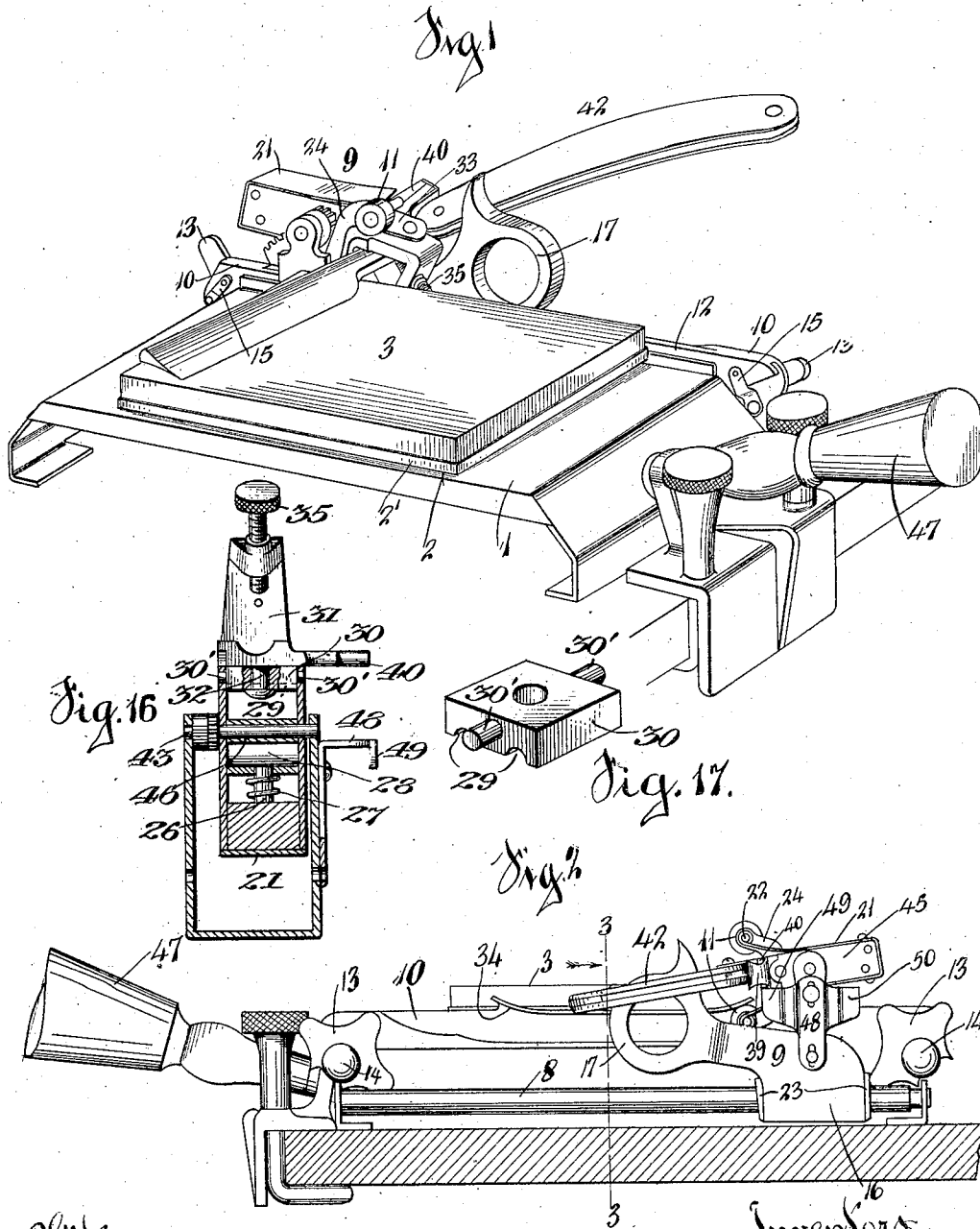


C. A. MANN & E. GNOETH.
MACHINE FOR HONING AND STROPPING RAZORS.
APPLICATION FILED JULY 10, 1912.

1,059,180.

Patented Apr. 15, 1913.

3 SHEETS—SHEET 1.



Witnesses
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Harry C. Tilghman

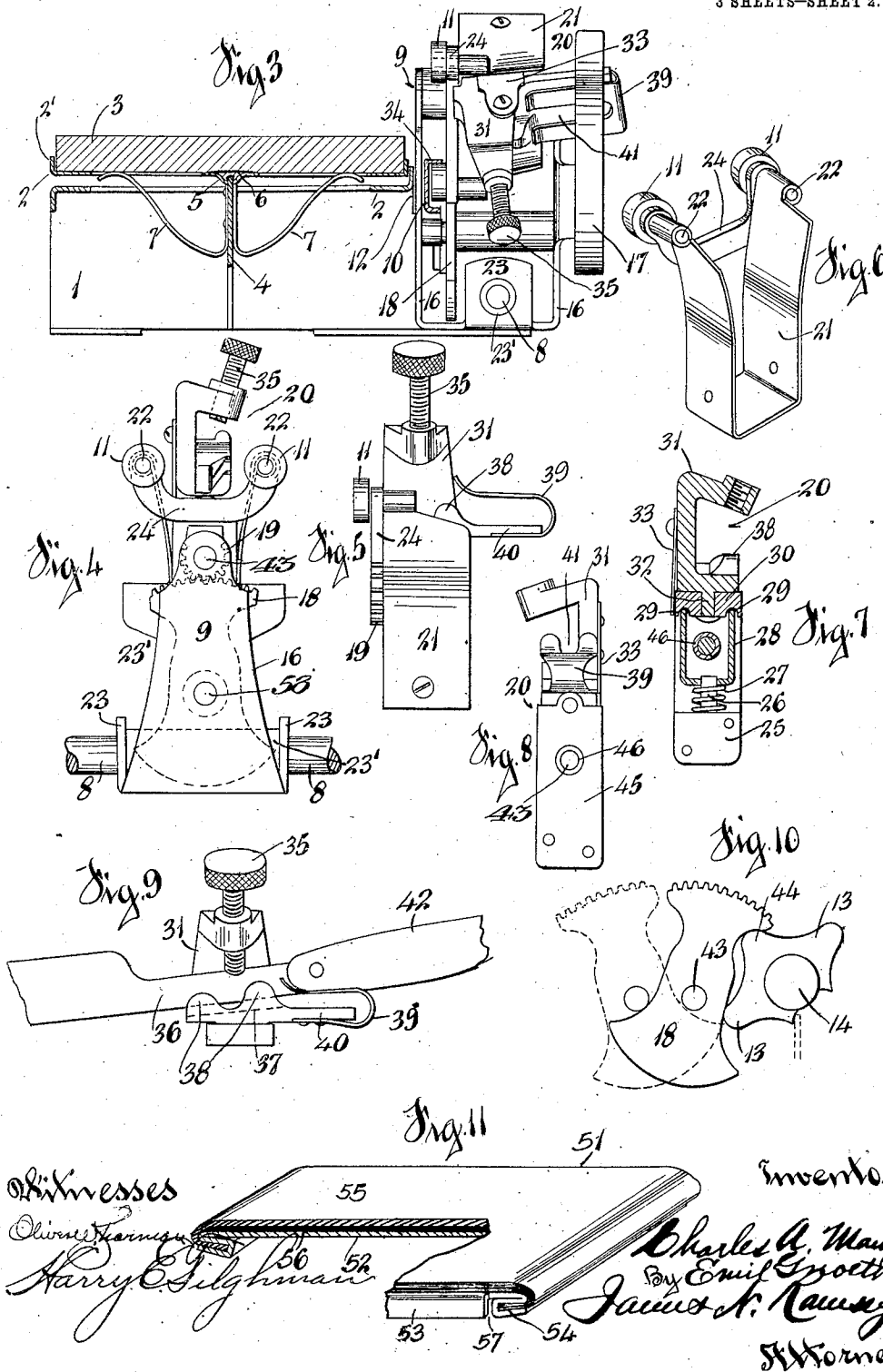
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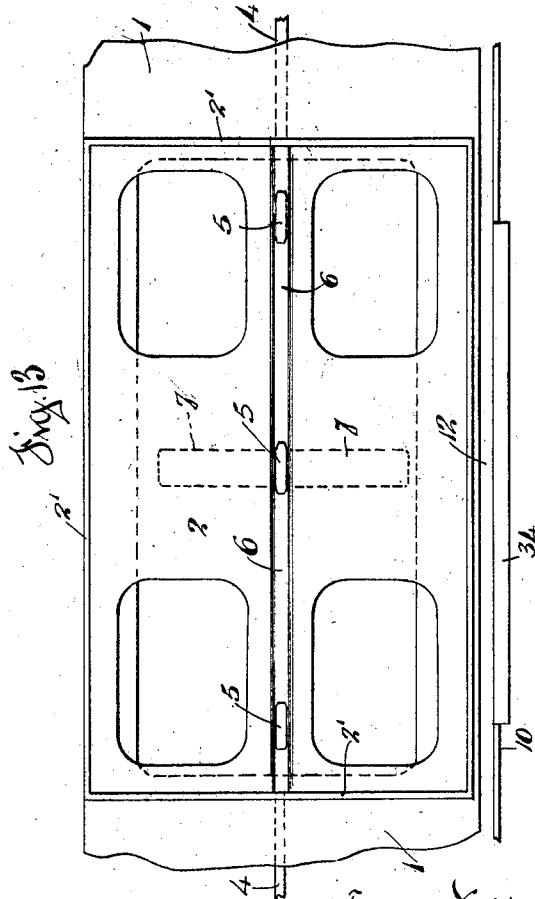
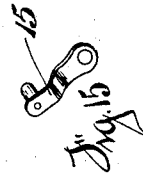
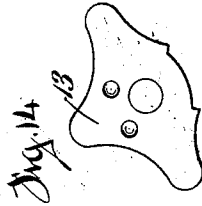
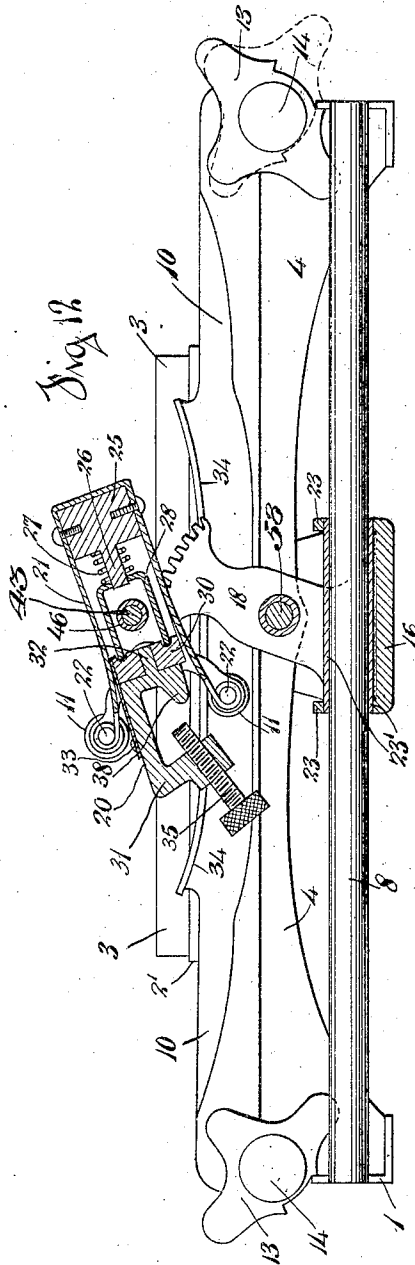


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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

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MACHINE FOR HONING AND STROPPING RAZORS.

1,059,180.

Specification of Letters Patent.

Patented Apr. 15, 1913.

Application filed July 10, 1912. Serial No. 708,555.

To all whom it may concern:

Be it known that we, CHARLES A. MANN and EMIL GNOETH, citizens of the United States, residing, respectively, in Cincinnati, in the county of Hamilton and State of Ohio, and Madisonville, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Machines for Honing and Stropping Razors, of which the following is a specification.

Our invention relates to machines for honing and stropping razors and particularly to hand operated machines for such purposes.

The object of our invention is to provide a more simple, efficient and less expensive machine whereby a razor may be honed and stropped with the utmost ease, accuracy and efficiency.

Another object of our invention is to provide means whereby a uniform bearing is obtained on the stone or strop and the razor is given the much desired diagonal stroke which is essential in the proper honing and stropping of a razor.

Another object of our invention is to provide a machine of the character described which can be most easily and conveniently handled and operated, being provided with a handle for holding same and means for clamping the machine to a table or the like.

Another object of our invention is to provide means whereby the honing stone or strop is always brought into close contact with the razor and adapts itself to the position in which the razor is, so that an absolutely uniform engagement with the stone is obtained.

Our invention consists in certain novel parts and combinations of parts as herein set forth and claimed.

In the drawings, which serve to illustrate the construction, application and use of our invention: Figure 1 is a perspective view of our device showing a razor mounted therein in a position to be drawn across the stone; Fig. 2 is a side elevation of our device with a razor mounted therein; Fig. 3 is a cross-section taken on the line 3—3 of Fig. 2; Fig. 4 is an elevation of the carriage looking at the inner side of same; Fig. 5 is a side elevation of the razor holder which is mounted in the carriage; Fig. 6 is a view of the leaf spring and rollers which form part of the razor holder; Fig. 7 is a vertical cross-

section taken through the razor holder; Fig. 8 is a side elevation of the razor holder forming part of the carriage; Fig. 9 is a view showing how the razor is clamped in position on the razor holder; Fig. 10 illustrates how the razor holder is tilted to either side by engagement with the cams at either end of the main bed or frame of the machine; and Fig. 11 is a perspective view of the strop, part being broken away to show it in action. Fig. 12 is a longitudinal vertical section taken through the carriage and associated parts in a plane parallel to rod 8. Fig. 13 is a plan view of a fragment of the frame showing the support which carries the sharpening member; Fig. 14 is a view of one of the cam fingers showing the recesses in the side thereof which a spring engages; and Fig. 15 is a perspective view of the spring showing the extension thereon which engages the recesses in the cam fingers. Fig. 16 is a vertical section taken on the line corresponding to line 16—16 of Fig. 8. Fig. 17 is a perspective view of plate to which the razor holder is pivoted.

In the embodiment of our invention as illustrated and which shows a preferred construction 1 represents a frame or bed portion of our machine having a support 2 mounted thereon which is adapted to receive a sharpening member comprising a honing stone 3 or strop 51. The bed 1 is provided with a stiffening rib 4 through the center thereof and said rib is provided with extensions 5, said extensions passing through the channel 6 in the support for the sharpening member and preferably being riveted or thickened by swaging at the top to hold said support in position but allowing it to tilt to either side, whichever is required. Fastened at the center of the rib are springs 7 which extend to either side and bear against the bottom of the support, thus tending to retain the bed 2 in its normal position.

A rod or bar 8 is provided at one side of the main frame 1 and extends along the lower portion of same and upon which a carriage 9 is adapted to operate. We also provide a roller track 10 at the side of the main frame adjacent said operating rod and parallel therewith which is provided with suitable flanges on one side thereof which the rollers 11 of the carriage engage. This roller track is spaced away from the main

frame or bed 1 to form a slot 12 therebetween and to form a guiding means for the main carriage, the side of which carriage extends through said slot and operates therein. At the end of the roller track we provide cams or fingers 13 which are adapted to be tilted upon a pivot 14. A certain part of the carriage is adapted to engage these cams or fingers in order to properly reverse the razor holder at the end of each stroke. These cams are provided with spring catches 15 which enter suitable depressions in the cams and tend to hold them in either one or the other position as desired.

The carriage 9 comprises the frame 16 formed U-shaped and having a handle 17 at its outer edge, the inner side of said U-shaped frame passing up through the slot 12 in the frame 1. The bottom of the U-shaped frame is provided with upwardly extending ears or lugs 23 between which a sleeve or bushing 23' is placed through which the main rod or bar 8 passes and which forms a suitable bearing for the carriage. A gear rack 18 is pivoted on a shaft 58 running through the central part of said U-shaped frame and is adapted to engage the cams or fingers 13 below said shaft when the machine is set for honing. This gear rack meshes at the top thereof with a pinion 19 mounted on the pivoted razor holder 20. The construction of this razor holder 20 forms an important part of our invention and comprises the most essential part for properly and efficiently sharpening the razor. It is by means of the construction of this holder 20 that the razor is given the diagonal stroke with the proper pressure at the proper place and time. The razor holder is best shown in Figs. 5 to 8 inclusive. The razor holder 20 comprises the leaf spring 21 which carries small shafts 22 at its upper ends upon which are mounted rollers 11. These shafts are joined by means of a connecting bar 24 which properly spaces the rollers and retains them in the proper and fixed position with relation to each other. The joining of the U-shaped spring by means of the connecting bar 24 is very important as it insures the same or equal pressure on each side of the razor blade when in contact or operative engagement with the sharpening member. Mounted in the bottom of the U-shaped leaf spring 21 is a block 25 which is provided with an upwardly extending pin 26 having a spring 27 thereon. Another U-shaped member 28 is adapted to slide over said pin 26 and bear against the spring 27, the upper edge of said U-shaped member entering grooves 29 in the plate 30. A clamping member 31 is provided on plate 30 and has a downwardly extending pin 32 which is riveted to said plate 30 but is adapted to form a pivot for said clamping member 31 so that it will turn

slightly thereon. A leaf spring 33 is fastened to said clamping member 31 and bears at its other end against the side of the plate 30 which tends to hold said clamping member 31 in its normal position. The plate 30 is adapted to tilt backward and forward upon its pivots 30' (as best shown in Figs. 7 and 16) by means of the U-shaped member 28 moving up and down on the spring 27 allowing said plate 30 to tilt. This tilting of the clamping member 31 is essential when the razor is passing over the stone or strop to give it uniform pressure. In other words when the roller 11 on the spring 21, mounted in the carriage 9, is pulled down by means of it engaging the cam surface 34 on the cam track, the clamping member 31 would also be drawn down therewith if it was not for the fact that the razor engages the sharpening member and the spring 27 in the razor holder yields so as to allow the razor to engage the sharpening member under pressure and still allow the rollers 11 to travel down along the cam surfaces 34. The clamping member 31 is provided with a set screw 35 which is adapted to be screwed down onto the razor shank 36, as best shown in Fig. 9. The bottom of the razor clamping member 31 is inclined as shown at 37 and has holding lugs 38 provided thereon to assist in holding the razor shank in proper position. The inclined surface 37 provides for the diagonal stroke as shown in Fig. 1. A spring 39 is provided on the extension 40 of the clamping member 31 and has a slot 41 to allow the razor shank to enter therein and to form a holding or steadying means for the razor handle 42.

Plates 45 are fastened to each side of the block 25 in the holder and form a casing for said holder, a sleeve or bushing 46 being placed in said plates and adapted to extend through the holder to form a pivot bearing for the holder; a pin or shaft 43 extending through said sleeve into the sides of the U-shaped frame 16 of the carriage.

When the carriage reaches either end of the frame, the cams 13 being placed in the position shown in Fig. 10, engage the lower end of the segmental gear or gear rack 18 thereby tilting it upon its pivot on the shaft 58 and moving it to the position shown in full lines in said figure, the cam surface 44 on the cam 13 being in a position where the top end of the gear rack 18 strikes it thereby stopping it and preventing the razor from swinging too far.

The operation of the device is as follows: The razor is first placed in the clamping member 31 as best shown in Fig. 9, and securely fastened in position by means of the set screw 35. The cams 13 are placed in proper position (as shown in Figs. 2 and 10) to allow the proper operation of the gear rack on the carriage to hone the razor. The

operator then grasps the handle 17 of the carriage and moves it to and fro, drawing the razor over the stone. The first thing that happens when the handle 17 is drawn toward the operator as shown in Figs. 1 and 2, is that one of the rollers 11 passes under the track 34 of the roller track 10 thereby forcing said roller downwardly and tending to tilt the entire holding device downwardly which it does to a certain extent. However, the yielding of the clamping member 31 allows the roller 11 to be forced downwardly while the razor is allowed to yield with the clamping member 31 thereby producing a uniform pressure of the razor against the stone. A still further purpose in constructing the holding device as shown is to cause the razor to engage the stone at the outermost point first thereby tilting the stone to conform to the position of the razor and always insuring a true engagement of the stone and razor throughout the full length of the razor blade. To cause the razor to touch the stone at the outer edge first we provide an adjustable stop 48 consisting of a plate, as best shown in Fig. 2, having ears 49 and 50 and it will be seen from observation of Fig. 2 that as the holding device is tilted that the extension 40 of the clamping member 31 strikes the ear 49 thereby tilting the clamping member on the plate 30 against the pressure of the spring 33. As the roller 11 advances under the cam surface 34 and forces the razor holder farther down the razor is brought into close engagement with the sharpening member because the pressure of the razor against the sharpening member at its outer edge has force great enough to tilt the sharpening member and bring it up into absolutely uniform engagement with the razor throughout the length of the razor blade. Thus it is seen that we produce a number of essential effects in the art of sharpening the razor by constructing the holder and carriage in the manner described. The razor holder as constructed produces somewhat of a universal joint for the razor inasmuch as the razor is yieldable in several directions with a view of increasing the efficiency of the machine by regulating and producing the desired contact of the razor and sharpening member. These movements which have been described relative to the holder, it is believed, produce as near as possible the human wrist movement and maintain the movement with an absolutely uniform pressure on the sharpening member which it is practically impossible to do even by an expert with the human wrist.

The stropping device 51 is preferably constructed of a flat supporting frame 52 having downwardly extending side flanges 53 and provided at each end with a flanged tapering channel 54, said channels being

adapted to receive the respective ends of the strop 55 and hold the same in position over a suitable pad of felt 56 placed upon the upper side of said frame 52. A small space 57 is provided between the ends of the flanges 53 and the flanged tapering channel 54. This permits the flanges 53 to fit within the upwardly extending flanges 2' of the support 2 and its flanged tapering channels 54 to fit outside of said flanges 2' at the ends of said support 2 thereby preventing the stropping device 51 from moving lengthwise or laterally and holding said device in position in practically the same manner as the stone is held. However, when the machine is used for stropping the cams 13 at each end of the frame must be reversed to the position shown by dotted lines in Fig. 12 so that the gear rack 18 is tilted in the opposite direction when it engages the cams 13.

Modifications of our invention may be made without departing from its spirit or scope, and we do not wish to be confined to the exact details shown.

What we claim as new and desire to secure by Letters Patent is:

1. A machine for honing and stropping razors comprising a frame, a sharpening member mounted thereon, a carriage longitudinally slidably mounted on said frame, a razor holder adapted to oscillate in said carriage, a U-shaped leaf spring mounted on said razor holder, rollers on the ends of said U-shaped leaf spring, a connecting bar adapted to hold said rollers in fixed relation to each other, means whereby said holder is oscillated automatically at the end of each stroke, a roller track on said frame which said rollers are adapted to engage and means for clamping the razor in said holder, substantially as set forth and for the purposes specified.

2. In a machine for honing and stropping razors, a frame, a sharpening member mounted thereon, a carriage slidably mounted on said frame, a razor holder adapted to be oscillated in said carriage, means for clamping a razor in said holder, means whereby the holder is oscillated automatically at the end of each stroke, a stop on said carriage provided with ears, and an extension on said oscillating razor holder adapted to engage said ears respectively at the beginning of each stroke and to tilt the razor and cause the outer end of the razor to touch the sharpening member first, substantially as set forth and for the purposes specified.

3. A machine for honing and stropping razors comprising a frame, a support on said frame adapted to hold a sharpening member to tilt sidewise, a slidable carriage on said frame, an oscillating holder on said frame adapted to reverse its position at the end of each stroke, of the carriage, a clamping

member at the top of said holder adapted to swing on a pivot against the pressure of a spring, an adjustable stop on the side of said carriage which said clamping member is adapted to engage, thereby causing said razor to tilt and engage said sharpening member at its outermost edge first and thereby cause said stone to tilt and adjust itself to the angle of the razor for the purpose of procuring the most accurate engagement possible between the sharpening member and the razor.

4. In a machine for honing and stropping razors, a frame, a sharpening member mounted thereon, a carriage slidably mounted on said frame, a pivotally mounted razor holder adapted to oscillate in said carriage, means for clamping a razor in said razor holder, and a slotted curved spring adapted to engage and yieldably hold the handle of the razor, substantially as set forth and for the purposes specified.

5. In a machine for honing and stropping razors, a frame, a sharpening member mounted thereon, a carriage slidably mounted on said frame, a pivotally mounted razor holder adapted to oscillate in said carriage, means for clamping a razor in said razor holder, said means being pivotally mounted, a grooved plate to which said razor holder is pivoted, a U-shaped member engaging the grooves of said grooved plate, and a spring exerting pressure on said U-shaped member whereby said holder is adapted to be moved in different directions, substantially as set forth and for the purposes specified.

6. The combination with a frame, of a sharpening member yieldably mounted thereon, a track on said frame, a carriage slidably mounted on said frame and adapted to slide parallel with said track, a handle on said carriage, a holder mounted on said carriage adapted to oscillate, cam fingers at each end of said track adapted to engage mechanism on said carriage whereby said holder is oscillated, rollers on said holder adapted to engage said track and yieldably mounted on said holder, a clamping member on said holder pivoted thereon and adapted to swing upon its pivot against the pressure of a spring, said clamping member having means mounted thereon for holding the handle of a razor, said clamping member having an extension at one side thereof adapted to engage a stop mounted on said carriage when the holder is oscillated to operate the clamping member on its pivot, substantially as and for the purposes set forth.

7. A machine for honing and stropping razors comprising a frame, a support on said frame adapted to hold a sharpening member, said support being adapted to tilt on said frame, a cam track on said frame, a carriage slidably mounted on said frame, a

holder adapted to oscillate on said carriage and engage said cam track, said holder comprising a clamping member at the top thereof for clamping a razor, said clamping member being adapted to yield in two directions at right angles to each other in order to give the razor the best and most accurate engagement with said sharpening member, the yieldable mechanism on said clamping member being covered by means of a U-shaped leaf spring having rollers at the top thereof adapted to engage said track on said frame and thereby pull the entire holder downwardly to assist the yielding means in said holder in producing a uniform pressure and engagement of the razor on said sharpening member.

8. In a machine for honing and stropping razors, a frame, a support on said frame adapted to hold a sharpening member, a carriage slidably mounted on said frame, a cam track on said frame, a holder on said slidable carriage comprising a U-shaped spring, a connecting bar at the top of said U-shaped spring carrying rollers, said rollers being adapted to engage said cam track, and said holder being adapted to oscillate in said carriage, a block at the bottom of said U-shaped spring having a pin at the center thereof extending upwardly, a spring surrounding said pin, a U-shaped member mounted on said pin and adapted to rest on said spring, a plate resting on said U-shaped member, a clamping member pivotally mounted on said plate and adapted to swing on said plate, a spring engaging the edge thereof, said clamping member being adapted to tilt against the pressure of the spring on said block, and means whereby said holder is automatically reciprocated at the end of each stroke of the carriage.

9. In a machine for honing and stropping razors, a frame, a sharpening member mounted thereon, a carriage slidably mounted on said frame, a razor holder pivoted on said carriage and adapted to reverse at the end of each stroke, a track on said frame, a spring on said holder, having means adapted to engage said track, means whereby the outer end of the razor blade is caused to engage the sharpening member first, means whereby said sharpening member adapts itself to the position of the razor blade, means on said razor holder whereby a close engagement of the razor with the sharpening member is assured, and a handle for operating the slidable carriage on said frame, substantially as set forth and for the purposes specified.

10. A machine for honing and stropping razors, comprising a frame, a sharpening member mounted thereon, a longitudinal slidable carriage on said frame, an oscillating holder on said carriage, yieldably mounted rollers on said holder, a roller track on said

frame adapted to be engaged by said rollers when said carriage is being operated, a yieldable clamping member pivoted on said holder for clamping a razor, and engaging means on said carriage whereby said pivoted clamping member is caused to swing upon its pivot in two directions in the same plane and to be tilted in directions at an angle to said plane against the pressure of a spring, substantially as and for the purposes set forth.

11. In combination with a frame, a support for a sharpening member adapted to rock on said frame, of a track on said frame, a rod parallel with said track, a carriage mounted on said rod and adapted to slide thereon, a razor holder mounted on said carriage and adapted to oscillate when said carriage reaches the end of each stroke, a yieldably mounted roller on said holder adapted to engage said track to bring the razor into operative engagement with the sharpening member, springs suitably mounted on said razor holder, a clamping member on said razor holder adapted to yield in different directions and at angles to each other against the pressure of said springs, substantially as and for the purposes set forth.

12. A machine for honing and stropping razors comprising a frame, a sharpening member mounted thereon, a carriage slidably mounted on said frame, a pivotally mounted razor holder adapted to yield in different planes simultaneously and springs for resisting said yielding movements of the holder exerting positive pressure thereon in different directions at the same time to produce a "human wrist" movement, means for turning the razor at the end of each stroke, and means for yieldably holding the

razor in operative engagement with the sharpening member, substantially as set forth and for the purposes specified.

13. In a machine for honing and stropping razors, a frame, a sharpening member, a pivotally mounted support thereon for holding said sharpening member, a pivotally mounted razor holder adapted to yield in different planes simultaneously, means for turning the razor at the end of each stroke, a rib beneath said support, a flat U-shaped spring mounted on said rib, and having its free ends curved and extending upwardly beneath said support to engage and normally hold said support in a horizontal position to permit said sharpening member to tilt in unison with the varying movements of the razor, substantially as set forth and for the purposes specified.

14. In a machine for sharpening razors, the combination with a sharpening member, of a holder for a razor blade movably mounted adjacent to said sharpening member, means on the holder adapted to automatically endwise tilt the blade transversely of the sharpening member and to transversely tilt the blade longitudinally of the sharpening member to present the cutting edge of the blade to said member, and means permitting automatic adjustment of the sharpening member in keeping with the endwise tilting of the blade to insure a uniform engagement of the cutting edge throughout the length thereof with the sharpening member.

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