March 22, 1938. R. KNAPP 2,111,861

HAIR CLIPPER

Filed Dec. 14, 1937

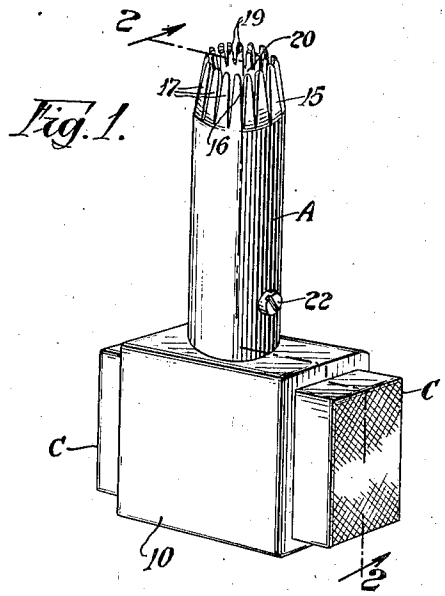


Fig. 1.

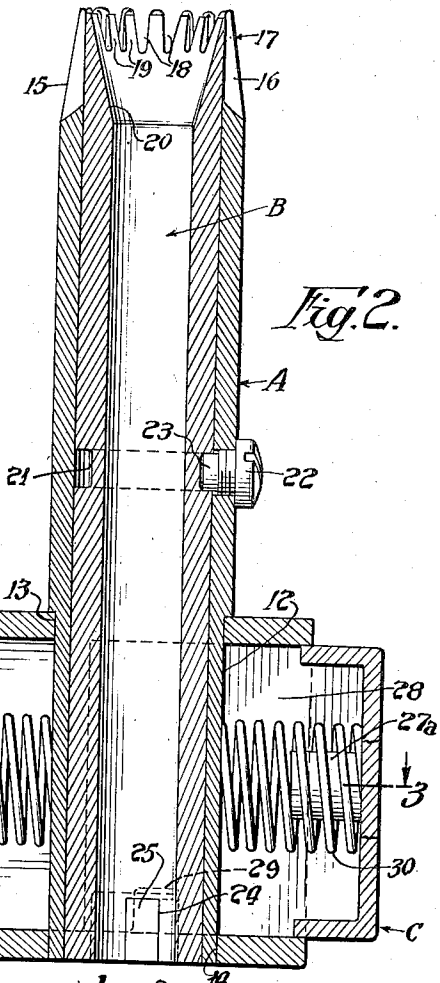
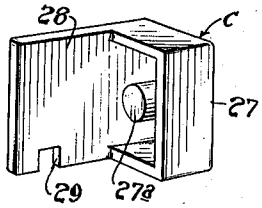


Fig. 2.

Fig. 4



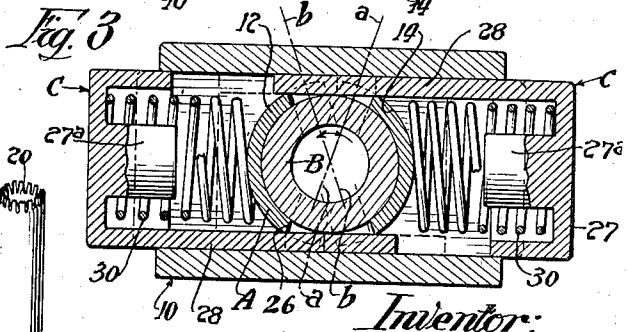


Fig. 3

Fig. 6.

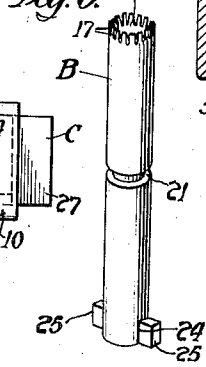
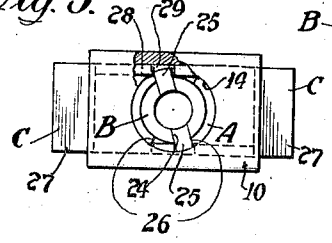


Fig. 5.



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HAIR CLIPPER

Raymond Knapp, Long Island City, N. Y.

Application December 14, 1937, Serial No. 179,703

9 Claims. (Cl. 30—205)

An object of my present invention is to provide a hair clipper of simple, durable and inexpensive construction which is adapted for clipping hair within the nostrils or ears of a person, the clipper in order to accomplish this purpose being tubular in character, although the clipper is also adaptable for clipping hair from any part of the body.

A further object is to provide actuating elements for the hair clipper which are so related relative to a pair of tubular clipper elements and so connected with each other that their movement is synchronized and thereby the tubular clipper remains centered relative to the opposite faces of the actuating elements, which faces are held between the thumb and finger of the operator during hair clipper operations.

A further object is to provide actuating means for a hair clipper of the type comprising a pair of tubes, one oscillatable within the other, the actuating means being very simple and inexpensive to manufacture and also being subject to ready assembly with a minimum of effort and time.

Still another object is to provide a hair clipper comprising a pair of tubular clipper elements and means for actuating the actuator elements comprising a transverse tube with a pair of actuators telescopically mounted in opposite ends whereby, during the clipping operation, the faces of said actuators remain parallel to each other.

With these and other objects in view, my invention consists in the construction, arrangement and combination of the various parts of my device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawing, in which:

Figure 1 is a perspective view of a hair clipper embodying my invention.

Figure 2 is an enlarged vertical sectional view thereof as taken on the line 2—2 of Figure 1.

Figure 3 is a sectional view on the line 3—3 of Figure 2.

Figure 4 is a perspective view of one of the actuator elements.

Figure 5 is a bottom plan view of the hair clipper, a portion thereof being broken away and another portion being shown in section; and

Figure 6 is a perspective view of the inner cutter tube of the clipper.

On the accompanying drawing I have used the reference numeral 10 to indicate a tubular casing. The casing 10 is preferably rectangular in shape although it may have other shapes if desired. Extending transversely from one side of the tubular casing 10 is an outer clipper tube A and an inner clipper tube B.

The tube A has a reduced portion 12 extending through perforations 13 and 14 in opposite sides of the tubular casing 10. The reduced portion 12 of the outer tube A may have a press fit in the perforations 13 and 14 or otherwise suitably secured therein, such as by soldering or brazing.

The outer end of the outer tube A is tapered as indicated at 15 and is provided with a series of circumferentially spaced notches 16 providing clipper teeth 17 between them. Likewise the outer end of the inner tube B is provided with notches 18 whereby between the notches, clipper teeth 19 are provided. The clipper teeth are formed in a beveled portion 20 of the inner tube B and have shearing coaction or contact with the outer clipper teeth 17 whereby when the outer ends of the tubes A and B are positioned in, for instance the nostril of a person and the inner tube rotated relative to the outer tube, the hair lining the nostril cavity will be clipped.

The inner tube B is provided with an annular groove 21 intermediate its length. A set screw 22 is threaded in the outer tube A and has an extension 23 positioned in the groove 21. The extension 23, after the hair clipper has been assembled, serves the purpose of preventing longitudinal movement of the inner tube B relative to the outer tube A, yet permits free oscillation of one relative to the other.

At its lower end the inner tube B is slotted as indicated at 24. Positioned in each slot 24 is a key 25. The two keys 25 may be soldered in the slots 24 and project in opposite directions from the periphery of the inner tube B as shown in Figure 5. The projecting portions of the keys 25 are located in slots 26 of the outer tube A which slots serve to limit oscillation of the keys 25 and thereby the rotation of the inner tube B relative to the outer tube A. The ends of the rectangular tubular casing 10 are open and receive clipper actuators C. Each actuator C comprises a substantially hollow head 27 and an actuating flange 28. Each flange 28 is provided with a notch 29. The notches 29 receive the projecting keys 25 as shown in Figure 5 and by dotted lines in Figure 3.

Springs 30 are interposed between the reduced portion 12 of the outer tube A and the hollow heads 27 of the actuators C. The springs 30 are thereby enclosed by the outer heads 27 in conjunction with the tubular casing 10. Studs 27a extend from the heads 27 to position the springs 30. The springs 30 urge or bias the actuators C toward their outer limits of movement as shown in the drawing. By dotted lines in Figure 3, I have indicated the inner positions of the actuator C assumed by pushing them inwardly relative to the tubular casing 10. During such inward movement of the actuators, the keys 25 move from a position indicated by the center line *a* in Figure 3 to the position indicated by the center line *b* therein. This obviously oscillates the inner

tube B so that the teeth 19 thereof pass the teeth 17 of the outer tube A to accomplish the shearing operation.

Since the keys 25 project in opposite directions from the axis of oscillation of the inner tube B, they move synchronously in opposite directions and accordingly synchronize the inward movement of the actuators C. This retains the axis of the hair clipper centralized relative to the faces of the heads 27 of the actuators, thus insuring that the clipper tubes will not be moved sidewise and engage the inside surface of the nostril, thereby accidentally cutting the skin thereof.

It is obvious from the description of my device that synchronization is thus obtained in a very simple and effective manner with the surfaces to be engaged by the thumb and fingers of the operator always remaining parallel to each other. The entire hair clipper can be made at very little manufacturing and assembling expense. During the assembling operation it is a comparatively simple matter while the set screw 22 is removed to slip the inner tube B upwardly into the outer tube and then place the springs 30 and the actuators C in position and force them inwardly to a position where the keys 25 can enter the notches 29 prior to complete extension of the inner tube B into the outer tube A. After such extension has been completed, the set screw 22 is then placed in position and serves to retain the parts against accidental disassembly.

Some changes may be made in the construction and arrangement of the parts of my device without departing from the real spirit and purpose of my invention, and it is my intention to cover by my claims, any modified forms of structure or use of mechanical equivalents, which may be reasonably included within their scope.

I claim as my invention:

1. In a hair clipper, a pair of tubes, one mounted rotatably within the other, notches in an end of each tube constituting coacting clipper teeth, a rectangular casing mounted on the outer tube and having open ends, a clipper actuator in each of said open ends, means of operative connection between said clipper actuators and said inner tube to impart rotation to the inner tube relative to the outer tube when said clipper actuators are pushed inwardly relative to said rectangular casing and resilient means within said rectangular casing constituting means to bias said clipper actuators to extended position.

2. In a hair clipper of the character disclosed, a pair of tubes, one mounted rotatably within the other, said tubes having coacting clipper teeth, a casing, said tubes extending from one wall thereof, a clipper actuator slidable in each end of said casing, means of operative connection between said clipper actuators and said inner tube to impart rotation to the inner tube relative to the outer tube when said clipper actuators are pushed inwardly relative to said casing and means to bias said clipper actuators to extended position relative to said casing.

3. In a hair clipper of the character disclosed, a pair of tubular elements, one of said elements being mounted inside the other, teeth formed in one end of each tubular element, said teeth coacting with each other for hair clipping operation, a transverse tubular casing mounted on said tubular elements and having open ends, a clipper actuator telescopically mounted in each of said open ends, operative means of connection between each of said clipper actuators and the inner tubular element at points on opposite sides of the axis of rotation thereof and means constraining said clipper actuators outwardly relative to said tubular casing whereby inward motion of said clipper actuators relative to said tubular casing results in rotation of said inner tubular element relative to said outer tubular element.

4. Hair clipper mechanism comprising a pair of tubular clipper elements oscillatable relative to each other, a transverse tubular casing on which said tubular elements are mounted, hollow clipper actuators telescopically mounted in said tubular casing and projecting from diametrically opposite sides thereof, a spring within each of said hollow actuators, each of said actuators having a flange provided with a notch and the inner tubular clipper element having a projection extending into each of said notches.

5. Hair clipper mechanism comprising a pair of tubular clipper elements oscillatable relative to each other, a transverse tubular casing, said tubular elements being mounted thereon to extend from one wall thereof, hollow clipper actuators telescopically mounted in said tubular casing and projecting therefrom, a spring within each of said hollow actuators, each of said actuators having a flange provided with a notch and the inner tubular clipper element having a projection extending into each of said notches.

6. In a hair clipper, a tubular casing, an outer clipper tube extending transversely from one side thereof, an inner clipper tube within said outer clipper tube, an actuating element slidable in each end of said tubular casing and each having an actuating portion projected into the tubular casing, said actuating portions extending on opposite sides of said inner clipper tube and having operative connection therewith and springs interposed between said inner clipper tube and said actuator elements.

7. In a hair clipper, a tubular casing, an outer clipper tube extending transversely from one side thereof, an inner clipper tube within said outer clipper tube, an actuating element slidable in each end of said tubular casing and each having a flange projected past said inner clipper tube, said flanges being on opposite sides of said inner clipper tube and having operative connection therewith.

8. In a hair clipper, a pair of tubular clipper elements, one oscillatably mounted within the other, a transverse tubular casing mounted on said outer clipper element, means projecting from opposite ends of said tubular casing for actuating the inner tubular clipper element relative to the outer one and means for synchronizing the sliding movement of said actuator elements relative to the axis of said tubular clipper elements.

9. In a hair clipper, a pair of tubular clipper elements, one oscillatably mounted within the other, a transverse tubular casing mounted on said outer clipper element, means projecting from opposite ends of said tubular casing for actuating the inner tubular clipper element relative to the outer one and means for synchronizing the sliding movement of said actuator elements relative to the axis of said tubular clipper elements and comprising projections from diametrically opposite sides of said inner clipper element and operative connections between said actuator elements and said projections.

RAYMOND KNAPP.