C. F. BOLDT.
MACHINE FOR HONING RAZORS.
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WITNESSES

INVENTOR

Charles F. Boldt.

O. C. Haeziger
L. G. Howard.
MACHINE FOR HONING RAZORS.

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To all whom it may concern:

Be it known that I, Charles F. Boldt, a citizen of the United States, residing at Detroit, in the county of Wayne, State of Michigan, have invented certain new and useful Improvements in Machines for Honing Razors; 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 figures of reference marked thereon, which form a part of this specification.

This invention relates to razor honing machines, of the type shown in my Patent No. 890,761, issued May 13, 1906, and consists in the construction and arrangement of parts hereinafter more fully set forth and claimed.

The objects of the invention are to provide simple and efficient means for presenting the blade properly to the stones; for reciprocating the blade when properly in place; for applying lateral pressure to the journals of one of the stones to maintain the surfaces of the stones in proper working relation; to provide for applying a constant and uniform downward pressure upon the blade during honing, and to provide means for affording a tilting movement of the blade as it reciprocates, so that all points of the rounded edge of the blade may be equally treated.

The above objects are attained by the device illustrated in the accompanying drawings, in which:

Figure 1 is a side elevation of a razor honing machine involving my invention. Fig. 2 is an end elevation thereof, with parts broken away. Fig. 3 is a central longitudinal section through the machine, a portion of the driving shaft and the main driving gear being omitted. Fig. 4 is an end elevation of the machine opposite to that shown in Fig. 2, the upper portion of the frame, its reciprocatory frame, and a part of the stones being in transverse section, as well as the razor blade which is in position between said stones. Fig. 5 is a fragmentary view in plan, showing the reciprocatory frame and the tilting frame pivoted between the sides thereof, the latter carrying the curved spring plates that receive the blade and direct it between the stones.

Referring to the characters of reference, 1 designates the uprights of the main frame which are mounted upon a suitable base, and in the upper ends of which are journaled in parallel relation, the cylindrical grinding stones 2 and 3. The shaft 4 of stone 2 is fixedly journaled in the frame, while the shaft 5 of stone 3 is mounted to move laterally in suitable ways formed in the frame in which lie the movable bearing blocks 6 that engage the journals of the shaft 5, said blocks being in turn engaged by the upper ends of the spring arms 7 which are mounted on the sides of the frame, and whose tension is normally exerted against the bearing blocks 6 to crowd the stone 3 into peripheral contact with the stone 2.

The reciprocatory frame which carries the blade is composed of the forked end member 8, whose diverging sides connect at their upper ends with the horizontal bars 9 respectively of said frame, which stand parallel to each other and which are provided in their outer faces with channels that receive the edges of the top plates 10, said bars at their forward end, or where they engage the plates 10, being of greater thickness than the remaining portion thereof.

Pivotedly connected at 11 to the lower end of the fork 8 is one end of a rod 12, the opposite end of said rod being pivoted at 13 to the long arm of the bell-crank lever 14, which is fulcrummed at 15, and the short arm of which is connected by a pitman 16 with the crank pin 17 on the disk 18 mounted on one end of the shaft 19 journaled in the frame and carrying at its opposite end a large gear wheel 20 and the crank 21. By a rotation of said shaft, the lever 14 is actuated to cause a reciprocation of the frame comprising the fork 8 and the parallel bars 9.

Meshing with the gear wheel 20 is a pinion 22 on the end of shaft 4, and meshing with said pinion is a pinion 28 on the end of shaft 5. By this arrangement, the grinding stones are caused to rotate simultaneously in opposite directions by a manipulation of the crank 21.

The blade holder proper consists of the curved spring plates 24 whose lower edges meet and lie in the opening between the area of the stones. The upper edges of said plates are secured to the opposed parallel bars 25 which lie contiguous to the bars 9.
and are fulcrumed at their longitudinal centers thereto, as shown at 26. By pivoting the bars 25 as described, they are allowed to rock or tilt upon said points of pivot. To cause the bars 25 to move in unison, their forward ends are projected, as shown in Fig. 5, and are provided with the rectangular portions 27, one of which is smaller than the other and enters therein to form a telescopic union. By this arrangement the bars are so connected as to cause them to tilt in unison and at the same time their coupled ends are so extended as not to interfere with the introduction or removal of the razor blade 28.

Journaled in the boxes 29 at the top of the frame near one end is a transverse shaft 30 having the arms 31 mounted thereon. Journaled between the outer ends of said arms is a shaft 32 carrying the grooved wheel 33.

Surrounding the shaft 30 is a coiled spring 34, one end of which engages the frame, as at 35, and the other end engages one of the arms 31, as at 36. The spring is so coiled that the tension thereof is exerted to throw the arms 31 downward and cause the roller 33 to exert a downward pressure upon the back of the razor blade when said blade is in position between the curved plates 24, as shown in Fig. 4.

With the parts in the position shown in Figs. 1, 2 and 4, a rotation of the shaft 19 will cause the grinding stones to revolve in the direction indicated by the arrows in Fig. 2, at the same time the bars 9 will be reciprocated to cause a longitudinal movement of the razor blade which is held between the spring plates 24 and whose edge is caused to lie between and engage said stones at the point of their peripheral contact. The longitudinal movement of the frame or carriage in which the blade is held will cause the blade to reciprocate longitudinally under the roller 33 which exerts a slight downward pressure thereon so that as the roller successively engages the opposite ends of the blade, the pivoted bars 25 and the spring plates 24 mounted thereon are caused to tilt upon the pivotal points 26, thereby insuring contact with the stones of every portion of the edge of the blade, an arrangement which is of special advantage where the edge of the blade is slightly rounding at the ends. To remove the blade, the wheel 33 is raised and the blade withdrawn from between the holding plates 24.

Having thus fully set forth my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a razor honing device, the combination of the rotatable stones driven to revolve in unison opposite directions, the reciprocatory razor carrying frame positioned to present the razor blade between the stones, means for maintaining the stones yieldingly in contact, and means for reciprocating the carriage simultaneously with the rotation of the stones.

2. In a honing machine, the combination with the rotatable stones held in peripheral contact, a reciprocatory blade carrier mounted to present the razor blade centrally between said stones, means for reciprocating said carrier as the stones are rotated, and means for applying a slight downward pressure to the blade as it reciprocates longitudinally.

3. In a honing device, the combination with the rotatable stones, of the reciprocatory carrier for the blade mounted to present the blade centrally between the stones, a holder for the blade pivotally mounted in the carrier, a spring pressed roller engaging the back of the blade, and means for reciprocating the carrier as the stones rotate.

4. In a honing device for razors, the combination of the rotatable stones held in peripheral contact, a reciprocatory blade carrier, a holder in said carrier for presenting the blade centrally to the stones, means for reciprocating said carrier as the stones rotate, pivoted arms carrying a roller which engages the back of the blade when in said holder, and means for exerting a downward pressure upon said arms to cause said roller to forcibly engage the back of the blade.

5. In a honing device, the combination with the rotatable stones held in peripheral contact, of a reciprocatory carrying frame, bars pivoted within the carrying frame and connected to cause them to tilt in unison, spring plates depending from said bars to engage the razor blade and present it between the stones, a roller to exert a downward pressure upon the back of the blade, and means for reciprocating the carrying frame during the rotation of said stones.

In testimony whereof, I sign this specification in the presence of two witnesses.

Charles F. Boldt.

Witnesses:
O. B. Baenziger,
I. G. Howlett.