Feb. 1, 1938. L. C. HOBART 2,106,977

ELECTRIC SHARPENING DEVICE FOR SAFETY RAZOR BLADES

Filed April 5, 1933

Fig:1

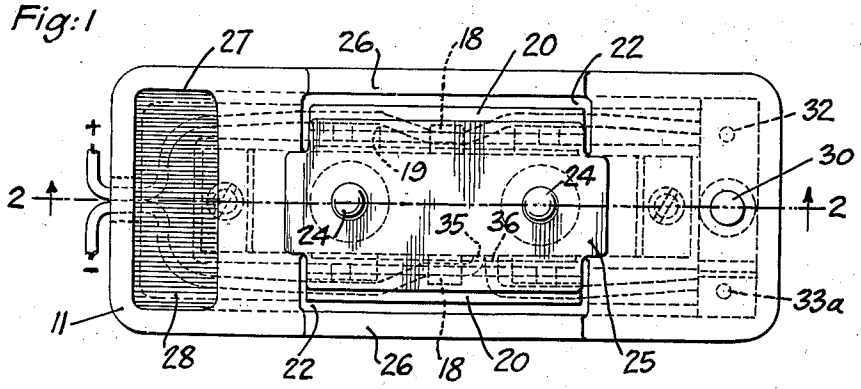


Fig:2

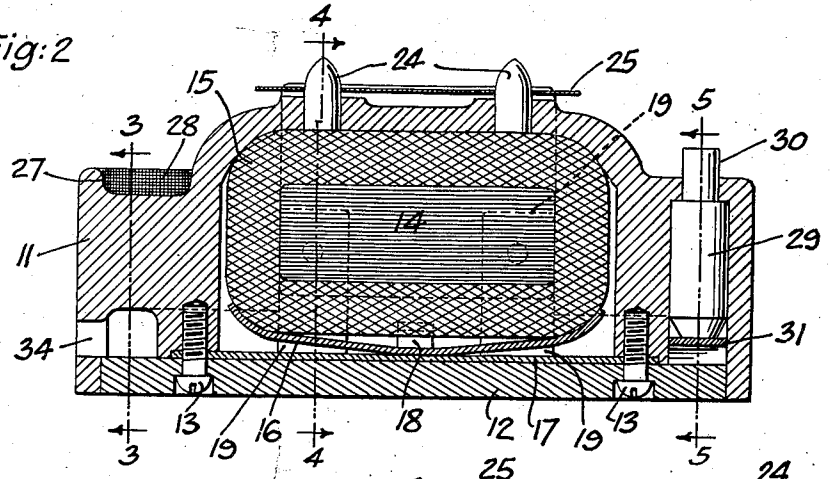


Fig:3

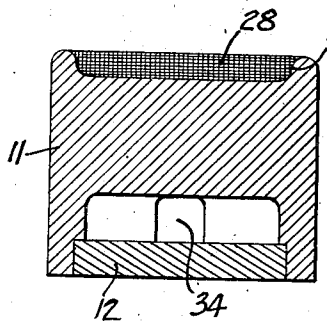


Fig:4

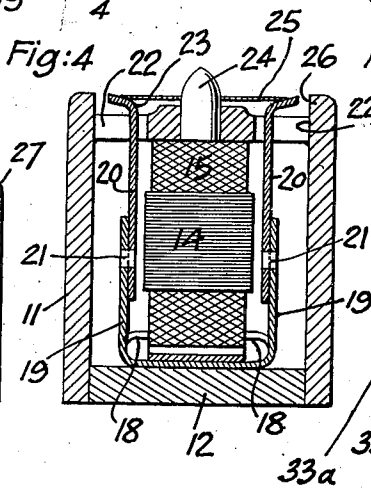
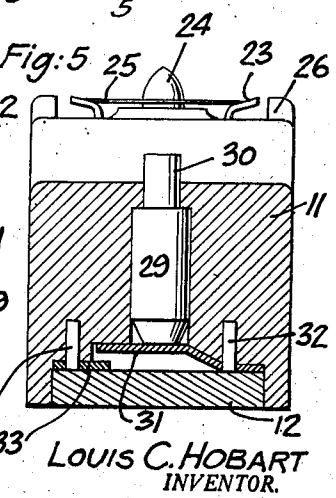


Fig:5



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ELECTRIC SHARPENING DEVICE FOR SAFETY RAZOR BLADES

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5 Claims. (Cl. 51—58)

This invention relates to sharpening devices for safety razor blades. It is the principal object of the invention to provide a device of this kind that can be operated by electric current. Another object is to embody the same in a compact housing having wiring that can easily be attached to existing light sockets. A further object is to provide a device of very simple design that can be manufactured most economically, has very few component parts, and is of such sturdy construction as to give long and satisfactory service. Still further objects will become apparent after a perusal of the following specification and a study of the accompanying drawing, in which preferred embodiments of the invention are, respectively, described and shown.

In this drawing,

Fig. 1 is a plan view of a preferred form of the sharpener;

Fig. 2 is a vertical longitudinal sectional view along the plane of line 2—2 in Fig. 1;

Fig. 3 is a vertical cross sectional view along the plane of line 3—3 in Fig. 2;

Fig. 4 is a vertical cross sectional view along the plane of line 4—4 in Fig. 2; and

Fig. 5 is a vertical cross sectional view along the plane of line 5—5 in Fig. 2.

Like characters of reference denote similar parts throughout the several views and the following specification.

Referring now to the drawing, 11 is a housing substantially rectangular in shape, having secured to its open bottom a base 12 by means of screws 13. Disposed within the center of the housing 11 is an electro-magnetic unit consisting of a laminated core 14, around which is wound an insulated wire coil 15 in the manner well known in the art. 16 is a flat spring member at the bottom of the coil 15 bearing against its extreme ends and being somewhat spaced therefrom at its center, as clearly shown in Fig. 2.

Clamped with its ends between the bottom of housing 11 and the top of base 12 is a flat sheet metal spring 17 made preferably of a non-magnetic alloy. The ends of the spring 17 where they are clamped are provided with holes to allow for the passage of screws 13 which thus also serve as positioning means for the spring. 18 are small ears upturned near the center at both of the sides of the spring 17, their open ends facing the coil 15. It will be noted that the spring member 16 is disposed between the bottom of the coil and the top of the spring 17, thus compensating for commercial variations in the size of the coil and holding the same firmly in place.

Spring 17 has a pair of upwardly extending lugs 19 at both long sides, each pair having between them a small ear 18. 20 are armatures preferably made of a suitable grade of steel at both sides of the magnetic unit each fastened to two lugs 19, by means of rivets 21 and facing in spaced relation the sides of the laminated core 14. The upper ends of armatures 20 project outwardly of the casing 11 through rectangular slots 22 in its top. These ends are bent away from the vertical central plane of the casing at somewhat less than a right angle so that their top surfaces 23 are slightly inclined toward the center of the casing.

24 are two positioning or dowel pins secured to the top of the casing 11 equi-distant laterally from the top surfaces 23 of the armatures 20 and symmetrically with respect to the coil 15. A safety razor blade 25 is fitted over the pair of pins 24, its cutting edges bearing upon the top surfaces 23 of the armatures 20. 26 are flat projections at the outer edges of slots 22 of the same height as the top surfaces 23 of the armatures serving as a protection for the same in handling and shipping.

The casing 11 which is reduced in height at both ends has at the top of one of the reduced ends a well 27 which is filled with an abrasive or rouge 28.

The end of the casing 11 is bored out vertically to receive a cylindrical member 29 made of non-conducting material. The top portion of member 29 is reduced at 30 and projects through a correspondingly reduced smaller bore in the top of the end of the casing. The bottom of the member 29 is adapted to flex or press down the raised end of a spring 31, the lower end of the spring being fixedly secured to the bottom of the casing 11 by means of a rivet 32. 33 is a flat contact member in spaced relation with and below the raised end of the spring 31. This member 33 is also fastened to the bottom of the casing by a rivet 33a. It is obvious that when the outwardly projecting portion 30 of the member 29 is depressed, the raised end of the spring 31 is pressed down by the member 29 until the spring 31 contacts with the member 33, and that just as soon as the pressure upon 29 is released, the spring 31 is raised by its own flexibility or tension and thus contact between 31 and 33 is broken.

An opening 34 is provided at one end of the casing for the passage of electric wires into the

casing. As clearly indicated in Fig. 1 of the drawing the positive wire is led into the housing through opening **34** and then sideways through the small ear **18** at one side of the coil **15** to the spring **31** to which it is soldered or otherwise fastened. The negative wire is also passed into the casing **11** through opening **34** and then led through the small ear **18** at the other side of the coil **15** to be secured to one terminal of the coil **15** as at **35**. The other terminal **36** of the coil **15** is, in turn, connected by solder or otherwise to the contact member **33**. The positive and negative wires are connected to the usual form of plug well known in the art adapted to be inserted into a light socket.

The operation of the device is as follows:

After the plug to which the wires of the device are fastened, is inserted into a socket of an alternating current system, the user moistens one of his fingers, rubs it slightly over the abrasive in well **27** and then passes his finger over the top surfaces **23** of the armatures **20** whereby a slight amount of the abrasive or sharpening compound is left on these surfaces. The razor blade to be sharpened is then dropped over the positioning pins **24** so that its edges rest upon the surfaces **23**. The electric circuit is then closed by pressing down upon the externally projecting end **30** of member **29** which in turn presses down spring **31** and causes a contact to be made with contact member **33** thus completing the circuit. On closing the circuit, the alternating current causes the coil **15** to become energized and the armatures **20** to vibrate. At the same time magnetism is set up in the armatures which draws the razor blade firmly against their top surfaces **23**.

Through the vibrations of the armatures, the top surfaces **23** are caused to rub against the edges of the razor blade which in the presence of the abrasive, previously applied to the surfaces **23**, results in a sharpening process that continues as long as the user presses down upon the member **29**. Immediately upon releasing the pressure upon member **29**, the spring **31** will return to its original position and becoming separated from contact member **33** causes the circuit to break, thus stopping the operation of the device.

While I have shown a preferred form of my invention embodying the principles of the invention, I do not wish to limit myself to the precise arrangement described and illustrated.

I want it to be understood that various changes in the form, proportion and minor details of construction may be resorted to without departing from the principles or sacrificing any of the advantages of the invention, as defined in the appended claims.

What I claim as new, is:

1. A sharpening device for safety razor blades consisting of a pair of vibratory armatures, electro-magnetic means for actuating said armatures, the said armatures being disposed at opposite sides of the said electro-magnetic means, and sharpening members carried by the said armatures and in contact with the cutting edges of a razor blade, the said armatures when actuated causing a reciprocating rubbing action between the edges of the blade and the sharpening members.

2. A sharpening device for safety razor blades consisting of a housing, an electro-magnet within the housing, an armature vibratorily mounted at each side of the said magnet and projecting through the top of the said housing, the projecting parts of the said armatures having sharpening surfaces, means upon the top of the housing for the fixed support of a razor blade having its cutting edges resting upon the said sharpening surfaces of the armatures, means to actuate the said magnet whereby the said blade is held in contact with the said sharpening surfaces by magnetism and the armatures vibrated, so as to cause a reciprocating rubbing action between the edges of the blade and the sharpening surfaces.

3. In a sharpening device for safety razor blades, a housing open at its bottom, a base plate adapted to close the said housing, an electro-magnet within the housing, a flat member between the housing and base having upturned ears, the said ears adapted to guide electric wires within the housing, and vibratory armatures having sharpening surfaces carried by the said plate, the said magnet being adapted to vibrate the said armatures and hold a razor blade in magnetic contact with the said sharpening surfaces.

4. In a sharpening device for safety razor blades of the kind described, a housing open at its bottom, a base plate adapted to close the said housing, an electro-magnet within the housing, armatures vibratorily mounted at both sides of the magnet having sharpening surfaces for contacting with the cutting edges of a razor blade, a flat member between the housing and the base having upturned ears adapted to guide electric wires within the housing, and a spring bed for the said magnet to compensate for variations between the coil of the magnet and housing.

5. In a sharpening device for safety razor blades, a housing, an electro-magnet within the housing, armatures at both sides of the magnet adapted to be vibrated by the said electro-magnet, the said armatures terminating in sharpening members, and means adapted to receive a safety razor blade on the top of the said housing centrally of the said armatures.

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