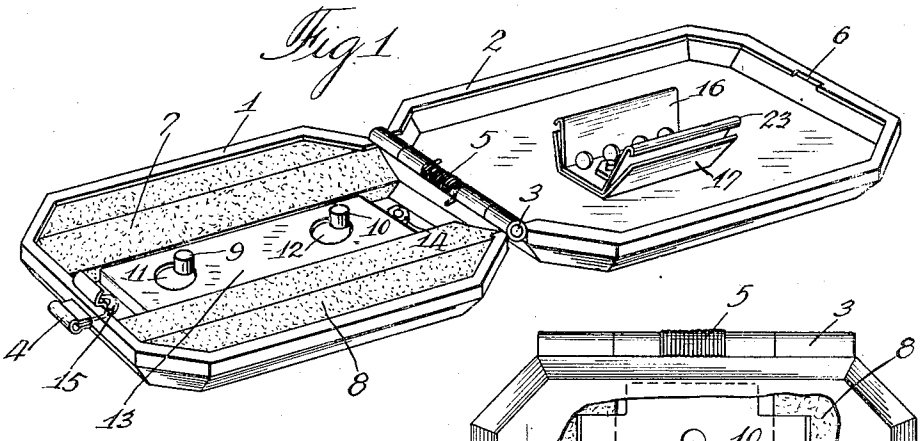
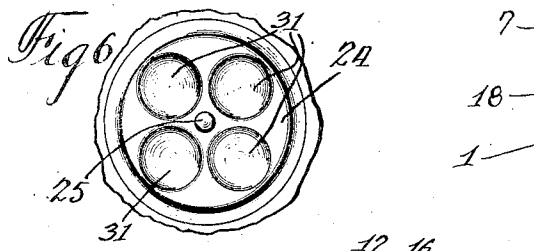
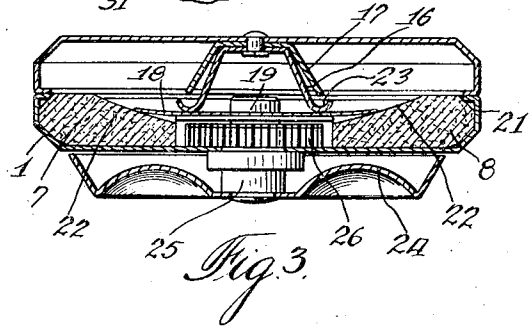
Feb. 21, 1933. A. S. VOLPIN 1,898,915

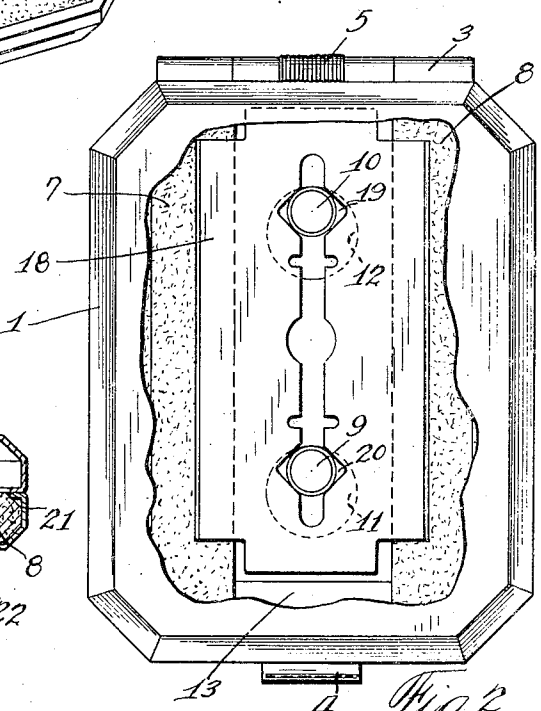
RAZOR BLADE SHARPENER

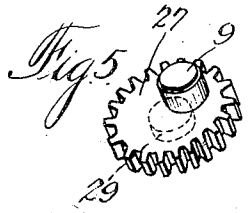
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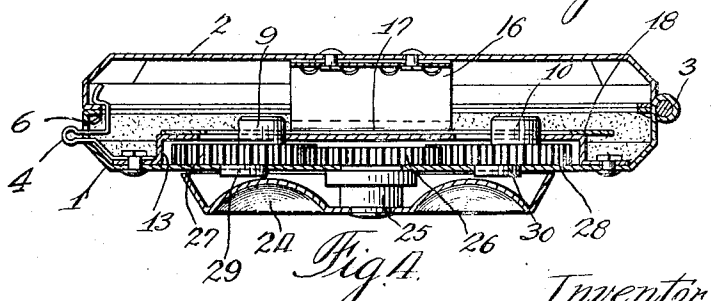


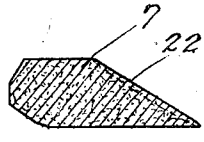




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Attys

Patented Feb. 21, 1933 1,898,915

# UNITED STATES PATENT OFFICE

ALEXANDER S. VOLPIN, OF HOUSTON, TEXAS

## RAZOR BLADE SHARPENER

Application filed December 15, 1932. Serial No. 647,462.

My invention relates to improvements in razor blade sharpeners that are simple and economical to construct, and it has particular reference to razor blade sharpeners that are adapted to sharpen flexible razor blades provided with two cutting edges.

One of the objects of my present invention is to provide a razor blade sharpener of the above indicated character which is exceedingly compact, thus allowing it to be conveniently carried about in a vest pocket and, at the same time, being of such construction that many of the common forms of razor blades may be readily sharpened without any adjustments required in the device to receive the various forms of razor blades.

Another object of my invention is to provide a razor blade sharpener that will quickly and accurately sharpen simultaneously the two cutting edges of a razor blade and wherein both cutting edges of the razor blade are subjected to the same degree of pressure against the abrading surfaces thus resulting in a uniform sharpening of both cutting edges.

Another object of my invention is to provide a razor blade sharpener of the above indicated character which comprises abrading or whetting surfaces and a mechanism associated therewith that is adapted to properly position many of the well known forms of razor blades upon such surfaces ready for the sharpening operation without any further tedious adjustment or manipulation, as well as a mechanism for imparting motion to the razor blade for uniformly sharpening both of the cutting edges—all such mechanism being contained within a thin casing that may be carried about conveniently in a vest pocket.

Other objects and features of my invention will appear hereinafter.

For a better understanding of the nature, scope, and characteristic features of my invention, reference may be had to the following description and accompanying drawing wherein:

Figure 1 is a perspective view showing one form of my razor blade sharpener, the cover or lid of the casing that houses the sharpener being in open position;

Fig. 2 is an enlarged plan view of my device showing a portion of the cover broken away to reveal a well known form of razor blade positioned upon the abrading or whetting surfaces;

Fig. 3 is a cross-sectional view of my razor blade sharpener with the cover of the casing in closed position so that a uniform pressure is exerted by the two cutting edges of the razor blade upon the co-acting abrading surfaces;

Fig. 4 is a longitudinal sectional view of the mechanism of Fig. 3 showing in assembled relation the gear wheels that serve to impart a rotatable oscillatory motion to the two cutting edges of the razor blade upon the two abrading or sharpening surfaces;

Fig. 5 is a perspective view of one of two similar gear wheels comprised in my razor blade sharpener and to which the razor blade is attached during the sharpening operation;

Fig. 6 is a plan view of the handle by means of which the sharpening operation is performed; and

Fig. 7 is a cross-sectional view of one of the two similar abrading members that may provide either a concave or a plane sharpening or whetting surface for the razor blade edge, as may be desired.

Referring to Figure 1, the casing, preferably made of metal, comprises a box portion 1 and a cover or lid 2 hinged thereto at 3 that, when released from the box portion 1 by a spring catch 4, flips into open position, as shown, by reason of the action of a spring 5 that normally urges the cover 2 into full open position. The external longitudinal and transverse dimensions of the casing need not be greatly in excess of those of any razor blade that can be sharpened by my device. The depth of the casing, of course, is kept at a convenient dimension to allow the casing when closed to be carried in a vest pocket.

When the casing is closed the cover 2 is engaged at 6 by the spring catch 4. The box portion 1 also holds in fixed position two opposed and spaced abrading members or

stones 7 and 8. Interposed between the inner edges of the members 7 and 8 is the holding and oscillating mechanism for the razor blade which will be hereinafter more fully described, but which is represented by two upwardly projecting studs 9 and 10 that are adapted to revolve simultaneously within openings 11 and 12, respectively, formed in a cover plate 13. This cover plate is attached to the casing by means of nuts 14 and 15 and conceals from view the gear wheels to be later described. A flexible, open U-shaped spring member 16 is attached to the cover 2 as shown. A substantially non-flexible U-shaped guard member 17 subtends both legs of the spring member 16 and prevents the former from being spread too far apart when the cover 2 is placed in position, whereupon the spring member 16 presses down upon the razor blade causing the cutting edges thereof to exert pressure upon the sharpening surfaces of the members 7 and 8.

Referring to the other figures, it will be observed that a razor blade 18 of a well known form of construction is so positioned upon the abrading members 7 and 8 that the upwardly and projecting studs 9 and 10 project through irregularly shaped openings 19 and 20, respectively, of the razor blade which register therewith. Openings similar to 19 and 20 are present in all of the common and popular forms of safety razor blades having two cutting edges and, obviously, any such razor blades may be sharpened by the device of my invention. It will be observed, by referring to Fig. 2, that each cutting edge of the razor blade 18 subtends throughout its entire length an abrading surface which it overlies. The studs 9 and 10 simultaneously revolve in the openings 11 and 12 of the cover plate 13, as will be hereinafter explained, and impart an oscillatory and revolvable motion to the razor blade 18, both cutting edges of which are held in firm contact against the abrading surfaces of the members 7 and 8 when the cover or lid 1 is in closed position, whereupon the flexible spring member 16 exerts a uniform and substantial pressure upon the razor blade.

The abrading members 7 and 8 are firmly held in fixed position in the box member 1 by the inwardly turned edges 21 of the box 1 that engage the chamfered edges of the members 7 and 8 that are adjacent thereto. Each member 7 and 8 is provided with a downwardly inclined cutting surface 22 that may be concave or arcuate in form, as shown in Fig. 3, or may be plane, as shown in Fig. 7.

As shown in Fig. 3, when the razor blade 18 is placed in position and the cover or lid 2 is closed, the spring member 16 then engages the razor blade longitudinally along two spaced points of contact thus flexing the razor blade slightly into a concave form, whereupon the two cutting edges of the razor blade are firmly pressed against the corresponding abrading surfaces 22 with a uniform pressure. The edges of the spring member 16 are either beaded or curved upwardly, as shown at 23, to minimize the frictional resistance between the razor blade and the spring member 16. Referring to Fig. 4, it will be noted that the spring member 16 engages the razor blade 18 over a substantial portion of its longitudinal dimension.

The lower surface of the box member 1 is provided with a manually operated rotatable handle 24, as shown in Fig. 6, that is firmly secured to a stud 25 rotatably mounted at the center of the member 1. The stud 25 projects through the wall of the box 1 and is firmly secured to a rotatable gear wheel 26, as shown in Figs. 3 and 4. The gear wheel 26 is thus disposed within the central portion of the box member 1 and between the members 7 and 8. The gear wheel 26 meshes with two other gear wheels 27 and 28 placed on opposite sides thereof and in alignment therewith. One of these gear wheels, 27, is shown in Fig. 5. The under portions of the gear wheels 27 and 28 are provided with studs 28 and 30, respectively, that are rotatably mounted in suitably disposed openings formed in the lower face of the box member 1. Both gear wheels 27 and 28 may thus rotate about their respective studs 29 and 30 when actuated by the gear wheel 26.

Referring now to Fig. 5, the upper portion of the gear wheel 27 is provided with the integrally formed stud 9 which is eccentrically disposed with respect to the axis of rotation of the gear wheel about the stud 29. The stud 10 is similarly formed upon the gear wheel 28. In assembling the three intermeshing gear wheels 26, 27, and 28, the studs 9 and 10 are placed in alignment with the stud 25 and are so positioned that one of them is spaced the minimum allowable distance from the central stud 25 while the other one is spaced a maximum allowable distance from the central stud 25. This mode of assembly thus spaces the studs 9 and 10 a proper distance from each other to allow them to project without difficulty into the correspondingly spaced openings 19 and 20 formed in the standard form of razor blade. After the three gear wheels 26, 27, and 28 are assembled as explained, the cover plate 13 is then secured in position by the nuts 14 and 15, thus retaining all of the gear wheels in their assembled relation, as well as the studs 29 and 30 in their respective openings in the casing 1. As before explained, the cover plate 13 is provided with openings 11 and 12 of sufficiently large diameter to allow the studs 9 and 10 to revolve therein.

The handle 24, as shown in Fig. 6, is circular in form and of such diameter that, when placed in assembled position, it conceals the spaced studs 29 and 30 and prevents

their being exposed. Four spaced depressions or recesses 31 are formed in the handle which allow a finger to be inserted in any one of them in order to impart rotary motion thereto. This, in turn, rotates the stud 25 and the gear wheel 26. The stud 25 is firmly secured to the handle 24 so that when rotary motion is imparted to the handle the gear wheel 26 will rotate in unison therewith. Rotation of the gear wheel 26 causes the gear wheels 27 and 28, which are meshed therewith, to rotate simultaneously. The studs 9 and 10 being secured, respectively, to the gear wheels 27 and 28, separately revolve about the axis of their corresponding gear wheel and within the openings 11 and 12. The razor blade 18, when placed in position as shown in Figs. 2, 3, and 4, has thus imparted to it a rotatable oscillatory movement. The two cutting edges of the razor blade, by being pressed against the abrading surfaces 22 by the spring member 16, are consequently sharpened. The razor blade 18 may be turned over conveniently in the sharpener so that both sides of each cutting edge are brought into contact with the sharpening or abrading surfaces 22 and thus the razor blade is effectively sharpened. Of course, when it is necessary to turn the razor blade over, the lid 2 must be opened and subsequently reclosed to sharpen the reverse sides of the cutting edges. During the sharpening operation, the cutting edges of the razor blade are moved over the abrading surfaces 22, but the area of these surfaces is sufficient to prevent any portion of the razor blade from being moved out of operative contact with the abrading surfaces. The transverse movement and the longitudinal movement imparted to the razor blade on rotation of gear wheel 26 is dependent upon the eccentricity of the studs 9 and 10 relatively to the axis of rotation of their respective gear wheels.

As shown in Fig. 7, the sharpening surface 22 of the abrading members 7 and 8 may be plane instead of being concave or arcuate as shown in Fig. 3. The angularity of the sharpening surfaces with respect to razor blade cutting edges is determined, of course, in accordance with the standard angle of sharpening the well known forms of flexible safety razor blades. The members 7 and 8 may be made of any suitable abrading material such as oil-stone, sand-stone, unpolished glass, or other substance which is suitable for sharpening steel.

The casing comprising the member 1 and the lid 2 may be made of an attractive form and suitably decorated. It is now obvious that the longitudinal and transverse dimensions of my razor blade sharpener need not greatly exceed the corresponding dimensions of a razor blade. The thickness of the casing is, of course, dependent upon the thickness of the abrading members 7 and 8, the depth of the handle 24, and the depth of the resilient spring 16, but, in any event, all of these elements may be so proportioned that my razor blade sharpener may be exceptionally thin thus making it convenient to be carried in a vest pocket.

While I have shown and desribed but one embodiment of my invention, it is to be understood that many modifications can be made therein without departing from the spirit and scope of the appended claims.

1. A razor blade sharpener comprising abrading means providing inclined sharpening surfaces, two spaced lugs disposed centrally of said sharpening surfaces to hold positively a safety razor blade whereby the cutting edges of the latter are placed in juxtaposition to said sharpening surfaces at a uniform angle, and means for imparting similar individual revolvable movements to said lugs.

2. A razor blade sharpener comprising abrading means to provide juxtaposed and oppositely inclined sharpening surfaces, a holder including spaced actuating members for a razor blade to hold positively both the cutting edges of said blade in contact with and at a uniform angle to said sharpening surfaces, the latter being of greater width than that of said blade, and means for imparting individual removable movements to each of said actuating members.

3. A razor blade sharpener comprising abrading means to provide juxtaposed and oppositely inclined sharpening surfaces, a holder including spaced actuating members for a razor blade to hold positively both the cutting edges of said blade in contact with and at a uniform angle to said sharpening surfaces, the latter being of greater width than that of said blade, means for imparting individual revolvable movements to each of said actuating members and means for exerting a resilient pressure on said razor blade whereby its cutting edges engage said sharpening surfaces to a uniform degree.

4. A razor blade sharpener comprising abrading means to provide juxtaposed and oppositely inclined sharpening surfaces, a holder including spaced actuating means positioned centrally of said sharpening surfaces to hold positively a safety razor blade whereby the cutting edges of said blade are placed in contact with and at a uniform angle to said sharpening surfaces, the latter being of greater width than the width of the blade, and means for imparting individual revolvable movements to each of said actuating members whereby the cutting edges of the blade are brought into abrading relation to said sharpening surfaces.

5. A razor blade sharpener comprising a box member and lid therefor, abrading members secured to said box member and oppositely spaced from each other, a holder dis-

posed intermediate said abrading members to receive a razor blade, means secured to said lid whereby, when the latter is placed in the normal position, pressure is exerted upon the razor blade, and means for imparting a revolvable movement to said razor blade holder, a position of said means being exterior of said casing.

6. A razor blade sharpener comprising a casing having a box member and a lid therefor, two spaced abrading members held in said box member and providing juxtaposed and oppositely inclined sharpening surfaces, a holder to receive a razor blade to position it centrally of said sharpening surfaces, spring means secured to said lid for exerting a pressure upon said razor blade when the lid is in closed position, and means for imparting a revolvable movement to said holder, a portion of said means being exterior of said casing.

7. A razor sharpener comprising a casing having a box member and a lid therefor, abrading means within said box member providing a sharpening surface, a holder to receive a razor blade whereby the cutting edges of the latter are placed in contact with said sharpening surface, means attached to said lid for exerting a pressure on said razor blade when the lid is placed in normal position, and means for imparting a revolvable movement to said holder.

8. A razor blade sharpener comprising a casing having a box member and a lid therefor, two opposed and spaced abrading members housed in said box member and providing juxtaposed and oppositely inclined sharpening surfaces, two spaced rotatable gear wheels interposed between said abrading members each of which is provided with an eccentrically mounted and upstanding lug, said lugs constituting means to receive a safety razor blade, a third gear wheel disposed between said first two gear wheels and meshing therewith, a handle secured to said third gear wheel and exteriorly accessible of said casing whereby on rotation of said handle revolvable movements are imparted to said lugs, and a resilient member secured to said lid whereby when the latter is in normal position said resilient member exerts a pressure upon said razor blade.

9. A razor blade sharpener comprising two spaced abrading members providing juxtaposed and oppositely inclined sharpening surfaces, means for holding a razor blade in spring pressed relation against said sharpening surfaces, and spaced actuating members acting individually for imparting a positive revolvable movement to said razor blade whereby the cutting edges thereof are brought into engagement with said sharpening surfaces at a uniform angle.

10. A razor blade sharpener comprising two spaced abrading members providing juxtaposed and oppositely inclined sharpening surfaces, spaced actuating members disposed intermediate said sharpening surfaces acting individually for imparting a positive revolvable movement to said razor blade whereby the cutting edges thereof when said blade is in position are brought into contact with said sharpening surfaces at a uniform angle, means for imparting movement to said actuating members, and means for pressing said razor blade against said sharpening surfaces.

11. A razor blade sharpener comprising two spaced abrading members providing juxtaposed and oppositely inclined sharpening surfaces, spaced actuating members disposed intermediate said sharpening surfaces acting individually for imparting a positive revolvable movement to said razor blade whereby the cutting edges thereof when said blade is in position are brought into contact with said sharpening surfaces at a uniform angle, means for imparting movement to said actuating members, and resilient means disposed oppositely to said actuating members for exerting a pressure on said razor blade held thereon.

In witness whereof, I have hereunto subscribed my name.

ALEXANDER S. VOLPIN.

# CERTIFICATE OF CORRECTION.

Patent No. 1,898,915. February 21, 1933.

ALEXANDER S. VOLPIN.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 3, line 96, claim 2, for "removable" read "revolvable"; page 4, line 7, claim 5, for "position" read "portion"; and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 16th day of May, A. D. 1933.

M. J. Moore.
Acting Commissioner of Patents.

(Seal)