

2 Sheets—Sheet 1.

## RAZOR SHARPENING MACHINE.

Patented May 5, 1896.



INVENTORS:

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by Hall & Fay ATTORNEYS.

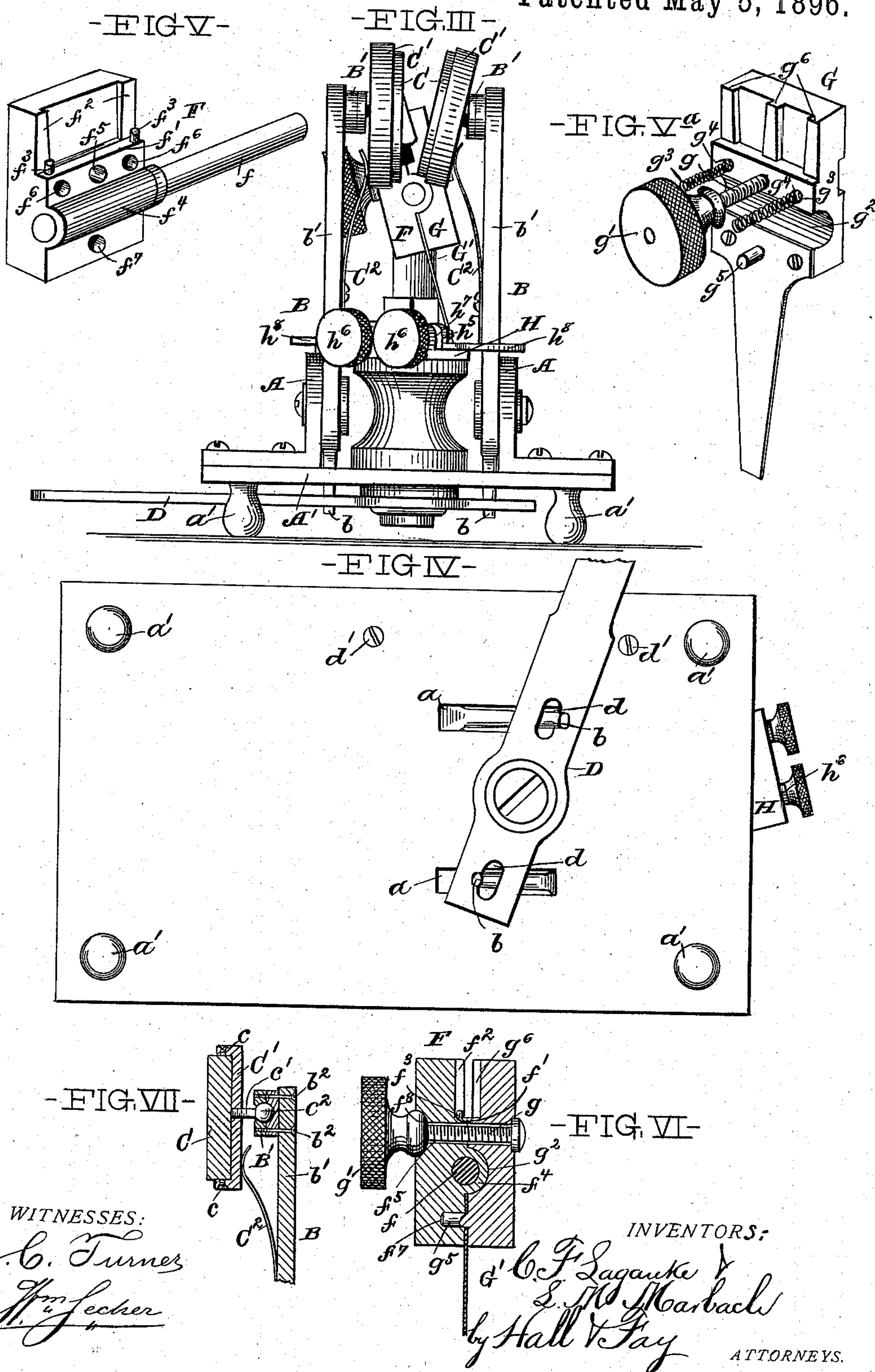
(No Model.)

2 Sheets—Sheet 2.

C. F. LAGANKE & L. M. MARBACH.  
RAZOR SHARPENING MACHINE.

No. 559,456.

Patented May 5, 1896.





# UNITED STATES PATENT OFFICE.

CHARLES F. LAGANKE AND LEOPOLD M. MARBACH, OF CLEVELAND, OHIO.

## RAZOR-SHARPENING MACHINE.

SPECIFICATION forming part of Letters Patent No. 559,456, dated May 5, 1896.

Application filed July 26, 1893. Serial No. 481,465. (No model.)

*To all whom it may concern:*

Be it known that we, CHARLES F. LAGANKE and LEOPOLD M. MARBACH, citizens of the United States, and residents of Cleveland, county of Cuyahoga, and State of Ohio, have invented certain new and useful Improvements in Razor-Sharpening Machines, of which the following is a specification, the principle of the invention being herein explained and the best mode in which we have contemplated applying that principle, so as to distinguish it from other inventions.

The annexed drawings and the following description set forth in detail one mechanical form embodying the invention, such detail construction being but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawings, Figure I represents a side elevation of our improved razor-sharpening machine; Fig. II, a top plan view of the same; Fig. III, an end view of the machine, taken from the end having the hones; Fig. IV, a bottom plan view of the machine; Figs. V and V<sup>a</sup>, perspective views, respectively, of the two parts of the razor-clamp; Fig. VI, a section of the razor-clamp; and Fig. VII, a sectional detail view of the upper end of one of the hone-carrying arms, the hone, and its holder.

Two lips A project upward from a base-plate A' at the sides of two longitudinal slots a in said plate. The plate is preferably mounted upon legs a'. Two levers B are pivoted upon the lips A to rock in vertical longitudinal planes relatively to the base-plate. The lower arms b of said levers are short and project through the slots in the base-plate. The upper arms b' of the lever are longer and have two-part universal boxes B' secured to the inner faces of their upper ends, said boxes being secured to the lever-arms and having their two parts secured together by means of screws b<sup>2</sup>, passing through the arms and through the two parts of the boxes.

The hones or other polishing or sharpening bodies C are preferably circular in shape, and are secured by means of screws c in sockets C', having stems c' projecting from the centers of their backs and provided with spherical heads c<sup>2</sup>, which are fitted to have universal movement within the boxes upon the hone-

carrying levers. Springs C<sup>2</sup> are secured to the inner faces of the hone-carrying levers, and bear with their outer free ends against the backs of the hone-sockets. An operating-lever D is pivoted upon the under side of the base-plate and has openings d, into which the lower arms b of the hone-carrying levers project, and within which said arms have play, so that the hone-carrying levers may be oscillated alternately in opposite directions and in vertical planes longitudinal to the base-plate by rocking the operating-lever. The rocking play of the operating-lever is limited by two studs d' upon the under side of the base-plate. A bearing e is supported, longitudinal to the center line of the base-plate, upon an upright frame E. A shaft f is journaled in said bearing and has a razor-clamping jaw F upon one end. Said jaw is formed with a shoulder f' upon its inner face and with two substantially vertical ribs f<sup>2</sup> above said shoulder and at the edges of the jaw. Two pins f<sup>3</sup> project upward from the shoulder. A semicylindrical rib f<sup>4</sup> is formed upon the face of the jaw and forms a continuation of the shaft. Above said rib the jaw is formed with a central perforation f<sup>5</sup>, extending through the jaw, and with two cylindrical recesses f<sup>6</sup>, one at each side of the central perforation. A small cylindrical recess f<sup>7</sup> is formed in the face of the jaw beneath the rib. The outer end of the central perforation f<sup>5</sup> is reamed to form a concave spherical countersink f<sup>8</sup>. A movable jaw G is connected to the jaw F by means of a screw g, projecting from its inner face, and a thumb-nut g' upon said screw, said screw extending through the central perforation in the opposite jaw, and said thumb-nut bearing with its spherically-convex inner face in the spherically-concave countersink f<sup>8</sup>. The inner face of the movable jaw is formed with a cylindrical groove g<sup>2</sup>, which will fit upon the rib of the opposite jaw F and rock upon the same, and springs g<sup>3</sup> have their ends secured in cylindrical recesses g<sup>4</sup> in the inner face of the movable jaw above the cylindrical groove in the same. Said springs have their free ends fitting into the cylindrical recesses f<sup>6</sup> in the face of the opposite jaw F and serve to separate the two jaws. A pin g<sup>5</sup> projects from the face of the movable jaw, below the cylindrical groove,



and projects into the cylindrical recess  $f^1$  in the opposite jaw. Above the screw the face of the movable jaw is formed with three vertical ribs  $g^6$ , two of which register with the vertical ribs  $f^2$  upon the opposite jaw, so that the shank of the razor to be held in the clamp can at all times have perfect support within the clamp. A spring-arm  $G'$  projects downward from the lower end of the movable jaw.

10 A lever  $H$  is pivoted to rock in a horizontal plane between the hone-carrying levers, and one end of said lever is bifurcated by a slot  $h$ , into which the spring-arm  $G'$  may project, so that the razor-clamp may rock when

15 said horizontally-rocking lever is rocked. Two slides  $H'$  are secured to have longitudinal movement upon the upper sides of the opposite arm of the lever  $H$ , and said slides are formed with longitudinal slots  $h'$ , which

20 have longitudinal play upon studs  $h^5$  and screws  $h^2$ , projecting from the upper side of the lever  $H$ . The slides may be secured in their adjusted positions by means of thumb-nuts  $h^4$  upon the screws  $h^3$ . The outer ends

25 of the slides are formed with upright lips  $h^5$ , formed with screw-threaded perforations, into which screws  $h^6$  engage, said screws being journaled in a lip  $h^7$  upon the outer end of the horizontally-rocking lever. The inner

30 end of the slides are formed with laterally-projecting arms  $h^8$ , the concave curved edges of which may be engaged by the hone-carrying arms as the latter are oscillated.

In practice the razor is secured by placing

35 the shank of its blade between the jaws of the razor-holding clamp and by drawing the jaws of said clamp together by means of the thumb-nut. The vertical ribs upon the faces of the jaws of the clamp will provide perfect

40 clamping bearing for any shape of shank. When the perforated lever is rocked, the hone-carrying levers will be oscillated and the hones will be carried from the heel of the razor to the end of the same, each hone

45 bearing alternately against one side of the razor, which will be tilted by the rocking of the clamp, so as to alternately bring one side of the razor to bear against one of the hones. On account of the universally-movable sup-

50 port for the hones the latter will always have a perfect bearing against the side of the razor, bearing as snugly against the back of the razor as against the edge, so that the honing of the razor will be done at the proper

55 bevel or angle. The hones will reciprocate in substantially the same vertical planes, but the razor will be positively thrown against one or the other of the hones alternately on account of the hone-carrying levers striking

60 the laterally-projecting arms upon the horizontally-rocking lever, and thereby tilting said lever alternately to opposite sides and causing said lever to throw the spring-arm of the razor-clamp and the razor-clamp alternately toward opposite sides. The spring-

65 arm is sufficiently stiff to admit of the razor bearing with sufficient force against the hones

to be sharpened, while at the same time the pressure of the razor against the hones will not be sufficient to either mar the hones or the edge of the razor.

The throw of the razor-clamp, and consequently of the razor, as regards length and time, is regulated by means of the slides upon the horizontally-rocking lever  $H$ , as said lever will be shifted earlier or later during the strokes of the hone-carrying levers, according to the inward or outward adjustment of the slides upon the lever. In this manner the machine may be adjusted to sharpen razors of different lengths.

The word "hones" is used to designate the sharpening devices; but it is evident that pads or other sharpening or polishing devices may be substituted.

Other modes of applying the principle of our invention may be employed for the mode herein explained. Change may therefore be made as regards the mechanism thus disclosed, provided the principles of construction set forth, respectively, in the following claims are employed.

We therefore particularly point out and distinctly claim as our invention—

1. In a razor-sharpening machine, the combination of two hone-carrying levers provided with hones at their upper ends, with an operating-lever having the arms of the hone-carrying levers opposite to the hones movably connected to it, substantially as set forth.

2. In a razor-sharpening machine, the combination of two hone-carrying levers pivoted near their lower ends to oscillate in vertical planes, with an operating-lever fulcrumed to rock in a horizontal plane and movably connected to the lower ends of the hone-carrying levers upon opposite sides of its fulcrum, substantially as set forth.

3. In a razor-sharpening machine, the combination of a pivoted razor-clamp, two oscillating hone-carrying levers fulcrumed to oscillate in planes parallel with the pivotal axis of the razor-clamp, and means for positively imparting rocking motion to the razor-clamp from the hone-carrying levers, substantially as set forth.

4. In a razor-sharpening machine, the combination of hones having means for imparting forward-and-back motion to them, with a razor-clamp pivoted to rock upon an axis parallel to and between the paths of the hones and connected to be alternately rocked from said hones, substantially as set forth.

5. In a razor-sharpening machine, the combination of two oscillating hone-carrying levers, a razor-clamp pivoted to oscillate upon an axis parallel to and between the planes of oscillation of said hone-carrying levers and provided with a projecting arm, and a lever pivoted between the hone-carrying levers to rock in a plane at right angles to said levers and having arms engaged by said levers and engaging the arm of the razor-clamp with one end, substantially as set forth.



6. In a razor-sharpening machine, the combination of two hone-carrying levers fulcrumed to oscillate in parallel planes, a razor-clamp pivoted to rock upon an axis parallel to and between the planes of oscillation of the hone-carrying levers, a lever pivoted between the hone-carrying levers to oscillate in a plane at right angles to the hone-carrying levers and engaging the arm of the razor-clamp with one end, and arms secured longitudinally adjustable upon said last-mentioned lever to be engaged by the hone-carrying levers, substantially as set forth.

7. In a razor-sharpening machine, the combination of oscillating hone-carrying levers, a lever fulcrumed between said levers and provided with arms engaged by said levers, and a razor-clamp having a yielding arm engaged by one end of said last-mentioned lever, substantially as set forth.

8. In a razor-sharpening machine, the combination of two hone-carrying levers fulcrumed to oscillate in parallel vertical planes, a razor-clamp pivoted to rock upon an axis parallel to and between the planes of oscillation of the hone-carrying arms and provided with a downwardly-projecting spring-arm, and a horizontally-rocking lever fulcrumed

between the hone-carrying levers and having a bifurcated end engaging the spring-arm and lateral projections engaged by the hone-carrying arms, substantially as set forth.

9. In a razor-sharpening machine, a razor-clamp composed of two jaws respectively provided with two and three vertical ribs upon their clamping-faces, and provided with means for forcing said jaws together, substantially as set forth.

10. In a razor-sharpening machine, the combination of a razor-clamping jaw, an opposite razor-clamping jaw provided with a perforation having its outer end formed with a concave spherical countersink, a screw projecting from one jaw and passing through the perforation of the opposite jaw, and a thumb-nut upon said screw having a convex inner face fitting and rocking in the countersink, of the jaw, substantially as set forth.

In testimony that we claim the foregoing to be our invention we have hereunto set our hands this 19th day of July, A. D. 1893.

CHARLES F. LAGANKE.  
LEOPOLD M. MARBACH.

Witnesses:

WM. SECHER,  
J. C. TURNER.