnishing-tool having one surface formed flat and plane for regular work and another surface formed in a continuous incline from one side to the other, said tool being constructed so that it may be adjusted in its support to present either of said surfaces and be held fixedly in adjusted position.

20. A burnishing-tool having one side formed to both burnish and bend a photograph and another surface formed simply to burnish, and a support for said tool, said tool being adapted to be mounted in said support so that it may be turned to present either of said surfaces to the photograph.

21. In a photograph-burnisher, the combination with a frame and a feed-roller, of a fire-pan, having ends which project beyond the edges of said pan and are mounted to slide with said pan bodily rearward from beneath said feed-roller, a burnishing-tool car-



ried by said pan, a spring attached to the projecting parts of said ends and adapted to support the pan and tool yieldingly in relation to the feed-roller in the operation of the device, an adjustable abutment for said spring, and coöperating guide-flanges and stop-lugs on said frame and ends.

22. A photograph-burnisher, comprehending, in combination, a feed-roller, a burnishing-roller having a rigid burnishing-surface, and means for heating said burnishing-roller, said feed-roller and burnishing-roller being disconnected from each other and so related that the latter will be rotated from the former by the movement of the interposed photograph, whereby the friction due to gearing will be eliminated, as and for the purpose specified.

23. A photograph-burnisher, comprehending, in combination, a feed-roller, a burnishing-roller having a rigid burnishing-surface, means for heating said burnishing-roller, and means for supporting one of said rollers yieldingly with relation to the other, said feed-

roller and burnishing-roller being disconnected from each other and so related that the latter will be rotated from the former by the movement of the interposed photograph, as and for the purpose specified.

24. A photograph-burnisher, comprehending, in combination, a feed-roller, a burnishing-roller having a rigid burnishing-surface, means for heating said burnishing-roller, a spring connected at its ends with one of said rollers for yieldingly supporting the same, and an abutment for said spring, adjustably mounted to adjust the tension of said spring, said feed-roller and burnishing-roller being disconnected from each other and so related that the latter will be rotated from the former by the movement of the interposed photograph, as and for the purpose specified.

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

CLATONIA J. DORTICUS.

Witnesses:

C. J. STOCKMAN,  
A. C. NEWMAN.