Sept. 16, 1941. P. JEPSON 2,255,930

BLADE HOLDER

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FIG_1_

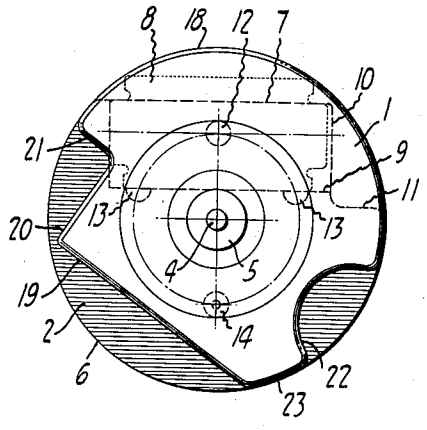


FIG_2_

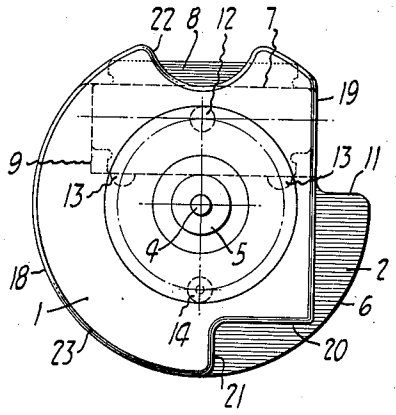


FIG_3_

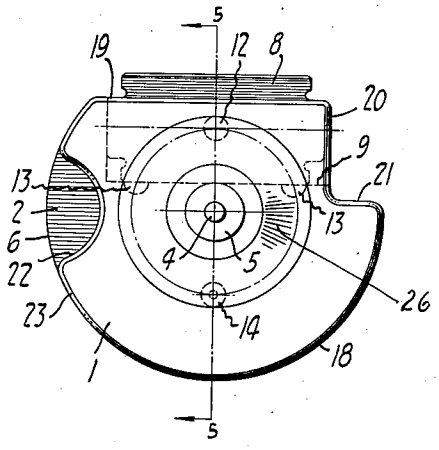
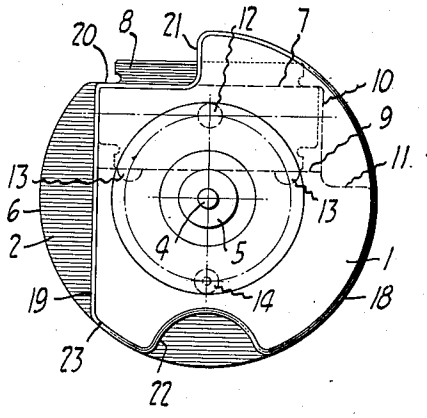


FIG_4_



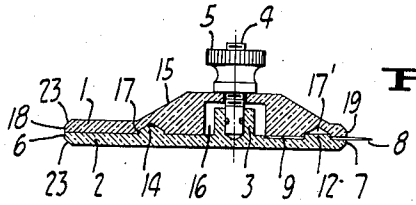


FIG_5_

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FIG. 6.

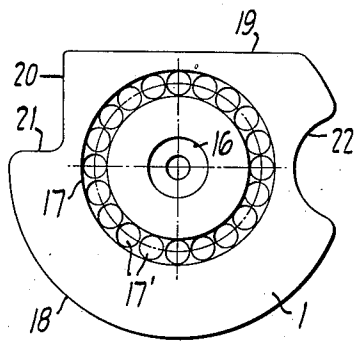


FIG. 7.

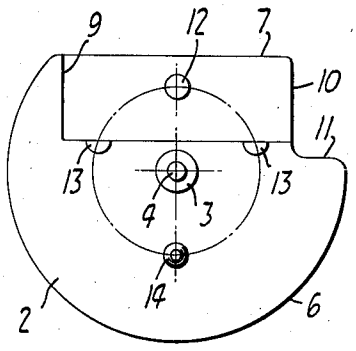
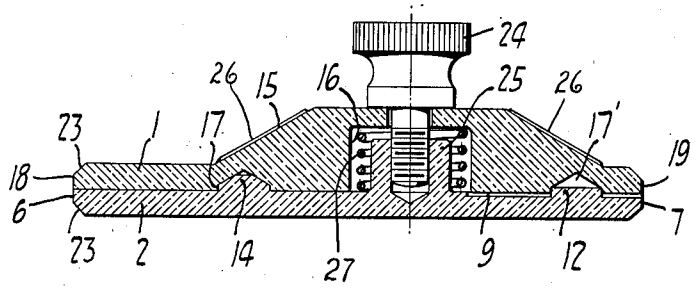


FIG. 8.



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BLADE HOLDER

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Application March 14, 1941, Serial No. 383,300

12 Claims. (Cl. 30—320)

This invention relates to an improved blade holder, and has for objects a simple, rugged, economically manufactured blade holder for razor blades or the like that is quickly and easily adjustable from a position in which the entire cutting edge is protected to expose one entire cutting edge of such blade or various different portions of such edge for cutting operations of different characters, and which holder is light and when adjusted to protect the blade may be carried in a case, pocket, etc. or in the hand, without danger of injury to such receptacle or hand either from the cutting edge or edges of the blade, or from objectionable projections, or sharp corners. Another object is a blade holder so formed as to clamp the blade between a pair of elements that are rotatable relatively about a common axis, and the cutting edge of which blade will be held in a position inoperative for cutting or in which various different portions of the cutting edge will be exposed, as desired, upon different degrees of rotation of said elements about said axis. Other objects and advantages will appear in the annexed drawings and in the following specification.

In the drawings,

Fig. 1 is a plan view of my holder with the cutting edges of a double edged razor blade held in inoperative position.

Fig. 2 is a plan view of the holder with the top element rotated counter-clockwise relative to the lower element to expose one portion of the effective cutting edge of the blade.

Fig. 3 is a plan view of the holder with the top element rotated still further counter-clockwise to expose one full cutting edge of the blade.

Fig. 4 is a plan view of the holder with the top element rotated counter-clockwise beyond the position of Fig. 3 to expose one end portion only of the cutting edge of the blade.

Fig. 5 is a sectional view taken along line 5—5 of Fig. 3, with the central clamping screw shown in elevation.

Fig. 6 is a bottom plan view of the uppermost of the elements shown in the preceding figures.

Fig. 7 is a top plan view of the lowermost of the elements of Figs. 1 to 5.

Fig. 8 is a fragmentary sectional view of slightly different form of clamping screw.

The blade holder illustrated in the drawings comprises a pair of disks 1, 2. For purpose of description, disk 1 will be referred to as the "upper disk" and disk 2, as the "lower disk."

The peripheries of the upper and lower disk are preferably generally circular and coaxial, but each is cut away at one or more points around its outer edge. Except where so cut away, the circular outlines of the edges in the planes of the disks have the same radii from said axis, and while not absolutely essential, the portions of the disks that are cut away are so positioned that, upon relative rotation of the disks about said axis, the remaining circumferentially extending edges will complement each other to produce a complete, unbroken circle, as best illustrated in Fig. 1.

The lower disk 2 is flat on its lower, or outer side, and is formed with an upstanding cylindrical projection 3 on its upper side, in which is secured one end of an upstanding screw 4, which screw may have a head at its lower end embedded in the projection. The threaded upper end of the screw projects above the said projection as shown in Fig. 3, and is adapted to threadedly support a thumb nut 5, which nut is preferably cylindrical with milled edges, or it may be a wing nut, or any other suitable form of nut, provided it is easily turned by the fingers of an operator.

The position of the projection 3 and screw 4 are at the center of the disk, assuming the peripheral edges of the latter defined a full circle. For the purpose of the description and claims, the position of the axis of screw 4 will be referred to as the center of the disks, since the circular portions of the disks have said axis as their centers.

The margin of lower disk 1 is cut off along a line defining a chord of the circumferentially extending edge 6, as indicated at 7, the full length of which edge 7 is slightly greater than the length of one of the edges of a conventional razor blade 8, and the distance, radially of the axis of screw 4, and perpendicularly, or at right angles to said edge 7, from the outer side of projection 3 to said edge is slightly less than the width of said blade 8. Thus a blade 8 positioned between said outer side of projection 3 and said edge 7, with its cutting edge at said edge 7 parallel with the latter, will have the margin carrying the cutting edge projecting outwardly of the edge 7, but said margin and edge will fully be within the imaginary circumferential line extending from edge 6.

The upper side of the disk 2 is formed with a shallow recess 9 of slightly lesser depth than the thickness of blade 8, and which recess is so positioned to receive the blade 8 when in the position above described.

At one end of said recess, and perpendicular to the edge 7 that is parallel with the cutting edge of blade 8, the said lower disk 2 is cut away

along line 10 a distance the width of blade 8, and at the inner end of the edge 10 the disk is cut along line 11 to the circular peripheral edge 6, with edge 11 being slightly rounded where it joins said circular edge. The edge 11 is preferably parallel with edge 7 and edge 10 is substantially even with one end edge of blade 8 when the blade is in recess 9.

Along a radius line from the central axis of the disk that bisects a blade 8, when the latter is in said recess 9, the disk 2 is formed in the flat side of recess 9 with a projection 12 that is adapted to fit in the central slot or opening in the conventional blade 8, and along the edge or side of recess 9 that extends past projection 3 is a pair of semi-cylindrical projections 13 the flat sides of which are in alignment with said edge. These projections 13 form stops, which, together with projection 12, provide a three point support for the blade 8 against rotation on projection 12 when any point along the cutting edge of the blade is used for cutting. The edges or narrow sides of recess 9, also cooperate with the aforesaid projections to prevent accidental shifting of blade 8, and, as will be later explained, the blade is also clamped between the upper and lower disks when in use.

Diametrically opposite the central projection 3, the lower disk is formed with an upwardly projecting, generally conical button 14, which button is spaced from said central projection 3 about the same distance as projection 12.

The upper disk 1 is centrally formed with a frusto-conical central portion 15 projecting upwardly therefrom, and which portion is formed with a downwardly opening enlarged recess 16 the base of which is formed with an aperture to slidably pass the screw 4 therethrough to a distance above the smaller upper end of portion 15. The recess 16 is adapted to revolvably receive the projection 3 therein, and is of sufficient depth to permit the adjacent sides of disks 1, 2 to come together.

Around the recess 16 is downwardly opening annular groove 17 in which the projections 12, 14 are adapted to be received, which groove is concentric with the central axis of central aperture through which screw 4 extends. This groove is formed at its base with row of recesses 17' that are relatively close together, each of which is adapted to relatively closely receive the upper conical end of button 14. This groove is of a depth to clear the upper end of projection 12, so the projection will not prevent the upper disk from being brought tightly against blade 8.

The circumferential edge portion 18 of the upper disk has the same radius as the edge 6 of the lower disk, and one margin of said upper disk is cut away along a chord of the circle in which edge 18 is disposed, to provide a straight edge 19 that is parallel with edge 6. Also the said upper disk is cut away at the end of edge 19 to form edges 20, 21 that register with edges 10, 11 of the lower disk, when said edge 19 is aligned in registration with edge 7. Also the ends of edge 19 are slightly rounded, in the same manner as the ends of edge 7, and the outer end of edge 20 is rounded to correspond to the outer end of edge 11.

Adjacent one end of the edge 19 and spaced from the recessed portion defined by edges 20, 21 the circular peripheral edge 18 is formed with an outwardly opening recess 22, that is substantially hemispherical in outline, and which recess is sufficiently deep to expose the cutting edge of blade 8 when the upper and lower disks are rotated relatively to bring recess 22 over said blade. The junctures between the ends of the edge defining said recess 22 are rounded slightly where said ends join the peripheral edge 18.

Also it is pertinent to note that all of the edges of the disks 1, 2 at their opposite outer sides are beveled, as at 23 (Fig. 5).

In operation, a conventional razor blade 8, preferably of the double edged, thin, wafer type, is positioned in recess 9, so that the projection 12 extends through the central opening in the blade. The positioning of said blade is enabled by loosening the nut 5 so the disks 1, 2 may be separated sufficiently to place the blade between the disks in said position.

When the disks are loosened sufficiently, the disks may be rotated relatively about the central axis of screw 4, and in the "safety" position shown in Fig. 1, the outer cutting edge of blade 8 is flat against the side of disk 1 that is adjacent edge 18 of said disk, and the edge 18 of disk 1 with edge 18 of disk 2, are positioned so as to virtually form extensions of each other to produce a full circular device. When nut 5 is tightened, and the disks 1, 2 are disposed as shown in Fig. 1, the blade is tightly clamped against the bottom of recess 9 by disk 1, and the button 14 is locked in one of the recesses 17' to prevent the disks from rotating relatively. Also the cutting edge of blade 5 is so close to the side of the disk 1 that is adjacent thereto as to make it impossible for said edge to catch on anything or to perform a cutting action, since said blade, as stated, is a very thin wafer blade in which the cutting edge is almost co-planar with the sides of the blade.

Where it is desirable to use the blade for cutting of string, or the like, the screw 5 is loosened and the disks are rotated relatively until the recess 22 is positioned to expose the cutting edge of blade 8 between the sides of said recess, as best illustrated in Fig. 2. In this position the opposite sides of recess 22 project outwardly beyond the cutting edge of blade 8, thus protecting the blade against being struck by any external object that is too large to enter the recess, although the blade will be capable of cutting any object sufficiently small to reach said cutting edge. Furthermore, in cutting string or the like, the circumferential edges 6, 18 will function to guide string or the like into recess 22 upon sliding the string circumferentially of the disks on said edges 6, 18 toward said recess 22.

In those cases where one end or the other of the cutting edge of the blade 8 is to be used, as for cutting paper, cloth, etc. that is against a support, or for ripping seams, the disks 1, 2 are rotated relatively to the position shown in Fig. 4, wherein one end of the cutting edge is exposed for cutting. The exposure of the other end of the cutting edge of blade 8 can be obtained by rotating the disks to the point where one end of edge 19 extends diagonally across the cutting edge, or substantially the same result can be obtained by moving the disks so that the edge 19 extends diagonally across the cutting edge in generally an opposite direction to the first mentioned diagonal position of edge 19, or either end of the cutting edge of the blade may be projected into the area in recess 22, but in any of these positions the tightening of the nut 5 will result in locking the disks and blade together for use of

the blade. The recesses 17', being close together will result in locking the disks against relative rotation where such rotation is very slight.

It is pertinent to note that when one end or the other of the cutting blade is exposed for cutting, as illustrated in Fig. 4, the rounded end of the circumferential edge 18 may function as a depth gauge for sliding on the material to be cut and the degree of rotation of the disks relatively from the relation shown in Fig. 4 will determine the depth of cut. This same adjustment and function occurs when one end or the other of the cutting edge projects into recess 22, and when the recess defined by edges 20, 21 expose the opposite end of the cutting edge of blade 8 to that shown in Fig. 4, the said opposite end is effective for cutting, and the outer ends of said edges 20, 21 function as depth gauges supporting the cutting edge of the blade at the exposed end for sliding the disks over the material being cut.

It is manifest that many other shapes of recesses or edges may be provided on either one or the other of said disks, so except where specifically defined to restrict the invention to a particular contour, the claims are intended to cover various other contours or shapes.

In Fig. 8 is a modified structure in which the screw for tightening the disks together is provided with a head 24 and the threaded portion of the screw threadedly engages in a threaded recess in projection 25 that generally corresponds to projection 3. In Figs. 1 to 7 the nut 5 is movable on the screw 4, but in Fig. 8 the screw is movable in the threaded recess in projection 25 by turning head 24. Both types function to accomplish the same result, but where, as is preferable, the disks are of plastic composition material, such as "Bakelite" or "Lucite," it is preferable that the form used in Figs. 1 to 7 be employed.

The frusto-conical portion 15, provides a thumb rest for pushing or supporting the device in use and also provides a friction surface for conveniently turning the disk 1 relative to disk 2, as indicated at 26, in Figs. 3, 8.

As shown in Fig. 8, a coil spring 27, may be positioned in recess 16, and the same is true of the preferred form of the device, and which spring reacts between the upper and lower disks to yieldably force them apart when the screw clamping the disks together is loosened, or where such spring is used in the recess 16 in Fig. 5, said spring will function in the same manner when nut 5 is loosened. This merely facilitates turning the disks relatively to new positions, as may be desired.

In the description and claims, it is pertinent to note that the use of the term "safety razor-blade" does not necessarily restrict the invention to a blade that is solely intended and adapted to be used in a safety-razor, but instead, to one of that general type. It is manifest that a blade may be used that does not necessarily fit any particular razor, but which would be suitable for use in my holder.

Having described my invention, I claim:

1. A blade holder for a safety razor blade, comprising; a pair of disk-like elements in opposed relation secured together for rotation relatively about the same axis; blade positioning means for positioning such blade on one of said elements and between said elements with one cutting edge of said blade projecting outwardly of one edge of said one of said elements for cutting, and the outer edge of the other of said elements being formed relative to said axis to project radially inwardly and radially outwardly of the cutting edge of a blade positioned by said positioning means for rendering such cutting edge operative and inoperative for cutting respectively when said elements are rotated relatively on said axis.

2. A blade holder for a safety razor blade, comprising; a pair of disk like elements in opposed relation secured together for rotation, relatively, about the same axis; blade positioning means for positioning such blade on one of said elements and between said elements with one cutting edge of said blade directed generally radially outwardly of said axis and projecting outwardly of one edge of said one of said elements for cutting, and the other of said elements being formed with separate portions extending radially outwardly of said axis short of the said one cutting edge of such blade and beyond said edge for respectively rendering such cutting edge inoperative and operative for cutting when said elements are rotated relatively on said axis; and means for clamping said elements tightly against opposite sides of such blade at the separate positions of said elements in which such cutting edge is inoperative and operative for cutting.

3. A blade holder for a safety razor blade, comprising; a pair of disk-like elements in opposed relation secured together for rotation, relatively, about a single axis; the elements of said pair being formed with corresponding, straight, outer edges at one side of said axis, means on one of said elements for positioning a safety razor blade thereon with one of its cutting edges projecting outwardly of said corresponding edges and substantially parallel therewith, and with substantially the entire remainder of such blade disposed between said elements, means supporting said elements for relative rotation on said axis, the portion of the other of said elements at the side of said axis opposite the said straight edge thereof being arranged and adapted to extend outwardly beyond the straight edge of said one of said elements and such cutting edge, when the said latter portion is rotated relative to the said one of said elements to the same side of said axis as the said straight edge of said last mentioned element, and means for tightly clamping said elements against opposite sides of such blade.

4. In a construction as defined in claim 3, means for locking said elements together at different positions of said elements when the latter are rotated relatively on said axis.

5. In a construction as defined in claim 3, the major lengths of the remaining edges of said elements being substantially concentric with said axis and said lengths having substantially equal radii.

6. In combination with a safety razor blade, a holder therefor comprising; a pair of disk-like elements, means releasably clamping said elements against opposite sides of such blade; means supporting said elements for rotation relatively about a single axis; means locking said elements against rotation relative to each other when said elements are clamped together; the outer edge of each of said elements defining the major portion of a circle concentric with said axis and a portion of the remaining outer edge of each of said elements being straight, and the said remaining straight edge portions being formed to define similar portions of similar chords of such circle, whereby upon rotation of said elements relatively said major portions will define a full circle at one point during such rotation; means position-

ing said blade on one of said elements with one of its cutting edges projecting outwardly and parallel with the said straight edge of said latter element and radially inwardly of an imaginary line continuing said circle across said straight edge.

7. In the construction as defined in claim 6, the circumferentially extending edge of the other of said elements being formed with a radially outwardly opening recess the edges of which, with the exception of the edge thereof nearest said axis, are adapted to scan the said cutting edge of said blade upon rotation of said elements relatively.

8. In the construction as defined in claim 6, said blade being positioned at one side of said axis with the edge thereof opposite said outwardly projecting cutting edge adjacent said axis, and the means locking said elements against rotation relatively including a recess and a projection adapted to fit therein, respectively carried by said elements on their adjacent sides.

9. In a construction as defined in claim 6, the means releasably clamping said elements against opposite sides of said blade comprising a screw and nut coaxial with said axis respectively engaging said elements in a manner for drawing said elements together upon turning said nut.

10. In a construction as defined in claim 6, one of said elements being formed with a projection extending axially outwardly of its outer side, said projection being coaxial with said axis and being arranged and adapted to be engaged by the fingers of a hand to facilitate rotating said one of said elements relative to the other.

11. In a construction as defined in claim 6, means between said elements for yieldably urging said elements apart upon loosening the means locking the elements against relative rotation.

12. In combination with a razor-blade; a holder therefor comprising a pair of generally circular, coaxially disposed disk-like elements at opposite sides of said blade respectively cut away at points on their margins; means supporting said blade on one of said elements in substantially fixed position relative thereto with one of its cutting edges projecting along and outwardly of one of the edges that defines the portion cut away from the margin thereof but positioned within the circumferential imaginary line extended from the circular edge of the element so supporting said blade, the edge defining the cut-away portion of the other element being so arranged that upon rotation of said elements relatively, the said cutting edge of said blade will be exposed for cutting when the edges defining the cut-away portions on both elements are adjacent each other; means supporting said elements for said relative rotation about their axes and means for clamping said elements tightly against opposite sides of said blade at any desired point during said rotation; and a roughened friction surface on one of said elements concentric with said axis to facilitate rotating said elements relatively.

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