No. 870,279. PATENTED NOV. 5, 1907.

L. A. FLINKER & J. SCHADE, Jr.

CUTLERY SHARPENING MACHINE.

APPLICATION FILED FEB. 18, 1907.

2 SHEETS—SHEET 1.

Fig. 1.

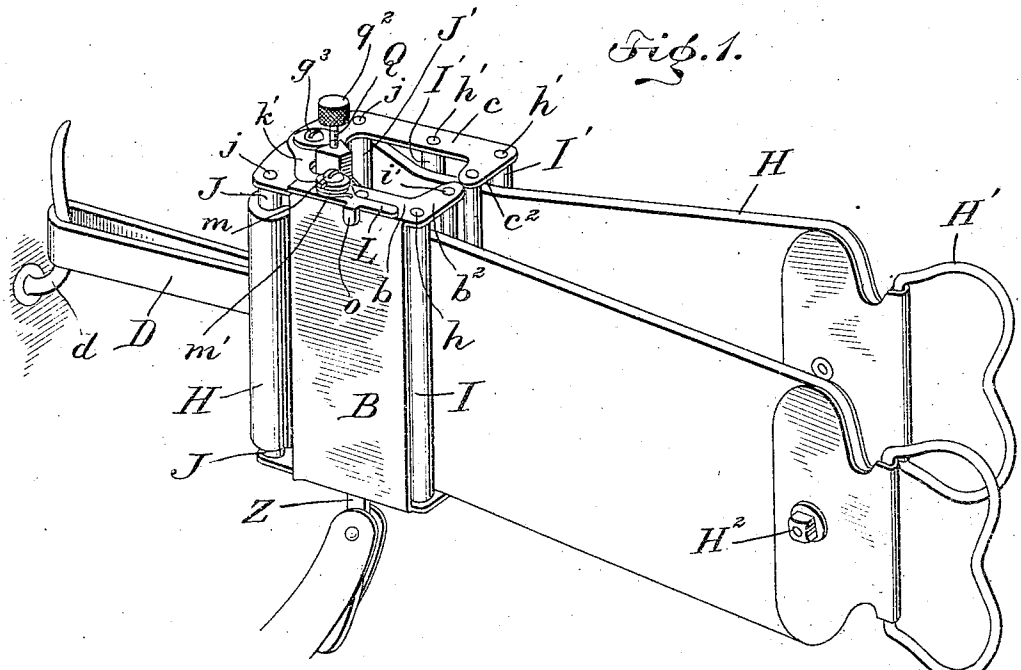



Fig. 2.

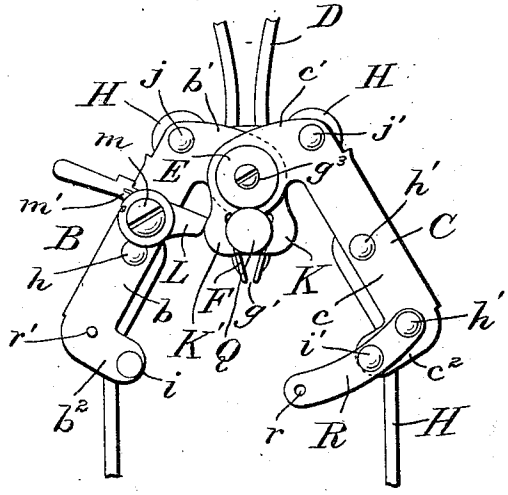
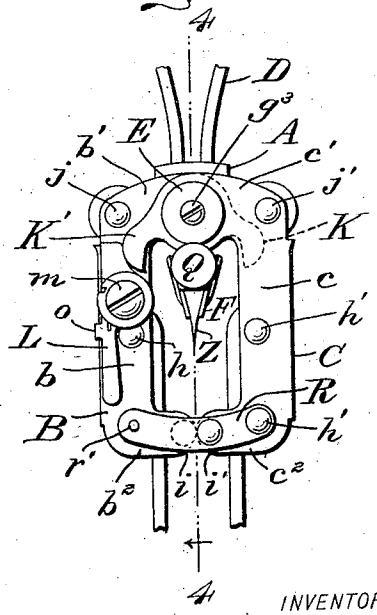



Fig. 3.




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2 SHEETS—SHEET 2

Fig. 4.

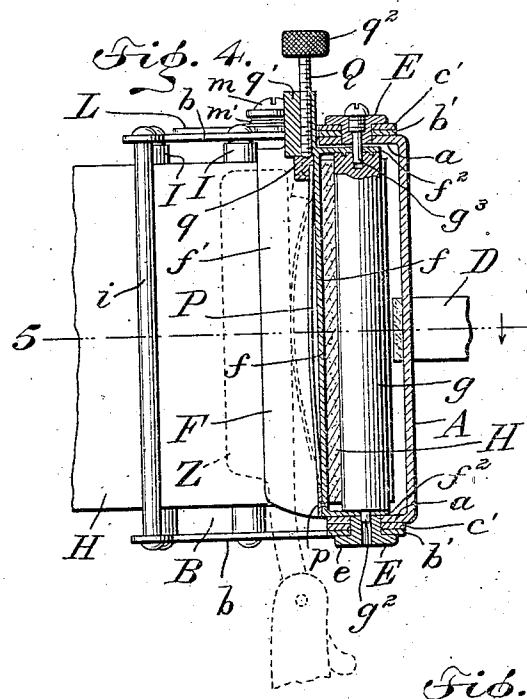



Fig. 5.

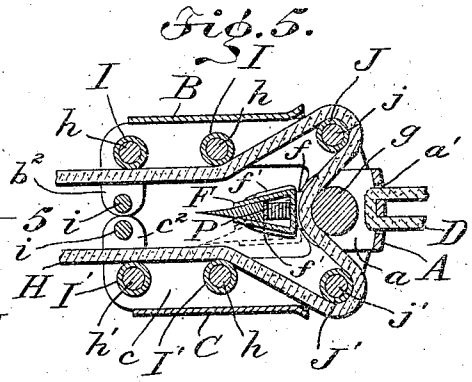



Fig. 6.

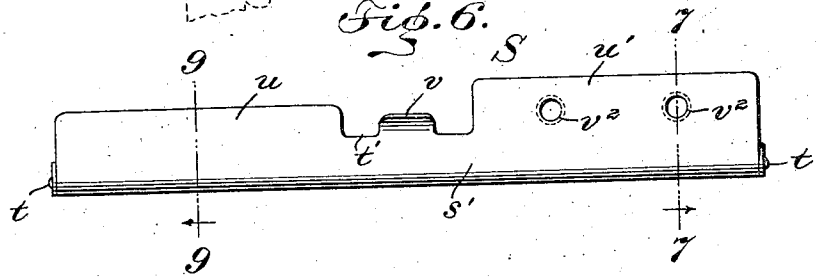



Fig. 7.

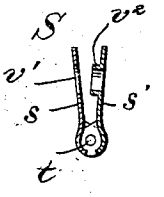



Fig. 8.

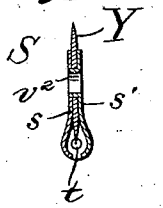



Fig. 9.

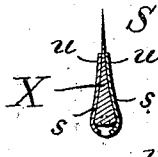



Fig. 12.

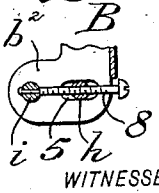



Fig. 10.

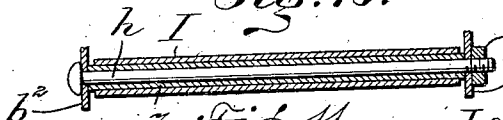



Fig. 11.

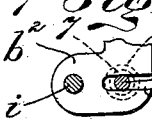
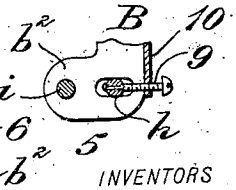



Fig. 13.




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# UNITED STATES PATENT OFFICE.

LEON A. FLINKER AND JOHN SCHADE, JR., OF NEW YORK, N. Y.; SAID SCHADE ASSIGNOR TO SAID FLINKER.

## CUTLERY-SHARPENING MACHINE.

No. 870,279. Specification of Letters Patent. Patented Nov. 5, 1907.

Application filed February 18, 1907. Serial No. 357,976.

*To all whom it may concern:*

Be it known that we, LEON A. FLINKER and JOHN SCHADE, Jr., citizens of the United States, the said LEON A. FLINKER residing at the city of New York, borough of Manhattan, county and State of New York, and the said JOHN SCHADE, Jr., residing at the city of New York, borough of Brooklyn, county of Kings, and State of New York, have invented a new and useful Cutlery-Sharpening Machine, of which the following is a specification.

Our invention is a machine for sharpening cutlery, the same being adapted for sharpening the blades of all kinds of razors, including ordinary razor blades, the short safety-razor blades having one cutting edge, of well-known construction, and, also, the thin blades such as are used in the "Gillette" type of safety-razors.

In our machine a razor blade of any kind may be introduced or withdrawn easily and quickly. In sharpening safety-razor blades, we employ an auxiliary holder adapted to receive and retain the blade, said parts being introduced into a main holder which is so operated as to present the edge of the blade to a strap in such a manner as to thoroughly sharpen it, and, in the case of the double-edged safety, to sharpen both edges thereof.

The machine is adapted to be opened for obtaining access to the main blade-holder, and, when so opened, the several parts are locked and held securely against slipping, thus enabling the operator to insert and withdraw a blade without danger of being accidentally cut by the blade.

After the blade is introduced into the main holder, it can be forced or adjusted edgewise in order to wedge the blade firmly into the holder and prevent it from slipping. This adjustment may be used in connection with an auxiliary holder and a safety-razor blade, for the reason that said blade may be clamped tightly in the auxiliary holder which is in turn wedged in the main holder.

The sharpening strop is so guided in the machine that a pull in one direction or the other on said strop tends to keep certain side members of the machine in closed positions, thus insuring a proper relation of the strop to the razor blade in the holder. Means is provided whereby said side members may, if desired, be securely locked into operative position independently of the strop.

In the accompanying drawing we have shown one embodiment of the invention, but the construction shown therein is to be understood as illustrative only, and not as defining the limits of the invention.

Figure 1 is a perspective view of our razor stropping machine, or strapping machine, illustrating the device as being anchored to a suitable bracket, and as having an ordinary razor applied thereto for the purpose of sharpening the same. Fig. 2 is an end elevation showing the guide members for the strop or strap in an open position and having interlocking engagement with the main blade-holder whereby a razor blade of any type may be easily introduced into the main blade-holder without liability of cutting the strap or operator. Fig. 3 is an end view somewhat similar to Fig. 2 but showing the guide members for the strop or strap in their closed operative positions. Fig. 4 is a longitudinal sectional view taken in the plane of the dotted line 4—4 of Fig. 3, showing an ordinary razor by dotted lines. Fig. 5 is a section at right angles to Fig. 4 taken in the plane of the dotted line 5—5, looking in the direction of the arrow. Fig. 6 is a side elevation of an auxiliary blade-holder, adapted to clamp the different kinds of blades used in the saftey razors. Fig. 7 is a cross section on the line 7—7 of Fig. 6, with the auxiliary blade-holder in an opened position. Fig. 8 is a cross section similar to Fig. 7, showing a double-edged safety razor blade of the Gillette type held in said auxiliary holder. Fig. 9 is a cross section on the line 9—9, of Fig. 6, showing an ordinary short blade of a safety razor attached to the auxiliary holder. Figs. 10, 11, 12 and 13 are detail views showing various means whereby either of the strop guiding rollers, preferably those at the outer ends of the pivoted side members may be adjusted with relation to the path of movement of the strop.

The supporting frame for the working parts of our machine is shown by the drawings as consisting of a supporting or back member A and a plurality of guide supporting members B C each of which is preferably made of sheet metal although said members may be of cast metal if desired. The supporting or back member A is shown as consisting of a plate which is provided at its end portions with lugs *a a* extending preferably at right angles to said plate. The plate is provided at about its middle with slots *a'* in which is fitted the bight or loop of an anchor strap D whereby the machine may be connected to a suitable fixture *d*, such as a bracket or hook which is attached to a wall or other surface for the purpose of loosely anchoring the machine when it is desired to use the same for stropping or strapping a razor blade. We do not desire to limit ourselves to the particular means for holding or anchoring the machine when in use, but the strap D affords a convenient means for this purpose, and it may also be adjusted around the machine when the parts thereof are folded for storage or transportation.

The members B C are shown as consisting of flat plates, which are provided on their respective edges with flanges *b c*. The flanges at one end of the respective plates are extended to form arms *b' c'*, which

extend inwardly from the plates of said members, and are adapted to be brought into overlapping engagement with the end lugs *a a* of the back or supporting member A. The side flanges *b c* of the members B C are also extended inwardly at the other ends to form the short arms $b^2$ $c^2$, all as clearly shown by Figs. 2, 3 and 5 of the drawings. The arms *b'* of the member B, the arms *c'* of the member C, and the lugs *a* of the back member A are connected loosely or pivotally by means of the bushings E, the latter fitting loosely in the lapping portions of said arms *b' c'* and the lugs *a*, as clearly represented by Fig. 4, whereby the members B C are connected loosely or pivotally with the back or supporting member A. These bushings are provided with flanges or heads *e*, to limit the movement in one direction, and the bushings also afford bearings for the journals of the roller *g*, which is a part of a main blade-holder F. The blade-holder is shown as being wedge-shaped in cross section, and in one embodiment of the invention the blade-holder is shown as consisting of a back piece *f* and converging side pieces *f'*. The blade-holder is provided at its apex, or along the narrow side thereof, with a longitudinal slot *g'*, and at one end said blade-holder F is open for the free insertion or withdrawal of the blade, or of the auxiliary blade-holder to be presently described. The back plate *f* of the blade-holder is provided with outwardly extending lugs $f^2$, which are fitted into lapping relation to the lugs *a* of the back or supporting member A, said lugs $f^2$ being disposed between the ends of the roller *g* and the lugs *a*, as clearly shown by Fig. 4. The roller *g* is provided at one end with a journal $g^2$, which is fitted to turn freely in one of the bushings E, while in the other end of the roller *g* is inserted a journal pin $g^3$, the latter being supported in the other bushing E. It is preferred to make the journal pin $g^3$ screw threaded for a part of its length, in order to fasten the same in the bushing E, and hold the parts securely in their assembled relations. The roller *g* is connected with the blade-holder F in such a way as to move therewith, that is to say, when the roller *g* is turned by the frictional engagement therewith of a strop or strap H, said roller turns the blade-holder F, so as to incline it in one direction or the other, for the purpose of properly presenting the opposite side edges of the blade alternately to one length or the other of the strop or strap H.

The member B is provided with transverse rods or pins *h*, each of which carries ran anti-friction guide roller I. The member is furthermore provided with a pin or roller *i*, which is supported in the arm $b^2$, parallel with the roller I at the end of said member. The member is also provided with a cross pin *j*, which is out of line with the roller I, said cross pin *j* being at one side of the pivotal connection of the member B and the supporting member A. The pin *j* carries an anti-friction roller J, as shown more clearly by Fig. 5. The other member C is provided with cross pins *h' h'*, a pin or guide *i'* and another pin *j'*. The pins *h' i'* and *j'* are arranged on the member C in a similar manner to the pins *h*, *i* and *j* of the member B, and said pins *h' i'* and *j'* are provided with anti-friction rollers I' $I^2$ and J'.

The strop or strap H runs between the roller I and the pin *i* at the free end of the pivoted member B, thence below the other roller I and around the roller J of said member B. The strop or strap H thence runs partway around the roller *g*, between the latter and the blade-holder F, from whence the strop or strap extends around the roller J', over the roller I' of the member C, and thence between the other roller I' and the pin *i'* of said member C. The strop or strap H is provided at its free ends with handles H', one of which is clamped detachably to an end portion of the strop or strap by a bolt $H^2$, whereby the strop or strap, when one handle is detached, may be easily run through the machine, so as to have the relation to the members B C shown by Fig. 5. The strop or strap is adapted to run or be drawn freely through the several parts of the machine, and said strop or strap is so arranged in relation to the roller *g* and the rollers J J' that it will operate on said roller *g* to swing the blade-holder F, and, furthermore, the strap so operates upon the rollers J, J' as to normally draw the members B, C toward each other, thereby tending to maintain said members in their closed operative positions.

An important feature of this invention consists in the provision of means for locking the members B, C, in their open or spread positions, as shown by Fig. 2, and at the same time locking the blade-holder F in fixed relation to said opened members B, C, whereby the parts are prevented from slipping accidentally when introducing or withdrawing a razor blade into or from said holder F. In one embodiment of this part of our invention, the arms *b'*, *c'*, of the members B C are provided with the locking extensions K, K', respectively. These locking extensions are provided at one end of the respective members B, C, and they are shaped and proportioned to engage with the respective sides of the blade-holder F, when the members B, C, are spread to their opened positions, as clearly shown by Fig. 2. In connection with the locking extensions K, K', we employ a lever L, said lever being fulcrumed on the member B by a pin or screw *m*. The lever is arranged to engage with the locking member K' of the guide member C when the two members are opened, and said lever is held in its locking position by a spring *m'*. The lever L is provided with a lug *o*, which is adapted to engage with the plate of the member B, as shown by Fig. 1, said lug *o*, tending to limit the movement of the lever under the action of the spring *m'*. The lever is free to move to its locking position when the members are opened, but when the members are closed and assume the position shown by Fig. 3, the locking member K' of the guide member C, engages with the lever so as to hold it in the position shown by Fig. 3.

The blade-holder F is provided with means whereby a razor blade may be forced positively into wedging engagement with said holder F. This tension or adjusting mechanism, in one embodiment of our invention, consists of a yieldable member P, which we have shown by Fig. 4 in the form of a flat spring. Said spring extends lengthwise of the holder F; it is arranged quite close to the back plate *f* of said holder, and one end of said spring is attached to the holder by a screw, rivet or the like as indicated at *p* in Fig. 4. The other end of the spring member P is provided with an offset or shoulder *q*, with which is adapted to engage the inner end of the adjusting screw Q, the latter being

mounted in a bearing or lug $q'$ of the blade-holder F; said screw Q being provided with a milled head or thumb piece $q^2$, for its convenient operation.

We provide the machine with means for positively locking the members B C in their closed, operative positions, and to accomplish this end, in one form of the invention, we employ a spring latch R. Said latch is fastened to one member as C near its free end, and it is provided with an aperture $r$, which is adapted to receive a stud $r'$, the latter being provided on the other member B, and arranged in the path of the projecting portion of the latch R, whereby the operation of closing the members B, C, makes the stud $r'$, engage with the apertured latch R and thus positively lock said closed members B, C, in fixed relation to the movable blade holder.

In order to conveniently handle the blades of different kinds of safety-razors, and to introduce and withdraw said blades into and from the holder F of the machine, we employ an auxiliary blade-holder having the general form of construction shown by Figs. 6 to 9 inclusive. This auxiliary blade-holder S consists of the members $s$, $s'$, each of which is preferably stamped from a single piece of metal. The members $s$ $s'$ are connected pivotally together in a suitable way, such as at the end portions thereof by pins $t$, thus enabling the members to be opened and closed as indicated in Figs. 7, 8 and 9. The members $s$ $s'$ of the auxiliary holder are notched at $t'$, and provided with two clamping portions $u$, $u'$. Between these clamping portions of the members $s$, $s'$, are the finger pieces $v$ and the clamping portion $u'$ of one member $s$ is provided with openings $v'$. The clamping portion $u'$ of the other member $s'$ has suitable studs $v^2$, the latter being adapted to pass through the openings of a razor-blade of the "Gillette" type. Some forms of ordinary safety-razors employ a short blade X of the conventional form, which is adapted to be fitted between, and to be held by, the clamping portions $u$ of the auxiliary blade-holder, as represented by Fig. 9. A double-edged blade Y of the "Gillette" type may, however, be fitted between the clamping portions $u'$ of the auxiliary holder, in order that the studs $v^2$, may pass through the openings in said blade Y and be received in the openings $v'$ of the companion member $s$. The auxiliary holder with the blade X or Y may be slipped endwise into the main blade-holder F, whereby the hinged members of the auxiliary holder are closed upon the razor blade and the parts are held or confined in position for operation by the strap H.

Should it be desired, however, the auxiliary holder may be forced edgewise in the main blade-holder F by turning the screw Q in order to bow the spring P outwardly to the position indicated by the dotted lines in Fig. 4, whereupon the auxiliary holder S and the blade therein are forced edgewise within said holder F. This edgewise adjustment performs two functions, first, the edge of the razor-blade may be projected a desired distance beyond the blade-holder F, and the auxiliary holder S is forced into wedging engagement with the main blade-holder, whereby the auxiliary holder is clamped upon the safety-razor blade in a manner to more securely hold the latter in place within the blade-holder F.

The operation of the machine may be described as follows: Assuming that it is desired to sharpen the blade Z of an ordinary razor, the operator proceeds to first open the machine by spreading the guide supporting members B C to the open position shown in Fig. 2. This brings the locking members K, K', into engagement with the blade-holder F, and simultaneously the lever L is moved, by its spring $m'$, into engagement with the locking member K', whereby the members B C and the blade-holder F are held firmly in their proper positions for the reception of the razor. The razor blade Z may now be moved endwise into the holder F, and the operator then turns the screw Q so as to bow outwardly the spring P and thereby force the blade Z edgewise and into clamping engagement with the holder F. The lever L is now pressed backward by hand to the position of Fig. 3, and the members B, C, are moved toward each other so as to be locked by the latch R into fixed relation to the blade-holder. The machine is connected by the anchor strap D to the fixture $d$, and the handles H' are grasped so as to draw the strop or strap H first in one direction, and then in the other direction. As the strop or strap is drawn in one direction, the roller $g$ is moved by frictional engagement with said strop or strap, and the holder F is turned so as to present one side of the razor edge against the strop or strap, thus sharpening one side of the razor blade as the strop or strap is drawn outwardly in one direction. The other end of the strop or strap is now pulled outwardly, and at the beginning of the operation, the roller $g$ is at once drawn so as to reverse the position of the blade-holder F and present the other side of the razor edge to the strop or strap. The operation of pulling the strop or strap in first one direction, and then in the other direction, is continued indefinitely in order to sharpen the respective sides of the razor edge, and each time the direction of the pull is changed, the holder F is reversed in position. When the razor blade is sharpened sufficiently, the latch R is released, the members B C are opened so as to be locked by parts K K' and the lever L, and the screw Q is turned backwardly to allow the spring P to return to its normal flat position, after which the blade Z may be withdrawn easily from the holder F.

We do not intend to limit ourselves to the employment of the latch R, for the reason that the rollers J J' occupy such relation to the lengths of the strop or strap H and the pivots of the members B C, as to normally force the said members B C to their closed positions. Under some circumstances, therefore, we may omit the latch R, but we consider it preferable to employ said latch for the reason that it locks the members B C positively in their closed positions.

When using the auxiliary blade-holder for retaining a safety-razor blade in the main holder F, it is not essential to adjust the screw Q for the purpose of forcing the auxiliary holder and the blade edgewise, because the auxiliary holder is so proportioned that a safety-razor blade, of whatever type, is caused to extend the necessary distance beyond the main blade holder F for the proper operation thereon of the strop or strap H to sharpen the same. It is desirable, under some circumstances, however, to adjust the screw and force the spring P outwardly after inserting the auxiliary holder into the main holder, for the reason that the hinged members of the auxiliary holder are forced by the

sides of the holder F into engagement tightly with the safety-razor blade so as to clamp it immovably within said main holder F.

It is quite desirable in this machine to have the rollers I I′ occupy proper distances from the blade holder F in order that the lengths of the strap H may occupy a certain relation to the angle of the razor blade and the holder F. Ordinarily the pins for supporting the rollers I I′ may be adjusted and secured in positions for holding the rollers I I′ properly to the path of the strap, but this object may also be accomplished by adjusting said rollers in the end flanges of the guide supporting members B, C. Different devices for adjusting each roller I or I′ are shown in Figs. 10, 11, 12 and 13.

The pin *h* or *h′* is passed through transverse slots 5 in the end flanges of said member B or C, one end of the pin being threaded for the reception of a nut 6. A sleeve 7 is placed loosely on the pin and engages at its ends with the end flanges of the member, thus causing the sleeve to take up the pressure of the end flanges when the nut 6 is tightened. The roller I or I′ fits loosely on the sleeve 7, and is free to turn thereon when the strop is drawn over the roller.

The pin *h* or *h′* may be held in place by the nut 6, or if desired screws 8 may be employed for adjusting and locking the roller supporting pin *h* or *h′*. Two screws 8, 8, may be used at the respective ends of the member B or C, each screw being swiveled in one of the fixed pins of said member so as to be held thereby from endwise movement. Said screws have threaded engagement with the adjustable pin *i* or *i′* of the roller, and by rotating one screw or the other, or both screws, the pin and the roller thereon can be adjusted inwardly or outwardly with respect to the member. If desired, however, short screws 9 may be fitted to the pin and work in lugs 10 which are integral with the member.

It will be understood that either of the described devices may be used for adjusting the roller I or I′, but if desired, the other rollers and guides for the strap H may be adjusted in the same manner.

It is preferred to connect the handles H, H′ pivotally to the end portions of the strap for the purpose of permitting the handles to rock or tilt in the hands of the operator when pulling the strap back and forth.

Having thus described the invention, what we claim as new, and desire to secure by Letters Patent is:—

1. In a device of the class described, a supporting member, movable guide members, a movable blade-holder, and a strop coöperating with the blade-holder and with the guide-members for holding both guide-members in closed positions by a pull on the strop in either direction, said strop operating directly on said blade-holder for reversing the position of said blade-holder upon a change in the direction of the pull on said strop.

2. In a device of the class described, a movable blade-holder, pivoted guide members at the respective sides of the blade-holder, a strop coöperating with said guide members and the blade-holder, and guides for the strop carried by the aforesaid guide members, the pivots of said guide members being out of line with guides on said members, whereby a pull on said strop exerts such frictional pressure on the pivots and the guide members as will keep both guide members in closed positions.

3. In a device of the class described, a supporting member, guide members pivoted thereto and provided near their free ends with guides for a strop, other guides carried by the guide-members and located thereon between the first named guides and the pivots of the said guide-members, a blade-holder, and a strop coöperating with the blade-holder and with the pivots of the guide members, said strop having frictional engagement with the pivots of the guide members for holding the same in closed positions.

4. In a device of the class described, a blade-holder, movable guide members, a strop, and means positively for holding or locking said guide members.

5. In a device of the class described, a blade-holder, a strop, guide-members for said strop at the respective sides of the blade-holder, and locking means for said guide members.

6. In a device of the class described, a blade-holder, a strop, guide members for the strop, and automatic locking means operated by spreading the members apart and adapted to hold the same securely in an open position.

7. In a device of the class described, a blade-holder, a strop, guide members provided with means for locking the blade-holder, and a separate locking member coöperating with the guide members, whereby the blade-holder and the guide members may be locked when opened.

8. In a device of the class described, a strop, guide members for said strop, means for locking the blade-holder by opening the guide members, and independent locking means for the guide members.

9. In a device of the class described, a blade-holder, a strop, guide members for said strop, means movable with said guide members for locking the blade-holder upon spreading the guide members, and an automatic latch for locking the guide members in their open positions.

10. In a device of the class described, a supporting member, guide members having pivotal connection with said supporting member, a movable blade-holder, a strop, and automatic locking means adapted to engage said blade-holder and the guide members for holding said parts in fixed relation upon spreading the guide members relative to the blade-holder.

11. In a device of the class described, a supporting member, pivoted side members, a movable blade-holder between the side members, a strop guided by said members, and means operated by spreading the side members for locking the blade-holder and said members in fixed relation.

12. In a device of the class described, a blade-holder, and positive adjusting means therein for forcing an inserted device, such as a razor blade or an auxiliary blade-holder, edgewise and into clamping engagement with the blade-holder.

13. In a device of the class described, a blade-holder of wedge-shaped cross section, and means within said blade-holder for positively adjusting an inserted device edgewise therein, whereby an inserted device may be clamped in wedging engagement with the holder.

14. In a device of the class described, a blade-holder open at one end for the insertion of a device, such as a blade or auxiliary blade-holder, said holder having a longitudinal slot along a narrow side thereof, and means for positively adjusting such inserted device edgewise in the holder, whereby the inserted device may be adjusted so that a razor edge projects through the slot of the holder.

15. In a device of the class described, a slotted blade-holder, a spring therein, and means for positively adjusting the spring relative to the slot of said blade-holder.

16. In a device of the class described, a slotted blade-holder, a yieldable member extending longitudinally of said holder, and means for positively adjusting said yieldable member, whereby said member operates to adjust an inserted device, such as a razor blade or an auxiliary blade-holder edgewise in said holder.

17. In a device of the class described, a blade-holder, a yieldable member secured at one end to said holder, and an adjusting device coöperating with said member for bringing it in engagement with an inserted device, such as a razor blade or an auxiliary blade-holder and moving the aforesaid inserted device edgewise in said holder.

18. In a device of the class described, a supporting member, pivoted side members carried by said supporting member and provided with guides at one end, a strop arranged between the guides of the side members, other strop-guides on the side members between the pivots

thereof and the aforesaid guides thereon, and a reversible blade-holder coöperating with said strop.

19. In a razor sharpening mechanism, a movable blade-holder, an auxiliary blade-holder insertible in the aforesaid holder, and means for tightening the auxiliary blade-holder in the movable blade-holder, whereby the auxiliary blade-holder is adapted to be clamped upon a blade held therein.

20. In a razor sharpening mechanism, a movable blade-holder, an auxiliary compressible blade-holder insertible in the aforesaid blade-holder, and means for wedging the auxiliary blade-holder in the movable blade-holder, whereby the auxiliary blade-holder may be compressed upon a blade adapted to be held therein.

21. In a razor sharpening mechanism, a hollow wedge-shaped blade-holder, an auxiliary sectional blade-holder insertible in the aforesaid blade-holder, and means for adjusting the auxiliary blade-holder edgewise within the first-named holder, thereby compressing the sections of the auxiliary holder upon a blade adapted to be held therein.

22. In a razor sharpening mechanism, a main blade-holder, and an auxiliary blade-holder adapted to be inserted and withdrawn by an endwise movement into and from said main blade-holder, said auxiliary blade-holder being clamped by engagement with the main blade-holder into engagement with a blade adapted to be held in said auxiliary holder.

23. A device of the class described comprising a supporting member, side members pivoted to the supporting member, means for locking the side members in their closed positions, a blade-holder, and a strop coöperating with the blade-holder and guided by the side members.

24. In a device of the class described, pivoted guide members, a blade carrier coöperating therewith, and means for locking said guide members together when in operative position.

25. In a device of the class described, guide members, a blade-supporting means coöperating therewith, and locking means adapted to hold the blade-supporting means in a fixed position with reference to said guide members.

26. In a device of the class described, pivoted guide members, blade-supporting mechanism coöperating therewith, and means for locking said members in their open positions and also locking the blade-supporting mechanism relative to said members.

27. In a device of the class described, a main blade-holder, and an auxiliary blade-holder insertible endwise in the main blade-holder.

28. In a device of the class described, a main blade-holder, and an auxiliary blade-holder coöperating therewith and detachable therefrom.

29. In a device of the class described, strop supporting means, means for supporting a blade, and means for locking said blade-supporting means in a fixed position when the strop is not in operation.

30. In a device of the class described, strop supporting means, blade-holding means, and means operating when the strop is at rest for holding or retaining the blade-holding means in substantially a stationary position.

31. In a device of the class described, a slotted supporting member, means for connecting said member to a suitable anchor, blade-supporting means, and strop guiding means.

32. In a device of the class described, a slotted supporting member, an anchor strap fitted in the slot of said supporting member, blade supporting means on the supporting member, and strap guiding devices in coöperative relation to the blade supporting means.

33. In a device of the class described, a blade-holder, guide-supporting members, a strap, and strap-guides adjustably supported on the guide supporting members.

34. In a device of the class described, a blade-holder, guide supporting members each having transverse slots, a strap, and strap guides adjustable in the slots of the guide supporting members.

In testimony that we claim the foregoing as our invention, we have signed our names hereto in the presence of two subscribing witnesses.

LEON A. FLINKER.
JOHN SCHADE, Jr.

Witnesses:
ATTNER C. JAY,
HENRY A. ROBERTS.