J. H. PHILP.

ROTARY RAZOR.

APPLICATION FILED SEPT. 10, 1920.

1,420,943. Patented June 27, 1922.

Fig. 1.

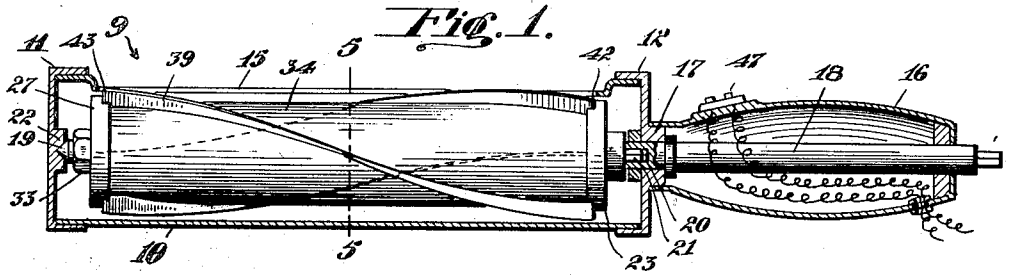


Fig. 2.

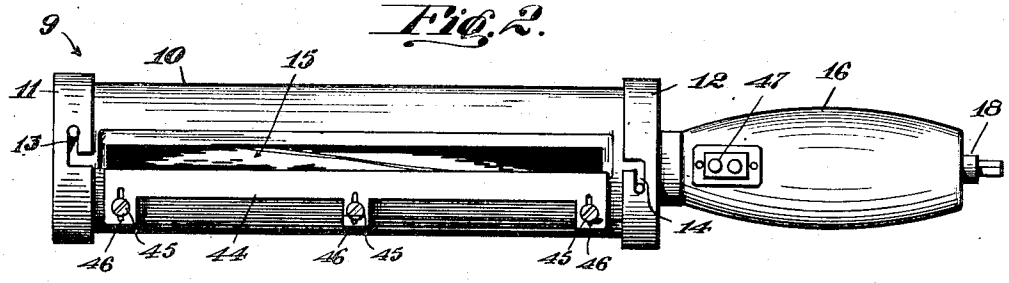


Fig. 3

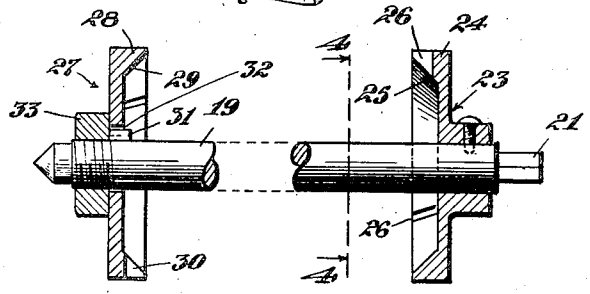


Fig. 4.

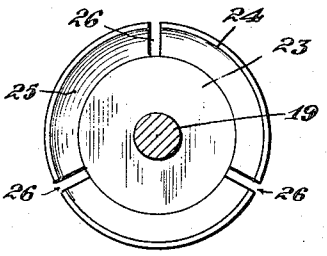


Fig. 6.



Fig. 5.

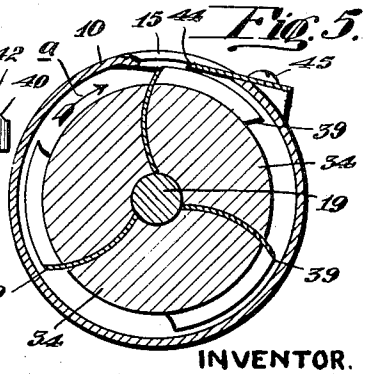
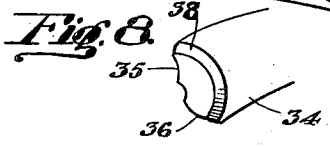


Fig. 7.



Fig. 8.



INVENTOR.
JOSEPH H. PHILP;
BY R. S. Berry
ATTORNEY.

UNITED STATES PATENT OFFICE.

JOSEPH HOWARD PHILP, OF LOS ANGELES, CALIFORNIA.

ROTARY RAZOR.

1,420,943. Specification of Letters Patent. Patented June 27, 1922.

Application filed September 10, 1920. Serial No. 409,347.

To all whom it may concern:

Be it known that I, JOSEPH HOWARD PHILP, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Rotary Razors, of which the following is a specification.

This invention relates to a rotary razor which is adapted to be operated by motive power.

An object of this invention is to provide a rotary razor in which a blade or a series of blades may be detachably mounted on a rotary shaft and arranged to co-operate with a fixed blade in such manner as to effect a shearing action on rotation of the shaft.

Another object is to provide a means for holding a thin razor blade in a spiral position around a shaft which will permit of ready removal and replacement of the blade.

Another object is to provide a rotary razor head and a casing therefor which may be readily dismounted to enable convenient cleansing of the parts.

Other objects will appear hereinafter.

The invention is illustrated in the accompanying drawings, in which:

Figure 1 is a view of the rotary razor as seen in longitudinal section showing the razor head in elevation.

Figure 2 is a plan view.

Figure 3 is a detail view in section and elevation of the razor blade mounting.

Figure 4 is a view in section and elevation as seen on the line 4—4 of Figure 3.

Figure 5 is an enlarged sectional view as seen on the line 5—5 of Figure 1.

Figure 6 is a view in elevation of the razor blade showing in dotted lines the manner of bending it in spiral form.

Figure 7 is a view in elevation of the filler block.

Figure 8 is a detail in perspective showing an end portion of the filler block.

More specifically, 9 indicates a shell or housing which is here shown as comprising a tube 10 preferably cylindrical in form, the ends of which are fitted with caps 11 and 12 detachably connected to the tube, preferably by means of bayonet slot connections as indicated at 13 and 14. The tube 10 is slightly depressed on one side thereof, which depressed portion extends between the caps 11 and 12 and is formed with a longitudinal slot 15. The end cap 12 is fitted with a handle 16 which is fitted on a hub 17 on the cap 12 and which hub forms a bearing for a shaft 18 extending through the handle 16 axially of the tubular shell. The inner end of the shaft 18 terminates adjacent to the inner face of the cap 12 and is designed to be detachably connected to a second shaft 19 demountably arranged within the housing; the outer end of the shaft 18 being designed to be connected to any suitable source of power, as through a flexible shaft, not shown. The connection between the shafts 18 and 19 is here shown as effected by forming the end of the shaft 18 with a square socket 20 and providing the shaft 19 with a squared end portion 21 to project into the socket 20. The outer end of the shaft 19 is supported in a bearing 22 formed on the cap 11.

Rigidly mounted on the shaft 19 adjacent to its inner end is a collar 23 having an annular flange 24 formed with an inclined or tapered wall 25 on its inner periphery; the flange 24 also being formed with a series of open-ended slots 26. A removable collar 27 is provided substantially corresponding to the collar 23 having an annular flange 28 formed with an inclined wall 29 on its inner periphery and formed with open-ended slots 30; the collar 27 being adapted to be held against turning on the outer portion of the shaft 19 by means of a key 31 on the shaft engaging a slot 32 on the collar. A nut 33 is screwed on the outer end of the shaft 19 to hold the collar 27 in place.

A series of filler blocks 34 are provided, here shown as three in number, which blocks are formed on a spiral with one of the spiral faces slightly concave and the other convex, as indicated at 35 and 36 in Figure 8. The filler blocks being designed to be arranged spirally around the shaft 19 between the collars 23 and 27 with the ends of the filler blocks engaged by the collar; the ends of the filler blocks being formed with beveled faces 37 and 38 adapted to abut against the inclined faces 25 and 29 of the collars to effect wedge engagement with the latter. A series of razor blades 39 are provided, here shown as three in number, which are adapted to be interposed between the filler block and clamped by the latter on the shaft 19 in a spiral position. The ends of each blade

39 are formed with inclined shoulders 40 and 41 conforming to the beveled faces 37 and 38 of the filler block and adapted to be engaged by the tapered faces 25 and 29; the blade also having end portions 42 and 43 adapted to extend into the slots 26 and 30 on the collars to effect an interlocking connection with the latter.

Mounted on the housing is a plate 44 which extends lengthwise of the slot 15 and projects over one edge thereof on such plane as to contact the edge of the blades 39 and co-operate with the latter as they advance in effecting a shearing action, the plate being adjustable by screw 45 and slot 46 connections to position it in the proper relation to the blades.

A switch 47 may be mounted on the handle 16 for controlling an electric current where the device is operated by an electric motor.

In assembling the parts, the collar 27 is removed or retracted on the shaft 19 and the filler blocks and blades are placed successively around the shaft in engagement with the collar 23, whereupon the collar 27 is advanced by screwing the nut 33 on the shaft to engage the outer ends of the filler blocks and blades with the collar 27 and securely clamp the filler blocks and blades in position on the shaft. The end portions of the blades being engaged in the slots on the collars will be securely held against lateral displacement and the shoulders on the blades extending beneath the flanges of the collars act to hold the blades against outward movement. The inner edges of the blades abut against the shaft 19. The blades will thus be securely held against movement on the shaft. By forming the filler blocks with convex and concave spiral faces the blades will assume a spiral shape and will also be curved, as shown in Figure 5, so that the outer edges of the blades which project beyond the outer faces of the filler blocks will be inclined. By retracting or removing the collar 27, the blades may be readily detached for cleaning and sharpening.

In assembling the housing or shell for incasing the razor element, the end plate 12 carrying the handle and the driving shaft 18 is attached to the tube by the bayonet slot connection, whereupon the razor element may be inserted in the outer end of the tube and the shaft 19 engaged with the shaft 18 by inserting the squared end of the former into the socket of the latter. The cap 11 may then be put in place on the outer end of the tube with the end of the shaft 19 seating in the bearing 22. When the razor element is thus positioned within the tube, the plate 44 is adjusted so that its outer edge will project into the slot 15 sufficiently to slidably contact the cutting edges of the blades when the razor element is rotated.

In use the razor element is rotated in the direction indicated by the arrow *a* in Figure 5, that is, in such direction that the blades will advance with their inclined edges toward the plate 44, so that the blades in advancing along the edge of the plate will have a shearing action and in passing across the space formed by the slot 15 will have a scraping action. By providing the rotary razor element with a series of razor blades a practically continuous shaving action will be effected on revolving the razor element at high speed.

While I have shown and described a specific embodiment of my invention, I do not limit myself to the exact details of construction shown, but may resort to such changes and modifications as occasion may require coming within the scope of the appended claims.

I claim:

1. In a rotary razor; a casing formed with a longitudinal slot, a rotary shaft in said casing, a series of filler blocks encircling said shaft, a series of razor blades engaged between said filler blocks having their edges projecting beyond the outer faces of the latter and adapted on rotation of the shaft to pass across the opening in the housing.

2. In a rotary razor, a casing formed with a longitudinal slot, a rotary shaft in said casing, a series of filler blocks encircling said shaft, a series of razor blades engaged between said filler blocks having their edges projecting beyond the outer faces of the latter and adapted on rotation of the shaft to pass across the opening in the housing, said razor blades and filler blocks extending spirally around the shaft.

3. In a rotary razor, a casing formed with a longitudinal slot, a rotary shaft in said casing, a series of filler blocks encircling said shaft, a series of razor blades engaged between said filler blocks having their edges projecting beyond the outer faces of the latter and adapted on rotation of the shaft to pass across the opening in the housing, said razor blades and filler blocks extending spirally around the shaft, and a plate on said casing arranged along one edge of the slot in position to contact the cutting edge of said blade on rotation of the shaft.

4. In a rotary razor, a shaft, a fixed collar on said shaft having a tapered marginal flange, a series of filler blocks adapted to be positioned around said shaft and formed with tapered ends engageable with the tapered flange, a series of razor blades arranged between said filler blocks, an adjustable collar on said shaft engageable with said filler blocks and blades, and means for clamping the filler blocks and blades between said collars.

5. In a rotary razor, a shaft, a fixed collar on said shaft having a tapered marginal

flange formed with slots, a movable collar on said shaft having a tapered flange formed with slots, a series of filler blocks adapted to be arranged around said shaft having tapered ends engageable by said collars, and a series of razor blades adapted to be arranged between said filler blocks with their ends engaged in the slots.

6. In a rotary razor, a shaft, a fixed collar on said shaft having a tapered marginal flange formed with slots, a movable collar on said shaft having a tapered flange formed with slots, a series of filler blocks adapted to be arranged around said shaft having tapered ends engageable by said collars, and a series of razor blades adapted to be arranged between said filler blocks with their ends engaged in the slots, said filler blocks and blades being arranged spirally on said shaft.

JOSEPH HOWARD PHILP.