O. HERMANN.

HAIR CUTTING APPARATUS.

APPLICATION FILED MAR. 4, 1920.

1,407,748. Patented Feb. 28, 1922.

Fig. 1.

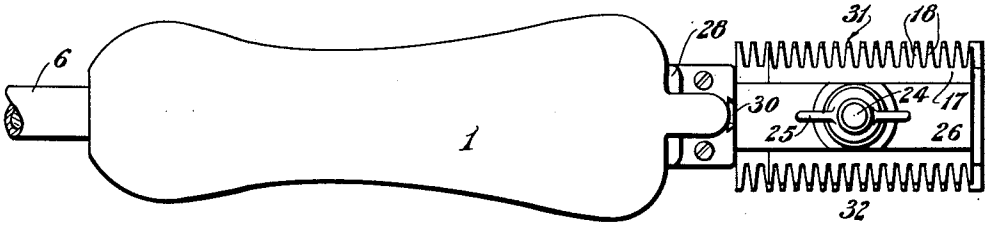


Fig. 2.

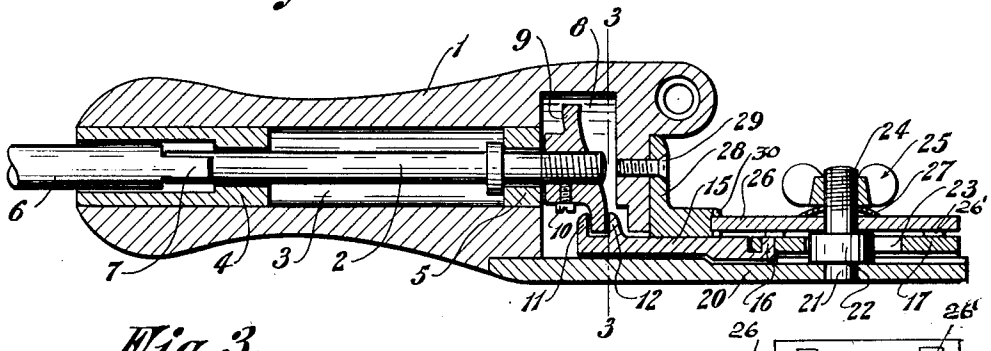


Fig. 3.

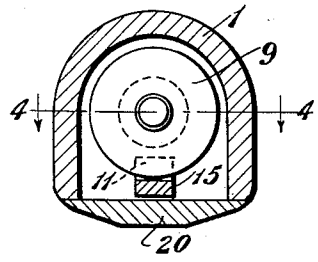


Fig. 4.

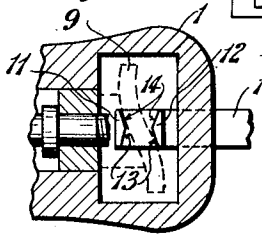


Fig. 6.

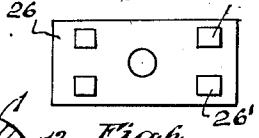
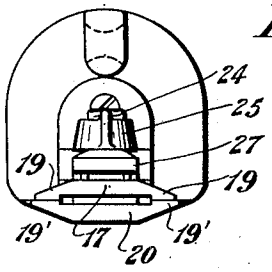


Fig. 5.



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HAIR-CUTTING APPARATUS.

1,407,748. Specification of Letters Patent. **Patented Feb. 28, 1922.**

Application filed March 4, 1920. Serial No. 363,263.

To all whom it may concern:

Be it known that I, OTTO HERMANN, a citizen of the United States of America, residing at Springfield, in the county of Hampden and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Hair-Cutting Apparatus, of which the following is a specification.

This invention relates to improvements in hair cutting apparatus and particularly to the type known as "clippers." An object of the invention is to provide a haircutting apparatus that is preferably operated by means of some suitable source of power, as a small electric motor, and having a suitable driving connection between the motor and the apparatus, as a flexible shaft.

A further object is to provide a driving mechanism that is enclosed in an oil tight casing. A further object is to provide a driving mechanism that is practically noiseless, and one that will operate the movable part of the cutter with practically no lost motion.

These and further objects will appear in the body of the specification and will be particularly pointed out in the claims.

Referring to the drawings:

Fig. 1 is an external plan view of the complete apparatus.

Fig. 2 is a longitudinal vertical sectional view through the axis of the apparatus showing the operative parts thereof.

Fig. 3 is a transverse sectional view on the line 3—3 of Fig. 2 showing the operative connection between the cam and the connecting rod which operates the movable blade.

Fig. 4 is a horizontal plan view on a plane indicated by the line 4—4 of Fig. 3, and

Fig. 5 is an end view of Fig. 1 from the right hand end.

Fig. 6 is an inverted plan view of a detail of my invention.

Referring to the drawings in detail:

1 designates the handle or inclosing casing part of the machine in which is located the driving shaft 2 which passes through a chambered portion 3. The shaft 2 is mounted in the oil tight bearings 4 and 5 which have a driving fit in the opening 3. 6 is a shaft, preferably a flexible one, connected to the shaft 2 by means of a pivotal joint 7. 8 designates a second chambered portion of the handle 1 and in this portion is located the disc shaped cam 9 which is secured to the shaft 2 by any suitable means, as a set screw 10. The shaft 2 is provided with a collar 5′ preferably integral with the shaft which limits the introduction of the end of the shaft into the chamber 8 and serves to take up the thrust against the bearing block. The cam 9, as shown in dotted lines in Fig. 4, passes between the angular shaped projections 11 and 12. These projections, it will be noticed, have oppositely extending inclined surfaces 13 and 14, which extend at an angle substantially equal to the angle of inclination of the cam 9. The projections 11 and 12 are an integral part of the link 15, which link is formed with the upwardly extending projections 16 and to which the plate 17 is connected. This plate is formed with the teeth or projections 19, and rests on the lower plate 20. The lower plate is also formed with the projection 19′ as shown in Fig. 5. This is the usual construction of hair clippers. Attached to the plate 20 is a pin 21 which is formed with an enlarged portion 22. This portion receives the elongated opening 23 of the upper blade 17. The upper end of the pin 21 is threaded as shown at 24 to receive the wing nut 25 for holding the uppermost plate 26 in place, and for varying the pressure of the plate 17 on the lower plate 20 there is located between this plate and the wing nut the spring 27. The plate 26 is connected to a bracket 28, which bracket is attached to the holder 1 by means of the screw 29. Any suitable means may be employed for connecting the plate 26 and the bracket 28, as a dovetail construction 30 or other tongue and groove arrangement. On the under side of the plate 26 are bearing lugs 26′ which engage the upper cutting plate, as shown in Figures 2 and 6. The chambered spaces 3 and 5 are in practice packed with a heavy lubricant, as vaseline. The construction of the parts is such that the lubricant or oil cannot work out of the inclosed casing. The construction of the cam 9 and the projections 11 and 12 is such that there is practically no lost motion between the link 15 and the cam 9. The throw or travel of the plate 17 is preferably equal to a distance of three times the width of a tooth, whereby each tooth travels a space equal to the extent of three teeth. As shown in Fig. 1 it will be observed that the

teeth are located on both of the opposite edges of the upper and lower cutting plates, whereby the clippers can be used or reversed without turning the clippers around, as for instance, in cutting the hair on the neck, one edge, as for instance the upper edge 31 in Fig. 1, would be used, while in cutting the hair in the lower part of the neck the lower edge 32 would be used.

It will be seen from this construction that I have produced a hair clipper that is formed with double cutting edges and one that is practically noiseless, in that there is no lost motion between the cam 9 and the projections 11 and 12. Also one that can be thoroughly lubricated without danger of the lubricant working out of the inclosed casing.

What I claim is:

1. In a hair cutting apparatus, the combination of an enclosing casing which serves as a handle for the apparatus, a driving shaft located therein, two cutting plates formed with projections arranged one above the other, the lower plate being stationary and the upper plate being provided with an elongated slot, a pin extending upwardly from the lower plate and provided with an enlargement intermediate its ends for engagement in the slot in the upper plate, a top plate above the upper cutting plate and provided with an opening to receive the pin of the lower cutting plate, a spring on the pin above the top plate and a nut on the pin above the spring for forcing all three of the plates together and a bracket connecting the top plate with the enclosing casing and having a sliding engagement therewith.

2. In a hair cutting apparatus, the combination, of a handle member having two separated chambered portions, a drive shaft extending through one of said portions and into the other, a bearing block for the shaft and serving to separate said portions, a cam on the shaft and located in the forward one of said chambered portions, a collar on the shaft and located in the rear chamber adjacent the bearing block, cutting plates, one of said plates being connected to and operated from said cam, and a second bearing block spaced from the other block and located in the other or inner end of the chambered portion of the handle in which the shaft is located for receiving the other end of the drive shaft, said blocks having an oil tight fit in the handle.

3. A hair cutting apparatus comprising in combination, a handle member, a bracket secured thereto, upper and lower plates formed with cutting projections, a top plate secured to the bracket and resting upon the upper one of said cutting plates, said top plate having a sliding engagement with the bracket, bearing lugs on the under face of the top plate for engagement with the upper of the cutting plates and means for operating one of said cutting plates.

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