Oct. 21, 1924. 1,512,058

P. M. SALERNI

DEVICE FOR SHARPENING SAFETY RAZOR BLADES

Filed Jan. 21, 1922 3 Sheets-Sheet 1

Fig. 1.

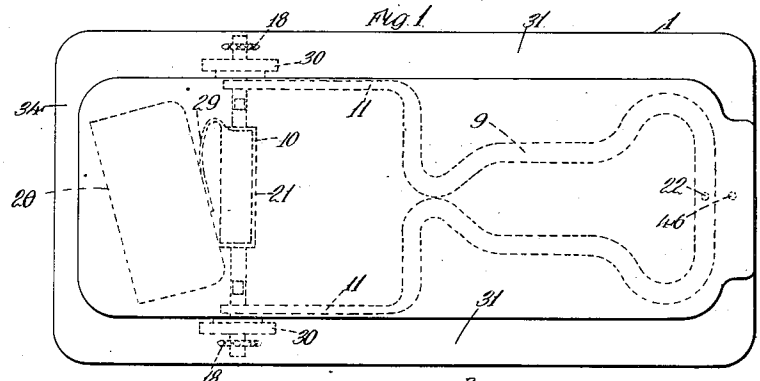


Fig. 2.

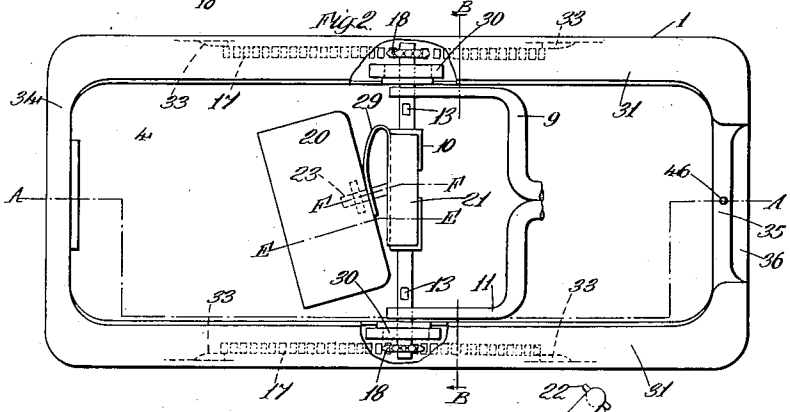


Fig 3

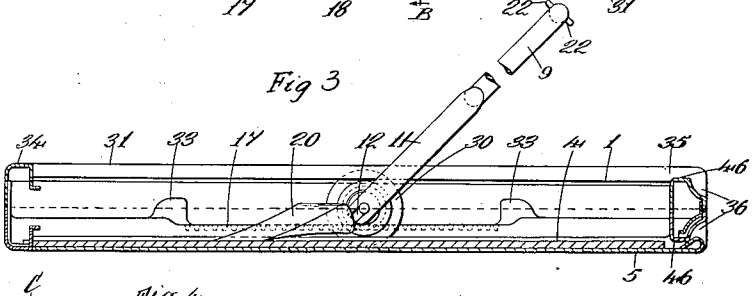


Fig. 4.

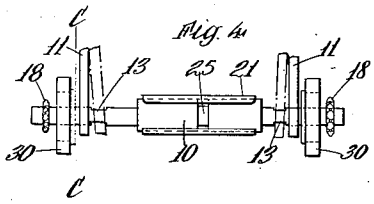


Fig. 5.

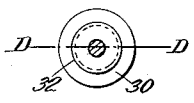


Fig. 6.

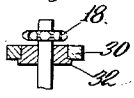


Fig. 9.

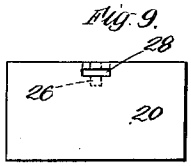


Fig. 7.

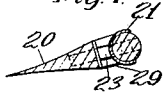


Fig. 8.

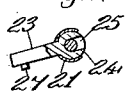
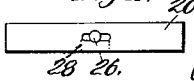


Fig. 10.



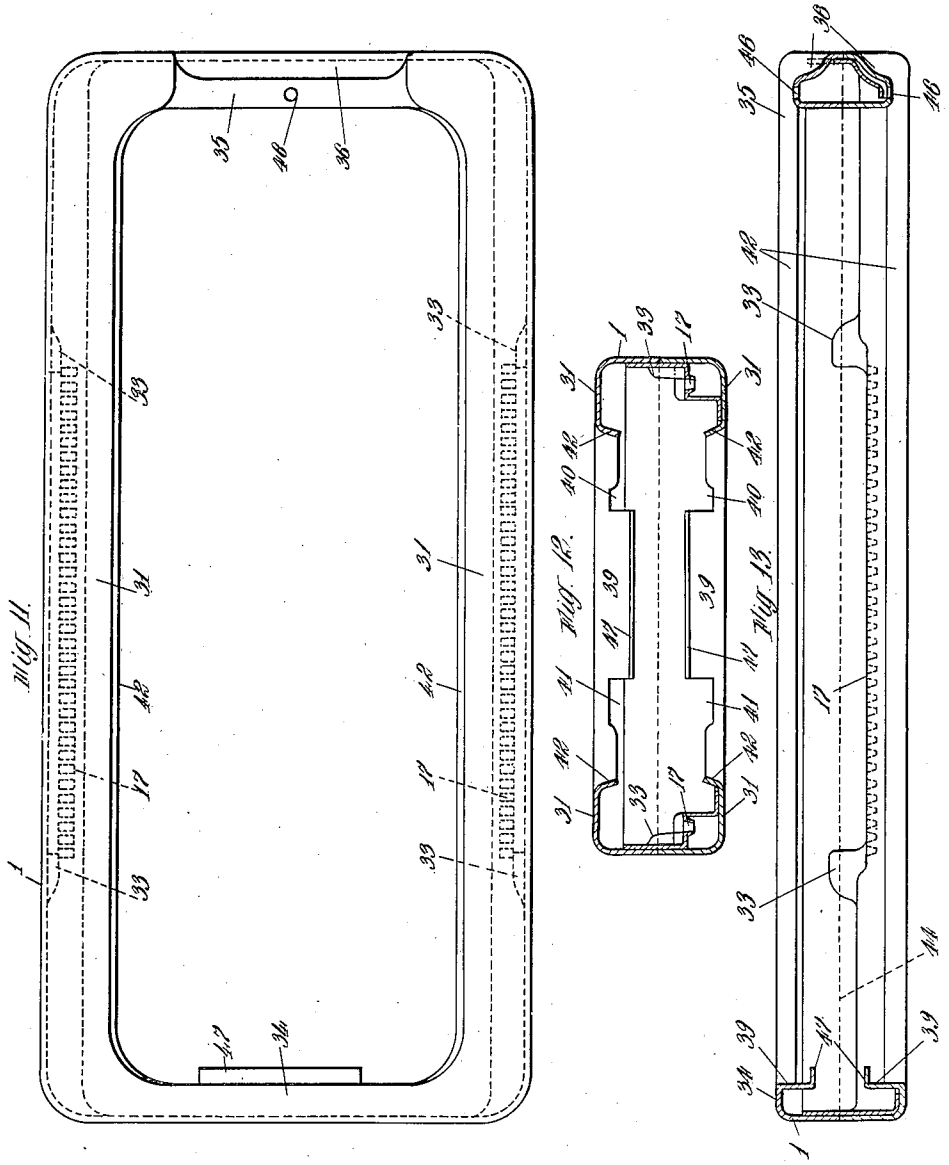
Inventor
Piero Luciano Salerni
By
Cushman, Darby & Darby

Oct. 21, 1924. 1,512,058

P. M. SALERNI

DEVICE FOR SHARPENING SAFETY RAZOR BLADES

Filed Jan. 21, 1922 3 Sheets-Sheet 2



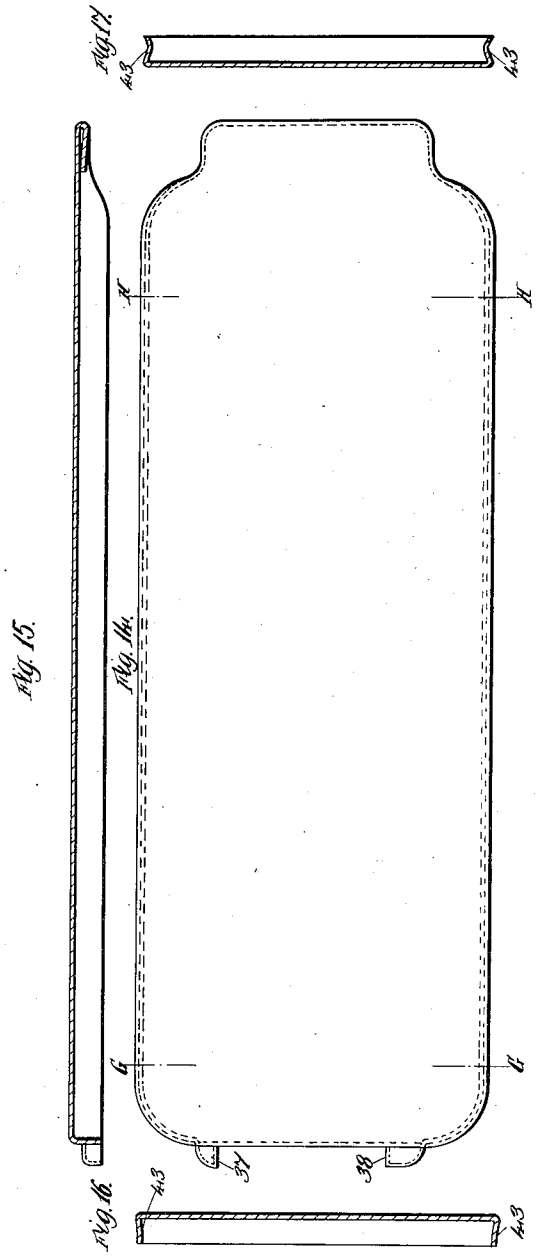
Inventor
Piero Mariano Salerni
By Cushman, Bryant & Darby
Attys.

Oct. 21, 1924. 1,512,058

P. M. SALERNI

DEVICE FOR SHARPENING SAFETY RAZOR BLADES

Filed Jan. 21, 1922 3 Sheets-Sheet 3



Inventor
Piero Luciano Salerni
By Cushman, Darby & Cushman
attys

Patented Oct. 21, 1924. 1,512,058

UNITED STATES PATENT OFFICE.

PIERO MARIANO SALERNI, OF SYDENHAM HILL, LONDON, ENGLAND.

DEVICE FOR SHARPENING SAFETY-RAZOR BLADES.

Application filed January 21, 1922. Serial No. 530,849.

To all whom it may concern:

Be it known that I, PIERO MARIANO SALERNI, a subject of the King of Italy, residing at 20 Sydenham Hill, in the county of London, England, have invented certain new and useful Improvements in or Relating to Devices for Sharpening Safety-Razor Blades, of which the following is a specification.

The present invention relates mainly to devices for sharpening safety razor blades, of the kind in which the blade is automatically rocked at the end of each stroke to reverse the blade and provision is made for both honing and stropping the blade with the same device the said provision consisting in arranging for the hone to be disposed on one side of the axis on which the blade rocks and the strop on the other side—see the specification of Patent No. 1,266,183, dated 14th day of May, 1918, granted to Helier Alexandre Vincent. The main objects of the present invention are to facilitate the use and improve the action of a device of the kind referred to to obviate the necessity for a pin on the razor blade to engage it with the carrier and to cheapen the manufacture of the device.

The present invention consists of various improvements and novel features in devices of the kind referred to in order to attain the aforesaid and other objects and advantages. Both the nature of the said improvements and the manner in which they are preferably embodied or carried out in practice will be made apparent by the description hereinafter contained with reference to the accompanying drawings and the claims the said drawings illustrating by way of example the preferred embodiments of the said improvements and novel features, all in combination as preferred in the one form of sharpening device, having a body or frame of box-like form closed when not in use by the whetting materials and their bases.

In the said drawings:—

Figure 1 is a face view of the device with the body closed by the whetting materials and their bases. Figure 2 is a similar view with the whetting material and base nearer to the viewer removed and the other material in use and with small parts broken away. Figure 3 is a section taken on the line AA in Figure 2, Figure 4 a view of the carrier taken normal to the line BB in Figure 2, Figure 5 a section taken on the line CC in Figure 4, Figure 6 a section taken on the line DD in Figure 5, Figure 7 a somewhat diagrammatic section about the line EE in Figure 2 and Figure 8 is a section taken on the line F in Figure 2. Figures 9 and 10 are respectively a face view and view of the back edge part of the safety razor blade. Figures 11, 12 and 13 are respectively a face view and transverse and longitudinal sections of the box-like body of the device without the bases for the whetting materials. Figures 14 and 15 are respectively a face view and longitudinal section of one of the bases of the whetting materials and Figures 16 and 17 are transverse sections of the said base taken on the lines GG and HH respectively in Figure 14. Figures 11 to 17 are drawn to a larger scale than Figures 1 to 10.

In the following description the parts of the said drawings are referred to by the numerals marked thereon and the same numerals of reference indicate the same parts in all the figures of the drawings.

1 is the box-like body or frame, having openings in each face in which the two whetting materials, that is, the stropping material and the honing material, on suitable metal bases, are or may be secured, the box-like body being closed when both bases are in position, and one removed while the other is in use, as shown in Figures 2 and 3 in which the hone 4 on its metal base 5 is shown as in use while the strop on a similar base has been removed. 10 is the reciprocable carrier for the razor blade, 9 the handle by which it is reciprocated and 20 the razor blade. 17 are the longitudinal relatively stationary members with which the carrier 10 co-acts to reverse the razor blade and press its edge on the whetting surface and these members are on the side of the axis on which the blade rocks. The hone is adapted to be located on the same side of the said axis as the said members and the strop on the other side, whereby the razor blade is caused by the co-action of the members 17 and the carrier 10 to bear on the hone and be moved thereover with its edge foremost while when the hone is removed and the strop is in use the razor blade is caused to move over the strop in both directions with its back foremost.

The handle 9 is made of bent wire, preferably of the form shown with two arms 11, 11 at the inner end which is therefore of a forked, bow or U form and the handle is

connected to the carrier 10 by pivoting it thereto by the free ends of the said arms. The arms 11 are so spaced from each other that when the handle is in use the arms move in paths adjacent to the longitudinal edges of the openings in the body 1 in which the bases for the whetting materials are accommodated, whereby when the device is in use the finger tips cannot over-hang the razor blade because if they did so they would obstruct the reciprocable movement of the handle. Therefore during the working of the device the finger tips cannot interfere with the reversal movement of the blade which might result in injury to them. The carrier 10 mainly consists of a shaft or spindle and the handle is pivoted to it merely by holes in the ends of the arms having a working fit on the spindle part of the carrier. In order that the handle may be readily assembled with the carrier or disengaged therefrom should occasion require passages 12 are provided from the holes in the arms 11 to the ends thereof the said passages being in width less than the diameter of the said holes, and notches 13 are provided in the carrier adjacent to the normal positions of the arms the thickness of the carrier at the notched parts being a little less than the width of the passages 12. The handle 9 at the part constituted by and near the arms 11 is somewhat resilient so that by pressing the arms towards one another against the resilience they may be brought to the notched parts 13 of the carrier and the passages 12 permit of the arms being disengaged from the carrier when the sides of the notches align with the said passages. The length of the handle 9 is such that when the carrier 10 is at one end of its path of movement the handle may be turned down within the interior of the body 1 as indicated in dotted lines in Figure 1. The handle and guard part of a safety razor holder may be accommodated and stowed in the body 1 when closed and for convenience in this respect the length of the handle 9 is preferably such that when the handle 9 is stowed the said guard part just fits fairly flatwise in the space between the carrier 10 and the end of the body and is thus prevented from moving about in the body during transportation.

The longitudinal relatively stationary members 17 co-act with the carrier 10 to reverse the razor blade and press its edge on the whetting surface and in order to prevent jambing of the said carrier, that is. its assumption of a position other than one at right angles to the said members 17, 17 owing to its being pulled and pushed by a force exerted at an angle to its path of movement, the turning movement of the carrier 10 and the application of force to it to press the edge of the razor blade against the whetting surface is effected by constituting the said members 17, 17 of racks and providing on the said carrier 10 a toothed pinion 18 at each side of the device to gear respectively with the said racks 17, 17 both the said pinions according to the invention being rigidly secured to or made integral with the spindle portion of the carrier so as to be incapable of turning movement independently of the main part of the carrier in order that the two pinions and carrier spindle may turn as one. As in this arrangement the pinions 18, 18 and carrier spindle rotate throughout the stroke, a frictional device is provided according to the invention operatively between the spindle part of the carrier and the attachment for the razor blade thereto, in such manner that notwithstanding the rotation of the spindle part of the carrier and pinions 18, 18 the attachment device directly engaged with the razor blade is not rotated except when reversal movement takes place when the friction provided by the friction device is sufficient to cause the razor attachment to turn with the spindle of the carrier 10 and is also sufficient to cause the razor blade to be pressed against the whetting surface with the appropriate degree of pressure, due to rotation of the pinions 18, 18 and spindle part of the carrier when reciprocated. The friction device consists of a thin metal member 21 (preferably of phosphor bronze) embracing with resilience an enlarged cylindrical part of the carrier 10 with an appropriate pressure. The razor blade is connected with the carrier by means of a pin 23 on a small fork-like member 24 embracing a reduced part 25 of the carrier 10 and the said pin passes through a hole in the member 21 so that the said member and pin can only turn together but the spindle part of the carrier 10 may rotate independently of them when the friction between the said spindle part and the member 21 is overcome. The razor blade is provided with a hole 26 in its back part in which the pin 23 may engage and in order that the blade may be held on the said pin while the blade is being sharpened the pin is provided with a tooth 27 (see Figure 8) which engages in an aperture 28 extending to the side of the blade through the wall of the hole. As shown best in Figure 10 the hole in the razor blade has lateral extensions and at right angles to the direction of the aperture 28 so that the razor blade is secured on the pin 23 by an action somewhat similar to that required to connect two parts by use of a bayonet-like-joint the tooth 27 being accommodated in the aperture 28 when the razor blade is in position or being sharpened. Thus according to the present invention the provision

of a pin on the razor blade which would involve certain difficulties of manufacture is dispensed with. As the aperture 28 is only on one side of the hole the razor blade cannot be turned on the pin through more than 90° on each side from a plane parallel to the axis of the carrier and 180° in all and therefore the one razor blade cannot according to the present invention be secured on the pin 23 otherwise than in the one way, that is, with the one end of the razor blade always adjacent to the same side of the device so that the various portions of the one razor blade in different sharpening operations is always presented to the same part of the whetting surface laterally considered, as is very desirable. In order that the carrier 10 may be steadied while a razor blade is being engaged with and disengaged from the pin 23, short pins 22 are provided on the end part of the handle 9 which may be engaged respectively with holes 46 in the body 1 according to the whetting surface in place. By such engagement the handle 9 and carrier 10 are prevented from moving lengthwise of the body 1 and consequently the carrier prevented from turning. The arrangement is such that when either of the pins 22 is engaged with a hole 46 the pin 23 is upright towards the open side of the body 1.

It is desirable or necessary to provide a device to prevent the razor blade turning too freely on the pin 23 during the sharpening operation and it is a feature of the present invention that a device is provided for this purpose which restrains or restricts such turning movement during the said operation solely by regular friction and not directly by resilience which latter is objectionable because if the razor blade be connected as shown at an angle to the carrier 10 a resilient engaging device would cause one part of the razor blade edge to be pressed on the whetting surface with greater force than other parts due to the resilient device having to act in a different direction from a zero when the razor blade is reversed. The friction device provided for the purpose explained is the resilient blade 29 made in one with the member 21 which blade merely bears on the back of the razor blade the pin 23 passing through a hole in the said blade. Although the blade 29 is resilient yet it acts to restrain movement of the razor blade around the pin merely by friction. The said blade acting also as a spring in the direction of the axis of the pin, helps to secure the engagement of the pin 23 and its tooth 27 in the hole and aperture 26, 28. It is not essential that the whole turning movement given to the blade in engaging it with the pin 23 be effected against friction only provided the slight turning movement of the blade in its reversal during the sharpening operation be in opposition to a regular friction only.

In order that the pinions 18 may be kept in engagement with the racks 17 two annular members 30 acting partly as guiding blocks and partly as rollers are provided on the carrier 10 these members 30 having a sliding or partly rolling working fit between overhanging parts 31, 31 of the body 1. The members 30 are mounted on the carrier 10 through the medium of flanged bushes 32, 32. This provision is in order that the parts may be assembled as it enables the members 30 to be located between the parts 31 and then the engagement of the pinions with the racks after which latter operation the bushes 32 are pushed into position and the inner parts of the handle 9 prevent the said bushes from being displaced. The bushes 32 must be assembled on the carrier previously to the pinions 18 being secured thereon.

According to the said invention the handle 9 cannot be stowed in such a direction that the razor blade carrier is at that end of the body 1 from which the whetting materials on their bases are acted on to remove them, which might result in accident to the fingers by their coming into contact with the razor edge. The handle 9 is of such length that when the carrier 10 is at one end of the body 1 the handle may be turned down into the body and it is preferred to carry out the feature of the invention last referred to by so locating the racks 17 longitudinally in the body 1 and making the handle 9 of such length that it can only be turned down into the body for stowage when the carrier 10 is at the end of the body opposite to that from which the bases of the whetting materials are lifted up. To this end according to the invention the body and bases are so formed that the bases each have only one position in the body and must be lifted from only the one and proper end of the body 1 and the racks 17 are situated a little more towards the other end of the body with the result that while the handle may be stowed as shown in Figure 1 it cannot be stowed when the carrier 10 is at that end of its travel which is the further from the adjacent end of the body 1 (viz, the right hand end in Figure 1) for the reason that the carrier 10 is not then quite sufficiently near that end of the body to permit the handle having regard to its length to be turned down into the body towards the other end. Stops 33, 33 are provided to prevent the pinions 18 being forced beyond the operative ends of the racks 17, these stops co-acting with the ends of the carrier spindle.

In order that the bases of the whetting materials may only be fitted into place in the one direction as before explained the

openings in the body in which they fit are closed at 34, 34 at one end and at the other end shallow recesses 35, 35 are provided extending from the openings to the end of the body and in these shallow recesses there are accommodated those end parts of the bases which are acted on to remove the bases from the body. These parts are of an overhanging character in order to enable the fingers to force them up but according to the invention they do not extend beyond the end of the body and recesses 36, 36 are provided in the body to impart an overhanging character to the bases at that part.

The bases of the whetting materials are engaged in the body 1 by a snap action and according to the invention the end of the bases to be located at the closed ends 34, 34 of the openings in the body have teats 37, 38 to engage beneath the parts 34, 34 and in order to enable the bases to be readily placed in correct position laterally, inwardly projecting or flange parts 39, 39 are provided on the parts 34, 34 to engage between the teats 37, 38 with just a working fit. In order to prevent interchange of the two bases it is a further feature of the invention to provide that one teat 38 on each base shall be wider than the other 37 and to provide corresponding notches 40, 41 in the flanges in the body of which the projecting portions 39, 39 are part, the wider notches 41 for both the bases being towards the same side of the body. In order to help support the end of the base while its teats are being engaged, the inner ends of the flanges 39 are turned out at 47, 47.

According to the present invention a snap engagement of the bases with the body 1 is provided for as follows:—The overhanging parts 31, 31 on each side of the openings for the bases are inwardly flanged at 42 the flanges being slightly inclined towards the longitudinal middles of the openings (see Figure 12) and the bases have deeper flanges 43 along their edges (see Figures 16, 17) slightly hollowed in cross section more and more in a progressive manner from the teat end of the base towards the other end as will be appreciated by comparing Figure 17 with Figure 16. After engaging the teats of a base in the notches 40, 41 and then turning down the base towards the body, the flanges 43 progressively engage over the inner edges of the flanges 42 until the base snaps completely home and it may be removed by applying a little force to the underside of the overhanging part of the base to disengage the flanges 42, 43.

In honing it is desirable that in the reversal of the razor blade the impact of the edge on the hone should not be too great or with the full force of the reversal movement. If the back of the razor blade be at an angle to the axis of the carrier 10 as shown in the drawings (which gives a "heel to toe" sharpening action on the razor edge) and the said axis be as close to the whetting surface as feasible that end of the back part of the razor blade which is farther from the axis of the carrier strikes the hone at the end of the reversal movement before the blade edge, the latter coming into contact with the hone as the result of a slight pivotal movement of the blade around the pin 23 caused by the impact of the blade back at and near the one end as aforesaid. The provision of regular frictional resistance to such slight pivotal movement afforded by the blade 29 causes the shock of first impact to be absorbed to an appreciable extent before the razor edge bears on the hone, while the pressure of the blade edge on the whetting surface is equable along the whole edge.

The bases hereinbefore described for the whetting materials may be conveniently formed from sheet metal by stamping as shown in Figures 14–17 which illustrate the base for the strop. It is also preferred to form the body 1 from sheet metal by stamping and the main part of the body is formed in longitudinal halves connected together by soldering, sweating or otherwise at about the middle of the thickness of the body, by means of a liner 45. This is well illustrated in Figures 11, 12 and 13, in Figures 12 and 13 of which the abutting edges of the halves aforesaid are indicated at 44. The overhanging parts 31, 34 with their flanges 42, 39, the notches 40, 41 and the recesses 35 and 36 are all conveniently formed by the stamping operations during the production of the half bodies. The racks 17 are preferably made by perforating sheet metal and according to the invention these racks are formed in the liner 45 which is produced by stamping operations from sheet metal, the stops 33 being also formed in the stamping.

What I claim and desire to secure by Letters Patent of the United States is:—

1. A device for use in sharpening safety razor blades, comprising in combination, a body part, whetting material, a reciprocable razor blade carrier comprising a spindle having cylindrical portions and parts of less thickness adjacent thereto, means to automatically rock the blade at the end of each stroke of said carrier, a handle for reciprocating the said carrier and of fork form adjacent thereto and connected to the said carrier by holes in the fork arms of the handle engaged with said cylindrical portions of the carrier, the said fork arms being somewhat resilient in directions to and from each other and provided with passages from said holes to the free ends of said fork arms of less width than said holes but of sufficient width to pass over said parts of the carrier

of less thickness, for the purpose set forth.

2. A device for use in sharpening safety razor blades, comprising in combination, a body part, whetting material, a reciprocable carrier for the razor blade, racks on the said body, toothed pinions on the body of the said carrier gearing with the said racks and incapable of rotary movement independently of each other, an attachment for the blade mounted on the said body of the carrier, means to reciprocate the said carrier, and a frictional device on the said body of the carrier and operating between it and the said attachment to cause the blade edge to be pressed on the whetting surface by rotation of the carrier and to rock the blade at the end of each stroke by the change in direction of rotation of the carrier due to reversal of direction of movement of the carrier.

3. A device for use in sharpening safety razor blades, comprising in combination, a body part, whetting material, a reciprocable carrier for the razor blade, said carrier comprising a rotary spindle element, means to reciprocate the said carrier, means to cause rotation of the said spindle element by reciprocation of the carrier, an attachment pin for engaging the blade mounted on the said spindle element, a resilient member embracing with friction the said spindle element and capable of turning thereon against said friction and operatively connected with the said attachment pin to cause the razor blade edge to be pressed on the whetting surface and the blade to be rocked at the end of each stroke by the friction of the said embracing member on the said spindle element as it rotates.

4. A device for use in sharpening safety razor blades, comprising in combination, a body part, whetting material, a reciprocable carrier for the razor blade, said carrier comprising a rotary spindle element, means to reciprocate the said carrier, means to cause rotation of the said spindle element by reciprocation of the carrier, a member embracing with resilience the said spindle element and having a radial passage through it, a forked member embracing a reduced part of the said spindle element with a free working fit, and a pin on the said forked member to engage in a hole in the blade the said pin passing through the said passage in the resilient embracing member.

5. A device for use in sharpening safety razor blades, comprising in combination, a body part, whetting material, a reciprocable carrier for the razor blade, means to reciprocate the said carrier, means to automatically rock the blade at the end of each stroke of the carrier, a pin carried by the said carrier to engage in a hole in the razor blade and formed to constitute one part of a bayonet-joint-like connection between the said pin and the razor blade.

6. A device for use in sharpening safety razor blades, comprising in combination, a body part, whetting material, a reciprocable carrier for the razor blade, means to reciprocate the said carrier, means to automatically rock the blade at the end of each stroke of the said carrier, a pin carried by the said carrier to engage in a hole in the razor blade and a tooth on the said pin to engage in a recess or aperture on one side of the said hole in the razor blade.

7. A device for use in sharpening safety razor blades, comprising in combination, a body part, whetting material, a reciprocable carrier for the razor blade comprising a rotary element, means to reciprocate the said carrier, means to rotate the said rotary element to automatically rock the blade at the end of each stroke of the said carrier, an attachment for the razor blade turning with the said rotary element at the end of each stroke of the carrier and a device to prevent turning movement of the said rotary element when connecting and disconnecting the razor blade to or from the said carrier.

8. A device for use in sharpening safety razor blades, comprising in combination, a body part, whetting material, a reciprocable carrier for the razor blade, a handle pivoted to the carrier for reciprocating it, means to automatically rock the blade at the end of each stroke of the said carrier and a device for temporarily engaging the handle with the body part to hold the carrier stationary when connecting the razor blade to the carrier or when disconnecting it therefrom.

9. A device for use in sharpening safety razor blades, comprising in combination, a body part, whetting material, a reciprocable razor blade carrier, means to reciprocate the said carrier, means to automatically rock the blade at the end of each stroke of the said carrier, a pin carried by the said carrier to engage in a hole in the back part of the razor blade and a tooth on the said pin to engage in a recess or aperture in the wall of the said hole to enable the said blade to be engaged with the said pin in a bayonet-joint-like manner, the said tooth being located to prevent the blade being turned substantially more than 90° on each side of a plane parallel to the whetting material.

10. A device for use in sharpening safety razor blades, comprising in combination, a body part, whetting material, a reciprocable razor blade carrier, means to reciprocate the said carrier, means automatically to rock the blade at the end of each stroke of the said carrier, an attachment device enabling the blade to be secured on the carrier and permitting in use pivotal movement of the blade on an axis through the said attach-

ment device, and a resilient blade member to bear on the back of the razor blade, the friction of which bearing resists the said pivotal movement.

11. A device for use in sharpening safety razor blades, comprising in combination, a body part, whetting material, a reciprocable razor blade carrier, means to reciprocate the said carrier, toothed pinions on the carrier gearing with racks on the body of the device to cause reversal of the blade at the end of each stroke and press its edge on the whetting material during the stroke, roller-like members carried by the said carrier and capable of rotating about its axis and located respectively adjacent to the said pinions, and parts carried by the said body overhanging the said roller-like members against which overhanging parts the said members have a working fit to prevent disengagement of the said pinions from the said racks.

12. A device for use in sharpening safety razor blades, comprising in combination, a body part, whetting material, a reciprocable razor blade carrier, means to reciprocate the said carrier, toothed pinions on the carrier gearing with racks on the body of the device to cause reversal of the blade at the end of each stroke and press its edge on the whetting material during the stroke, annular roller-like members carried by the said carrier through the medium of axially displaceable bushes and located respectively adjacent to the said pinions, and parts carried by the said body overhanging the said roller-like members against which overhanging parts the said members have a working fit to prevent disengagement of the said pinions from the said racks.

13. A device for use in sharpening safety razor blades, comprising in combination, a box-like body having apertures on opposite sides, a reciprocable razor blade carrier in the said body, a handle pivoted to the said carrier to reciprocate it and stowable in the said body, means automatically to rock the blade at the end of each stroke of the said carrier, hone and strop elements removably fitting in the said apertures, devices whereby the strop and hone elements may be acted on to remove or place them in position only from one end and the same end of the device and devices preventing stowage of the said handle in the said box-like body except when the said carrier is near that end of the said body opposite to that end at which the hone and strop elements are acted on to remove or place them in position.

14. A device for use in sharpening safety razor blades, comprising in combination, a box-like body having apertures on opposite sides, a reciprocable razor blade carrier in the said body, a handle pivoted to the said carrier to reciprocate it and stowable in the said body, hone and strop elements removably fitting in the said apertures, devices whereby the strop and hone elements may be acted on to remove or place them in position only from one and the same end of the device, longitudinal relatively stationary members on the body of the device with which the carrier in its reciprocation co-acts to reverse the razor blade and press it on the whetting surface, stops at the ends of the operative portions of the said stationary members to limit the travel of the said carrier the said operative portions extending nearer to that end of said box-like body opposite to the end from which the whetting elements are removed than to the other end of the said body, and the said handle being of such length as to prevent its stowage towards that end of the said body to which the ends of the said operative portions of the said longitudinal relatively stationary members are nearer but to permit its stowage in the said body towards the other end.

15. A device for use in sharpening safety razor blades, comprising in combination, a box-like body having apertures on opposite sides, the said apertures both terminating at one end a distance from one and the same end of the said body, a reciprocable razor blade carrier in the said body, means to reciprocate the said carrier, means automatically to rock the blade at the end of each stroke of the said carrier, hone and strop elements, bases on which the said elements are respectively secured, the said bases removably fitting in the said apertures, two teats of different widths on each base at that end thereof which is accommodated nearer the said end of the body to engage beneath parts of the body near that end and inwardly directed flanges at those parts having notches in them to accommodate the said teats with a working fit, the wider notches for the wider teats being on the said side of the body to prevent interchange of the two bases.

16. A device for use in sharpening safety razor blades, comprising in combination, a box-like body having apertures on opposite sides, a reciprocable razor blade carrier in the said body, means to reciprocate the said carrier, means automatically to rock the blade at the end of each stroke of the said carrier, hone and strop elements, bases on which the said elements are respectively secured, the said bases removably fitting in the said apertures, inwardly directed flanges at the longitudinal edges of the said apertures, the said flanges being inclined slightly and flanges along the longitudinal edges of the bases deeper than the said flanges on the body, the said flanges on the bases being of slightly hollowed shape in cross section, the depth of the hollow progressively in-

creasing from that end of the base which is first engaged with the body towards the other end of the base to provide for engagement of the bases with the flanges on the body by an angular snap action.

17. A device for use in sharpening safety razor blades, comprising in combination, a box-like body made of longitudinal portions by stamping from sheet metal and having apertures on opposite sides, a reciprocable razor blade carrier in the said body, means to reciprocate the said carrier, means automatically to rock the blade at the end of each stroke of the said carrier, hone and strop elements removably fitting in the said apertures, and a metal liner within the said body to aid connection together of the said portions of the body.

18. A device for use in sharpening safety razor blades, comprising in combination a box-like body having apertures on opposite sides, said body being built up of longitudinal stamped sheet metal portions connected together by the aid of a liner, a reciprocable razor blade carrier in the said body, racks in the said body, said racks being constituted by perforations in said liner and pinions on the carrier engaging with said racks for automatically rocking the blade at the end of each stroke of the said carrier, and hone and strop elements removably fitting in the said apertures.

19. A device for use in sharpening safety razor blades, comprising in combination, a box-like body for the device, a reciprocable razor blade carrier in the said body, a handle pivoted thereto to reciprocate it, means automatically to rock the blade at the end of each stroke, hone and strop elements removably fitting in the said body and projections on the said handle to engage in holes in the body of the device to hold the carrier stationary while the razor blade is being engaged with and disengaged therefrom.

PIERO MARIANO SALERNI.