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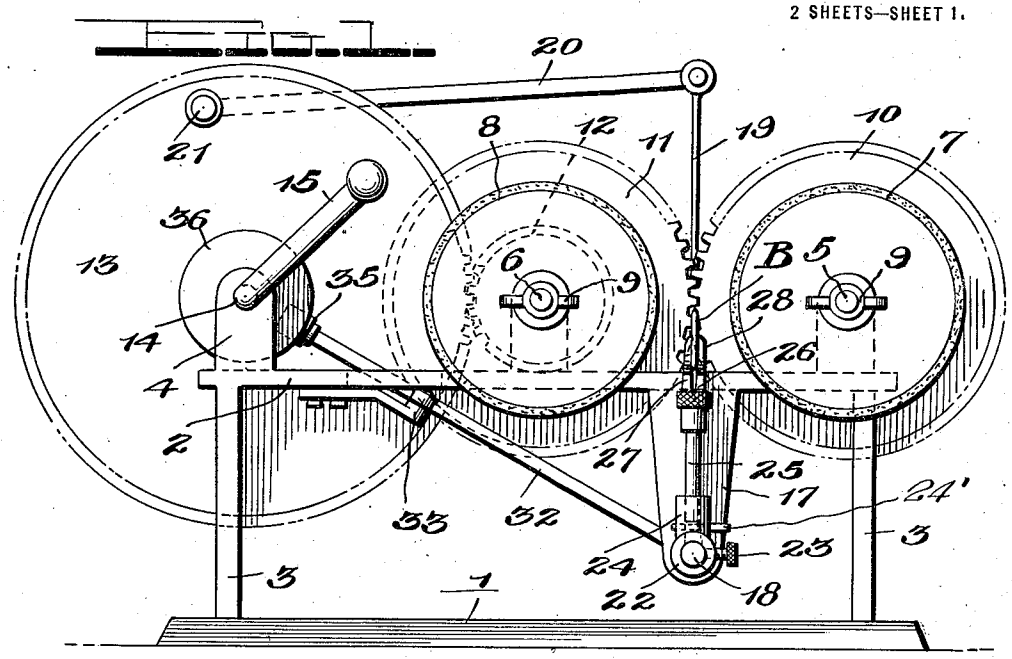
HONING AND STROPPING APPARATUS.

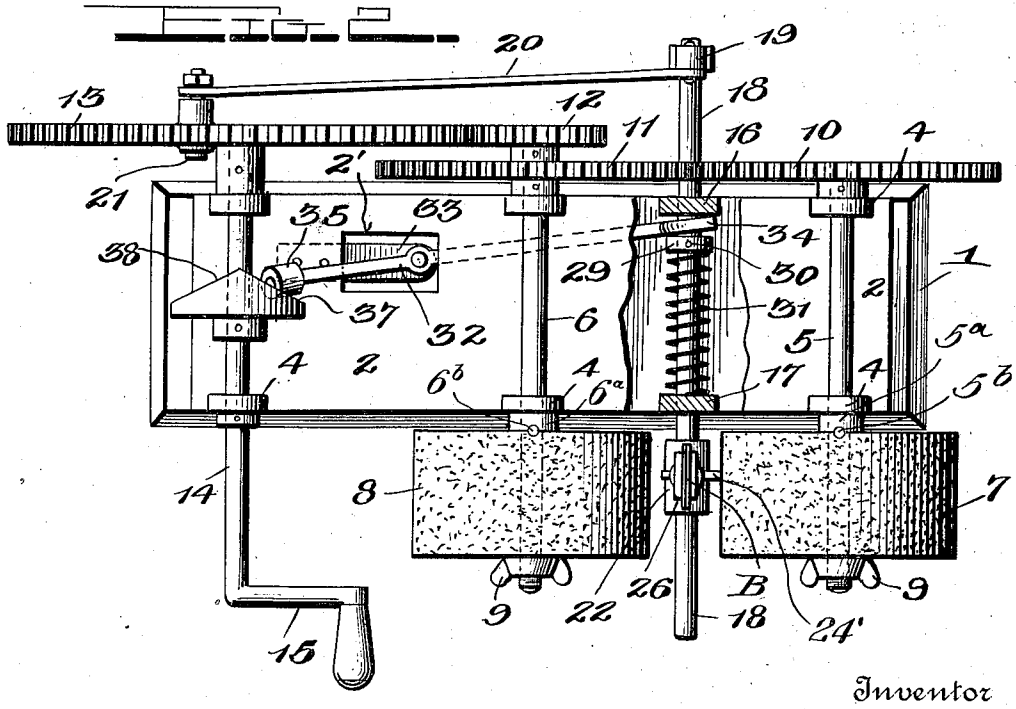
APPLICATION FILED AUG. 5, 1915.

1,187,177.

Patented June 13, 1916.

2 SHEETS—SHEET 1.





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HONING AND STROPPING APPARATUS.

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2 SHEETS—SHEET 2.

FIG. 3

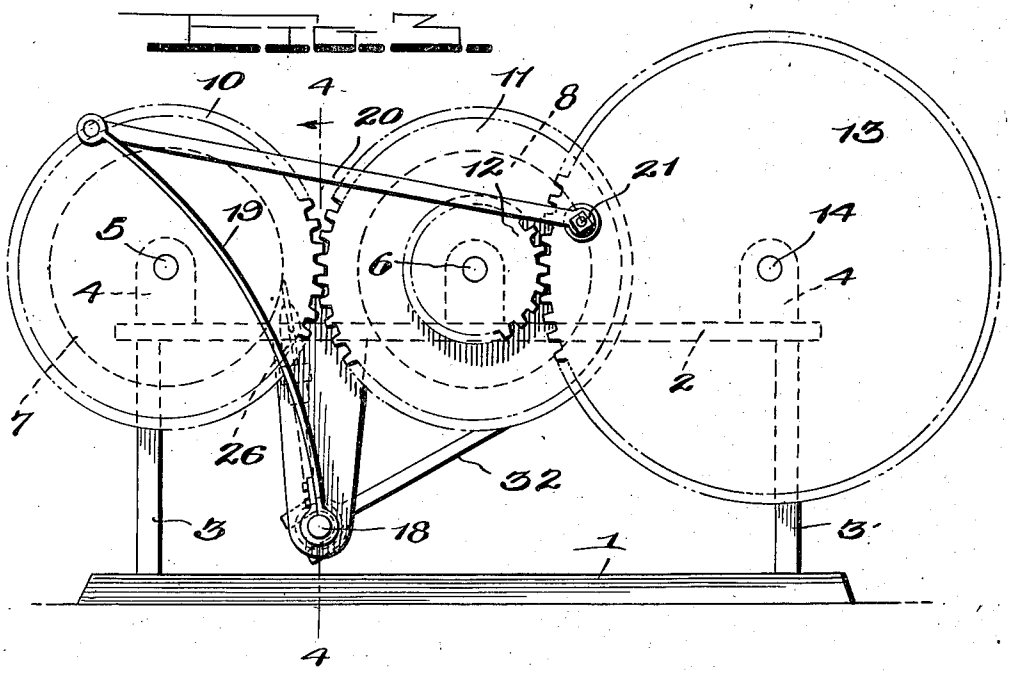


FIG. 4

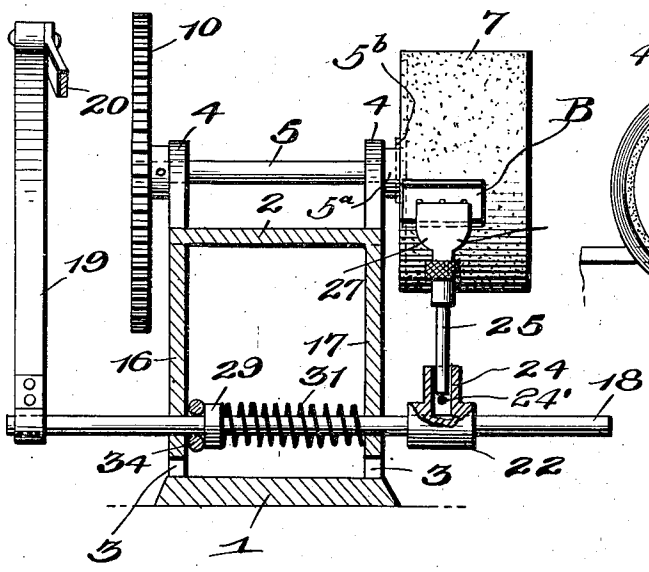
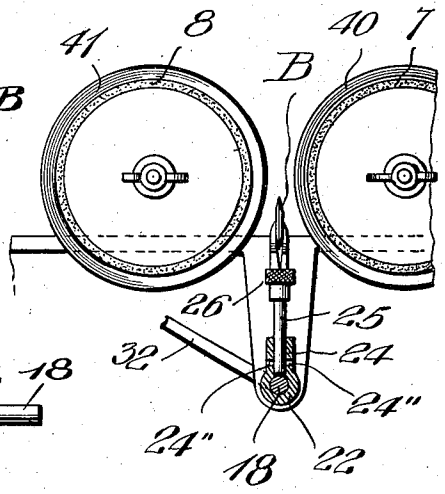


FIG. 5



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UNITED STATES PATENT OFFICE.

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HONING AND STROPPING APPARATUS.

1,187,177. Specification of Letters Patent. Patented June 13, 1916.

Application filed August 5, 1915. Serial No. 43,858.

To all whom it may concern:

Be it known that I, FREDERICK REGENOLD, a citizen of the United States, residing at Memphis, in the county of Shelby and State of Tennessee, have invented certain new and useful Improvements in Honing and Stropping Apparatus; 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.

This invention relates to improvements in honing and stropping machines for razor blades, being more particularly designed for sharpening safety razor blades.

One object of the invention is to so construct a blade sharpening machine that the blade to be ground is yieldably held and operated to alternately bring the faces of the edge of the blade to be sharpened against the sharpening rolls between which the blade is supported.

Another object is to construct a machine of this character in which the blade holder will automatically adjust itself to conform to the contour of the hones.

With these and other objects in view, the invention consists of certain novel features of construction, and combination and arrangements of parts as will be hereinafter more fully described and claimed.

In the accompanying drawings: Figure 1 represents a front elevation of a machine constructed in accordance with this invention; Fig. 2 is a plan view thereof with parts broken away; Fig. 3 is a rear elevation thereof; Fig. 4 is a transverse vertical section taken on the line 4—4 of Fig. 3. Fig. 5 is a detail end view showing the application of the honing strops to the grinding rolls.

In the embodiment illustrated a supporting frame is shown comprising a base 1 having a table 2 supported in a plane thereabove by means of standards 3. Rising from the table 2 at opposite edges thereof are a plurality of bearings 4 arranged in pairs and spaced longitudinally to support the shafts of the apparatus to be described. Revolubly mounted in two pairs of these bearings 4 are shafts 5 and 6 which extend transversely of the frame and project at opposite ends beyond the sides of the table 2. Secured to the front ends of these shafts 5 and 6 are sharpening rolls 7 and 8 which may be composed of any suitable material and which are here shown held in operative positions on the shafts by means of thumb nuts 9. The portion of the shafts 5 and 6 on which the rolls 7 and 8 are mounted, are longer than the rolls are wide and have spacing collars 5^a and 6^a arranged between the inner ends of the rolls 5 and 6 and their bearings 4, said collars being secured to the shafts by pins 5^b and 6^b which extend transversely through recesses in the ends of the collars and through the shafts adjacent the rolls, said rolls having recesses in their adjacent faces to receive the pins which thereby assist in retaining the rolls in fixed relation on the shafts. Wing nuts 9 are shown on the outer ends of the shafts 5 and 6 between which and said collars 5^a and 6^a the rolls are clamped.

On the rear ends of the shafts 5 and 6 which project beyond the table 2 are gear wheels 10 and 11 of corresponding size and which mesh with each other for imparting rotary motion to the shafts carrying the sharpening rolls. A pinion 12 is fixed to the rear end of the shaft 6 and meshes with a driving gear wheel 13 which is mounted on a shaft 14 extending transversely of the supporting frame and mounted in one pair of the alined bearings 4. This shaft 14 is here shown provided with a crank handle 15 for operating it, although obviously it may be operated by power if desired. Midway between the bearings which support the shafts 5 and 6 are two brackets 16 and 17 which are here shown depending from the table 2 and in the lower ends of which is revolubly mounted a shaft 18 which extends beyond the outer faces of said brackets and projects beyond the plane occupied by the rolls 7 and 8 at one side and beyond the actuating gear train at the other side. The rear end of the shaft 18 has a spring lever or link 19 secured at right angles thereto, said link extending upwardly and connected at its upper end to a pitman 20. This pitman 20 is eccentrically secured at its other end to the driving gear wheel 13 as shown at 21 and is designed to impart a rocking motion to the shaft 18 through the lever 19, said lever 19 being yieldable for a purpose to be described.

Adjustably mounted on the front end of the shaft 18 between the sharpening rolls 7

and 8 is a sleeve 22 herein shown held in position on said shaft by a set screw 23. This sleeve 22 has a socket 24 extending upwardly therefrom and communicating with the bore of the sleeve and which is designed to receive the shank or stem 25 of a blade holder 26 forming a T-shaped coupling for connecting the blade holder 26 and the shaft 18. This stem 25 loosely engages the socket 24 and both are made round to adapt said stem to turn within said socket to permit the automatic adjustment of the blade holder in relation to the sharpening surfaces of the rolls 7 and 8 with which the blade B carried by said holder 26 is designed to engage. This blade holder 26 may be of any suitable or desired construction and is shown in the form of a clamp between the jaws 27 and 28 of which the blade B to be sharpened is held. A pin 24′ is shown extending transversely through the socket 24 for varying the position of the blade holder in relation to the sharpening rolls for a purpose to be described, the socket having a bore 24″ extending transversely therethrough to receive the pin. Secured to the shaft 18 between the bearings in which said shaft is mounted and preferably near the rear bearing thereof is a collar 29 which is adjustably held on said shaft by a set screw 30. A coiled spring 31 is arranged on the shaft 18 between the front bearing thereof and the collar 29 and is designed to exert its tension for forcing the shaft 18 rearwardly.

A shaft shifting lever 32 is fulcrumed intermediately of its ends on a bracket 33 carried by the lower face of the table 2. This lever 32 has one end thereof bifurcated and the furcations 34 thereof straddle the shaft 18 at the rear of the collar 29 for a purpose to be described. The other end of this shaft 32 is shown provided with a roller 35 positioned for engagement by a cam 36 secured to the driving shaft 14 between the bearings thereof. This cam is so constructed and positioned that the roller 35 which is arranged in the path thereof is engaged thereby and on the turning of the shaft 14 the lever 32 is operated to slide the shaft 18 forwardly against the tension of the spring 31 at predetermined intervals so as to cause the blade holder 26 to be moved longitudinally forward between the sharpening rolls 7 and 8 and when the other face 38 of the cam 36 passes under the roller 35, the lever 32 is adapted to be moved in the opposite direction which is accomplished by means of the coiled spring 31 expanding and thereby forcing the shaft 18 rearwardly causing the blade holder 26 to be moved in a direction opposite to that in which it is moved by the lever 32 when the roller 35 thereof rides up on the cam face 37.

From the above description it will be obvious that the turning of the driving shaft 14 will thus reciprocate the blade holder shaft 18 to cause the blade carried thereby to be engaged with different portions of the grinding rolls and thus produce an equal wear on said rolls.

The table 2 is here shown provided with an opening 2′ therein through which the lever 32 projects as is shown clearly in Fig. 2, said lever being arranged at an oblique angle to adapt its upper end for contact with the cam 36 and its lower end for engagement with the shaft 18.

In the operation of this improved stropping machine the blade B to be ground is first clamped in the holder 26 and the turning of the shaft 14 causes the train of gearing connected therewith to be set in motion whereby the rolls 7 and 8 are rotated in opposite directions and which turn about five or six rotations to one rotation of the gear 13 owing to the difference in size of gear 13 and the pinion 12 with which it meshes and through which motion is imparted to said rolls by means of the intermeshing gears 10 and 11 carried by the shafts thereof.

A single rotation of the driving gear 13 causes the pitman 20 to be reciprocated first in one direction and then in the other whereby the shaft 18 is rocked through the yielding link 19 connected with said pitman and shaft so that the blade holder carried by the shaft 18 is first engaged with one sharpening roll and then with the other and simultaneously said blade is reciprocated longitudinally between said rolls by means of the engagement of the cam 36 with the roller 35 on the shifting lever 32.

While a spring is shown for shifting the shaft 18 in the direction opposite to the shifting movement imparted by the lever 32 it is obvious that this spring may be dispensed with and the cam 36 so constructed as to impart a reciprocatory motion to said shaft through the lever 32.

It is obvious that the resiliency of the link 19 which connects the shaft 18 with the pitman 20 will yieldably hold the blade holder in engagement with the grinding rolls and thereby prevent all possibility of the blade being injured by the rolls because of any unevenness thereof, said yielding link permitting the blade to move away from the roll under this engagement with any such unevenness should one exist.

In Fig. 5 the grinding or honing rolls 7 and 8 are shown equipped with circular strops 40 and 41 which are made of a size to slip on over the rolls 7 and 8 and tightly hug said rolls when applied, being held thereon by friction. When these strops are applied the machine may be used for stropping the blades B the pin 24′ having been removed to permit the blade holder to drop down and thus conform to the increased diameter of the rolls, the size of

which is increased by the thickness of the strops, and thus prevent the bevel of the blade being changed.

It will thus be seen that these strops may be readily and quickly applied or removed adapting the one machine to perform two functions either honing or stropping as may be desired. When it is desired to hone the blades the strops are removed and the pin 24′ inserted across the socket 24 so that the blade holder 26 would be raised to maintain the same bevel on the blade.

I claim as my invention:

1. A device of the character described comprising a table, a power shaft and a pair of sharpening rolls revolubly mounted above said table, the former having a cam fixed thereto, an endwise movable rock shaft mounted below said table, means for rocking said shaft, means for revolving said rolls, a lever pivoted intermediate its ends to said table, one end of said lever being disposed above said table and in engagement with said cam, the other end of said lever being disposed below said table and having engagement with said rock shaft for moving the latter longitudinally in one direction, spring means for moving said rock shaft longitudinally in the other direction, and a blade holder attached to said rock shaft.

2. A device of the character described comprising a table having an opening therein, a power shaft and a pair of sharpening rolls revolubly mounted above said table, the former having a cam fixed thereto, a pair of brackets depending from said table, an endwise movable rock shaft mounted in said brackets, a blade holder attached to said rock shaft and disposed between said rolls, a collar fixed to said rock shaft between said brackets, a lever pivoted intermediate its ends to said table and extending through said opening therein, one end of said lever having engagement with said cam, the other end of said lever being bifurcated and having engagement with the collar on said rock shaft for moving the latter longitudinally in one direction, a coiled spring disposed between one of said brackets and said collar and around said rock shaft for moving the latter longitudinally in the other direction, means for rocking said rock shaft, and means for revolving said rolls.

3. A device of the character described comprising a support having a plurality of bearings thereon, a pair of sharpening rolls, a power shaft and an endwise movable rock shaft mounted in said bearings, a train of gears connected with said power shaft for revolving said rolls in opposite directions, a resilient lever connected to said rock shaft, a pitman having one of its ends eccentrically connected to said power shaft, the other end of said pitman being connected to said lever, an additional lever pivoted to said support, and a cam fixed to said power shaft for operating said additional lever, the latter having engagement with said rock shaft for reciprocating the latter.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

FREDERICK REGENOLD.

Witnesses:
MILES CARROLL,
MYRTLE SLAUGHTER.