

(No Model.)

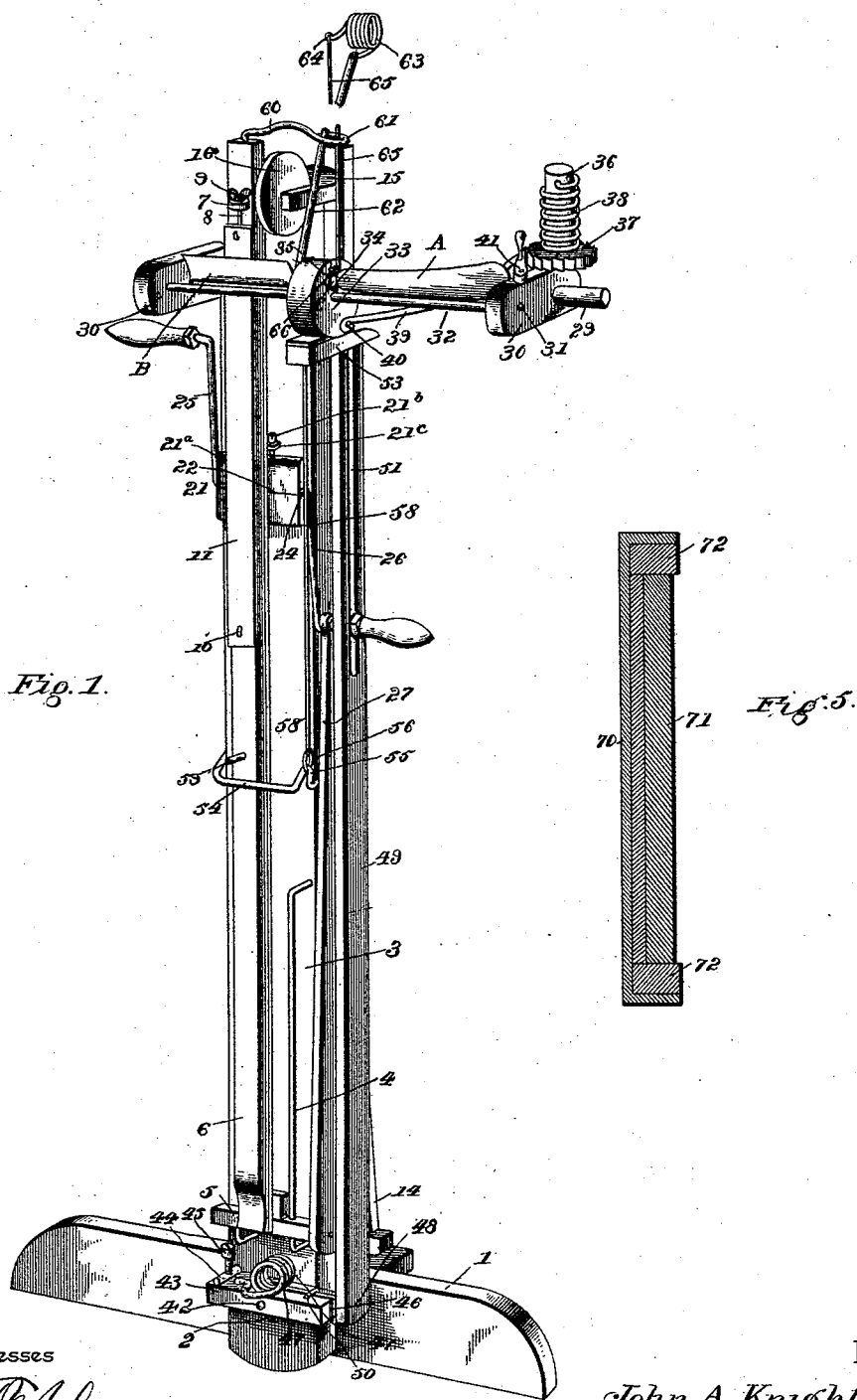
2 Sheets—Sheet 1.

J. A. KNIGHT.

MACHINE FOR STROPPING AND HONING RAZORS.

No. 498,662.

Patented May 30, 1893.



Witnesses

W. Johnson
J. L. Rogers

Inventor

John A. Knight

By his Attorneys,

C. A. Snow & Co.

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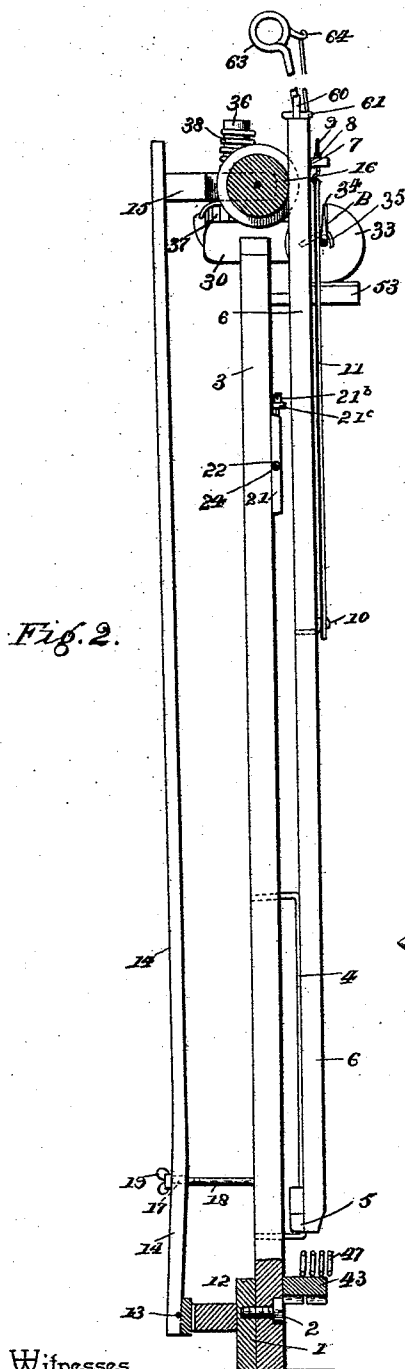


Fig. 2.

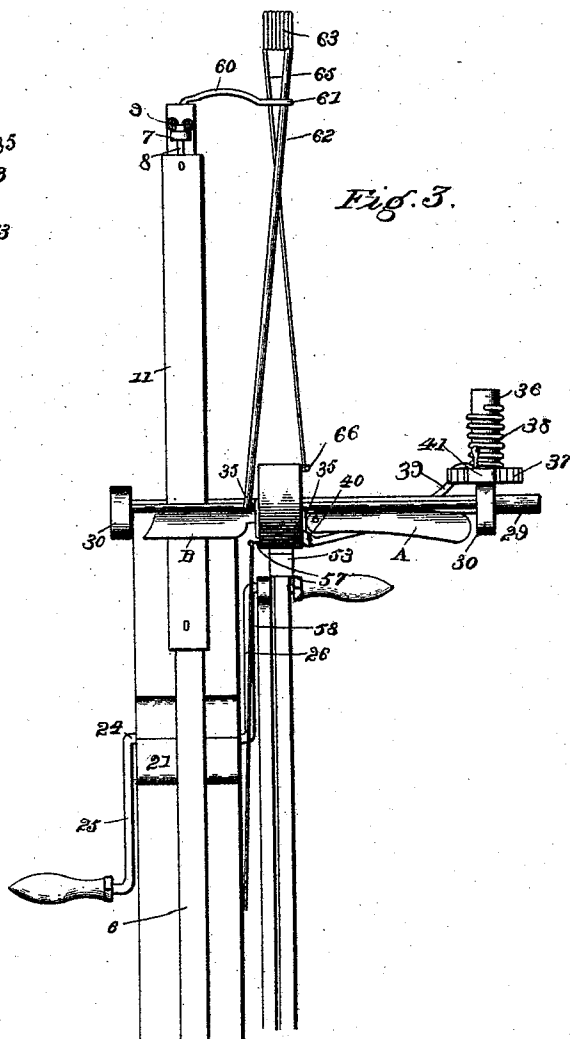


Fig. 3.

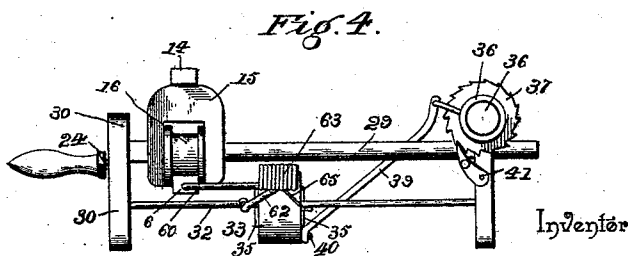


Fig. 4.

Witnesses

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UNITED STATES PATENT OFFICE.

JOHN ALVY KNIGHT, OF SALTILLOVILLE, ASSIGNOR OF ONE-HALF TO DAVID H. LAMBDIN, OF YOUNG'S CREEK, INDIANA.

MACHINE FOR STROPPING AND HONING RAZORS.

SPECIFICATION forming part of Letters Patent No. 498,662, dated May 30, 1893.

Application filed December 21, 1892. Serial No. 455,921. (No model.)

To all whom it may concern:

Be it known that I, JOHN ALVY KNIGHT, a citizen of the United States, residing at Salttilloville, in the county of Washington and State of Indiana, have invented a new and useful Machine for Stropping and Honing Razors, of which the following is a specification.

My invention has for its object the provision of a machine adapted to be operated by hand or foot-power, and to strop or hone razors; and to accomplish the same in an efficient, uniform, and convenient manner.

With these objects in view the invention consists in certain features of construction hereinafter specified and particularly pointed out in the claims.

Referring to the drawings:—Figure 1 is a perspective view of a machine embodying my invention. Fig. 2 is a vertical transverse sectional view thereof. Fig. 3 is a front elevation. Fig. 4 is a top plan view. Fig. 5 is a longitudinal sectional view of the hone adapted for use in connection with my machine.

Like numerals of reference indicate like parts in all the figures of the drawings.

Upon a suitable base or foot 1 there is pivoted by a bolt 2 a standard 3, which by means of the character of its fastening is capable of a slight swinging movement upon said base or foot.

Secured to the front face of the standard 3, near the lower end of the latter, is a pair of parallel rods 4 forming vertical ways. A sliding-block 5 is perforated near its opposite ends and mounted for sliding on these ways, and has secured to it upon its front side a vertically-reciprocating shaft 6, that extends upwardly a slight distance beyond the upper end of the standard 3. The shaft 6 is provided at its upper end with an eye 7, and in the same is located a hook-bolt 8 upon which above the eye is mounted a thumb-nut 9. Below the hook-bolt there projects from the face of the shaft 6 a hook 10.

11 designates a strop one end of which is hooked in the hook-bolt 7, and the other or lower end of which is engaged by the lower hook 10. It will be obvious that this strop may be regulated as regards its tension, through the medium of the thumb-nut upon the hook-bolt, that is, by running the thumb-nut down

upon the hook-bolt, the same binding against the eye 7, the hook-bolt will be drawn up and the tension of the strop increased, or on the other hand by running the nut upwardly upon the hook-bolt the strop will be loosened.

In a bearing-block 12 located upon the rear side of the foot or base 1 there is pivoted upon a transverse pin 13, the lower end of a resilient bar 14, that extends above the standard 1, and at its upper end carries a U-shaped, forwardly-disposed bearing-yoke 15, in which is mounted for rotation a grooved pulley 16. The resilient-bar 14, is provided between its ends, and in this instance near its lower end, with a perforation 17, and through it extends a bolt 18, whose forward end is secured to the standard 3 and whose opposite or threaded end beyond the perforation 17 is provided with a nut 19. By adjusting this nut upon the bolt 18, the pressure of the grooved pulley against the rear side of the shaft 6 upon which it bears may be regulated, as will be obvious.

A transverse bearing-block 21, is secured rigidly to the face of the standard 3, and is provided upon its upper side with a half-bearing 22, in which is mounted the central portion of a shaft 24, whose ends beyond the bearing block are provided with cranks 25 and 26, the crank 25 being provided with a handle by which it may be manually operated; and the inner crank 26 being loosely connected to the upper end of the sliding bar 27. Above the bearing-block 21, a companion bearing-block 21^a is located, the same being made adjustable upon the lower block by means of a set-screw 21^b passed through a lug 21^c that projects from the face of the standard 3.

A cross-bar 29 is secured upon the upper end of the standard 3, and is provided at its ends with a pair of forwardly-disposed bearing-arms 30, which arms are provided near their front ends with bearing openings 31, in which is journaled a rock-shaft 32. This rock-shaft has fixed upon it between its ends a circular head 33, and the same is provided with a radial recess 34, at the sides of which hooks 35, are located.

A short vertical shaft 36, is journaled on the rear end of the outer bearing-arm 30, and

the same is provided with a ratchet-wheel 37. Coiled upon this shaft 36 is a spring 38, one end of which is made fast to the shaft and the coil terminates at one side of the ratchet-wheel. This terminal of the coil is connected by a curved lever 39, passing under the cross-bar 28, with a pin 40, eccentrically located upon the circular head 33. This shaft 36 may be rotated to tighten or loosen the coil thereon, and may be locked at any point of its adjustment through the medium of a pawl 41, pivotally mounted upon the outer bearing-arm 30.

Pivoted upon a bolt 42 to the front face of the standard 3 immediately above the bolt 2, is a rocking-block 43; and projecting from the standard 3 to one side of the pivot 42 of said block is a lug 44 in which a set-screw 45 is threaded, and has its lower end bearing upon the end of the aforesaid rocking-block. The opposite end of the rocking-block is slotted, as indicated at 46 in a longitudinal manner, and secured upon the upper side of the block in rear of the slot or beyond its inner end is the terminal of a coiled-spring 47, the remaining terminal of said spring extending side-wise and over and above the slot 46, forming a bearing 48, for the lower end of a rod 49. A keeper 50, extends over the bearing terminal of the spring, limiting its upward movement, while it will be obvious that the said bearing and its bar 49 may be depressed into the aforesaid slot 46, all for a purpose hereinafter apparent. The bar 49 is provided near its upper end with a longitudinal slot 51, and through this passes the inner crank 26 of the operating shaft, and beyond it said crank is provided with a nut. The upper end of the bar 49 is provided with a transverse leather-covered, or otherwise formed, friction-head 53, and the same is located immediately below or in line with the circular head 33.

A wire bail 54, has its terminals secured to the opposite sides of the standard 3, from which it projects and loosely embraces the shaft 6, and said bail is provided near its inner side or end with an upwardly-disposed kink 55, and a ring 56 is mounted for sliding loosely on the bail, and is designed to take into said kink. The bail is pivoted, and from thering 56 thereof to a pin 57, extending from the face of the circular head 33; there is a wire 58. A pin 59 projects from the face of the shaft 6, and is designed to strike the bail and depress the same upon each downward movement of said shaft 6. An arm 60 projects from the upper end of the shaft 6 and terminates at its outer end in an eye 61. A wire rod 62 extends from the cross-bar 29 through the eye 61 and above the same is provided with a coil 63 having an extremity or terminal 64. To this extremity there is secured a wire rod 65, which passes through the eye 61 and is connected by a pin 66 to the circular head 33 at a point diametrically opposite that at which the wire rod 58 is connected.

This completes the construction of the device as adapted for stropping razors, and I will now proceed to describe the operation thereof. A designates the handle of a razor, B the blade, and C the shank thereof. The hooks at the side of the circular head having been swung upward, the shank of the razor is slid, back-edge first, into the recess 34 of said head, after which the hooks are swung forward, and being of spring-metal snugly clasp or bind the razor in the head. The crank-handles are now operated and the rotation of the shaft upon which the crank is located reciprocates the pitman 27, thus raising and lowering, or in other words, reciprocating upon the ways 4 the head 5 which carries the shaft 6 that supports the strop 11. In this manner the strop is given a reciprocatory motion, and is yieldingly pressed to the front by means of the resilient bar 14, so that it is forced toward the razor. The rotation of the crank-shaft serves to vibrate the rod 49 and the friction-shoe 53 is brought into contact with the under side of the circular head at each back and forth movement, thus serving to partially rotate said circular head at each movement, and said head carrying the razor the latter is reversed or turned, the mechanism being so timed with relation to the reciprocating shaft 6 that the turning occurs just previous to the complete ascent or descent of said shaft 6. It will be seen that the spring mounting of the rod 49 will permit the same to yield vertically and pass by the circular head, while at the same time sufficient frictional contact between the two objects is maintained. The circular head in its oscillations is governed by the two wires 58 and 65, one of which it will be seen extends up and the other down and are connected at diametrically opposite sides of the aforesaid circular head. By tightening and loosening the spring on the shaft 36 it will be seen that the pressure of the razor-edge on the strop may be regulated, and also that said spring serves the purpose of turning the razor after the friction-shoe, which strikes the circular heads, leaves the same, the spring completing the movement and bringing the razor-edge against the strop or hone, and the wires 58 and 65 check the fall or limit the oscillatory movement of the razor so that the same is lowered flat against the strop or hone, and no round edges can be formed. It will be seen that by reason of the loose connection between the strop-carrying shaft and the standard 3 and the pivotal connection between the lower end of the standard 3 and the foot 1, the said standard may be swung upon the foot, while the strop-carrying mechanism remains stationary or vertical, and thus we are enabled to move the razor across the strop so that a uniform sharpening takes place.

As best shown in Fig. 5 it will be seen that the machine is adapted for honing as well as stropping razors. In such instance we employ a frame or box 70, and the same

has seated therein the hone, which preferably consists of the stone or hone proper 71, and a backing of wood. The hone is not as long as the frame in which it is seated, so that recesses are formed between the ends of the hone and the frame, and in said recesses are located pads 72, which constitute a soft surface upon which the razor-back may be turned at the end of each stroke, thus avoiding injury and marring of said edge. The frame, it will be seen, is secured to the shaft 6, and the operation of honing is precisely the same as that of stropping.

From the foregoing description in connection with the accompanying drawings, it will be seen that I have provided a machine that may be cheaply constructed and readily operated by experienced persons, and which is adapted to skillfully and efficiently strop or hone razors, thus reducing the labor usually necessary for carrying on this operation and accomplishing the result in a more efficient and expeditious manner.

Having described my invention, what I claim is—

1. In a machine of the class described, the combination with a strop or hone support and a razor support, of means for reciprocating the strop and turning the razor at each reciprocation of the strop, substantially as specified.

2. In a machine of the class described, the combination with a strop or hone-support, means for reciprocating said support, means for yieldingly supporting the same, of a razor-support located adjacent thereto, and adapted to removably receive the razor, and means for turning the razor at the end of each reciprocation of the strop or hone-support, substantially as specified.

3. In a machine of the class described, the combination with a reciprocating strop or hone-support, means for operating the same, of a razor-support, means for turning the razor support at each reciprocation of the strop or hone-support and for yieldingly pressing a razor-blade upon said strop or hone, substantially as specified.

4. In a machine of the class described, the combination with a reciprocating strop or hone-support, and means for operating the same, of an oscillating razor-support, means for operating the same, a spring for yieldingly holding said razor-support at each end of its movement, and means for regulating the tension of the spring substantially as specified.

5. In a machine of the class described, the combination with a reciprocating razor or hone support, and means for operating the same, of a laterally movable razor-support, and means for turning the razor-support at each reciprocation of the strop or hone-support, substantially as specified.

6. In a machine of the class described, the combination with a vertical standard provided with ways, a shaft carrying a strop or or hone mounted for longitudinal movement

in the ways, and loosely connected therewith, and extending above the standard, a resilient-rod located in rear of the standard and projecting thereabove and provided at its upper end with a forwardly-disposed bearing yoke, a grooved pulley journaled in the yoke and receiving the reciprocating shaft, and a bolt passing through the rod and connected with the standard and provided with a nut for regulating the pressure of the bar, of a razor-support located in front of the shaft, and means for turning the razor at each reciprocation of the shaft and for reciprocating said shaft, substantially as specified.

7. In a machine of the class described, the combination with a base, a standard pivoted at its lower end to the base, ways mounted on the standard, a shaft mounted for reciprocation on the ways and loosely connected therewith, means for supporting a strop or hone upon the shaft, a guide-bar secured at its lower end to the base, and terminating above the standard in a pulley for receiving the shaft, and means for reciprocating the shaft, of a razor-carrying frame, supported by the standard, and means for turning the razor at each reciprocation of said strop, substantially as specified.

8. In a machine of the class described, the combination with a standard, a reciprocating strop or hone-support mounted thereon, and means for reciprocating said support, of a frame carried by the standard, a rock-shaft journaled in the frame, a circular head carried by the rock-shaft and adapted to support a razor, a vibratory bar below the circular head, a friction-shoe on the under side of the same engaging with the surface of the head, and means for operating said bar, substantially as specified.

9. In a machine of the class described, the combination with a standard, a reciprocating strop or hone carrying shaft, and means for reciprocating said shaft, of a frame supported by the standard, a rock-shaft journaled therein and disposed at an angle to the shaft and in front thereof, a razor-carrying head mounted on the shaft, means for oscillating said head, pins located at diametrically opposite sides and extending from the face of the head, connections between the pins and the upper end of the shaft, and said shaft below the head, substantially as specified.

10. In a machine of the class described, the combination with a standard, a shaft mounted for reciprocation upon the standard and adapted to support a strop or hone, of a cross-bar extending from the upper end of the standard and having forwardly-disposed bearing arms extending in front of the shaft, a rock-shaft journaled in the arms, a circular head mounted on the rock-shaft and having a radial slot adapted to receive a razor, devices for securing the razor in position within the head, wires leading from diametrically opposite sides of the head to the reciprocating-shaft above and below the head, a vibra-

tory bar under the head and provided with a friction-shoe for contacting therewith means for vibrating the bar, a vertical shaft journaled in one of the bearing-arms and having
 5 a ratchet-wheel, means for locking the ratchet-wheel, and a coiled spring mounted on the vertical shaft and having its free terminal connected eccentrically with said head, substantially as specified.

10 11. In a machine of the class described, the combination with the standard having ways, the shaft mounted on the ways and adapted to reciprocate, and carry a hone or strop, a pivoted bail mounted on the standard embracing the shaft, and a pin mounted on the
 15 shaft and adapted to strike the bail, an arm extending from the upper end of the shaft and having an eye, of a cross-bar mounted on the upper end of the standard and having forwardly-disposed bearing-arms, a rock-shaft
 20 journaled in the arms, an oscillating head adapted to receive a razor mounted on the shaft, means for oscillating the head, a wire standard extending from the cross-bar through
 25 the arm at the upper end of the shaft and coiled above the same, a wire extending from the terminal of the coil through the eye and connected eccentrically with the head, a ring mounted on the bail, and a wire extending
 30 from the ring and eccentrically connected to the head diametrically opposite the point of connection of the first wire, substantially as specified.

12. In a machine of the class described, the
 35 combination with a base, a standard rising therefrom, a stationary bearing-block secured to the front face of the standard, a lug extending from the standard above the block, a set-screw passing through the lug, a bearing-block borne upon by the set-screw, a crank-
 40 shaft journaled between the two bearing-

blocks and having its ends terminating in cranks each of which has a handle, a reciprocating shaft mounted on the standard, a
 45 pitman connected loosely at its lower end to the shaft and at its upper end to the inner crank, means mounted on the shaft for supporting a strop or hone, of a frame carried by the standard, a rock-shaft carried by the
 50 frame, a razor-support carried by the rock-shaft, and means for oscillating the shaft at each reciprocation of the strop or hone-supporting shaft, substantially as specified.

13. In a machine of the class described, the
 55 combination with a standard, a reciprocating strop or hone carrying shaft, a frame at the upper end of the standard, a rock-shaft supported by the frame, a recessed head adapted to receive a razor mounted on the shaft, and
 60 means for reciprocating the strop or hone-carrying shaft, of a block pivoted between its ends to the standard, a perforated lug above the block, a set-screw passing through the
 65 lug and bearing on one end of the block, a slot in the opposite end of the block, a spring coiled upon the block having one end secured thereto and the opposite end extended over
 70 the slot in the block and forming a bearing, a bar pivoted on the bearing and having a slot, a friction-shoe at the upper end of the bar for engaging the head, a crank-shaft journaled in the standard, and a crank-arm extending from the shaft into the slot formed in the bar, substantially as specified.

In testimony that I claim the foregoing as
 75 my own I have hereto affixed my signature in the presence of two witnesses.

JOHN ALVY KNIGHT.

Witnesses:

F. R. BRAMAN,
 CHAS. A. LINK.