

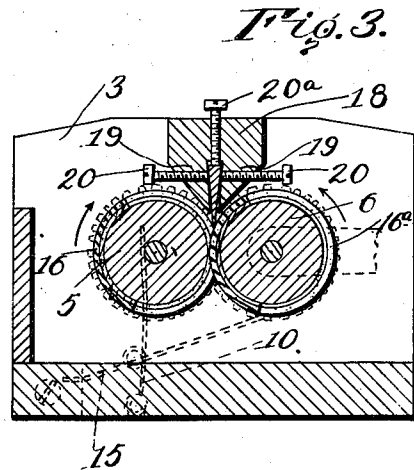
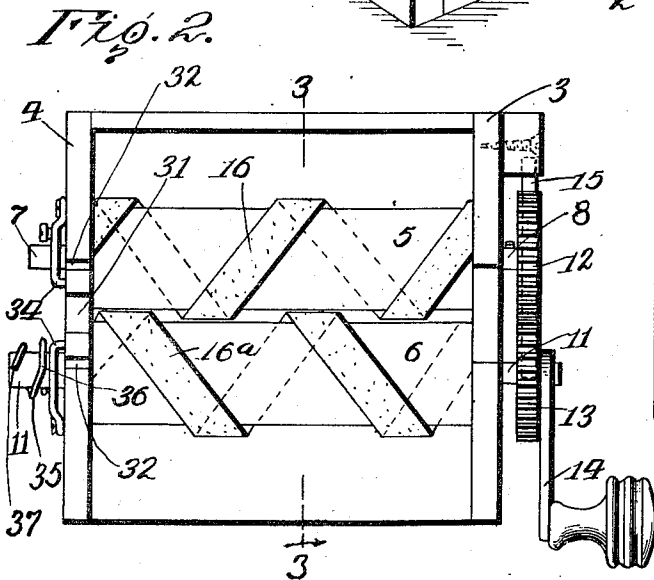
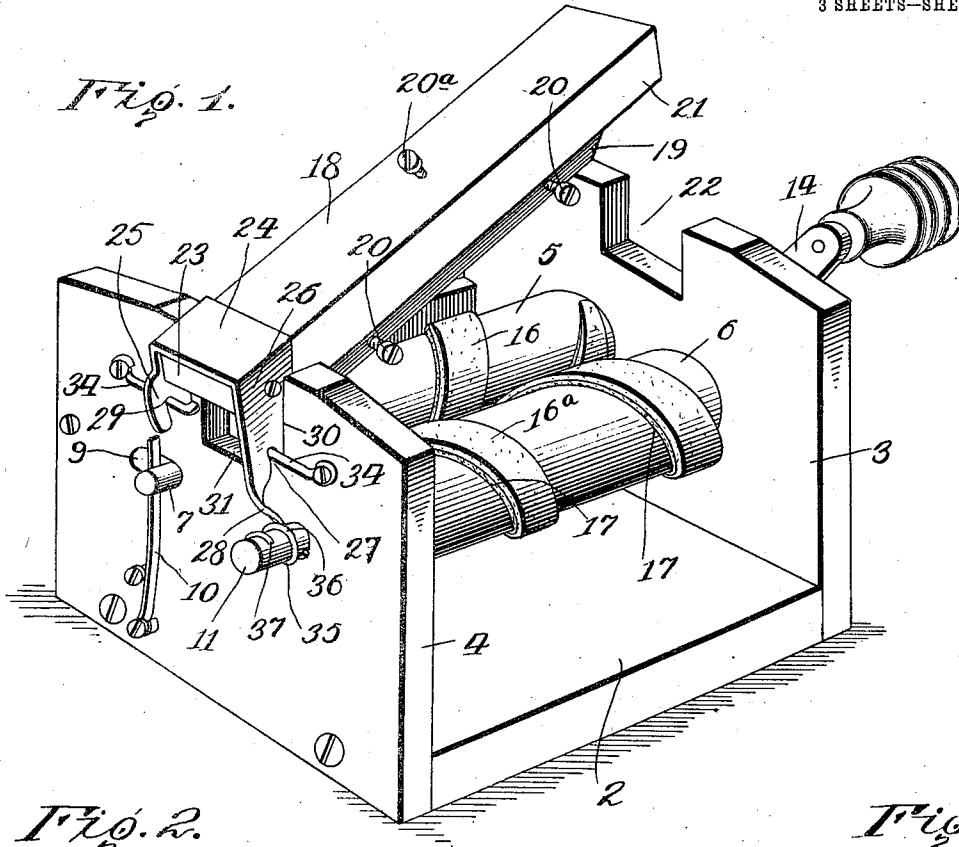
D. WATERS.
RAZOR STROPPER.

APPLICATION FILED MAR. 13, 1911.

1,019,105.

Patented Mar. 5, 1912.

3 SHEETS—SHEET 1.



Inventor
David Waters

Witnesses
W. H. Hodson
J. M. Hallin

By *W. H. Hodson*

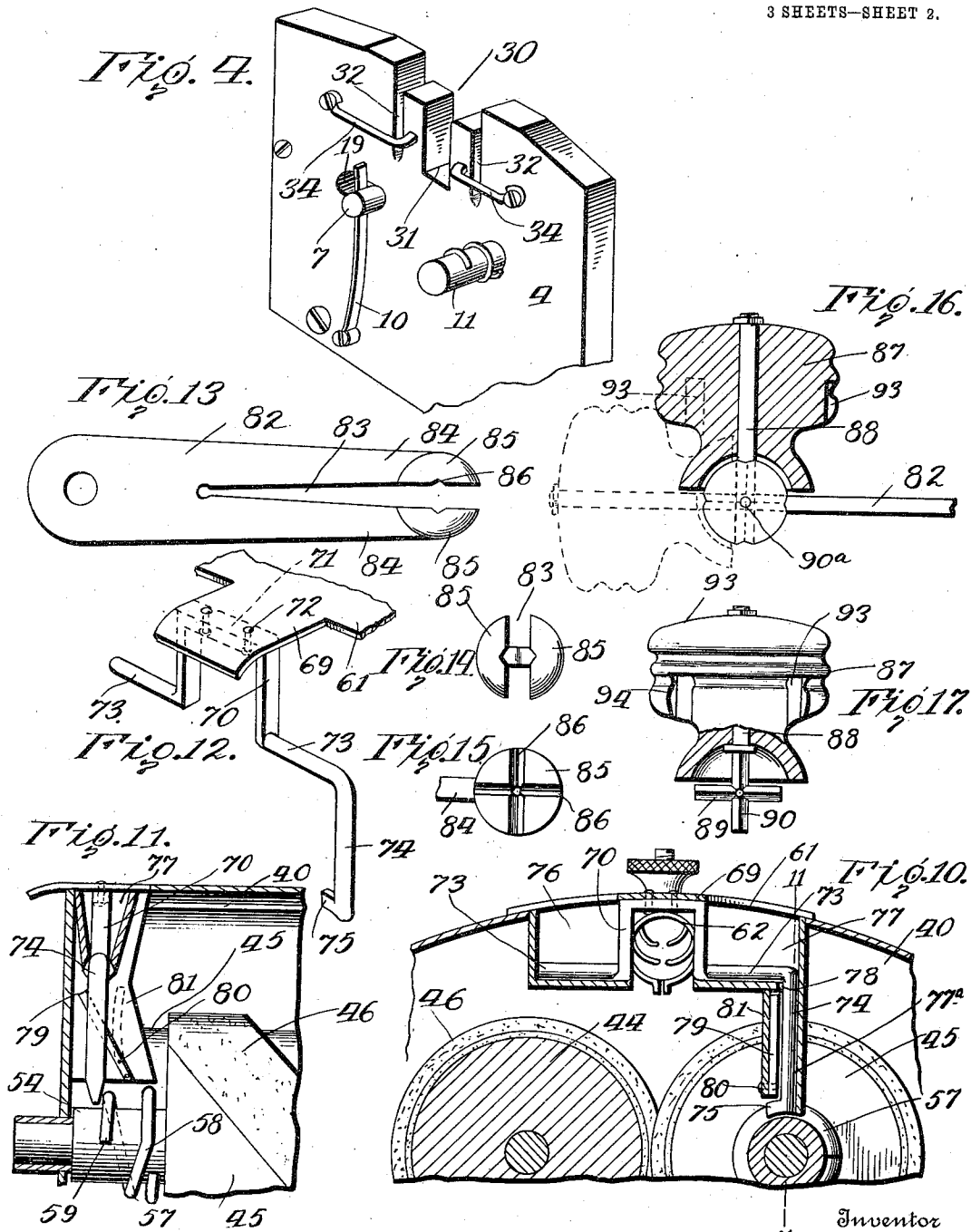
Attorney &c.

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3 SHEETS—SHEET 2.



Witnesses
W. T. Woodson.

J. M. Fallin.

Inventor
David Waters

By

H. M. Racy, Attorneys.

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3 SHEETS—SHEET 3.

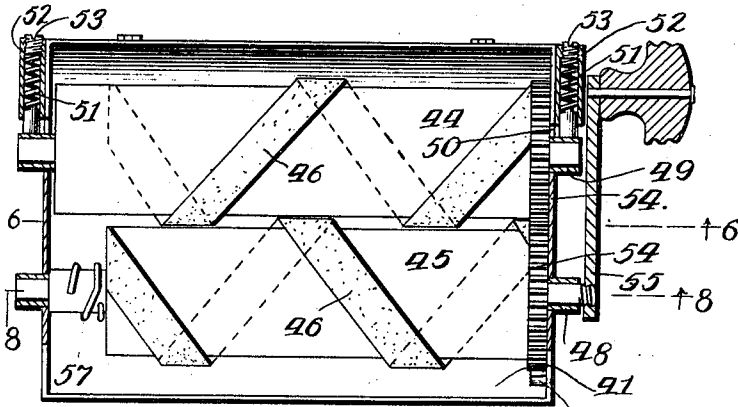


Fig. 5.

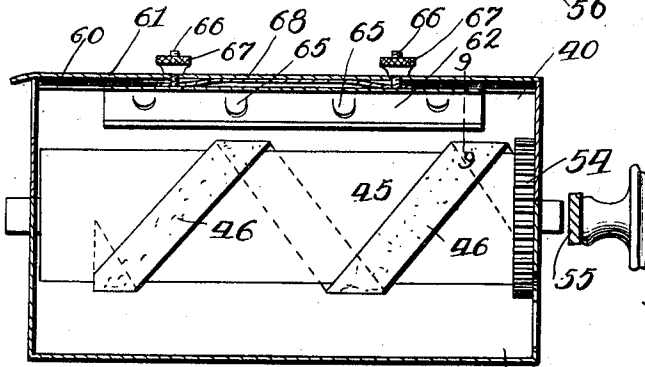


Fig. 6.

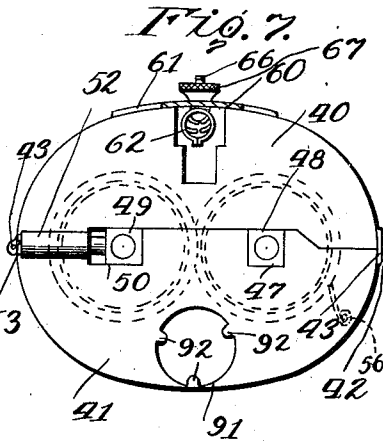


Fig. 7.

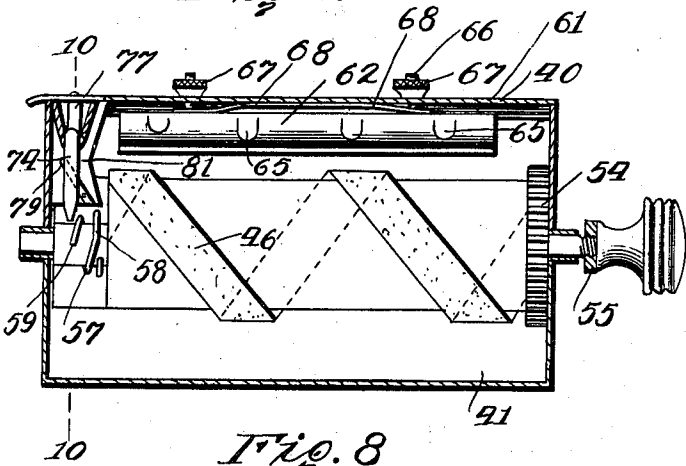


Fig. 8.

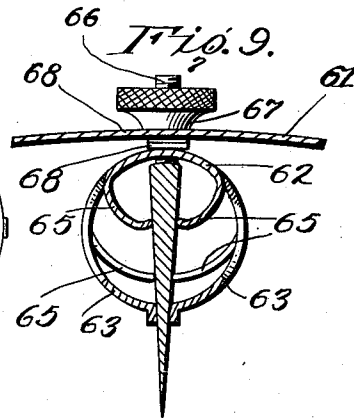


Fig. 9.

Inventor
 David Waters

Witnesses
 W. W. Woodman
 Juana M. Fallon

By
 H. A. Macy, Attorneys.

UNITED STATES PATENT OFFICE.

DAVID WATERS, OF PICTOU, NOVA SCOTIA, CANADA.

RAZOR-STROPPER.

1,019,105.

Specification of Letters Patent.

Patented Mar. 5, 1912.

Application filed March 13, 1911. Serial No. 614,024.

To all whom it may concern:

Be it known that I, DAVID WATERS, subject of the King of Great Britain, residing at Pictou, Province of Nova Scotia, Canada, have invented certain new and useful Improvements in Razor-Stroppers, of which the following is a specification.

My invention relates to grinding, abrading and polishing devices and particularly to means for sharpening implements, such as knives and razors, the mechanism being particularly adapted to stropping razor blades, though not limited to this use.

The primary object of my invention is the provision of a very simple and effective sharpening mechanism of the character above described in which the blade supported in the device is gradually and automatically lowered into engagement with opposed sharpening members, thus eliminating any danger of cutting or injuring the sharpening or stropping surface of the members and eliminating any chance of injuring the blade.

A still further object is to provide means whereby as the stropping members are operated a blade holder carrying the blade to be sharpened shall be given a movement of rotation to carry the blade from a position of angularity with relation to the stropping members into a position parallel to the stropping members and into engagement therewith, thus gradually lowering the blade from its heel to its point into proper position to be sharpened.

A further object is to provide in connection with the device above named, a blade holder which is removable from the main body of the machine so as to permit a blade to be readily inserted and adjusted in place therein, which blade holder may be readily placed in proper position when desired.

Other objects will appear in the course of the following description.

My invention is illustrated in the accompanying drawings wherein:

Figure 1 is a perspective view of one form of my invention, the blade holder being shown in its raised position. Fig. 2 is a plan view of the structure shown in Fig. 1, the blade holder being removed. Fig. 3 is a transverse section on the line 3—3 of Fig.

2. Fig. 4 is a fragmentary perspective view of one end of the supporting frame shown in Fig. 1, the blade holder being removed. Fig. 5 is a plan view of another form of my invention, the cover section being removed. Fig. 6 is a longitudinal section on the line 6—6 of Fig. 5. Fig. 7 is an end view of the modified construction. Fig. 8 is a longitudinal section on the line 8—8 of Fig. 5. Fig. 9 is an enlarged cross section on the line 9—9 of Fig. 6. Fig. 10 is an enlarged fragmentary section on the line 10—10 of Fig. 6. Fig. 11 is an enlarged fragmentary section on the line 11—11 of Fig. 10. Fig. 12 is a fragmentary perspective view of one end of the cover and the yoke forming the hinged support therefor. Fig. 13 is a side elevation of a crank arm. Fig. 14 is an end view thereof. Fig. 15 is a fragmentary view showing the inside face of one head on the crank arm. Fig. 16 is an edge elevation of a portion of the crank arm and the crank handle of the knob attached thereto, this handle being shown in section in one position and in dotted lines in another position. Fig. 17 is a detail elevation of the crank handle and its shank.

Corresponding and like parts are referred to in the following description and indicated in all the views of the accompanying drawings by the same reference characters.

I have shown two forms of my invention, in Figs. 1 to 4 the simpler form and in Figs. 5 to 11 an improved form much more compact than the first form and therefore better adapted for practical use.

Referring to Figs. 1 to 4, it will be seen that in this form of my invention I provide a base 2 upon which are mounted the upwardly extending standards 3 and 4, oppositely placed with relation to each other and rotatably supporting parallel strop carrying rollers 5 and 6. The roller 5 has gudgeons 7 and 8 which are mounted in elongated bearing slots 9 in the end pieces or standards 3 and 4. Springs 10 mounted on these pieces or standards act to force the roller 5 yieldingly toward the roller 6. The roller 6 is mounted on gudgeons 11 which rotate in suitable bearings formed in the end pieces or standards 3 and 4. Mounted upon the gudgeons 8 and 11 at one end of the

machine and exterior to the adjacent standard 3 are the toothed gears 12 and 13 which intermesh with each other. Upon the gudgeon 11 is mounted the crank handle 14 of any suitable construction, and engaging with the teeth of the toothed gear 12 is a pawl 15 which prevents any back motion of the rollers by engaging with the gear teeth. Thus while the crank 14 may be rotated in one direction to cause the rollers to move in the direction of the arrows in Fig. 3, the pawl 15 prevents any rearward movement of the crank. Attached to each of the rollers 5 and 6 are the spiral bands 16, 16^a preferably formed of leather or like material. This leather may be coated with an abrasive substance, or it may be left in its original condition. I of course do not wish to be limited to leather as a material for these stropping bands. Preferably the bands 16 16^a rest upon a strip of felt designated 17. By reference to Fig. 2 it will be seen that these bands 16 and 16^a upon the rollers 5 and 6 respectively are arranged in a spiral direction around the rollers and that the bands 16 are arranged alternately with respect to the bands 16^a so that the bands on one roller will contact, or nearly contact, with the face of the adjacent roller until the razor or other blade to be sharpened is inserted between the rollers. It will thus be seen that any one portion of the blade is not submitted to the stropping action simultaneously on its opposite sides. As shown, the bands are reversely wound relatively to each other. It will be obvious that as the rollers are rotated the stropping bands will move longitudinally relative to the blade being stropped and will also move in a path transverse to the blade and at a slight inclination to the edge thereof. The spiral bands are so arranged in reference to the rotation of the rollers that the stropping bands move relatively to the blade from the butt of the blade to the end thereof, thus giving a longitudinal stropping action to the blade as well as a transverse stropping action, and that by reason of the fact that the strips or bands 16, 16^a are arranged alternately to each other, the blade between any two convolutions of the same band will be slightly flexed by the convolutions of the opposite stropping bands. I have found in practice that this peculiar arrangement of the stropping bands and the peculiar motion imparted thereto gives a particularly perfect stropping action. The razor or other blade being treated is supported within a holder 18. This holder rests in suitable recesses in the upper edges of the standards 3 and 4 and is provided with oppositely disposed jaws 19 which engage on either side of the blade. The jaws 19 do not extend the full length of the holder but the holder projects beyond the jaw as at 21 so as to rest in the recess 22,

and also projects as at 23 for a purpose to be later described. The jaws are provided with screws 20 for engaging the razor blade and holding it securely in place within the holder. The razor blade may be adjusted vertically within the holder by means of an adjusting screw 20^a. I have found in practice that it is very desirable to insert the razor gradually between the stropping rollers as the rollers are being rotated, and to this end I detachably hinge one end of the holder to the adjacent standard and provide means connected to the shaft or gudgeon of one of the rollers whereby the holder may be gradually lowered from a position of angular relation to the rollers into a position parallel thereto. In the form of my invention illustrated in Figs. 1 to 4, this object is secured in the following manner. Attached to one end 23 of the blade holder is the pivotal supporting member 24 which pivotally connects the blade holder to the body of the machine. This supporting member 23 is approximately U-shaped and has parallel depending arms 25 and 26. The inner edges of these arms are outwardly and downwardly inclined. The arm 26 is bifurcated at its lower end as at 27 to form a vertically extending slot. The arm 25 is formed with a smaller slot 29 disposed directly opposite to the slot 27 and extending parallel therewith. The arm 25 is extended below the slot 29 to form a downwardly depending laterally curved lip to engage with the holder actuating mechanism as will be later described. The upper edge of the standard 4 is recessed at 30 to receive the end 23 of the holder. The lower wall of this recess is slotted at its middle as at 31 to permit the insertion of the shank of the razor blade, and this lower edge of the recess 30 is also vertically slotted as at 32 to receive the legs 25 and 26 of the member 24. Extending across these slots 32 are the pintles 34 which are attached at their ends to the standard 4 in any suitable manner and which are slightly spaced from the face of the standard. The slots 27 and 29 engage over these pintles 34 and the razor holder has in consequence a rocking motion upon the pintles. Thus it may be elevated to an inclination of about 45° or lowered to a position wherein it is parallel to the stropping rollers. For the purpose of gradually lowering the hinged holder just described, I provide a resilient worm 35 which is mounted on the gudgeon of the roller 6. As will be seen from Fig. 2, this worm consists of a relatively flat coil or convolution 36 which is attached to the gudgeon 11, the wire or other material forming this coil being continued in a spiral around the gudgeon 11 and toward the end thereof, the end of the spiral 37 being free. As before remarked, the material of the coil 35 is resilient. When the holder with the

razor attached thereto is to be placed in the machine, the slots 27 and 29 are inserted over the pintles 34 and the depending lip 28 is inserted behind the coil 36 of the work 35.

5 With this construction it will be seen that as the roller 6 is rotated in the direction of the arrow in Fig. 3, the lip 28 will travel along the worm 35 until the lip escapes the extremity 37 of the worm and that when the
10 lip 28 so escapes the extremity of the worm, the resilience of the wire forming the worm will contract the worm, thus shifting the free end 37 of the worm out of the same plane as the depending lip 28 so that the
15 roller 6 may continue its rotations without the extremity 37 of the worm engaging with the lip 28. The operation of this form of my invention will be obvious from the description just given. The blade of the razor is
20 to be inserted in the holder 18, the shank of the razor projecting out through the slot 31. The holder is placed in such position that the notches or slots 27 and 29 will engage over the pintles 34 and the lip 28 will
25 engage behind the spiral worm 35. The crank handle 14 is then operated, thus rotating the rollers in reverse directions, as indicated by the arrows in Fig. 3, and as the rollers are rotated the razor holder will gradually be lowered until the blade is in full
30 contact with both of the rollers. After the blade has been stropped sufficiently, the razor may be removed by simply lifting directly upward on the razor holder. The
35 blade may be adjustably held within the holder by means of the screws 20 and 20^a.

While the form of my invention just described is thoroughly effective and has an extremely good stropping action, I have
40 illustrated in Figs. 6 to 10 a form of my invention which is more adapted for practical purposes in that the operating mechanism is entirely contained within an inclosing case, this case being made in two sections. In
45 this improved form of the invention the case is made in two sections 40 and 41, these sections being semicircular or semielliptical in section and being hinged together by the hinges 42. The free edges of the sections
50 may be held closed by means of any suitable hook or latch 43. Mounted within the sections of the case, and preferably rotatably mounted in bearings upon the section 41 of the case, are the stropping rollers 44 and 45.
55 These rollers have precisely the same construction as before described and are provided, each with the helically arranged strops or stropping bands 46. These bands are mounted upon the rollers precisely as
60 before described and therefore need no separate description. The upper edges of the section 41 of the case are provided with recesses 47 for the reception of bearing blocks 48 in which the gudgeons of the
65 roller 45 are mounted. The gudgeons of

the roller 44 are mounted in bearing blocks 49 which are carried in recesses 50 which are slightly longer than the bearing blocks and hence permit the bearing blocks and the roller 44 to move laterally toward and
70 from the roller 45. Coiled springs 51, preferably carried in housings 52 upon the exterior of the ends of the case act to force the bearing blocks 49 toward the bearing blocks 48 and thus force the roller 44
75 toward the roller 45. Adjusting screws 53 are placed in the outer ends of the housings 52 and act to compress the springs 51 to any desired tension. At one end the rollers 44 and 45 are provided with the toothed
80 gears 54 which intermesh with each other and correspond to the toothed gears 12 and 13 previously described. One gudgeon of the roller 45 is extended and provided with a crank handle 55 whereby the rollers may
85 be rotated. A pawl 56 is attached to the case and engages with one of the toothed gears 54 so as to prevent any backward or reverse rotation of the rollers. Disposed upon the gudgeon of the roller 45 at the
90 opposite end from the toothed wheel 54, is the resilient worm 57. This worm comprises a flat convolution 58 which only partially surrounds the gudgeon and which is then continued spirally around the gudgeon
95 and terminates at 59, see Fig. 11. This end 59 is free and is normally held in its inward position by reason of the resilience of the spring material from which the worm 57 is made. It may, however, be pressed outward
100 but will return to its original position when the force pushing it outward is relieved. The upper face of the section 40 of the case is longitudinally slotted as at 60, and covering this slot is a plate 61 forming a blade carrier
105 to the under side of which the blade holder 62 is attached. This blade holder 62 is adapted to move down through the slot in the section 40. The blade holder 62 is composed of oppositely disposed resilient
110 jaws 63 formed integral with each other and adapted to clasp a razor blade. The jaws 63 are cut away at a number of places so as to form spring tongues 65, these tongues being bent inward as shown in Fig. 9 so
115 as to engage the back of the razor blade and hold the blade firmly in position. The blade holder 62 is adjustably mounted upon the cover 61 by means of the screw studs
120 66 which pass through the cover and are provided with the nuts 67. A bowed spring 68 is interposed between the cover and the nuts 67. It will be obvious that by rotating the nuts 67 in one direction, the spring 68 will force the holder downward and that
125 the spring will resist the movement of the blade holder upward toward the cover, thus firmly holding the blade holder in position relatively to the cover at all times. The blade is to be inserted through the open ends
130

of the blade holder, the back of the blade being engaged by the spring tongues 65. The blade carrier 61 is longitudinally extended at one end as at 69 and is attached to a hinge member 70, illustrated in the enlarged detail view Fig. 12. This member, though not necessarily made in one piece, consists of the yoke 71 to which the extension 69 of the blade carrier is attached by the rivets 72, this yoke being provided at the ends of its arms with laterally projecting pintles 73, one of these pintles having a depending arm or extension 74 carrying at its extremity the feather 75, this feather being adapted to engage with the worm 57. The pintles 73 are supported in pockets of bearings 76 and 77 formed in the interior of the casing. The pocket 77 is formed at its end with an opening 78 through which the arm 74 of the pintle 73 passes, this opening being large enough to permit an oscillation of the arm 74. Extending downward in a plane parallel to the plane of the arm 74 but at an inclination to the vertical is a guide spring 79, this spring being attached at its lower end as at 80 to a supporting plate 81 forming one wall of the recess in which the arm 74 is supported. The upper end of the guide spring 79 is thus free to shift. This guide spring 79 engages with the feather 75. When the arm 74 is inserted in the opening 78, the feather 75 thereon will engage with the spring 79 and will guide the lower end of the arm downward toward the initial convolution of the worm 57. When the feather 75 is in engagement with the convolutions of the worm it will be below the lower pivoted end 80 of the spring 79 and will hence escape the spring as it is carried forward by the rotating worm. It will thus take the position illustrated in Fig. 11, the arm 74 when in this position escaping the resilient worm 57 and the resilient worm contracting so that it may pass the lower end of the arm without affecting the same. When the blade carrier is drawn upward, carrying with it the arm 74, the feather 75 thereon will press against the upper free end of the spring guide 79 and will force it to one side, as shown in dotted lines Fig. 11, thus permitting the arm to be withdrawn from the lower extension 77^a of the pocket 77. The operation of this form of my invention is precisely the same as that previously described. By rotating the crank 55, the rollers 44 and 45 are rotated in opposite directions. The razor blade is to be inserted in the holder 62 and the cover and its attached holder are then placed in position in the upper section 40 of the case, the razor holder being tilted at such an angle to the axes of the stropping rollers that the lower extremity of the arm 74 will be entered behind the first convolution of the spring worm 57. The first few

rotations of the roller 45 will shift the lower end of the arm 74 gradually outward and gradually lower the blade carried in the holder into engagement with and between the stropping strips 46 on the rollers 45 and 44. After the blade has been sufficiently stropped, it is removed by raising the blade carrier and the attached holder directly upward, the arm 74 slipping out of the opening 78.

It is, of course, a necessary feature of a compact razor stropping device that the crank handle shall be made so that it will not interfere with the portability of the construction, and it is a desideratum that means should be provided whereby the crank handle and crank may be, if possible, carried within the case inclosing the stropping rollers. To this end I have provided the case with an opening through which the crank may be passed when it is removed from the shaft of the roller 45, and provide means whereby the handle on the end of the crank can be turned into alinement therewith instead of at an angle thereto, this handle engaging the wall of the case so as to close the opening therein and hold the handle contained within the case. The details of this construction are illustrated in Figs. 13 to 19. The crank arm 82 is split or cleft as at 83 from its free extremity to a point beyond its middle so as to provide oppositely disposed resilient arms 84. Mounted on the extremity of each of these arms is a hemispherical head 85, this head being formed with intersecting V-shaped grooves 86 extending at right angles to each other as illustrated in Fig. 15. The grooves 86 on the inside face of one head are of course oppositely disposed to and in register with the grooves 86 on the inside face of the other head. Inasmuch as the arms 84 have resilience, it is possible to insert the shank of a handle between the hemispherical heads 85, and the heads will grip the shank of the handle. Preferably the handle 87 has a shank 88 which, at its end, is provided with the intersecting cross bar 89. The projecting end 90 of the shank and the cross bar 89 are diamond-shaped in cross section so that the cross formed at the end of the shank may be inserted in the V-shaped grooves 86 and will engage therewith as illustrated in Fig. 16. The shank is pivoted at its center by a pivot pin 90^a passing through the center of the heads 85. It will be obvious that the shank 88 may be turned between the heads 85, either in a position of alinement with the crank arm 82 or at right angles thereto. When at right angles thereto, the handle 87 occupies the normal position of the crank handle so that the crank may be rotated. The section 41 of the casing is provided with an opening 91 (see Fig. 7), the walls of the opening

having three inwardly projecting lugs 92. The knob forming the handle 87 has a diameter equal to the interior diameter of the opening 91 and is provided with three
 5 grooves 93 which correspond to the three lugs 92. These grooves 93 extend inward to a thread 94 extending circumferentially around the knob forming the handle. It will be obvious that by this construction the
 10 handle may be inserted into the opening 91, the lugs 92 being engaged in the grooves 93, and that when the handle has been forced inward a sufficient depth, the lugs 92 will engage behind the thread 94 and that if the
 15 handle be given a turn in one direction or the other, the handle will be locked in position within the opening 91 and will close this opening, and that the handle can only be detached therefrom by reversing its
 20 movement until the lugs 92 can come into alinement with the grooves 93. After the stopping operation has been completed, it is only necessary to remove the crank arm 82 from the shaft of the roller 45 and insert
 25 the butt end of the crank arm into the opening 91, the handle or knob 87 having been previously turned from its position at right angles to the arm 82 and turned so that its shank 88 will be in alinement with the crank
 30 arm. The crank arm is then inserted into the opening 91 until the lugs 92 have engaged with the thread 94 and the handle is then turned as before described. While I do not wish to limit myself to this particular
 35 crank mounting, I regard it as a very desirable feature and almost a necessity in devices of this character where portability and compactness are desiderata.

What I claim is:

40 1. A blade sharpening machine including a sharpening roller, means for rotating it, a blade holder supported adjustably to the roller, means actuated by the rotation of the roller for gradually lowering it to bring the
 45 blade into a position parallel to and into engagement with the roller, and means whereby the roller may be released from its engagement with the actuating means when the blade is in full engagement with the
 50 sharpening roller.

2. A blade sharpening machine including a sharpening roller, means for rotating it, a screw rotatable with the roller, a blade holder hingedly supported above the roller,
 55 said blade holder being provided with an arm engaging said screw whereby upon rotating the roller in one direction the holder may be gradually lowered to bring the blade into engagement with the roller.

60 3. A blade sharpening machine, including parallel coacting stopping members, a blade holder mounted above the stopping members and in a plane midway between the two means for actuating the stopping members,

means operatively connected to said actuating means for gradually lowering the blade holder toward the stopping members to bring the blade carried thereby into a position parallel to the stopping members and into engagement therewith, and means
 70 whereby the holder may be released from its engagement with the holder-actuating means when the blade has been brought into a position parallel to and into engagement with the stopping members.

4. A blade sharpening mechanism including a pair of coacting sharpening members, a blade holder disposed in a plane midway between the sharpening members and supported for an arcuate movement in said
 80 plane, means for actuating said stopping members and means operatively connected to said actuating means for moving the blade holder to carry the blade therein from a position of angularity relative to the
 85 sharpening members to a position parallel thereto and into engagement therewith.

5. A blade sharpening machine, including parallel coacting stopping members, a blade holder hingedly mounted above the
 90 stopping members, means for rotating the stopping members, and means operated by said member rotating means for gradually lowering the free end of the blade holder toward the stopping members.

6. A blade sharpening machine including parallel coacting stopping members, a blade holder hingedly mounted above the stopping members, a screw actuated simultaneously with the rotation of the stopping
 100 members, and means operated by said screw for gradually lowering the free end of the blade holder toward the stopping members.

7. A blade sharpening machine, including parallel coacting rollers, a shaft for rotating the rollers, a hingedly mounted blade holder disposed above the rollers and in a plane between the same, a screw on the shaft, and a member depending from the hinged end of the holder and engaged by
 110 said screw whereby the holder may be gradually lowered into operative position as the rollers are rotated.

8. A blade sharpening mechanism, including a supporting frame, parallel coacting
 115 sharpening rollers mounted therein, one of said rollers being provided at one end with a handle and at the other end with a screw, said screw being formed by a coil of resilient material, the outer end of the coil being
 120 free, a blade holder hingedly mounted at one end upon the supporting frame above the rollers, the hinged end of the holder being provided with a depending member engaging with the coiled screw when the holder is in an angular position relative to the rollers.

9. A blade sharpening mechanism includ-

ing a casing, parallel coacting sharpening rollers mounted in the casing, said casing being longitudinally slotted in a plane extending midway between the rollers, a blade carrier 5 extending over the slot and detachable from the casing, pintles projecting laterally from one end of the blade carrier, and means actuated by a rotation of the rollers for engaging said blade carrier and gradually lowering the free end of the blade carrier toward 10 the stropping members.

10. A blade sharpening machine including a casing, parallel coacting stropping rollers mounted in the casing, a screw rotatable 15 with the rollers, said casing being slotted in a plane extending midway between the rollers and being provided at one end on opposite sides of the slot with bearings, a blade carrier having laterally extending pintles 20 engaging said bearings, and an arm on said carrier engaged by the screw.

11. A blade sharpening machine including a longitudinally slotted casing, parallel coacting stropping rollers mounted in the casing, said casing being provided at one end 25 on opposite sides of the slot with depressed bearing seats, one of said seats being perforated at its end, a blade carrier having laterally extending pintles at one end engaging said seats, one of said pintles having a pro- 30 longation to form an arm projecting through the perforation in the seat, and a screw rotatable with the stropping rollers engaging said arm.

12. A blade sharpening machine including a longitudinally slotted casing, parallel coacting stropping rollers mounted in the casing, the shaft of one of the rollers being 35 provided with a screw at one end, the casing being formed on one end and on opposite sides of the slot with depressed bearing seats, one of said seats being formed with a perforation at its end, a blade carrier nor- 40 mally extending over the slot in the casing, one end of the blade carrier being provided with a downwardly extending yoke having transversely extending pintles seating in said bearing seats in the casing, one of the 45 pintles being formed with an arm extending through the perforation in the seat and engaging with said screw.

13. A blade sharpening machine including a casing formed in two sections, one of said sections forming a cover to the casing, said 55 covering section being longitudinally slotted, parallel coacting stropping rollers mounted in the other of said sections, the shaft of one of the rollers being provided with a screw, the cover section of the casing being formed 60 on each side of the slot with depressed bearing seats, one of said seats immediately over the screw on the shaft being perforated, a blade carrier including a blade holder supported on the cover section, the blade holder

extending through the slot, said carrier at 65 one extremity being formed with a member having downwardly extending legs, the ends of the legs being angularly turned to form pintles seating in said bearing seats, one of 70 the pintles having a downwardly extending arm engaging the screw on the shaft, and means within the casing for guiding the pintle into engagement with the base of the screw.

14. A blade sharpening machine including 75 a casing, said casing being longitudinally slotted and provided at one end on each side of the slot with depressed bearing seats, one of the seats being perforated, a blade carrier having a depending member at one end 80 formed with laterally extending pintles seating in said bearing seats, one of the pintles formed at its extremity with an arm extending downward into the casing, parallel coacting stropping rollers mounted in the 85 casing, a spirally arranged, resilient screw mounted upon the shaft of one of said rollers with which the depending arm of the pintle coacts, and a downwardly inclined spring guide supported on the casing, one 90 end of the spring guide being fixedly supported adjacent to the base of the resilient screw, the other end of the spring guide being free and being disposed adjacent to the perforation in the seat. 95

15. A blade sharpening mechanism including a casing formed in two sections, one of said sections being detachable from the other so as to permit the sections to be opened, one section being formed on its ends with re- 100 cesses in its upper edge, journal blocks supported in said recesses but removable therefrom, and parallel coacting rollers mounted in said blocks, one section of the casing closing upon the other section to hold the blocks 105 in place in said recesses.

16. A blade sharpening machine, including a pair of coacting sharpening members, a blade holder disposed in a plane midway 110 between the sharpening members and supported for an arcuate movement in said plane, means for actuating the stropping members, and means operatively connected to said actuating means for moving the blade holder carrying the blade therein, from 115 a position of angularity relative to the sharpening members to a position parallel thereto and into engagement therewith, said holder-moving means being released upon its operative engagement with the actuating means 120 when the blade has reached a position parallel to and in engagement with the parallel members.

17. A blade sharpening machine including a pair of coacting sharpening members, blade 125 supporting means supported midway between the sharpening members, said blade supporting means having a rocking support at one

end, means for actuating the sharpening
members, and means operatively engaged
with the actuating means for rocking the
blade holder, to carry the blade held therein
5 from a position of angularity with relation
to the sharpening members to a position par-
allel thereto and into engagement therewith,
said last named means moving out of en-

gagement with the actuating means when the
blade has reached the last named position. 10

In testimony whereof, I affix my signature
in presence of two witnesses.

DAVID WATERS. [L. s.]

Witnesses:

JOHN STEVENSON,

ISAAC J. HARRIS.