

No. 619,987.

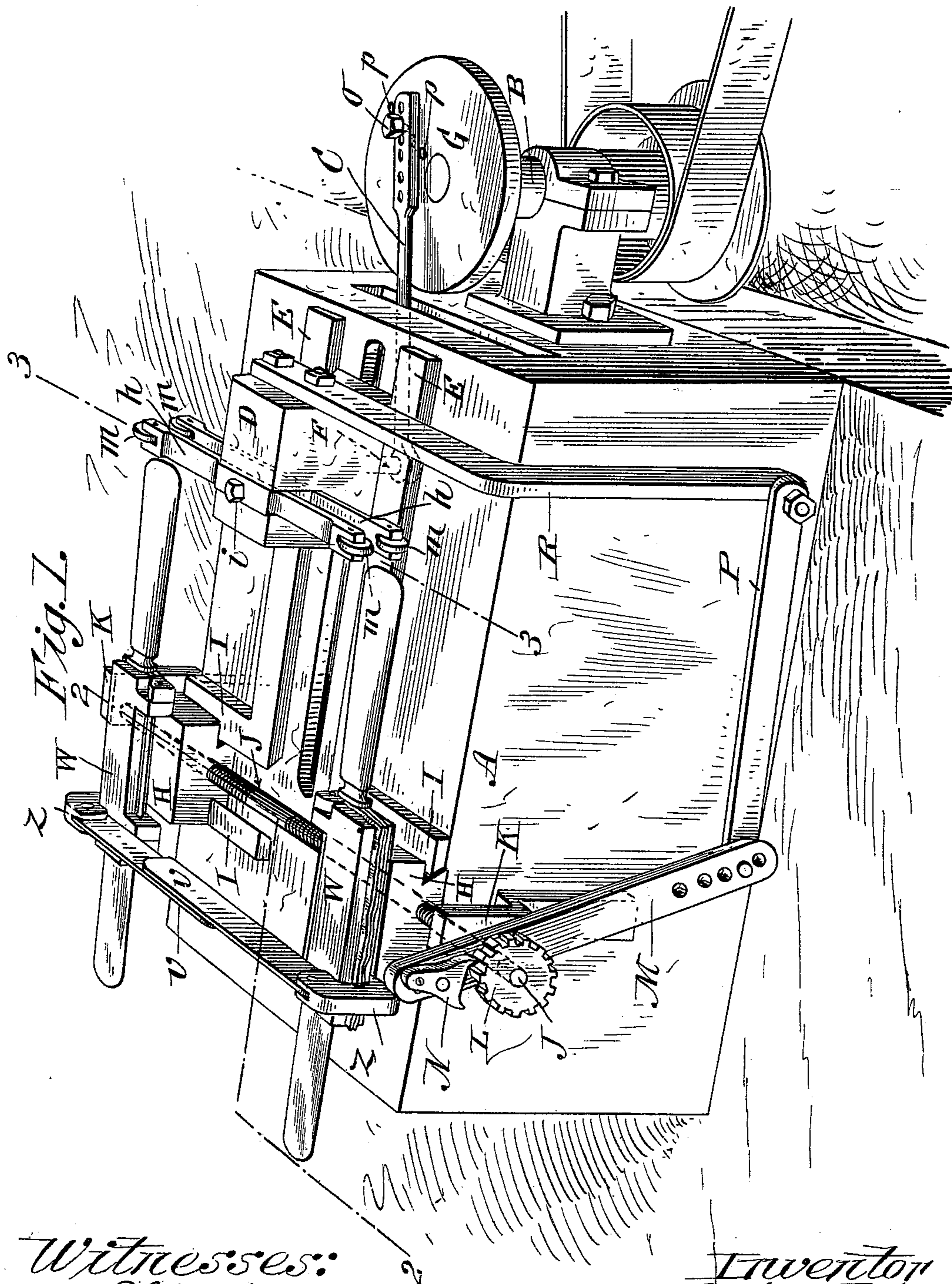
Patented Feb. 21, 1899.

M. J. O'KEEFE.  
BURNISHING MACHINE.

(Application filed Oct. 27, 1898.)

(No Model.)

2 Sheets—Sheet 1.



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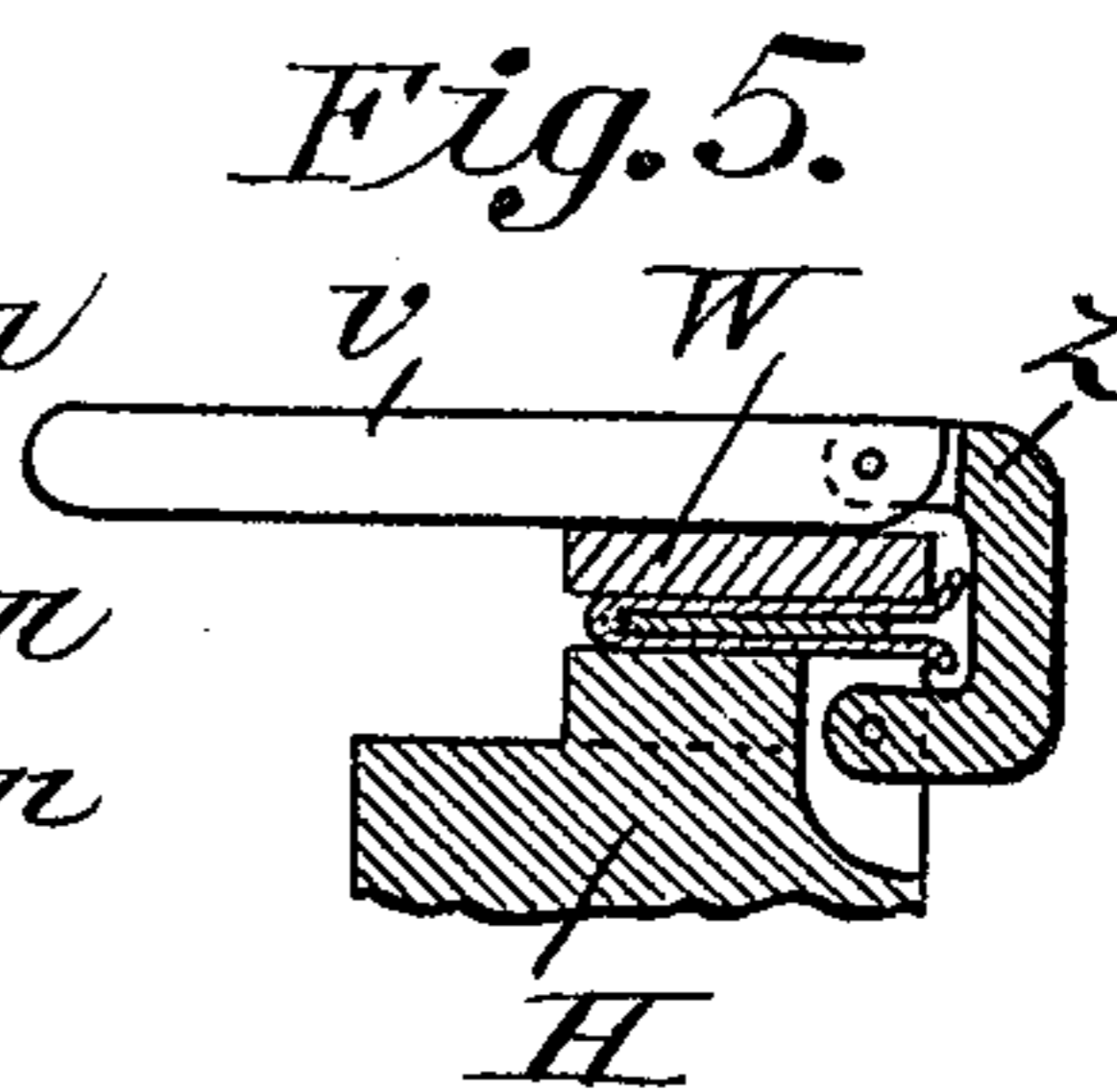
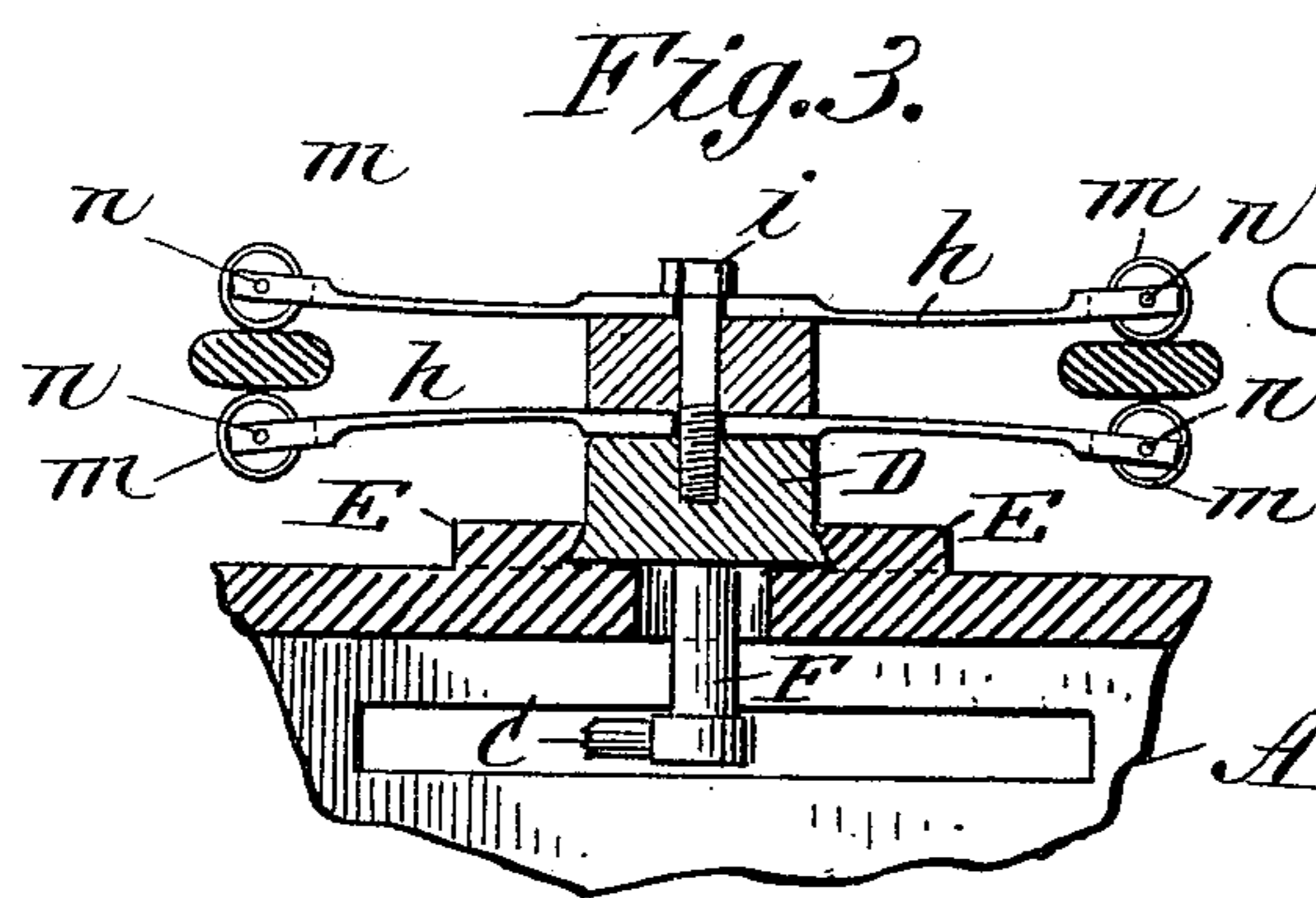
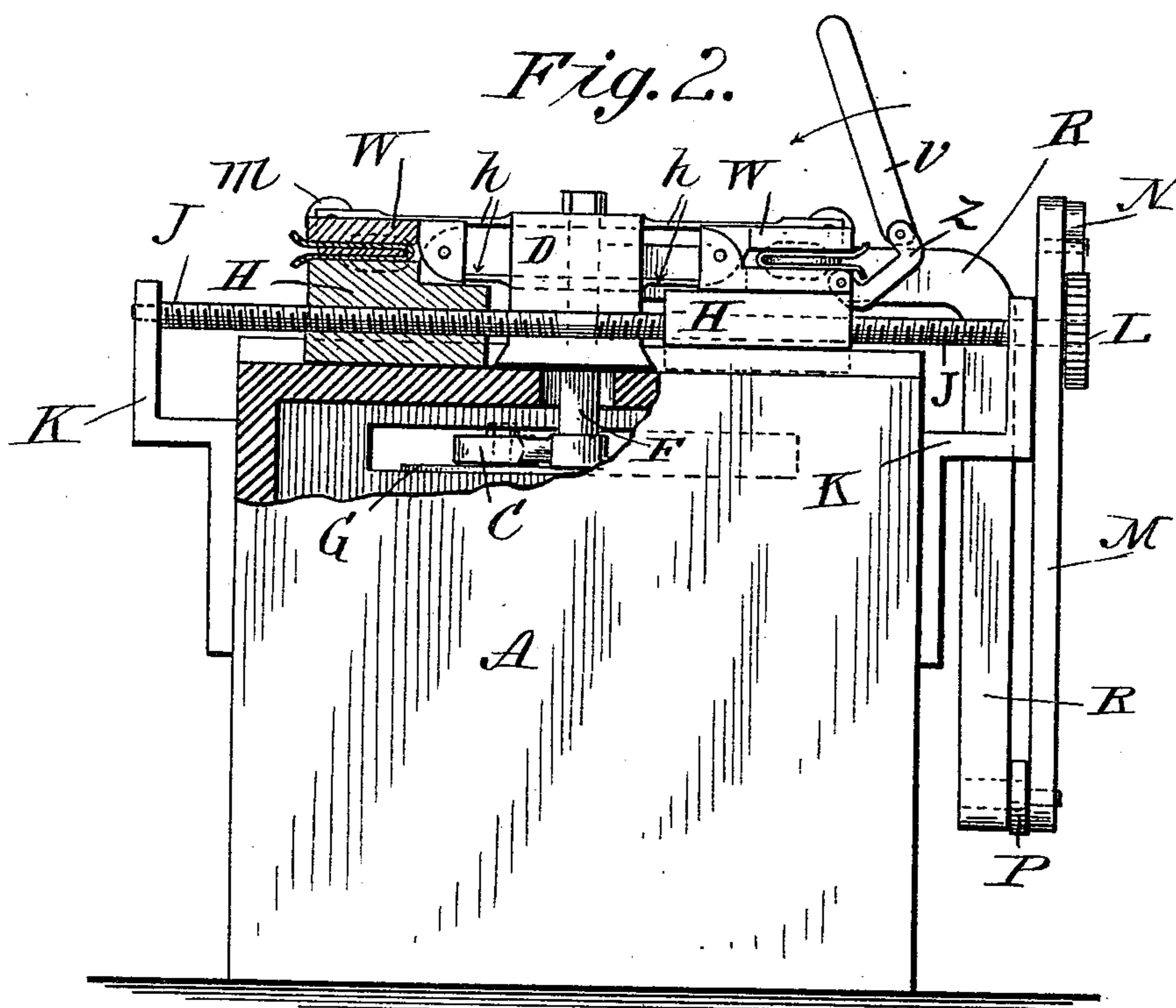
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# UNITED STATES PATENT OFFICE.

MICHAEL J. O'KEEFE, OF TURNER'S FALLS, MASSACHUSETTS.

## BURNISHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 619,987, dated February 21, 1899.

Application filed October 27, 1898. Serial No. 694,714. (No model.)

*To all whom it may concern:*

Be it known that I, MICHAEL J. O'KEEFE, a citizen of the United States of America, residing at Turner's Falls, in the county of Franklin and State of Massachusetts, have invented new and useful Improvements in Burnishing-Machines, of which the following is a specification.

This invention relates to machines for burnishing articles of metal, and particularly for burnishing objects such as the metallic handles of knives or forks and other similarly-formed metal objects, the object being to provide a machine for said purpose containing means for effecting the burnishing automatically of the sides and rounded edges of said handles, thereby following the contour thereof as though done by hand; and the invention consists in the peculiar construction of the burnishing devices and in means for holding and operating the same and in means for holding and imparting the requisite movements to the articles being burnished and in the general construction of the machine, all as hereinafter fully described, and more particularly pointed out in the claims.

In the drawings forming part of this specification, Figure 1 is a perspective view of a burnishing-machine constructed according to my invention, on which are shown two knives secured thereon as when operated upon for burnishing the handles thereof. Fig. 2 is an end and partly-sectional view on line 2 2, Fig. 1, showing one of the clamp-bars which holds the work turned up. Fig. 3 is a sectional view on line 3 3, Fig. 1, illustrating the construction of the burnishing elements and some details of their supporting and actuating devices, sectional views of said knife-handles being shown between said burnishing elements. Fig. 4 is a sectional view of one of the burnishing elements and the parts connected therewith. Fig. 5 is a sectional view of the work-holding clamps and of one of the pivoted clamp-bar connections.

Referring to the drawings, A is the base of the machine, consisting of four vertical walls and a top. B is a shaft supported on one end of said base, as shown, for rotation by a belt or other similar means and having a disk G

on its upper end, which serves as a crank for actuating through a pitman C a sliding head D, which moves between the two projecting gibs or guides E E on the top of said base, said pitman being connected to the bar F, projecting downwardly from the under side of said sliding head D, as shown in Figs. 2 and 3. Said head is therefore given a reciprocating movement between said guides. Said head D forms a moving support for two elastic burnisher-carriers *h h*, which are blocked in separated positions, as shown, and secured firmly to said head D by a screw *i*. The said burnishing elements consist of hardened-steel disks, as shown in Figs. 3 and 4 and there indicated by *m*, the peripheries of which are curved, as shown, whereby the burnishing movement imparted thereto in the direction of the axes of said burnishing-disks will have the desired burnishing effect upon articles upon which they operate. Said burnisher-carriers are made, preferably, of spring-steel, whereby the burnishing-disks *m* carried thereon are permitted to automatically adjust themselves to the variations of the thickness of the articles upon which they press and are moved during the burnishing thereof, as below described, and said disks are supported in said carriers by the pins *n*, on which they are free to rotate, while the said articles being burnished are moved at right angles to the direction of movement of said sliding head D, so that said disks may act upon the curved edges of a knife-handle or other thing, as well as upon flat surfaces thereof, while burnishing the same. Said pins *n* are preferably tapering, for the reason that they are more easily kept tight in said carriers *h*, thus more surely holding the burnishers *m* steady and firm against the article on which they act. Said burnishing-disks *m* have half-rounded peripheries, and thus they slide freely over the surface to be burnished. Said sliding head D is in practice given such an extent of reciprocatory movement by said disk G and pitman C as the length of the object to be burnished demands, and therefore the connection of said pitman with said disk is made adjustable, as shown, by means of a bolt *o*, passing through one of several holes *p* in the

outer end of said pitman, as shown, and through one of several holes in said disk at different distances from the center of the latter, or any other well-known means may  
 5 be employed for varying the said extent of movement. Two blocks H H are fitted to slide between the gibs or guides I on said base of the machine transversely to the direction of movement of said sliding head D, and  
 10 to actuate said blocks H for reciprocating movements in opposite directions simultaneously for the purpose below set forth a shaft J, having right and left screw-threaded sections for engagement with said two blocks H H,  
 15 is hung to rotate without endwise movement in two brackets K K, secured on the opposite sides of said base, and on one end of said shaft J is fixed a ratchet-disk L. Means are provided for intermittently rotating said shaft  
 20 J, comprising the following devices, viz: A lever M is hung for a vibratory movement on said shaft, on which is pivoted a double pawl N, whereby the direction of rotation of said ratchet-wheel and shaft J may be reversed by  
 25 the successive action of the teeth of said pawl upon the ratchet, the latter being manipulated by the operator of the machine as may be required and as explained farther on. Vibratory motion is imparted to said lever M  
 30 by the connection therewith of a bar R, secured on and moving with said sliding head D by the connecting rod or bar P, the end of the latter engaging said lever M being, as is shown, adjustable for varying the degree of  
 35 the said vibratory movement of the lever M, and thus varying the degree of the movements of said blocks H. On each of said last-named blocks is attached a clamping device W for holding the things to be burnished,  
 40 which device consists of an upper and lower section hinged together by one edge, as shown, and lined with leather or other soft material. Said clamping devices are locked and held in engagement against an object therebetween  
 45 by a clamp-lever V and a connection Z, the latter being pivoted under the lower section of the said clamping device W and adapted to swing upwardly and engage the upper section of said clamping device, said levers V  
 50 then being brought to the positions shown in Fig. 1, whereby the knives there shown are held while being burnished.

The operation of said machine in burnishing is as follows: The clamping devices W  
 55 being opened by first raising the levers V to about the position illustrated in Fig. 2, the blades of the knives are laid therein and then clamped by operating said levers to swing them to the positions above named, and there-  
 60 by bringing the handles of the knives to the positions relative to the burnishing devices shown in Fig. 1. Upon starting the machine the burnishing-disks *m* will move back and forth on the said handles, occupying substan-  
 65 tially the positions shown, whereby the op-

posite sides of the handles are burnished at the same time. While the burnishers are moving longitudinally of the handles, as afore-  
 said, the latter are, through the described movements of the blocks H, to which said  
 70 blade-clamping devices are attached, moved transversely between said burnishing-disks *m*, thereby causing the latter to roll on their bearing-pins, while the curved edges of the  
 75 handles, as well as the flat sides thereof, are brought against said disks, the latter by reason of the elasticity of the burnisher-carriers *h* being free to follow the curvatures of the  
 80 handles, as above set forth. One of said elastic burnisher-carriers *h* and the burnishers thereon may be used alone to act, first, on one side of articles, and then by turning the  
 85 article over may act on the opposite side, or the burnisher may be omitted from one end of said carrier without departing from the spirit of this invention.

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

1. In a burnishing-machine, two spring burnisher-bars arranged one opposite the other in  
 90 separated relations and fixed at a point centrally between said extremities to a movable support, a burnishing element attached to each extremity of said bars, a movable sup-  
 95 port to which said bars are attached, means for reciprocally moving said support, and means for holding articles to be acted upon by said burnishing elements, and moving the same reciprocally, transversely of the line of  
 100 movements of said support, bars, and burnishing elements, substantially as described.

2. In a burnishing-machine, means for holding articles while being burnished comprising  
 105 an upper and lower section or plate-hinge connected by one edge, a lining of soft material on the inner opposite sides of said plates, a clamping-lever pivotally connected to one of said sections and swinging over the second  
 110 one, combined with a support for said hinged clamping device, and means for imparting reciprocating movements to said support and to an article held between said plates, substantially as described.

3. In a burnishing-machine, the movable  
 115 support D, means for moving said support reciprocally, the flexible burnisher-carriers *h*, *h*, attached to said support, the burnishers *m* hung on the ends of said carriers and rotatable thereon, means for imparting reciprocating  
 120 movements to said support D, the sliding blocks H, H, the work-clamping devices W, carried on said sliding blocks, the clamping-levers V V, pivotally connected to said work-clamping devices, and means for imparting  
 125 reciprocating movements to said blocks H, H, simultaneously, in opposite directions, and for reversing said movements, combined and operating substantially as described.

4. In a burnishing-machine, the sliding  
 130

blocks H, H, the work-clamping devices W,  
W, carried on said blocks, the clamping-le-  
vers V, V, pivotally connected to said work-  
clamping devices, the right and left screw-  
5 threaded shaft J, engaging said blocks and  
having the ratchet-disk L thereon, the lever  
M, carrying said ratchet-disk, the bar R con-

nected to the support D, and the bar P ad-  
justably connected to said lever M, substan-  
tially as described.

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