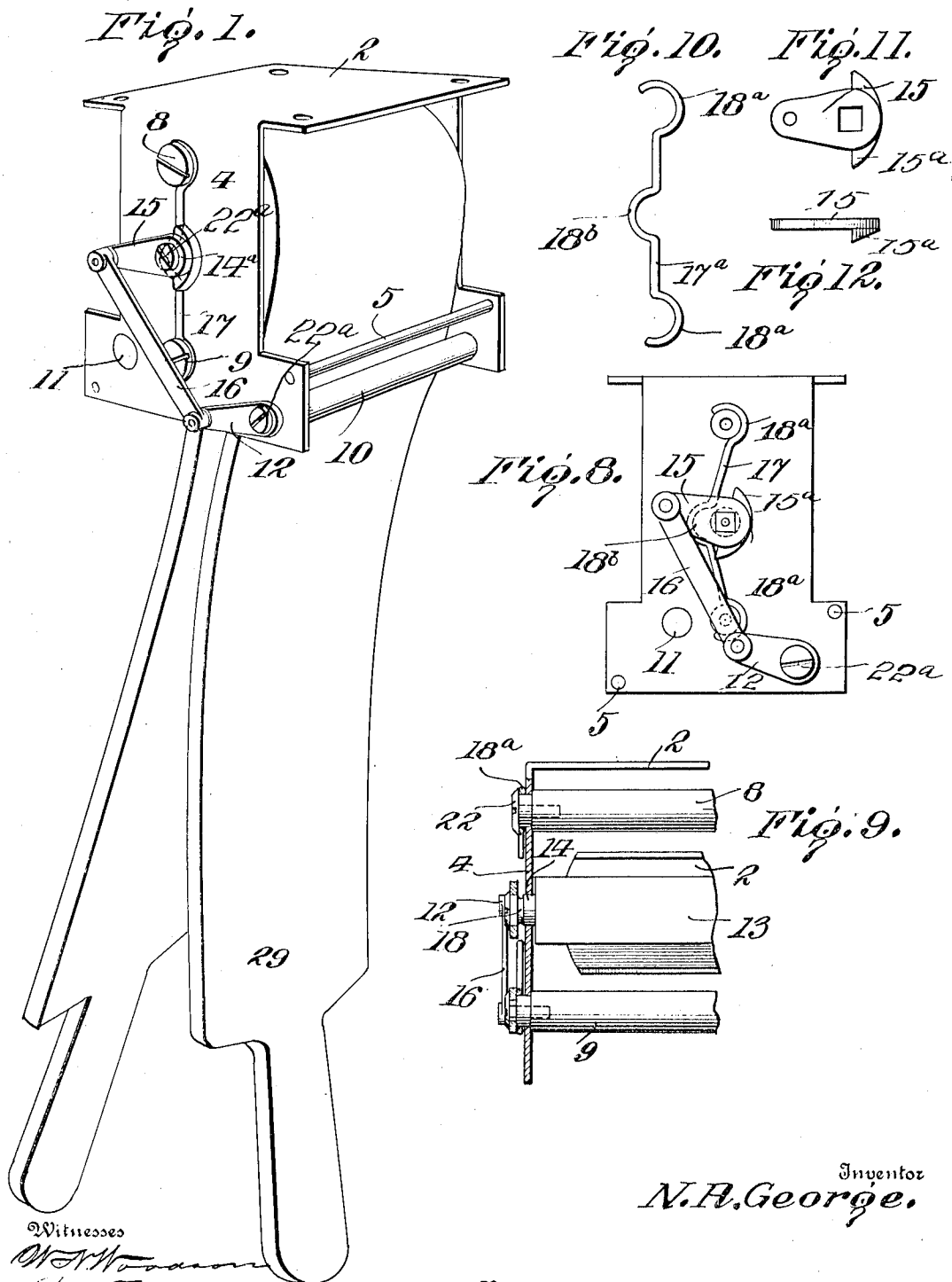


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STROPPING DEVICE FOR SAFETY RAZORS.
APPLICATION FILED APR. 26, 1909.

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2 SHEETS—SHEET 1.



Witnesses
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J. M. Fallin

Inventor
N. R. George.

By

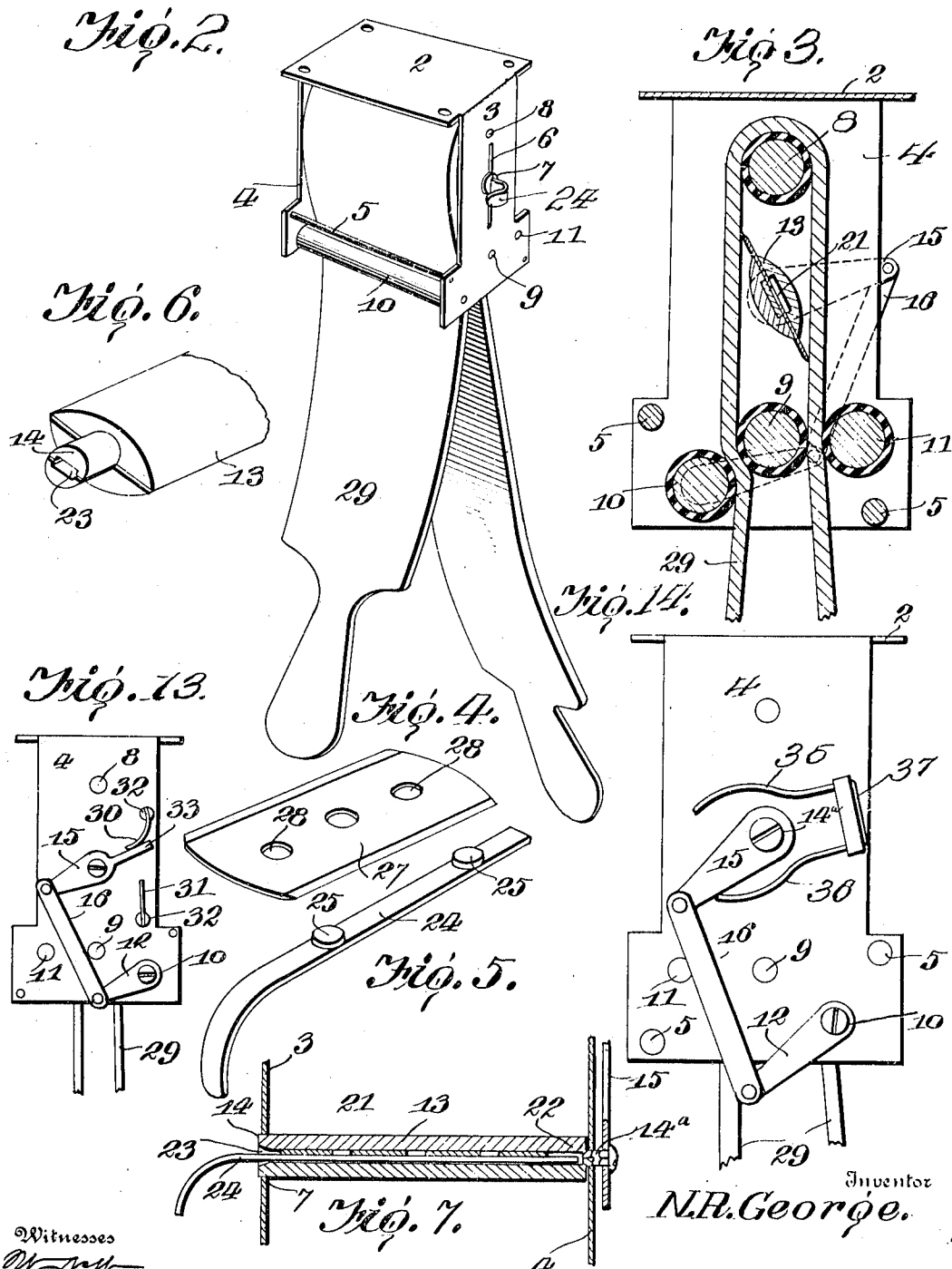
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UNITED STATES PATENT OFFICE.

NEWTON R. GEORGE, OF ROCHESTER, NEW YORK.

STROPPING DEVICE FOR SAFETY-RAZORS.

949,424.

Specification of Letters Patent.

Patented Feb. 15, 1910.

Application filed April 26, 1909. Serial No. 482,231.

To all whom it may concern:

Be it known that I, NEWTON R. GEORGE, a citizen of the United States, residing at Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Stropping Devices for Safety-Razors, of which the following is a specification.

My invention relates to stropping devices for razors, and more particularly to a device arranged for the stropping of safety razors, these latter consisting of small blades sharpened on both sides, and requiring a somewhat different treatment from blades of ordinary razors.

The object of my invention is to provide a mechanism which will strop both edges of a safety razor blade and will also strop both faces of each of the edges on each reciprocation of the strop, and further to provide an improved blade-carrying shaft which will grip the blade and hold it in position in the machine without any chance of the blade slipping or shifting from one side to the other.

For a full understanding of the invention and the merits thereof, and to acquire a knowledge of the details of construction, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a perspective view of one form of my device; Fig. 2 is a perspective view showing the other end thereof; Fig. 3 is a longitudinal section; Fig. 4 is a perspective view of the blade; Fig. 5 is a perspective view of the blade holder; Fig. 6 is a fragmentary perspective view of one end of the rotatable blade carrier; Fig. 7 is a longitudinal fragmentary section showing the blade carrier with the blade inserted therein; Fig. 8 is a side elevation of my device, showing the preferred form of spring; Fig. 9 is a fragmentary vertical section; Fig. 10 is a plan view of the spring shown in Figs. 1 and 8; Fig. 11 is a plan view of the arm 15 with its wings; Fig. 12 is an edge view of the arm; Fig. 13 is a side elevation showing a modified form of spring; and, Fig. 14 is a like view showing another modification of the spring.

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

The invention consists of a mechanism

wherein a razor blade is oscillated in an oscillatory holder and swung from side to side against the opposed faces of the strop, as said strop is drawn back and forth over a roller which is oscillated by the strop and which through a link communicates its movement to the razor holder, this construction doing away with the necessity of toothed gears between the roller and the blade holder, and thereby obviating any chance of lost motion due to the gears not meshing properly, and also making a very simple and cheap device.

Referring to the drawings, the supporting frame of my device is made of sheet metal bent into a general rectangular form and providing a top plate 2 and two end plates 3 and 4, the top plate being provided with means whereby the device as a whole may be supported. The side plates 3 and 4 at their lower ends are braced from each other by cross bars 5, and one of the side plates is vertically slitted, as at 6, this slit intersecting the bearing opening 7 forming a bearing for the trunnion 14 of the elliptical blade-carrying shaft 13. Between the upper ends of the sides is rotatably supported the roller 8 which may be made of hard rubber, wood, metal, or fiber. Beneath the blade carrier, is provided the central roller 9 which is in alinement with the roller 8 and on either side of the central roller 9 are the side rolls 10 and 11, the rolls 8, 9 and 11 being idle rolls, but the shaft of the roller 10 being provided at its end beyond the end-piece 3 with a crank arm 12.

The blade carrier 13 is elliptical in cross section and is split along its length from one end nearly to the other end. This blade carrier is formed of spring metal, and the two sections or legs thereof tend to close upon each other and upon a blade which may be carried therein. The extremities of the blade carrier are provided with trunnions 14 and 14^a which extend out through suitable bearings in the sidepieces 3 and 4, the trunnion 14^a being connected to an arm 15 which is of the same length as the arm 12 and is connected thereto by the link 16, so that the two arms 12 and 15 move together and synchronously. Thus, as the roller 10 partially rotates under the influence of the strop, as will be described, the blade carrier 13 also partially rotates upon its trunnions and rocks the blade through an angular distance of about 90 degrees.

Referring to Figs. 1, 8 and 10, it will be seen that the spring whereby the blade holder is actuated to retract it upon a reverse movement of the strop, consists of a longitudinal resilient rod 17 bent at its middle and at its ends to form semicircular bends 18^a and 18^b, the end bends 18^a being reversed in direction to the bend 18^b. These bends being semicircular, partly surround the trunnions or projecting ends of the rollers 8 and 9 and the trunnion 14^a of the blade carrier, as shown clearly in Fig. 1. The arm 15 is provided on its under face with the laterally projecting wings 15^a. When the arm is inclined in one direction or the other, to a horizontal plane, it will contact with the spring 17 and flex it in the manner shown in Fig. 8. The spring 17 will thus tend to return the blade carrier to a middle position so as to withdraw the blade from contact with the strop upon each reverse movement of that side of the strop.

The blade carrier 13, as before remarked, is elliptical in section and is split from one end nearly to the other. The major axis of the blade carrier is normally at an inclination to a plane extending midway between the two ends of the strop. The extremity of the two sections of the blade carrier is reduced, as at 14, so as to form a split trunnion fitting the bearing 7. The interior faces of the two sections of the carrier are channeled, as at 21, the opening of the channel 21 being slightly flared at 23 for the easy insertion of the blade-engaging slide bar 24. This slide is in the form of a relatively narrow bar having projecting studs 25 on its upper face, these studs being adapted to enter openings 28 in the razor blade 27. This slide bar 24 is adapted to be inserted in the opening 23 and to be forced into the channel 21. After the bar 24 has fully entered the chamber 22, the spring jaws of the blade holder 13 will of course close tightly down upon the blade and will hold the slide bar 24 securely in position.

The blade 27 to be stropped is of the usual form of safety razor blades, and is provided with a plurality of perforations 28 along its middle, these perforations being engaged by the studs 25 on the bar 24. It will of course be seen that the edges of the blade project out on both sides of the blade holder 13, and that as the blade holder is rocked or oscillated, the blade will also be oscillated so that its opposite edges will be turned from one side to the other. The strop 28 is doubled over the uppermost roller 8 and is then passed down on each side of the central roller 9 and between the central roller and the rollers 10 and 11. It will be obvious that the roller 10 is somewhat below the roller 9 and is set inward nearer to the roller 9 than is the roller 11. Hence, the strop 29, when drawn taut, will bind

between the rollers 9 and 10, thus getting a thoroughly good contact with the roller 10 so that the actuation of the strop up and down by the hands of the operator will act to oscillate the roller 10. This in turn will of course oscillate the arm 12 which, through the link 16 and arm 15, will oscillate the blade carrier 13, and the blade will be turned alternately from one side of the strop to the other. Inasmuch as the blade projects on both sides of the blade carrier, it will be seen that as the right-hand end of the strop is being drawn down, the upper edge of the blade will be turned over to the left and against the left-hand side of the strop, and that upon a reversal of the movement of the strop, the blade will be reversed so that its upper edge will come against the right-hand strop, and its lower edge against the left-hand. The spring 17 acts to prevent any chance of the blade catching against the strop upon its reversal, for the reason that the moment the strop is reversed, the spring acts to throw the arm 15 in a reverse direction and thus move the blade out of contact with the strop.

In Fig. 13 I have shown a modification of the spring arrangement which consists in providing the opposed springs 30 and 31 which are fast in studs 32 projecting from the side plate 3. The arm 15 is extended rearwardly, as at 33, and the springs 30 and 31 are directed toward the arm. It will be seen that as the arm moves from one position to another, it will contact with the spring 30 or the spring 31 which will tend to move it back to a median position.

In Fig. 14 I have shown a still further modification of a spring arrangement for returning the arm 15 to its middle position. Upon the exterior face of the sidepiece 4 are supported the spring tongues 35 and 36. These are preferably made integral with each other and are attached to the sidepiece in any desired manner, as by the riveted clamp 37. The two tongues are inwardly bent at their extremities and will contact with the arm 15 in either its raised or its lowered position, so that when the arm moves upward, it moves against the force of the spring 17, and when it reaches the extremity of its outward movement, it will move against the force of the spring 18. Thus, these two tongues will operate in the same manner as the tongues 30 and 31 or the spring 17. I do not wish to be limited to the particular arrangement of these springs, as it is obvious that any other arrangement might be made. Neither do I wish to be limited to the precise construction of my blade carrier, as it may be modified in many ways, though I believe the form shown to be the preferable form. It is of course necessary that the inner faces of the two portions of the strop should be parallel, and to

that end, the rollers 8 and 9 should be of the same diameter. I have shown the rollers 8 and 9 as being provided with the flat screw heads 22 for the purpose of holding the springs 17 in position, but I do not wish to be limited to this construction. I have also shown the arm 15 as being held upon the trunnion 14^a by means of a flat screw 22^a, and the same device being used to hold the arm 12 to the roller 10, but again I do not wish to be limited to this, as it is merely a detail which might be varied to suit various styles of manufacture.

The operation of my device is of course obvious. When it is desired to strop a safety razor blade, the blade is placed upon the slide bar 24, and the slide bar inserted into the split carrier or holder 13, whereupon the two legs or sections of the holder will close down firmly upon the blade and bar, thus holding the bar in position from any lateral or longitudinal movement. The operator then takes hold of the two ends of the strop and alternately draws upon one or the other of these ends, thus oscillating the strop, as before described, and oscillating the pivoted blade holder against the inside faces of the strop.

Having thus described the invention, what is claimed as new is:—

1. In a stropping device for razors, a frame, a roller journaled therein, a strop looped over the roller to cause its opposed portions to lie in parallel relation, an oscillatory blade holder journaled in the frame, between the opposite sides of the strop, and having a trunnion projecting through the frame, an arm on said trunnion, a roller mounted in the frame below the blade holder, means for holding one side of the strop against said roller, an arm projecting over said roller and looped on the exterior of the frame, and a link on the exterior of the frame connecting the roller with the blade holder.

2. In a stropping device, a frame, a roller journaled therein in the upper portion of the frame, a strop looped over the roller to cause its opposed portions to lie in parallel relation, an oscillatory blade holder journaled in the frame between the opposite sides of said strop, said blade holder consisting of resiliently connected opposed sections between which the blade is engaged, a roller mounted in the frame immediately below the blade holder, a roller mounted in the frame to one side of said last named roller and slightly below the same, between which rollers one side of the strop passes, an arm projecting from the casing of the last named roller, an arm projecting from the blade holder, and a link connecting the arms.

3. In a stropping device, a frame, a roller journaled in the upper end thereof, a strop looped over the roller to cause its opposed

portions to lie in parallel relation, an oscillatory blade holder journaled in the frame between opposite sides of said strop, an idler roller mounted in the frame immediately below the blade holder, a roller spaced from the idler roller, the thickness of the strop, but located below the idler roller, and with its circumference nearly in the same plane as the circumference of the idler roller, an arm on the last named roller, an arm on the blade holder, a link connecting the arms and springs engaging to limit the extreme movement of the arms.

4. In a stropping device, a roller, a strop looped over the roller to cause its opposed portions to lie in parallel relation, an oscillatory blade holder, and means for oscillating said holder through the oscillation of said strop, said blade holder consisting of a split resilient bar, the inner faces of which are channeled longitudinally, and a blade carrier adapted to be forced into the channel, said carrier bar being provided with means for engaging with a blade.

5. In a stropping device, a frame having a slit at one end for the insertion of a razor blade, and a bearing formed in said slit, a roller journaled in the frame, a strop looped over the roller to cause its opposed portions to lie in parallel relation, a blade holder journaled in the frame between opposite sides of the strop, said blade holder consisting of a split resilient bar, the contacting faces of which are longitudinally channeled, said blade holder being adapted to be turned so that its channel will aline with the slit in the sidepiece of the frame, means for oscillating the blade holder upon the reciprocation of the strop, and a blade carrier adapted to be inserted into said channel in the blade holder and having studs on one face and engageable with a razor blade.

6. A blade holder for stropping devices, consisting of a bar of resilient material having a trunnion formed at one end, said bar being split from the extremity of the other end, and said split extremity being likewise formed into a trunnion, the contacting inner faces of the split bar having longitudinally opposed channels formed therein, the outer extremity of the channel being flared, and a blade carrier consisting of a bar having projecting studs on one face and a curved extremity, the carrier being adapted to be inserted into the flared opening of the holder and forced inward along the channel thereof.

7. A stropping device having therein an oscillatory blade holder composed of two opposed sections resiliently held against each other and adapted to receive a razor blade between them and allow the blade to project out on either side of the holder, a strop looped through the device to cause its opposed portions to lie in parallel relation on each side of said blade holder, and mechanism

for oscillating the blade holder upon the oscillation of said strop to carry the opposed edges of the razor blade into contact with the faces of the opposed portions of the strop.

8. In a stropping device of the kind described, the combination with a hollow split blade carrier adapted to be oscillated, of a blade holder insertible into said carrier having studs on one side adapted to engage with openings in the blade of a safety razor.

9. In a stropping device of the character described, an oscillatory blade holder, a strop passing over the roller and downward on either side of the blade carrier, means for oscillating the blade carrier upon a reciprocation of the strop, an arm on the blade carrier, and resilient means for resiliently limiting the extreme motion of said arm in either direction and for returning it to a middle position.

10. A stropping device having therein an oscillatory blade holder, a roller, a strop passing over the roller, an arm projecting from the blade holder, means for oscillating said arm and the blade upon the reciprocation of the strop, wings oppositely extending and fast to the arm, and a spring with which the opposite wings engage when the arm is reciprocated to return the arm to a central position.

11. A stropping device having therein a frame formed of opposed side plates, an oscillatory blade holder mounted in said frame, an arm projecting from the blade holder and formed with oppositely projecting wings, a roller mounted in the upper end of the holder and projecting through the side plate, a roller mounted in the lower end of the frame and projecting through the side plate, and a spring engaged with the projecting ends of said rollers and partially surrounding at its middle the said blade holder trunnion, said spring being engageable by the opposed wings.

12. A stropping device having therein an oscillatory blade holder, a frame in which the blade holder is mounted, having opposed side pieces, a roller above the blade holder, a strop passing over said roller, a roller below the blade holder over which said strop passes, an arm projecting from said roller, an arm projecting from the blade holder, a link connecting the two arms, a longitudinally extending spring held at its upper and lower ends and having a central bend surrounding the trunnion of the blade holder, and opposed wings on the arm and trunnion engageable with said spring to flex the same when the arm is oscillated.

13. A stropping device for double-edged razor blades, including a frame, a roller, a strop passing over the roller and adapted to be reciprocated in opposite directions, an oscillatory blade holder located between the ends of the strop, engageable with the middle of a blade and having its opposed edges projecting from the holder, and means for oscillating the blade holder in opposite directions upon each reciprocation of the strop.

14. In a stropping device for double-edged razor blades, an oscillatory blade carrier adapted to receive a blade and permit its opposite edges to project from the carrier, a strop passing over and down on each side of the blade carrier and adapted to be reciprocated; and means for oscillating the blade carrier upon the reciprocation of the strop to bring the opposite edges of the double-edged blade into contact with opposite faces of the strop.

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

NEWTON R. GEORGE. [L. s.]

Witnesses:

D. A. CAMPBELL,
FREDERICK VOELZER.