Jan. 11, 1927. **1,613,643**

C. E. CARPENTER

RAZOR STROPPER AND THE LIKE

Filed Nov. 23, 1925 2 Sheets-Sheet 1

Fig. 1.

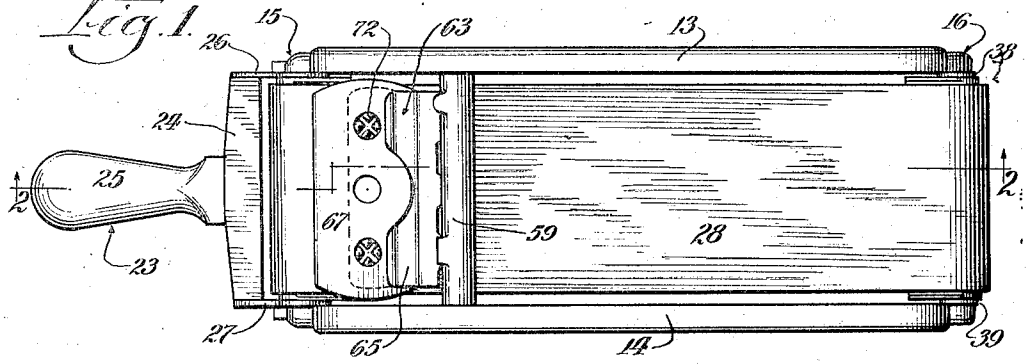


Fig. 2.

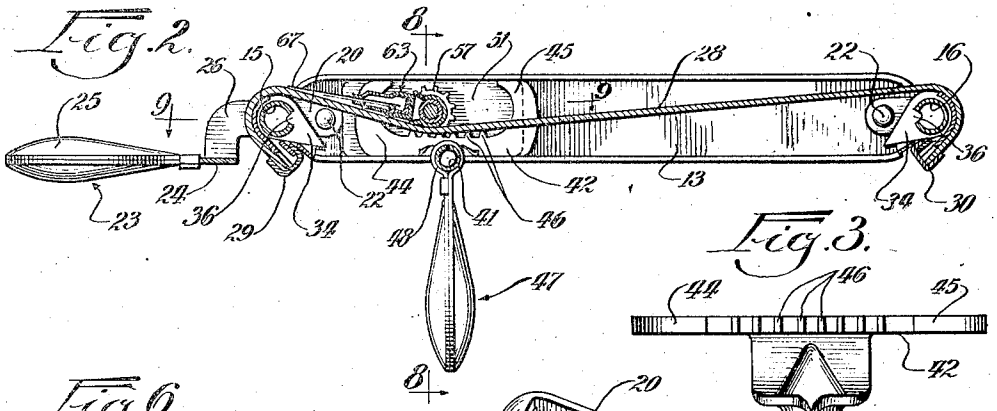


Fig. 3.

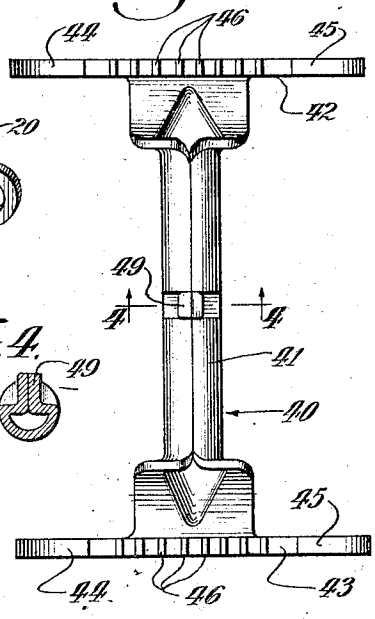


Fig. 6.

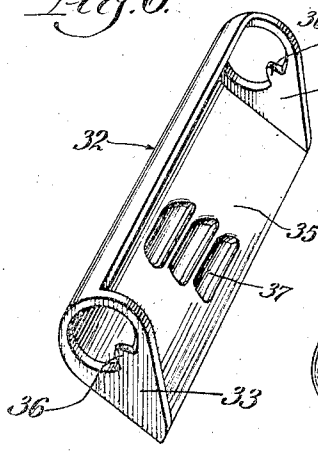


Fig. 5.

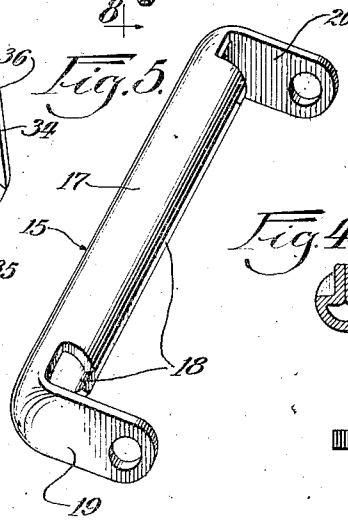


Fig. 4.

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Fig. 7.

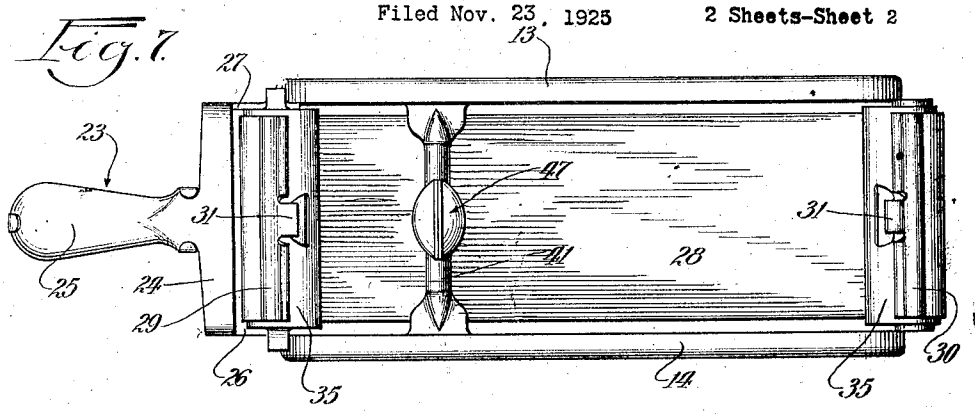


Fig. 11.

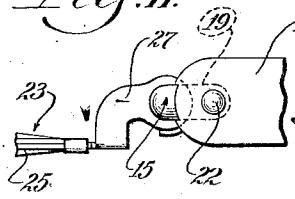


Fig. 8.

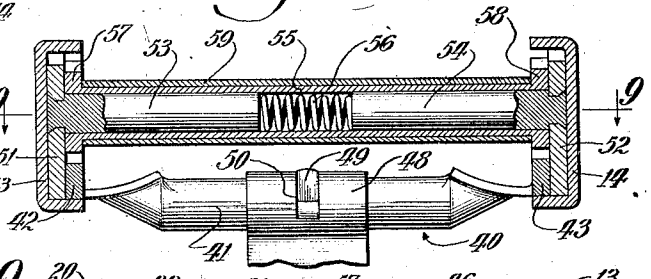


Fig. 12.

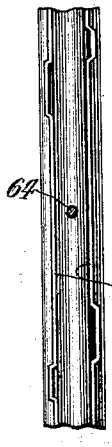


Fig. 9.

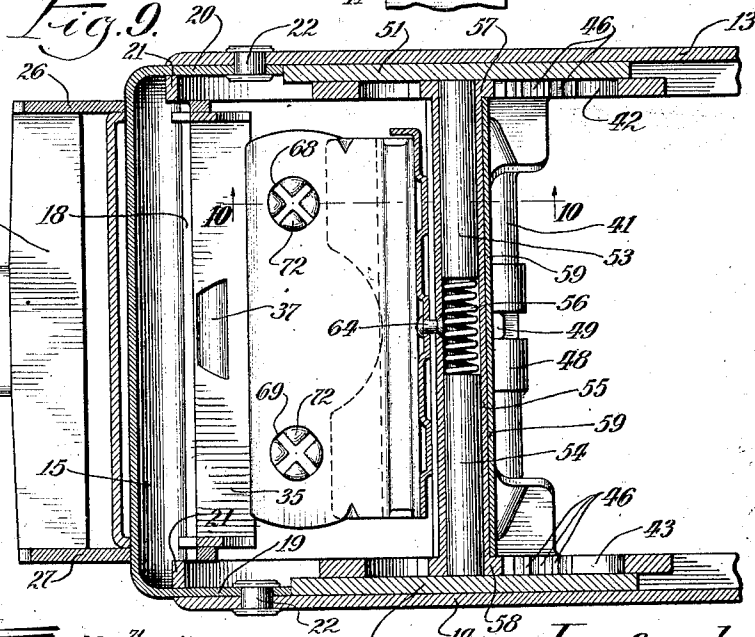
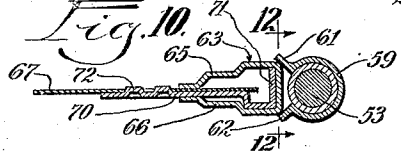


Fig. 10.



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Patented Jan. 11, 1927. 1,613,643

UNITED STATES PATENT OFFICE.

CHARLES E. CARPENTER, OF CHICAGO, ILLINOIS.

RAZOR STROPPER AND THE LIKE.

Application filed November 23, 1925. Serial No. 70,974.

This invention has to do with improvements in razor stroppers and the like. The invention relates particularly to improvements in stroppers for honing safety razor blades. The stropper herein disclosed may be used for honing safety razor blades of either the single or double edged variety.

One of the objects of the invention is to provide a very simple construction of stropper, and at the same time one which will very effectively and efficiently ensure the alternate honing of the two edges of the blade. In this connection, it is an object to provide a construction such that the reversal of the blade will be very positively and definitely effected prior to the commencement of actual reverse travel of the blade itself. This will avoid any possibility of cutting the strop on the reverse movement.

Another feature of the invention relates to the provision of improved means for supporting the strop at its two ends. In this connection, it is an object to provide a strop support of an adjustable nature, so that the purchaser and user can very quickly adjust the tension of the strop or compensate for stretch.

Another feature of the invention relates to the provision of means for ensuring a very definite amount of frictional engagement of the edge of the blade against the face of the strop with the blade in either position; and in this connection to provide a construction such that the aforementioned frictional engagement will be uniformly created and maintained at all times notwithstanding any amount of wear which may take place in the course of extended use and operation of the device.

Another feature of the invention relates to the provision of an improved form of razor blade holder. In this connection, it is an object to provide a holder of such construction that the blade can be readily set into place or removed therefrom, and will be retained firmly within the holder without the need of using special tools or instruments for ensuring this result.

It is a further object of the invention to provide a construction which can be very readily made from sheet metal stampings of simple form so as to standardize and greatly reduce the cost of manufacture.

Other objects and uses of the invention will appear from a detailed description of the same, which consists in the features of construction and combinations of parts hereinafter described and claimed.

In the drawings:

Figure 1 shows a plan view of a razor stropper embodying the features of the present invention;

Fig. 2 shows a longitudinal section on the line 2—2 of Fig. 1, looking in the direction of the arrows;

Fig. 3 shows a top view of the handle catch removed from the frame, and on enlarged scale as compared to Figs. 1 and 2;

Fig. 4 shows a cross section on the line 4—4 of Fig. 3, looking in the direction of the arrows;

Fig. 5 shows a perspective view of one of the end bars;

Fig. 6 shows a perspective view of one of the strop adjustment plates;

Fig. 7 shows a bottom view corresponding to Fig. 1;

Fig. 8 shows a transverse section on the line 8—8 of Fig. 2, looking in the direction of the arrows, but on enlarged scale;

Fig. 9 shows a fragmentary horizontal section on the line 9—9 of Figs. 2 and 8, looking in the direction of the arrows, the strop being removed;

Fig. 10 shows a fragmentary section through the blade holder and associated parts on the line 10—10 of Fig. 9, looking in the direction of the arrows;

Fig. 11 shows a fragmentary end view of the frame, corresponding to Fig. 1; and

Fig. 12 shows a fragmentary face view of the cross sleeve of the carriage, taken on the line 12—12 of Fig. 10, looking in the direction of the arrows.

The stropper includes a frame composed of a pair of side bars 13 and 14 together with cross end pieces 15 and 16. These cross pieces are preferably of the form shown in Fig. 5, each being composed of a piece of sheet metal folded around so as to establish a central cylindrical portion 17 having a longitudinally extending slot 18, and so as to provide a pair of end ears 19 and 20.

The side bars 13 and 14 are preferably of channel section, as shown particularly in Fig. 8; and at their ends the flanges of the channel are joined together so as to form a connecting flange, such as 21 at each end of the device, (see Fig. 9 in particular). These end flanges 21 are perforated to receive the

lugs 19 and 20 when the end members are set into place, so that the ends of the side members are securely locked together, as shown in Fig. 9. Rivets, such as 22, may then be driven through the parts so as to permanently connect them together.

The end member 15 carries a handle 23 which is pivotally mounted thereon. This handle includes a cross bar 24 together with a hand grip 25. The two ends of the cross bar terminate in the aforesaid lugs 26 and 27, respectively; and said lugs in turn are perforated and pivoted on the end portions of the cross bar 15. As a matter of convenience in construction, the cylindrical portion 17 of the cross bars terminates short of the lugs 19 and 20, and the handle lugs 26 and 27 are pivoted on the cross bar intermediate between the cylindrical portion 17 and said lugs 19 and 20.

It is also preferred that the hand grip 26 be offset with respect to the plane which passes through the cross bars 15 and 16, so that by swinging said handle upwards, when viewed as in Fig. 2, the hand grip will lay over against the top side of the device.

The strop 28 is of suitable material, such as a special quality of leather treated on its two faces to give the desired abrasive and polishing qualities. Said strop is provided at its ends with the clips 29 and 30. Each of these clips has on one side a central return facing lug 31, as shown particularly in Figs. 2 and 7. Mounted on each of the end bars 15 and 16 is a plate 32 (see Fig. 6) which is stamped out so as to establish the end walls 33 and 34, together with a returning flange 35. These end walls 33 and 34 are preferably spaced to set onto the cylindrical portion 17 of the end bar, for which purpose the said ends 33 and 34 are perforated, as shown in Fig. 6. They are also provided with inwardly reaching lugs 36 which set into the longitudinal slot 18 of the end bar so as to prevent the member 32 from rotating thereon.

The flanges 35 of these two members 32 face downwardly and towards each other at an angle of substantially 45°, as clearly evident from Fig. 2. They are provided with the slotted openings or semi-perforations 37 into which the lugs 31 may be clipped so as to lock the ends of the strop in place. A number of these openings 37 are provided in each of the members 32, so that the tension or stretch of the strop may be compensated for.

It will be noted that at the handle end of the device, the handle flanges 26 and 27 occupy the spaces between the flanges 33 and 34, and the lugs 19 and 20. At the other end of the device, said spaces are conveniently filled with washers 38 and 39, as shown in Fig. 1.

A carriage 40 is mounted for longitudinal travel between the two side bars 13 and 14. This carriage is conveniently made of sheet metal so formed as to establish a tubular contral cross member 41, together with a pair of end plates 42 and 43 located at right angles thereto. These end plates are of peculiar shape, such as indicated in Fig. 2. Each of them has a pair of upwardly reaching hooks 44 and 45, and is provided with a series of teeth 46 on its upwardly facing edge. A handle 47 has a loop 48 which embraces the tubular section 41, as clearly shown particularly in Figs. 2 and 8. The metal of the cross bar 41 is so treated as to form an upwardly projecting lug 49 which reaches through the slot 50 of the sleeve 48 so as to retain the handle 47 against lateral movement with respect to the carriage, and to also limit the swing of the handle on the cross bar 41.

Intermediate between the carriage end plates 42 and 43 and the webs of the side frame channels 13 and 14, respectively, are the friction plates 51 and 52. These are provided with the central inwardly projecting pins 53 and 54 respectively, which reach into a tubular cross member 55 which is journaled upon them. A spring 56 is placed between the inner ends of these pins 53 and 54 and forces them against the webs of the side frame bars under a uniform degree of spring pressure. This ensures a definite frictional contact between these parts at all times.

On the ends of the tube 55 are placed the pinions 57 and 58 which mesh with the teeth of the two flanges 42 and 43 respectively. The back and forth movement of the aforesaid toothed flanges with respect to the pinions is limited by the upstanding hooks 44 and 45, but there is sufficient amount of movement allowed to permit complete reversal of the blade holder from one position to the other.

On the sleeve 55 there is secured another sleeve 59, the general form of which is shown in Figs. 10 and 12 in particular. It is preferably provided with a relatively wide slot 60 at one side, the edges of said slot being flared outwards, as shown at 61 and 62 in Fig. 10.

A blade holder 63 has its mid portion pivoted to the sleeve 55 by a pin 64, as shown in Fig. 9, so that said blade holder can be turned clear around either to lie parallel to the sleeve 55 or at rightangles thereto. The flanges 61 and 62 have sufficient spring action to hold the blade holder in the parallel position of Figs. 9 and 10 during ordinary working operations, but said flanges will yield sufficiently to allow the blade holder to be turned at right angles when desired.

Said blade holder 63 has the side flanges 65 and 66 which also press together with

a spring action. The blade illustrated is designated 67. It is of the type having a pair of perforations 68 and 69. There is provided a sheet metal clip 70, the inner end of which is folded over at right angles, as shown at 71 in Fig. 10, and is of proper size to be slipped lengthwise into the holder 63 and be firmly held therein by the spring action of the arms 65 and 66. This clip 70 is provided with semi-perforations 72 to establish lugs which engage the perforations of the razor blade itself.

When such a razor blade, as illustrated, is to be honed, the same having the two perforations, it is first set onto the clip 70 with the semi-perforations introduced into the blade holes 68 and 69. The clip is then slipped into the holder 63 whereupon the blade and clip are firmly clamped together and are also securely locked into the holder. The holder is then turned into a position of parallelism with respect to the tube 55 and the device is then ready for the honing operation.

The honing operation consists in a back and forth movement of the carriage with respect to the strop. This is accomplished by holding the handle 23 in one hand and sliding the other handle 47 back and forth with the other hand. At the instant of each reversal of carriage movement, the initial reverse movement of the carriage will cause the blade holder to be thrown over to face in the reverse direction, since the friction of the plates 51 and 52 against the frame side bars is sufficient to hold said plates, together with the pinions and blade holder itself stationary, that is against lateral movement, for the time being. As soon as the blade has been thrown over and its edge brought against the strop at the other side of the carriage, the pressure of the blade against the strop will prevent any further rotary movement and the movement of the carriage will compel the blade holder to travel laterally therewith and ensure the desired honing action.

While I have herein shown and described only a single embodiment of the features of my present invention, still I do not intend to limit myself to the same, except as I may do so in the claims.

I claim:

1. A razor stropper comprising in combination a pair of parallel channel shaped side plates having their channels facing each other and provided with end flanges, cross bars at the ends of the device comprising longitudinally slotted circular body portions together with right angular end lugs reaching through the end flanges of the channel members aforesaid and rigidly secured to said channel members, a handle having a pair of offset lugs pivotally mounted on one cross bar to permit said handle to be laid over flat against one side of the device, a strop supporting member on each of the cross bars including a pair of end flanges perforated to receive the corresponding cross bar and having inwardly reaching ears in said perforations to engage the cross bar slot and retain the strop supporting member against rotation on the cross bar, and also being provided with a series of central slotted openings, a strop of suitable material, an end clip on each end thereof having a return facing lug to engage one of the slotted openings aforesaid to retain the strop under tension, a carriage including a cross bar together with a pair of lugs extending at right angles thereto and provided with rack teeth, a tubular member extending across the device at a position above the carriage and including a transverse tube having a pinion on each end meshing with the corresponding rack teeth, a friction plate located between each pinion and the inner face of the corresponding frame side bar, and provided with an inwardly reaching pin extending into the tubular member, a spring within the tubular member forcing said pins apart, and suitable means in conjunction with the tubular member for carrying a razor blade, substantially as described.

2. A razor stropper comprising in combination a pair of parallel channel shaped side plates having their channels facing each other and provided with end flanges, cross bars at the ends of the device comprising circular body portions together with right angular end lugs reaching through the end flanges of the channel members aforesaid and rigidly secured to said channel members, a handle having a pair of offset lugs pivotally mounted on one cross bar to permit said handle to be laid over flat against one side of the device, a strop supporting member on each of the cross bars including a pair of end flanges perforated to receive the corresponding cross bar, and also being provided with a series of central slotted openings, a strop of suitable material, an end clip on each end thereof having a return facing lug to engage one of the slotted openings aforesaid to retain the strop under tension, a carriage including a cross bar together with a pair of lugs extending at right angles thereto and provided with rack teeth, a tubular member extending across the device at a position above the carriage and including a transverse tube having a pinion on each end meshing with the corresponding rack teeth, a friction plate located between each pinion and the inner face of the corresponding frame side bar, and provided with an inwardly reaching pin extending into the tubular member, a spring within the tubular member forcing said pins apart, and suitable means in conjunction with the

tubular member for carrying a razor blade, substantially as described.

3. A razor stropper comprising in combination a pair of parallel channel shaped side plates having their channels facing each other and provided with end flanges, cross bars at the ends of the device comprising circular body portions together with right angular end lugs reaching through the end flanges of the channel members aforesaid and rigidly secured to said channel members, a handle having a pair of offset lugs pivotally mounted on one cross bar to permit said handle to be laid over flat against one side of the device, a strop supporting member on each of the cross bars including a pair of end flanges perforated to receive the corresponding cross bar, a strop of suitable material, an end clip on each end thereof, engaging the corresponding strop supporting member, a carriage including a cross bar together with a pair of lugs extending at right angles thereto and provided with rack teeth, a tubular member extending across the device at a position above the carriage and including a transverse tube having a pinion on each end meshing with the corresponding rack teeth, a friction plate located between each pinion and the inner face of the corresponding frame side bar, and provided with an inwardly reaching pin extending into the tubular member, a spring within the tubular member forcing said pins apart, and suitable means in conjunction with the tubular member for carrying a razor blade, substantially as described.

4. A razor stropper comprising in combination a pair of parallel channel shaped side plates having their channels facing each other and provided with end flanges, cross bars at the ends of the device comprising longitudinally slotted circular body portions together with right angular end lugs reaching through the end flanges of the channel members aforesaid and rigidly secured to said channel members, a handle having a pair of offset lugs pivotally mounted on one cross bar to permit said handle to be laid over flat against one side of the device, a strop supporting member on each of the cross bars including a pair of end flanges perforated to receive the corresponding cross bar and having inwardly reaching ears in said perforations to engage the cross bar slot and retain the strop supporting member against rotation on the cross bar and also being provided with a series of central slotted openings, a strop of suitable material, an end clip on each end thereof having a return facing lug to engage one of the slotted openings aforesaid to retain the strop under tension, and suitable means for reciprocating a razor blade back and forth on said strop, substantially as described.

5. A razor stropper comprising in combination a pair of parallel channel shaped side plates having their channels facing each other and provided with end flanges, cross bars at the ends of the device comprising longitudinally slotted circular body portions together with right angular end lugs reaching through the end flanges of the channel members aforesaid and rigidly secured to said channel members, a handle mounted on one cross bar, a strop supporting member on each of the cross bars including a pair of end flanges perforated to receive the corresponding cross bar and having inwardly reaching ears in said perforations to engage the cross bar slot and retain the strop supporting member against rotation on the cross bar and also being provided with a series of central slotted openings, a strop of suitable material, an end clip on each end thereof having a return facing lug to engage one of the slotted openings aforesaid to retain the strop under tension, and suitable means for reciprocating a razor blade back and forth on said strop, substantially as described.

6. A razor stropper comprising in combination a pair of parallel channel shaped side plates having their channels facing each other and provided with end flanges, cross bars at the ends of the device comprising body portions together with right angular end lugs reaching through the end flanges of the channel members aforesaid and rigidly secured to said channel members, a handle mounted on one cross bar, a strop supporting member on each of the cross bars including a pair of end flanges perforated to receive the corresponding cross bar, and also being provided with a series of central slotted openings, a strop of suitable material, an end clip on each end thereof having a return facing lug to engage one of the slotted openings aforesaid to retain the strop under tension, and suitable means for reciprocating a razor blade back and forth on said strop, substantially as described.

7. A razor stropper comprising in combination a pair of parallel channel shaped side plates having their channels facing each other, cross bars at the ends of the device joining said side plates together, a suitable handle for supporting the frame so constituted, a strop extending between the end members aforesaid, a carriage including a cross bar together with a pair of lugs extending at right angles thereto and provided with rack teeth, a tubular member extending across the device at a position above the carriage and including a transverse tube having a pinion on each end meshing with the corresponding rack teeth, a friction plate located between each pinion and the inner face of the corresponding frame side bar and provided with an inwardly reaching pin extending into the tubular member, a spring within the tubular member forcing said pins

apart, and suitable means in conjunction with the tubular member for carrying a razor blade, substantially as described.

8. A razor stropper comprising in combination a rectangular frame, a strop extending between two of the opposite sides thereof, a carriage mounted for back and forth movement in the frame and suitably supported by the other sides thereof, said carriage including a crosswise extending rock shaft, means for rocking the same when the direction of carriage movement is reversed, a razor blade holder pivotally mounted on the central portion of said rock shaft to permit said razor blade holder to be placed into position parallel to the rock shaft or at an angle thereto, and spring means normally holding the razor blade holder parallel to the rock shaft, substantially as described.

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