(No Model.) 2 Sheets—Sheet 1.

H. CRARY.

BURNISHING MACHINE.

No. 342,783. Patented June 1, 1886.

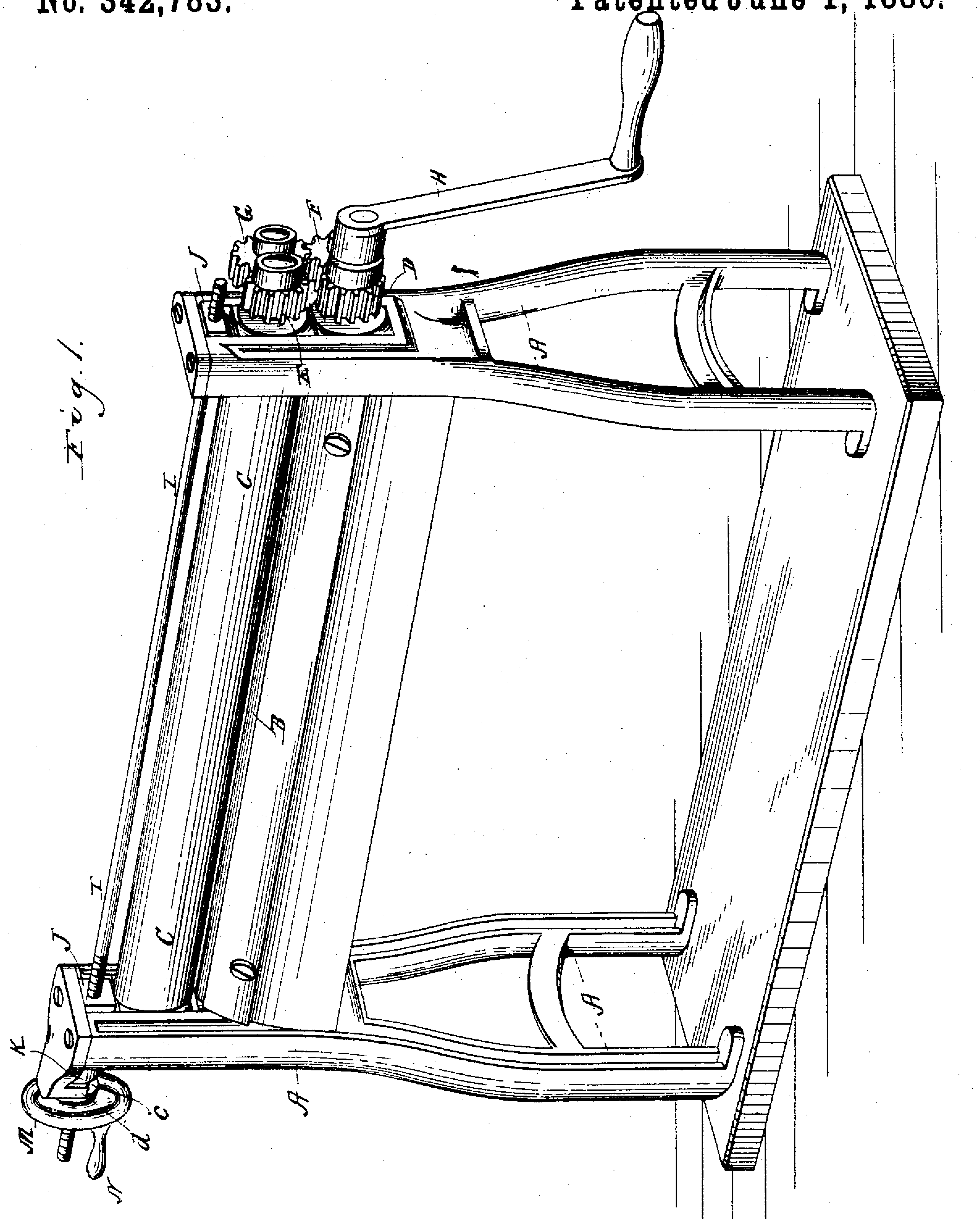

Fig. 1.

Witnesses.
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[illegible]

Inventor.
Hamilton Crary
per. F. F. Warner
his Attorney.

N. PETERS, Photo-Lithographer, Washington, D. C.

(No Model.) 2 Sheets—Sheet 2.

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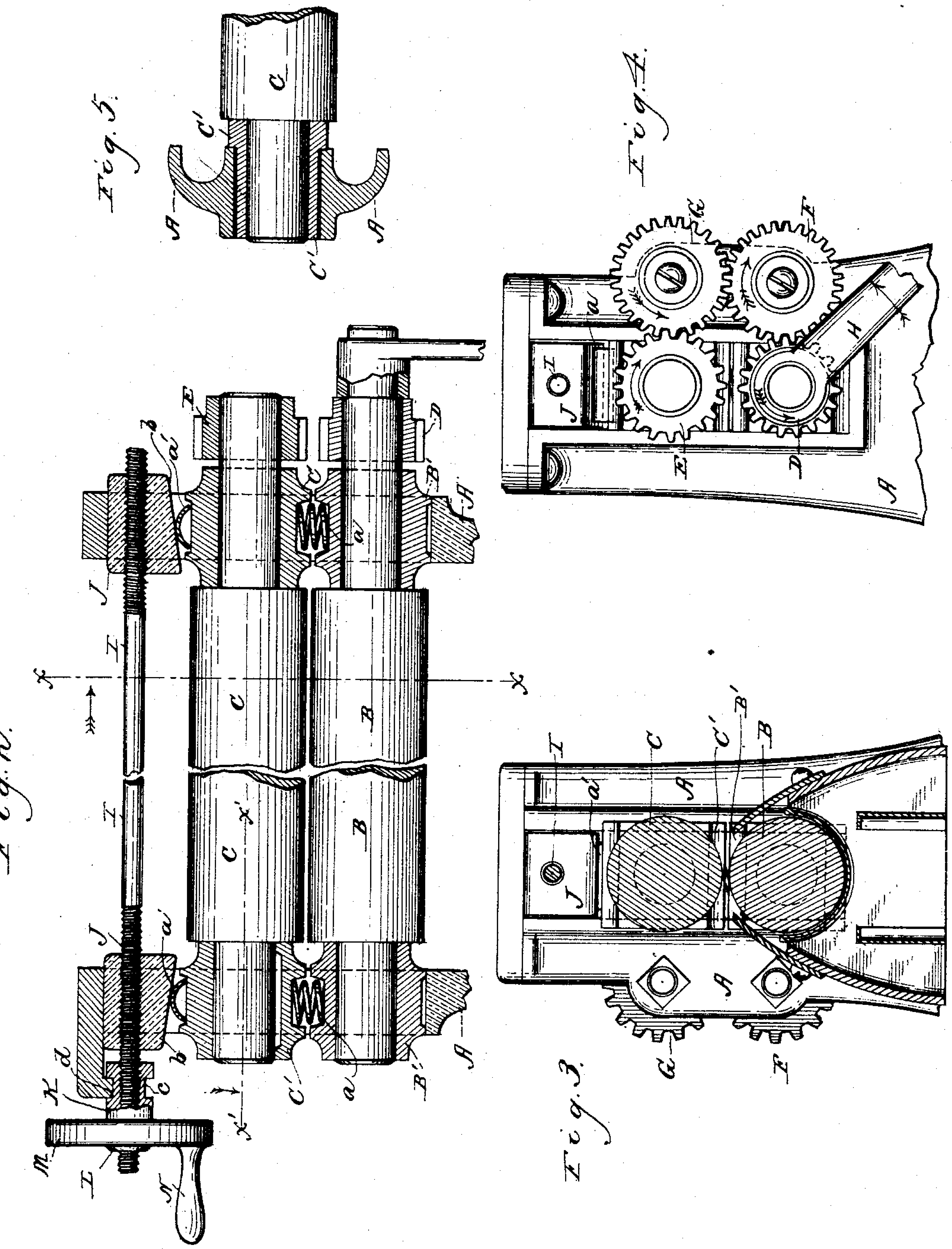

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UNITED STATES PATENT OFFICE.

HAMILTON CRARY, OF CHICAGO, ILLINOIS, ASSIGNOR TO JAMES H. SMITH, OF SAME PLACE.

BURNISHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 342,783, dated June 1, 1886.

Application filed February 19, 1886. Serial No. 192,479. (No model.)

To all whom it may concern:

Be it known that I, HAMILTON CRARY, a citizen of the United States of America, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Burnishing-Machines, of which the following, in connection with the accompanying drawings, is a specification.

In the drawings, Figure 1 is a perspective representation of a burnishing-machine embodying my improvements. Fig. 2 is a vertical central longitudinal section of so much of the machine as is necessary to illustrate my invention. Fig. 3 is a section in the plane of the line *x x* of Fig. 2, viewed in the direction indicated by the arrow there shown. Fig. 4 is an end view of one end of the upper portion of the machine; and Fig. 5 is a detail, the same being a horizontal section in the plane of the line *x' x'* of Fig. 2, and viewed in the direction indicated by the arrow there shown.

Like letters of reference indicate like parts.

A represents the frame of the machine.

B is a roller whose journals turn in bearings B' B' lying in recesses in the frame. C is a roller arranged directly above the roller B, and the bearings C' C' of this roller are vertically movable or yielding, as they rest on springs *a a*. On the lower roller is a spur-wheel, D, and upon the upper roller is a spur-wheel, E. The wheel E is directly above, but does not engage, the wheel D.

F is a spur-wheel engaging the wheel D, and G is a spur-wheel engaging the wheel E. The wheels F and G also engage each other and turn upon axles projecting from the frame A.

In practice, I deem it preferable to make the upper roller somewhat roughened, and the lower roller has a perfectly smooth or planished surface. I also deem it best to have the upper roller rotate somewhat slower than the lower roller, and this I accomplish by making one or more cogs more in the wheel E than in the wheel D.

H is a crank upon the shaft or spindle of the roller B.

It will be perceived on reference to Figs. 1 and 4 that the rollers C and B will be rotated in the same direction at the points of contact with the paper by turning the crank H, and that the movement of the upper roller will be somewhat slower than that of the lower roller.

I is a rod screw-threaded on both ends, the screw-threads on one end constituting a right screw and those upon the other end a left screw.

J J are blocks through which the screw-threaded portions of the rod I pass, the said blocks being correspondingly screw-threaded to receive the said ends. *a' a'* are springs upon which the said blocks bear or rest. These blocks are arranged in recesses in the frame A. I also desire to call attention to the fact that the said blocks are inclined upon their lower faces or sides, as shown at *b b*, the smaller ends of the said blocks being outward.

K is a nut run upon one end of the rod I, and L is a jam-nut, also upon the same end of the said rod. By turning the nut L tightly against the nut K both nuts are made particularly rigid upon the said rod. Near the inner end of the nut K is an annular groove, *c*, and *d* is a depending rigid lip entering the said groove.

M is a small wheel made in one and the same part with the nut K, and N is a crank or handle extending from the said wheel. In other words, the nut K may be described as the hub of the wheel M.

I have not here described as fully as I might have done the general construction of this machine, as in many respects its features of construction are old and well known. For example, a machine having some of the characteristics of the machine which I have herein shown, is also shown and described in Letters Patent No. 311,463, dated February 3, 1885.

It is to be understood that means are employed for heating the lower roller while the machine is being used.

The principal use to which I intend to apply this machine is for the burnishing of photographs, and my principal purpose is to provide improved means for the purpose of regulating the pressure of the roller C upon the paper. This I accomplish by means of the rod I and the parts mounted thereon. It will be perceived that when the rod I is turned in one direction the blocks J J will move away from

each other, and toward each other when the said rod is turned in the reverse direction. As the blocks J J are inclined or tapering, they will exert a greater pressure upon the bearings C′ C′ while moving in one direction than in the other. In other words the pressure of the roller C upon the paper may be regulated simply by turning the rod I through the instrumentality of the handle N and the wheel M.

In order to set the rod I and its blocks properly with relation to the bearings C′ C′, I loosen the nut L, and alter the position of the nut or hub K so that the said rod will be held in the desired position.

I also desire to call attention to the fact that the combination and arrangement of the wheels D, E, F, and G permits me to vary the distance between the rollers in a simple and convenient manner.

By arranging the wheels D, E, F, and G in the manner described with relation to each other, long cogs are not required to prevent the disengagement of the wheels D and E when very thick paper is to be operated upon, and the adjustment of the upper roller can be made as may be required for paper varying in thickness without altering or varying the speed of either roller, and the engagement between the engaging cogs is always uniform and produces good and even work upon the paper.

I desire to state that it is immaterial whether the inner or the outer ends of the blocks J J are the larger, as it is evident that the result would not be different in one case from that which would follow in the other. The inclined faces may also be on the top of the blocks, instead of on the bottom. The principle of this part of my invention lies in the fact that I regulate the pressure of one of the rollers upon the paper by means of movable cams both in operative connection with one and the same actuating part, so that the said cams are moved or set simultaneously for the purpose for which they are employed.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, in a burnishing-machine, of a vertically-movable roller, of movable cams arranged for operation conjointly with the said roller, and an actuating rod or shaft in operative connection with the said cams, substantially as and for the purposes specified.

2. The combination, in a burnishing-machine, of a supporting-frame, the rollers B and C, the latter being vertically movable, the inclined or wedge-like sliding blocks J J, and the rotary rod or shaft I, having right and left screw-threads engaging the said blocks, respectively, substantially as and for the purposes specified.

3. The combination, in a burnishing-machine, of a supporting-frame, the rollers B and C, the latter being vertically movable, the inclined or wedge-shaped sliding blocks J J, the right and left screw-threaded rotary rod or shaft I engaging the said blocks, the grooved screw-threaded nut K, mounted on a screw-threaded portion of the said shaft, the stationary lip *d*, entering the groove of the said hub, the jam-nut L, and means for rotating the said shaft, substantially as and for the purposes specified.

4. The combination, in a burnishing-machine, of a supporting-frame, the rollers B and C, the latter being vertically movable, the wheels D and E, mounted on the journals or spindles of the said rollers, respectively, and out of engagement with each other, and the wheels F and G, engaging each other, and the wheel F engaging the wheel D, and the wheel G engaging the wheel E, substantially as and for the purposes specified.

In testimony that I claim the foregoing as my own I hereunto affix my signature in presence of two witnesses.

HAMILTON CRARY.

Witnesses:
ADDIE HUSZOGH,
HENRY FRANKFURTER.