GUSTAVUS A. BURSCH, OF BROOKLYN, NEW YORK.

RAZOR-SHARPENING MACHINE.

UNITED STATES PATENT OFFICE.

Patented Mar. 17, 1914.

To all whom it may concern:

Be it known that I, GUSTAVUS A. BURSCH, a citizen of the United States, and resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Razor-Sharpening Machines, of which the following is a specification.

This invention relates to razor sharpening machines, and particularly to that class of razor sharpening machines in which lateral motion is given to the sharpening element, in conjunction with longitudinal movement of the razor, to give a "draw stroke" action to the razor edge in sharpening.

The principal object of the invention is to provide a razor sharpening machine of this type, which shall be very compact, strong and simple.

Another object is to provide improved means for changing from the honing operation to the stropping operation.

The means I employ to attain these results and various advantages of my improved razor sharpening machine are illustrated in the accompanying drawings, in which—

Figure 1 is a plan of the preferred form of my improved razor sharpening machine, arranged for honing. Fig. 2 is a side elevation of the same. Fig. 3 is a plan of the under side of the razor sharpening machine.

Fig. 4 is a section on the line 4—4 of Fig. 1.

Fig. 5 is a section on the line 5—5 of Fig. 1. Fig. 6 is a side elevation of machine arranged for stropping. Fig. 7 is a perspective view of the holder for the sharpening member.

Like characters refer to like parts in all figures of the drawings.

The frame 2 of my improved razor sharpening machine, consists of a box-like construction, having sides 3 and ends 4, and a handle 5 attached to the middle part of one of the end-pieces. The sides and ends are fastened by suitable means, such as the screws 6, and each end-piece is provided with grooves or guides 7.

The sharpening element or member 8, is provided with a honing surface 9 and a stropping surface 10, and has a pivot pin 11 at each end. The holder 12 for the sharpening member is a channel-shaped piece of metal having a base 13 and end walls 14, in which are slots 15 to journal the pins 11 of the sharpening member. Flanges 17 are provided at each end of the holder, and are fastened to the base by suitable means, such as the rivets 18. A zigzag slot 19 is formed in the middle of the base, and extends to the near end walls. The sharpening member 8 is mounted by its pins 11 in the slots 15 as illustrated in Figs. 1 and 4, and has a slight oscillatory movement on its axis, 65 so as to adjust its sharpening surfaces to a razor blade, when the latter is drawn over it for sharpening.

The holder is mounted in the frame 2, with its flanges 17 in the grooves 7 of the end-pieces, and the width of the holder and sharpening member being less than the width of the opening 20 in the frame, there is therefore room for a lateral movement of the holder and sharpening member guided by the flanges 17 in the grooves 7.

The sharpening element is reversible, so that either the honing or the stropping surface can be placed uppermost as desired, and the reversing of the member is accomplished by first raising one end and drawing it out of the holder lengthwise, as illustrated in Fig. 2 at 8', then turning it over, and placing it in position again in the holder.

The carriage 21 is provided with a base 85 22, side walls 23, a blade-holder 24 and guides 25 and 25', and it is movably mounted on the side-pieces 3 of the frame 2, and can freely slide over the frame for the greater part of its length. A pin 26 is fixed in the base of the carriage, and extends up into the zigzag slot 19. As the carriage is moved to and fro on the frame, lateral movement to and fro, is imparted to the sharpening member and its holder.

The blade-holder is composed of a shaft 27, and two thin plates 28 and 29 riveted to the shaft and which are adapted to clamp a razor blade, as illustrated in Figs. 2, 4 and 6, where a safety-razor blade B is shown clamped into the blade-holder 24. At the right hand end of the blade-holder 24 is a pinion 30, and mounted on the right hand side of the carriage is a gear 31, on a stud 32, meshing with the pinion 30. The gear 32 has pins 33 and 33', and a handle or knob 35 is provided, which fits either one of the pins and it has suitable means for holding
The operation of my improved razor sharpening machine is as follows: The honing surface 9 is first placed uppermost, and the razor blade B having been placed in the blade-holder 24, the handle 35 is placed on the pin 33, the machine is grasped by the handle 5 in one hand, and the handle 35 is pushed lengthwise of the machine by the other hand, so that the carriage 21 is moved to and fro on the side-pieces 3. The razor blade B is therefore moved back and forth with its edge forward, on the honing surface 9, downward pressure being communicated to the edge of the blade from the handle 35, through the gearing and blade-holder. The honing surface is given lateral movement, to and fro, by means of the pin 26 moving in the zigzag slot 19, so that a keen and uniform cutting edge is given to the razor blade. The blade is then stopped by arranging the machine as shown in Fig. 6, where the honing surface 10 is placed uppermost, and the handle 35 is placed on the pin 34. By giving a to and fro movement to the carriage, by means of the handle 35, the blade is stropped on the honing surface 10. The edge of the blade is dragged behind the blade-holder, just opposite to its position in honing, and this is due to the reversal of the pressure through the gearing on account of the change in position of the handle 35. The lateral movement of the sharpening member is similar to that in the honing operation. The blade is automatically turned over at the end of each stroke in both the honing and the stropping movements, by the reversal of the hand pressure on the handle 35, when the carriage reaches the end of its travel and is moved in the opposite direction.

It is found to be very advantageous to have considerable frictional resistance between the frame and the portions of the carriage that come in contact with it, to give steady operation of the parts of the mechanism, and this resistance is provided by having a gib or shoe 40, which has a ridge at each end to retain it in position, and a pair of adjusting screws 41 to regulate the amount of pressure on the frame. By these means the friction between the frame and carriage can be adjusted to the right amount to give steady action.

I claim:
1. In a razor sharpening machine, the combination of a portable frame, a sharpening element mounted therein for lateral movements, a carriage slidably mounted on said frame and provided with blade holding means extending across said sharpening element, means to reciprocate said carriage, and connections between said carriage and said sharpening element whereby the longitudinal movement of the carriage imparts a lateral movement to said sharpening element.
2. In a razor sharpening machine, the combination of a rectangular frame having lateral guides at the ends thereof, a sharpening element set in said frame, said sharpening element being of less width than said frame and movably carried by said guides, said sharpening element having associated therewith a zig-zag slot, a carriage encircling the frame and movable longitudinally thereof and provided with blade holding means spanning said sharpening element, and a member carried by said carriage for engaging in said slot for giving lateral movements to the sharpening element in conjunction with longitudinal movements of the carriage.
3. A razor sharpening machine comprising a frame, a sharpening element mounted therein for lateral movements, a carriage encircling said frame and sharpening element and slidably mounted on the frame, said carriage provided with blade holding means spanning the sharpening element, connections between said carriage and the sharpening element whereby a longitudinal movement of the carriage produces a lateral movement of the sharpening element.
4. A razor sharpening machine comprising a rectangular frame having end and side members, a sharpening element supported by said end members and movable laterally of the frame, a carriage slidably mounted on said side members and provided with blade holding means spanning the sharpening element, and connections between said carriage and said sharpening element whereby a longitudinal movement of the carriage produces a lateral movement of the sharpening element.
5. A razor sharpening machine comprising a frame, a sharpening element mounted therein for lateral movements, a carriage slidably mounted on said frame, blade holding means carried by said carriage, and means carried entirely by said carriage to reverse the position of the blade holding means when the direction of motion of said carriage is changed.
6. In a razor sharpening machine, a stop or hone, a carriage movable lengthwise of the stop or hone, a blade-holder having a shaft movably supported on the carriage over said stop or hone, a gear on said shaft, a second gear mounted on the side of the carriage and meshing with said shaft gear, two pins on said second gear, and a handle adapted to fit on one or the other of said pins.
7. In a razor sharpening machine, the combination of a stop or hone, a frame, a carriage having ways and mounted on said frame for longitudinal movement and also
having a pair of journals, a blade-holder
having a shaft mounted over the strop or
horne in said journals, a gear on said shaft,
a second gear mounted on said carriage and
meshing with the shaft gear, a handle, and
means for supporting it in either of two
positions on said second gear.

Signed at New York, in the county of
New York, and State of New York, this 18th
day of November, A. D. 1912.

GUSTAVUS A. BURSCH.

Witnesses:

ALVIN SUMMERS,

CHARLES D. KING.