S. KANNER.

RAZOR BLADE SHARPENING MACHINE.

APPLICATION FILED AUG. 16, 1917.

1,271,715.

Patented July 9, 1918.

2 SHEETS—SHEET 1.

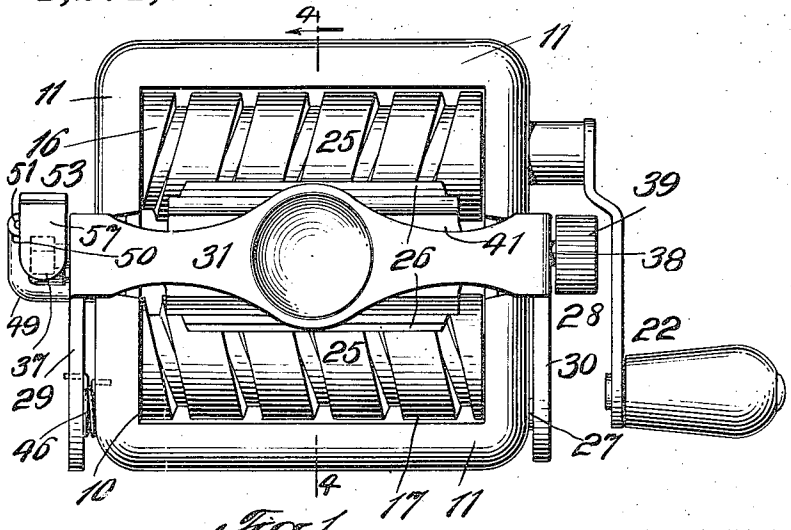



Fig. 1.

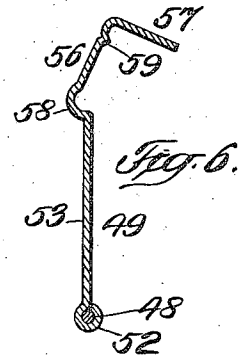



Fig. 6.

Fig. 5.

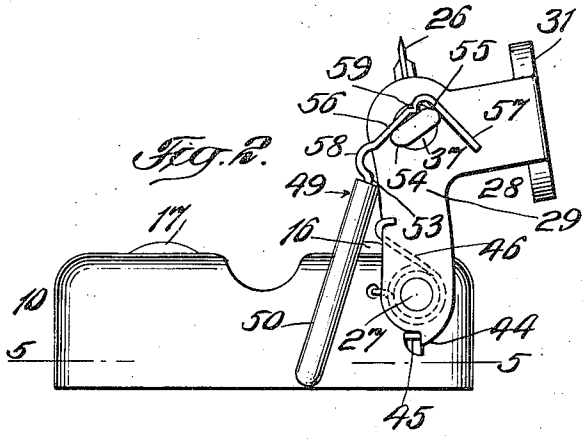
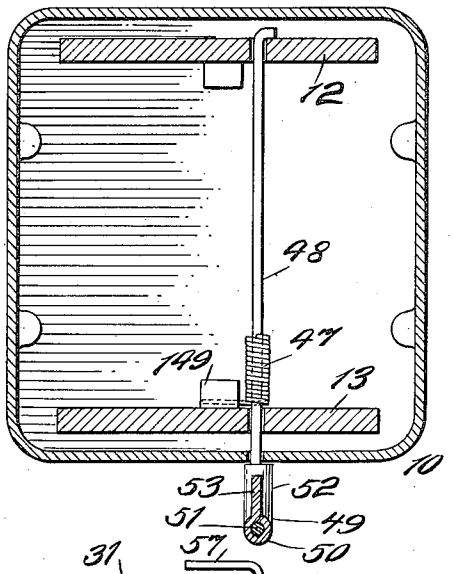



Fig. 2.



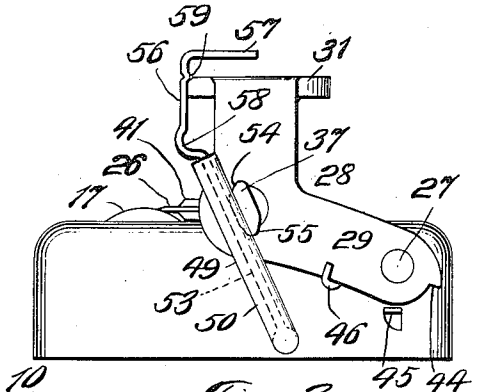




Fig. 3.

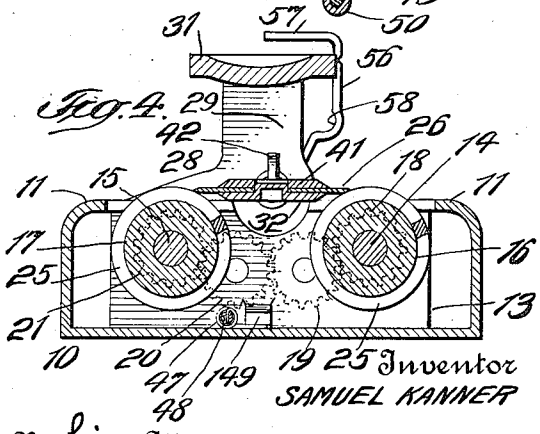



Fig. 4.

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2 SHEETS—SHEET 2.

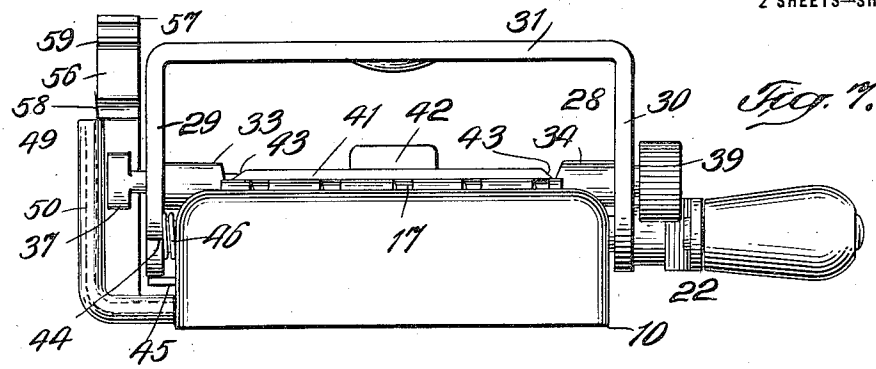



Fig. 7.

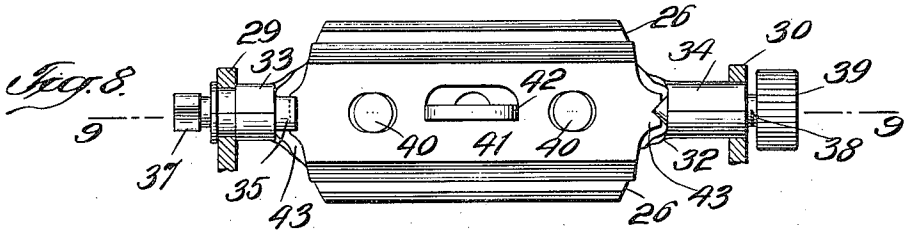



Fig. 8.

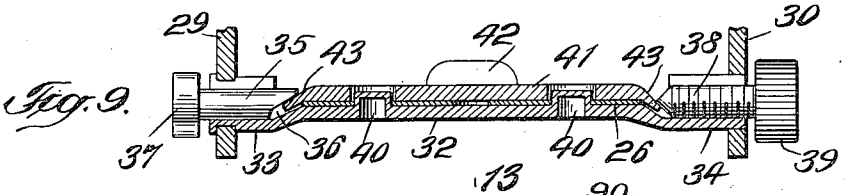



Fig. 9.

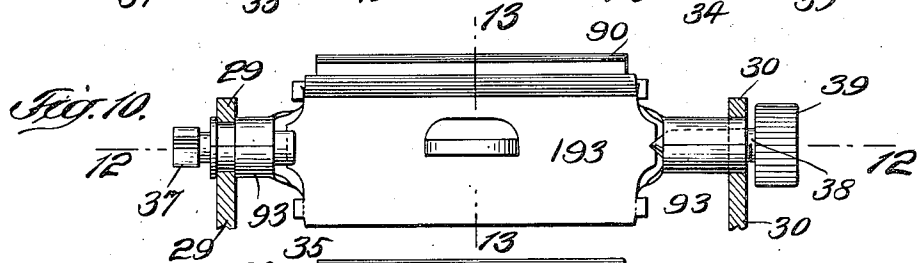



Fig. 10.

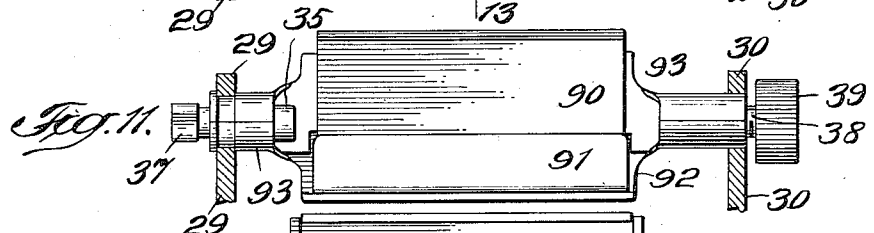



Fig. 11.

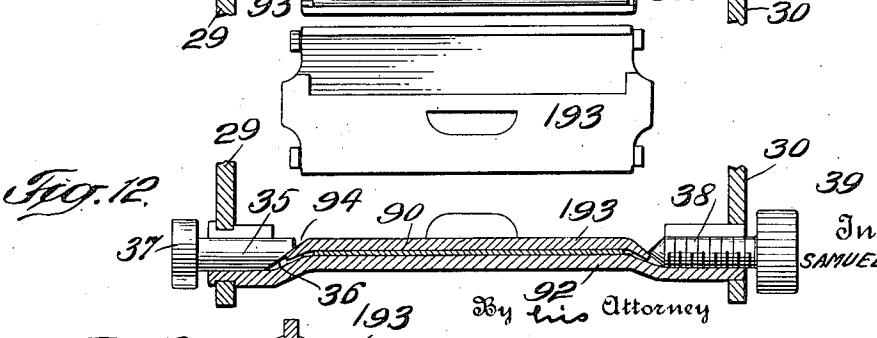



Fig. 12.

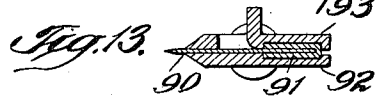



Fig. 13.

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# UNITED STATES PATENT OFFICE.

SAMUEL KANNER, OF BRONX, NEW YORK, ASSIGNOR TO THE ROYAL STROPPER CO., INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

## RAZOR-BLADE-SHARPENING MACHINE.

1,271,715. Specification of Letters Patent. Patented July 9, 1918.

Application filed August 16, 1917. Serial No. 186,454.

*To all whom it may concern:*

Be it known that I, SAMUEL KANNER, a citizen of the United States, and a resident of Bronx, in the county of Bronx and State of New York, have invented certain new and useful Improvements in Razor-Blade-Sharpening Machines, of which the following is a specification.

The invention pertains more particularly to machines for sharpening thin razor blades, of the type used in safety razors, and the purpose of the invention is to provide an inexpensive machine by means of which a person may conveniently sharpen both edges of a safety razor blade having two cutting edges or both sides of a razor blade of a different type having only one cutting edge and a stiffening member applied to its other edge.

The machine of my invention comprises a box-like frame containing two sharpening rollers connected together by gearing and one of which has connected with it a driving crank, and a pivoted frame secured to the ends of the said box-like frame and having means by which a razor blade may be clamped against a transverse member thereof and by means of said member, under pressure applied to said pivoted frame, manually pressed downwardly against the sharpening rollers. The pivoted frame carrying the blade clamping members has a normal spring tension upwardly in a direction from the sharpening rollers, and when said frame is in its upper position the razor blade may be applied to said clamping members, and thereafter said frame may be pressed downwardly to carry the edges of the blade against the sharpening rollers, the engagement of the blade with said rollers being maintained so long as said frame is held in its lower position.

The machine of my invention also comprises means by which the blade holding members may be automatically reversed in position, so that the side of the blade which faced outwardly may be turned to face downwardly preparatory to the blade being again subjected to the action of the sharpening rollers. The reversal of the blade takes place during the downward movement of the pivoted frame carrying the blade holding or clamping members, so that on each downward movement of said pivoted frame the side of the blade not on the next previous movement placed against the sharpening rollers, may be caused to engage said rollers.

The sharpening rollers may be variously constructed, but I preferably make the sharpening rollers of wood and provide them with a leather facing, which leather I shall wind in the form of spiral strips on the sharpening rollers so that the leather may in its action on the blades produce the effect of an edge movement thereagainst, or, to such extent as may be possible, the effect of the heel-to-toe movement in the ordinary stropping of razor blades.

My present invention comprises certain improvements, hereinafter specified, on the machine for sharpening razor blades made the subject of my pending application for Letters Patent, No. 46,254 filed August 19, 1915.

The invention will be fully understood from the detailed description hereinafter presented, reference being had to the accompanying drawings, in which:

Figure 1 is a top view of a razor blade sharpening machine constructed in accordance with my invention, a blade being shown in position on the clamping members carried by the pivoted frame and said frame being shown in its depressed position holding the blade against the sharpening rollers;

Fig. 2 is a side elevation of the same taken from the left hand side of Fig. 1 and illustrating the pivoted frame carrying the blade clamping members in its upper position;

Fig. 3 is a corresponding view of the same illustrating the pivoted frame and blade clamping members in their lower position;

Fig. 4 is a vertical section through the same taken on the dotted line 4—4 of Fig. 1;

Fig. 5 is a horizontal section through the same taken on the dotted line 5—5 of Fig. 2;

Fig. 6 is a detached vertical section through the pivoted spring-arm constituting a portion of the mechanism for effecting the reversal of the blade on each downward movement of the pivoted frame;

Fig. 7 is a front elevation of the machine with the pivoted frame carrying the blade

clamping members in its lower position, Fig. 7 being a view taken from the right hand side of Fig. 3;

Fig. 8 is a top view of the blade clamping members, portions of the supporting frame therefor being shown in section;

Fig. 9 is a longitudinal section through the same taken on the dotted line 9—9 of Fig. 8, a blade having two cutting edges being shown in Figs. 8 and 9;

Fig. 10 is a view corresponding with Fig. 8 but illustrating a modified form of clamp intended for holding a safety razor blade having only one cutting edge;

Fig. 11 is a corresponding view of the same with the detachable member of the clamp removed from the safety razor blade and shown in bottom elevation as having been turned from off the razor blade and the base member upon which the blade is held;

Fig. 12 is a longitudinal section through the same taken on the dotted line 12—12 of Fig. 10, and

Fig. 13 is a transverse section through the same, on a reduced scale, taken on the dotted line 13—13 of Fig. 10.

In the drawings, 10 designates a box-like frame having an inwardly extending flange 11 along its upper edges and near its sides provided with inner vertical partitions 12, 13 (Figs. 4 and 5). The partitions 12, 13 serve as bearings for the shafts 14, 15 of the parallel sharpening rollers 16, 17. The rollers 16, 17 are properly spaced apart, and their shafts at one end are connected by gear wheels 18, 19, 20, 21, the gear wheels 19, 20 being idlers and transmitting the motion of the gear wheel 18 to the gear wheel 21. The gear wheel 18 is on the shaft of the roller 16, and on one end of said shaft, which projects through the end of the side of the box 10, is provided a driving crank 22 of any suitable construction. Within the chamber formed between the partition 13 and adjacent side of the box 10 the gear wheels 18, 19, 20 and 21 are housed, and these gear wheels are actuated by the crank 22 to rotate the sharpening rollers in reverse direction so that the surfaces of the rollers may be constantly carried in a direction away from the edges of the razor blade.

The sharpening rollers are, except at their extreme upper portions, housed within the box 10, and these rollers may be variously constructed. I illustrate the preferred construction of sharpening rollers, and in this construction the body of the rollers is made of wood and spirally grooved, and within the groove of each roller is secured, by gluing or otherwise, a spirally wound strip of leather 25, the outer portions of said strips being set outwardly from the body of the rollers, as shown in Fig. 1. The spirals of the rollers 16, 17 are reverse to each other so that both edges of the blade 26 may be correspondingly treated by the leather strips 25. The spiral winding of the strips of leather 25 has, I believe, a better effect on the edges of the blade than would smooth surfaced rollers or rollers covered by a continuous piece of leather. The spiral strips, when the rollers are in motion, have what may be said to be a traveling effect or action on the edges of the blade in imitation of the heel-to-toe movement ordinarily applied to razor blades in hand stropping. I do not desire, however, to limit my invention, in every instance, to the employment of the spirally wound sharpening rollers, since plain covered rollers may be used with good effect as substitutes for the spirally wound rollers.

I secure on pins or pivots 27 at opposite sides and near one end of the box 10 a blade carrying frame numbered, as a whole, 28 and comprising two end members 29, 30 and a connecting bar or member 31, said parts 29, 30, 31 being preferably formed in one integral piece of sheet metal. The frame 28 carries the means for clamping the blade 26, or other form of blade, when the latter is to be moved to and held against the rollers 16, 17, and said clamping means comprises a rotary bar 32 whose end portions are made tubular, as at 33, 34, and mounted in bearing openings formed in the sides 29, 30 of the frame 28. The tubular portion 33 of the bar 32 has rigidly secured within it a pin 35 which is undercut at its inner end, as at 36, and on its outer end carries a traveler 37. The tubular portion 34 is internally threaded and receives a pointed screw 38 whose head 39 is exposed beyond the side 30 of the frame 28. The bar 32 may be formed with upwardly projecting studs 40 when the machine is to be employed for sharpening safety razors of the Gillette type, such as is indicated by the blade 26. The bar 32 may be considered as the lower clamping member to receive the blade 26, and upon said blade and bar 32 is detachably applied an upper clamping member 41 having a finger-piece 42 and downwardly deflected ends 43 which are adapted to lie below the inclined portion of the inner end of the pin 35 and below the point of the screw 38, as shown in Fig. 9. The screw 38 will be moved outwardly when the blade 26 is to be applied to or removed from the bar 32. When the screw 38 is screwed outwardly the bar 41 may be easily lifted from the bar 32, and thereafter when a blade 26 is applied upon the bar 32, the bar 41 may be restored to position and fastened by the inward movement of the screw 38 against the adjacent end 43 of the bar 41. The screw 38 and undercut end 43 of the pin 35 operate, in conection with the inclined ends 43 of the bar 41, to wedge said bar 41 downwardly against the

razor blade, thereby holding the same firmly in position on the bar 32. The bar 41 is formed with openings to receive the upper ends of the studs 40.

One arm of the frame 28 is provided with a shoulder 44 to engage a stop 45, stamped out from the side of the box 10, when said frame 28 has reached its upper position shown in Fig. 2, said shoulder and stop serving to arrest the movement of said frame. The frame 28 may be moved to its upper position automatically, when released from the pressure of the hand, by means of a spring 46 or a spring 47 or both springs. The spring 46 is wrapped upon one of the pins 27, as shown in Fig. 2, and has one end engaged with the arm 29 of the frame 28 and its other end engaged in a hole in the side of the box 10, and said spring is under a normal tension tending to throw the frame 28 to its upper position. The spring 47 is coiled upon a transverse rod 48 which is pivotally mounted in the partitions 12, 13, as shown in Fig. 5, and one end of said spring is connected with said rod by being passed into a hole therein, and the other end of the spring 47 is placed under a lip 149 extending inwardly from the partition 13. The spring 47 is always under tension, and its power to turn the frame 28 upwardly is transmitted through the rod 48 and a frame 49 which engages the traveler 37 and has a tubular portion 50 up through which an upwardly bent outer end 51 of the rod 48 is extended, said end 51 operating as a crank arm acting against the frame 49 and, under the action of the spring 47, pressing against the traveler 37 in a direction to move the frame 28 upwardly on its pivots 27. The frame 49 is formed of sheet metal and has a tubular lower portion 52, the aforesaid tubular portion 50 which is at the outer vertical edge of said frame, and a plate member 53 which extends inwardly from the tubular portion 50 and serves as a pathway or track for the traveler 37. The plate member 53 extends upwardly above the tubular portion 50 of the frame 49 and will be shaped in accordance with the shape of the traveler 37 whatever the shape of the traveler may be. In the present instance the traveler 37 is in the form of a bar of somewhat elongated form and having oppositely curved end portions 54, 55 (Fig. 3). In the employment of this form of traveler the upper portion of the plate member 53 will be given substantially the outline illustrated in Figs. 2 and 3, said plate member then comprising the right-angular arms 56, 57. the arm 57 being a plain straight arm, and the arm 56 being deflected to the right, looking at Fig. 2, from the axial line of the tubular member 50 and that portion of the plate 53 below the upper end of said portion 50. The arm 56 has an outward curve 58 adjacent to the upper end of the tubular member 50, and near its upper portion said arm 56 has an inward bend 59 forming a ridge against which the traveler 37 passes and which ridge serves, when the traveler 37 is in its upper position, to press the upper end of said traveler toward the right, looking at Fig. 2, so that the traveler does not stand exactly in the same parallel plane with that portion of the arm 56 which is between the curved portion 58 and inwardly bent portion 59. The spring 47 acting through the rod 48 and frame 49 may be utilized, in the absence of the spring 46, for turning the frame 28 to its upper position and cushioning said frame 28 when the same is pressed to its lower position by the thumb or hand of the user of the machine for pressing the razor blade against the sharpening rollers, the spring serving to yieldingly press the blade upwardly from the rollers and the hand cushioning the downward pressure of the blade against the rollers, the final effect being to hold the blade against the rollers not harshly but with a balancing action tending to great efficiency in the sharpening of the blade. When both springs 46, 47 are employed neither spring need be of very heavy wire. In any event a spring 47 should be employed on the rod 48 so that it may keep the plate member 53 of the frame 49 with sufficient firmness against the traveler 37 to insure the purposes of said traveler. The traveler 37 of appropriate form and the plate member 53 of suitable coöperating form are employed to insure a reversal of the blade holder on each downward movement of the pivoted frame 28.

In the construction shown, when the frame 28 is turned downwardly to carry the blade 26 against the sharpening rollers, the traveler 37 will move down the arm 56 of the frame 49 and its lower end will engage the shoulder formed at the lower edge of the groove 58, and thereupon the continued pressure of the hand against the frame 28 to move said frame to its lower position will result in the traveler 37 by the resistance of a portion of the frame 49 at the lower edge of the groove 58, being compelled to turn angularly so that what appears to be the lower side of the traveler 37, looking at Fig. 2, will engage the flat portion or web 53 of the frame 49 and ride down the same, this turning over of the traveler 37 being communicated to the blade clamping members and the blade so that what may be said to be the right hand face of the blade 26, looking at Fig. 2, becomes the lower face of the blade when said blade reaches the sharpening rollers. While the frame 28 is held by the hand of the user in its lower position, said user will, by means of the crank 22, rotate the sharpening rollers against which the blade is then held. After the crank 22

has been operated to a sufficient extent the pressure of the hand on the frame 28 is relaxed and said frame is allowed to turn upwardly to the position illustrated in Fig. 2, the spring 47, or the springs 47, 46 combined, compelling said frame to turn upwardly.

During the upward movement of the frame 28 the traveler 37 moves upwardly along the plain web portion 53 of the frame 49 and then, straddling the groove 58, engages and rides along the arm 56 and against the projection 59 and finally stops when reaching the arm 57, said frame 28 becoming by this time arrested by the shoulder 44 and lip or stop 45.

The operation of the traveler 37 just hereinbefore described is repeated with each down stroke and each upstroke of the frame 28. The traveler 37 is caused to turn over on each downstroke of the frame 28 so as to reverse the blade 26 for presentation to the sharpening rollers, but said traveler 37 does not become reversed on the upstroke of the frame 28 but simply rides upwardly to the position in which it is shown in Fig. 2. The traveler 37 and frame 49 constitute means for automatically reversing the razor blade during the movement of the frame 28, so that on one downstroke movement of the frame 28 one side of the razor blade is presented to the sharpening rollers and that on the next succeeding downward movement of the frame 28 the other side of the razor blade will be presented to said rollers.

In my aforesaid application for Letters Patent filed August 19, 1915, the razor blade was so presented to the sharpening rollers that first one side of said blade and then the other side of the blade was sharpened, but in the machine of that application the reversal of the blade holding means was performed by hand when the pivoted frame carrying the blade clamping members was in its upper position.

In the present instance the reversal of the blade is accomplished automatically, the means reversing the blade and the clamping members holding the same being actuated from the pivoted manually operated frame 28. I illustrate the traveler 37 and frame 49 as one convenient means for effecting the reversal of the blade during the movement of the frame 28, but I desire it to be understood that I do not limit the invention to the employment of the special traveler 37 and special frame 49 illustrated, since I am aware of other forms of devices which may be made use of to insure a reversal of the blade during the movement of the frame 28.

In Figs. 10 to 13 inclusive I illustrate a modified construction of the two clamping members for holding a blade to be sharpened, and the modification resides mainly in constructing the clamping members to receive between them a well-known type of blade 90 having one cutting edge and a backing 91 at its other edge. The lower clamping member 92 has tubular end portions 93 corresponding with the tubular portions 33, 34 of Fig 8 and respectively receiving the undercut pin 35 and securing screw 38. The lower clamping member 92 is recessed to receive the backing 91 of the blade and the upper clamping member, which I number 193, is correspondingly recessed to fit upon said backing 91. The ends of the clamping member 193 diverge downwardly, as at 94, correspondingly with the ends 43 of the clamping member shown in Fig. 9.

When I desire either to remove a blade from or apply a blade to the clamping members of the machine, I allow the springs to turn the frame 28 to its upper position, shown in Fig. 2, and then by means of the head 39 on the screw 38 I give the clamping members an one-quarter turn so as to throw them into convenient position to receive or release a blade, and when I thus give the clamping members an one-quarter turn the traveler 37 is carried against the member 57 of the frame 49, the end of the traveler 37 which is uppermost, looking at Fig. 2, being by the action just described, caused to ride down the member 57, while the upper flat side of the traveler 37 is moving to and against said member 57, the traveler 37 and member 57 then serving as stops to hold the clamping members stationary, while a blade is being applied to or removed therefrom. When it is again desired to employ the machine I give the clamping members a reverse quarter turn to restore them to their normal position, and in doing this the end of the travel then at the angle between the members 56, 57 of the frame 49 will touch against the shoulder afforded by the inward bend 59 with the result that the turning over action of the traveler 37 will be facilitated.

The machine of my invention is small and comparatively inexpensive, and it is designed to, when in use, be held in the left hand, the fingers of the hand being below the box 10 and the thumb upon the member 31 of the frame 28, and when the device or machine is thus held with a blade in position against the rollers, the crank 22 will be rotated by the right hand, the pressure of the blade against the corresponding rollers being controlled manually by pressure of the thumb against said member 31 or pressure of the thumb and fingers against said member 31 and the bottom of the box, respectively. The machine of my invention may be conveniently carried in a suit-case or small traveling bag and used as occasion

may require on a car or elsewhere, and one of its points of merit is that the relation of the blade to the rollers is sensitively controlled by the human hand opposing the force of a spring.

When a blade having two cutting edges is treated, said blade will engage both sharpening rollers at one time, while when a blade having only one cutting edge is treated, one side of one edge will first engage one of the rollers and then the other side of the same edge will engage the other roller, said blade engaging the rolls alternately.

What I claim as my invention and desire to secure by Letters Patent, is:

1. A razor-blade sharpener of the character described comprising an open-top box, a pair of cylindrical sharpening rolls therein exposed at the open top of said box and geared together to have reverse rotary motion, a frame connected with and extending above said box and movable toward and from said rolls, a blade-holder rotatably mounted in said frame and movable therewith and adapted to detachably hold a blade to be sharpened, a spring acting to move said frame to its upper position above and from said rolls, and blade reversing means engaging the blade holder for automatically, on the movement of said frame, reversing said blade-holder and blade so that the opposite side of the edge of the blade may be presented for sharpening, said sharpener as a whole being adapted to be held in one hand between the fingers and thumb thereof and having means by which with the other hand the said rolls may be rotated.

2. A razor-blade sharpener of the character described comprising an open-top box, a pair of cylindrical sharpening rolls therein exposed at the open top of said box and geared together to have reverse rotary motion, a frame pivotally connected with and extending above said box and movable toward and from said rolls, a blade-holder rotatably mounted in said frame and movable therewith and adapted to detachably hold a blade to be sharpened, a spring acting to move said frame to its upper position above and from said rolls, and blade reversing means engaging the blade holder on the downward movement of said frame, for automatically reversing said blade-holder and blade so that the opposite side of the edge of the blade may be presented for sharpening, said sharpener as a whole being adapted to be held in one hand between the fingers and thumb thereof and having means by which with the other hand the said rolls may be rotated.

3. A razor-blade sharpener of the character described comprising an open-top box, a pair of cylindrical sharpening rolls therein exposed at the open top of said box and geared together to have reverse rotary motion, a frame pivotally mounted on said box and near one side thereof and comprising side arms and a connecting hand piece whereby the free end of the frame may be manually pressed toward said rolls, a blade-holder rotatably mounted in said frame and movable therewith and adapted to detachably hold a blade to be pressed against said rolls and sharpened thereby, a spring acting to move said frame to its upper position above and from said rolls, and blade reversing means engaging the blade holder for, on the movement of said frame, automatically reversing said blade-holder and blade so that the opposite side of the edge of the blade may be presented for sharpening, said sharpener as a whole being adapted to be held in one hand between the fingers and thumb thereof and having means by which with the other hand the said rolls may be rotated.

4. A razor-blade sharpener of the character described comprising an open-top box, a pair of cylindrical sharpening rolls therein exposed at the open top of said box and geared together to have reverse rotary motion, a frame pivotally mounted on said box and near one side thereof and comprising side arms and a connecting hand-piece whereby the free end of the frame may be manually pressed toward said rolls, a blade-holder rotatably mounted in said frame and movable therewith and adapted to detachably hold a blade to be pressed against said rolls and sharpened thereby, a spring acting to move said frame to its upper position above and from said rolls, and blade reversing means engaging the blade holder on the downward movement of said frame for automatically reversing said blade-holder and blade so that the opposite side of the edge of the blade may be presented for sharpening, said sharpener as a whole being adapted to be held in one hand between the fingers and thumb thereof and having means by which with the other hand the said rolls may be rotated, and said means for rotating said rolls being a crank disposed at one side of the box and connected with one of said rolls, and said means for reversing the blade-holder and blade being disposed at the other side of said box.

5. A razor-blade sharpener of the character described comprising an open-top box, a pair of cylindrical sharpening rolls therein exposed at the open top of said box and geared together to have reverse rotary motion, a frame connected with and extending above said box and movable toward and from said rolls, a blade-holder rotatably mounted in said frame and movable therewith and adapted to detachably hold a blade to be sharpened, a spring acting to move said frame to its upper position above

and from said rolls, and blade reversing means engaging the blade holder for automatically reversing said blade-holder and blade so that the opposite side of the edge of the blade may be presented for sharpening, said means comprising an actuating traveler on the end of the blade holder and a plate connected with said box and engaging the traveler and adapted on the movement of said frame to reverse the traveler and thereby the blade holder and blade.

6. A razor-blade sharpener of the character described comprising an open-top box, a pair of cylindrical sharpening rolls therein exposed at the open top of said box and geared together to have reverse rotary motion, a frame pivotally mounted on said box and near one side thereof and comprising side arms and a connecting hand-piece whereby the free end of the frame may be manually pressed toward said rolls, a blade-holder rotatably mounted in said frame and movable therewith and adapted to detachably hold a blade to be pressed against said rolls and sharpened thereby, a spring acting to move said frame to its upper position above and from said rolls, and blade reversing means engaging the blade holder for, on the movement of said frame, automatically reversing said blade-holder and blade so that the opposite side of the edge of the blade may be presented for sharpening, said means comprising an actuating traveler on the end of the blade holder and a plate connected with said box and engaging the traveler and adapted on the movement of said frame to reverse the traveler and thereby the blade-holder and blade.

7. A razor-blade sharpener of the character described comprising an open-top box, a pair of cylindrical sharpening rolls therein exposed at the open top of said box and geared together to have reverse rotary motion, a frame pivotally mounted on said box and near one side thereof and comprising side arms and a connecting hand-piece whereby the free end of the frame may be manually pressed toward said rolls, a blade-holder rotatably mounted in said frame and movable therewith and adapted to detachably hold a blade to be pressed against said rolls and sharpened thereby, a spring acting to move said frame to its upper position above and from said rolls, and blade reversing means engaging the blade holder for, on the movement of said frame, reversing the said blade-holder and blade and comprising a traveler on the end of the blade-holder and a pivoted spring-pressed plate engaging said traveler and affording a track therefor and adapted on the movement of said frame to reverse the traveler and thereby the blade-holder and blade.

8. A razor-blade sharpener of the character described comprising an open-top box, a pair of cylindrical sharpening rolls therein exposed at the open top of said box and geared together to have reverse rotary motion, a frame pivotally mounted on said box and near one side thereof and comprising side arms and a connecting hand-piece whereby the free end of the frame may be manually pressed toward said rolls, a blade-holder rotatably mounted in said frame and movable therewith and adapted to detachably hold a blade to be pressed against said rolls and sharpened thereby, a spring acting to move said frame to its upper position above and from said rolls, and blade reversing means engaging the blade holder for, on the movement of said frame, reversing the said blade-holder and blade and comprising a traveler on the end of the blade-holder, a plate engaging and affording a track for said traveler and being pivotally connected with said box and a coiled spring within said box acting to yieldingly press said plate against said traveler in all its positions, said plate being adapted on the movement of said frame to reverse the traveler and thereby the blade-holder and blade.

9. A razor-blade sharpener of the character described comprising an open-top box, a pair of cylindrical sharpening rolls therein exposed at the open top of said box and geared together to have reverse rotary motion, a frame pivotally mounted on said box and near one side thereof and comprising side arms and a connecting hand-piece whereby the free end of the frame may be manually pressed toward said rolls, a blade-holder rotatably mounted in said frame and movable therewith and adapted to detachably hold a blade to be pressed against said rolls and sharpened thereby, a spring acting to move said frame to its upper position above and from said rolls, and blade reversing means engaging the blade holder for, on the movement of said frame, reversing the said blade-holder and blade and comprising a traveler on the end of the blade-holder and a pivoted spring-pressed plate engaging said traveler and affording a track therefor and adapted on the movement of said frame to reverse the traveler and thereby the blade-holder and blade, and said plate also having at its upper end a right angle member against which said follower may be turned on manually positioning the blade-holder to receive or release a blade.

10. A razor-blade sharpener of the character described comprising an open-top box, a pair of cylindrical sharpening rolls therein exposed at the open top thereof and geared together to have reverse rotary motion, a frame pivotally mounted on said box and near one side thereof and comprising side arms and a connecting hand-piece whereby the free end of the frame may be manually pressed toward said rolls, a blade-holder rotatably

mounted in said frame and movable therewith and adapted to detachably hold a blade to be pressed against said rolls and sharpened thereby, a spring acting to move said frame to its upper position above and from said rolls, and blade reversing means engaging the blade holder for, on the movement of said frame, reversing the said blade-holder and blade and comprising a traveler on the end of the blade-holder, a plate engaging and affording a track for said traveler and being pivotally connected with said box and a coiled spring within said box acting to yieldingly press said plate against said traveler in all its positions, said plate being disposed at one side of said box and adapted on the movement of said frame in one direction to reverse the traveler and thereby the blade-holder and blade, and said sharpener having at the opposite side of said box a crank connected with one of said rolls for manually rotating the rolls.

Signed at New York city, in the county of New York and State of New York, this 15th day of August, A. D. 1917.

SAMUEL KANNER.

Witnesses:
J. R. FRITH,
CHAS. C. GILL.