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H. VAN BREE

1,811,903

HAIR CLIPPER

Filed April 18, 1929

FIG. 1

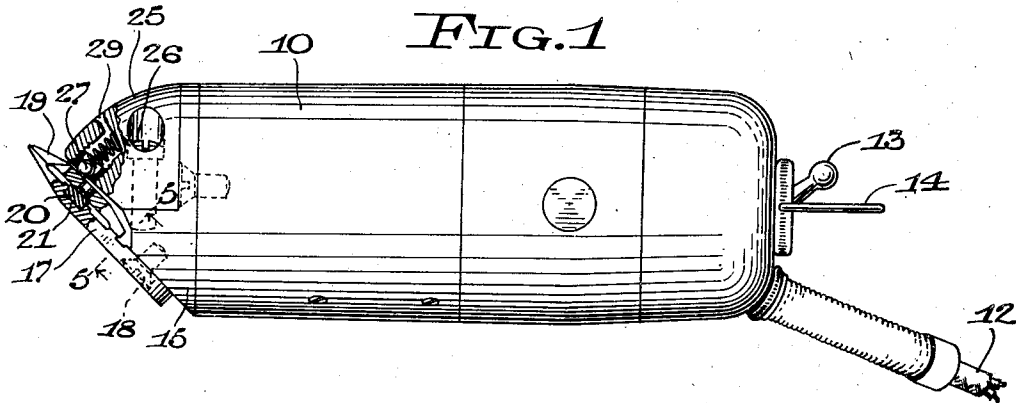


FIG. 2

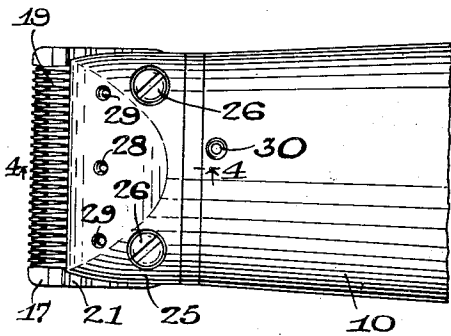


FIG. 3

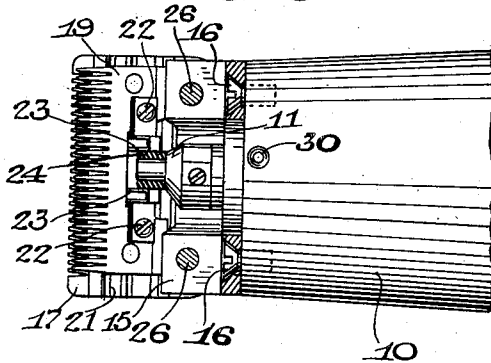


FIG. 4

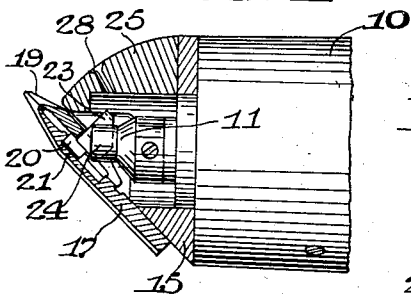


FIG. 5

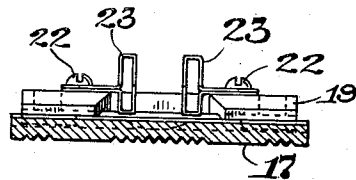


FIG. 6

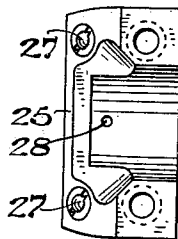
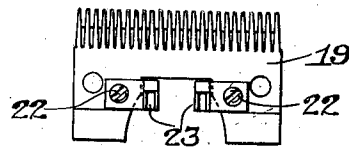


FIG. 7



FIG. 8



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HAIR CLIPPER

Application filed April 18, 1929. Serial No. 356,065.

This invention relates to hair clippers of the type in which an electric motor contained in the handle of the tool serves to reciprocate a toothed cutting blade in close relation to a toothed stationary blade.

The object of the invention is to simplify the construction; to improve the direct driving connection between the motor shaft and the movable blade to produce quiet operation; and to more effectively hold the movable blade in contact with the stationary blade to effect the shearing action.

With the above and other objects in view the invention consists in the hair clipper as herein claimed and all equivalents.

Referring to the accompanying drawings, in which like characters of reference indicate the same parts in different views,

Fig. 1 is a side elevation of a hair clipper constructed in accordance with this invention;

Fig. 2 is a plan view of the end thereof;

Fig. 3 is a similar view with the cover-piece removed;

Fig. 4 is a central sectional view on the plane of line 4—4 of Fig. 2;

Fig. 5 is a transverse sectional view of the stationary blade with the movable blade mounted thereon, on the line 5—5 of Fig. 1;

Fig. 6 is a bottom view of the cover-piece;

Fig. 7 is a central transverse sectional view of the movable knife blade, and

Fig. 8 is a plan view of the movable knife blade.

In these drawings, 10 indicates the handle of the tool, which, as usual, serves as a casing for an electric motor, the details of which are not shown except that the end of the motor shaft is provided with an eccentric or wrist pin 11 for driving the clipper blade. The lead-in wires 12 through which the motor is supplied with electrical current from a suitable service outlet are shown, as well as the motor switch 13 and a suspension loop 14 by means of which the tool may be supported when not in use.

At the working end of the tool handle there is a head member 15 secured to the end of the motor casing or handle by means of screws 16 so as to be removable therefrom

and said head member has an oblique face at an angle of approximately 45° to the axis of the motor shaft. Secured to this face in the plane thereof is the stationary knife blade 17 removably held by screws 18 and provided with the toothed knife edge as usual. A movable knife blade 19, also with a toothed cutting edge as usual, is slidably mounted on the stationary knife blade with fiber guide blocks 20 thereon working in the grooved way 21 of the stationary knife blade.

The removable knife blade, as seen in Fig. 8, has a cut-away portion at its rear edge extending to its center to receive the wrist-pin 11 of the motor shaft. On either side of the cut-away portion is mounted by means of a screw 22 a bearing spring 23, which consists of a strip of spring metal bent to form a loop with its ends brought together and clamped between the face of the knife blade and the head of the screw. The loops of the bearing springs 23 extend below their plane of attachment as well as above, as best seen in Fig. 5, and their adjacent portions are straight and parallel with each other to form yielding bearing walls of a slot, within which the wrist-pin 11 turns to produce the reciprocating movements. The wrist-pin is surrounded by a tight-fitting sleeve 24 of fiber or the like material fitting without play between the bearing walls of the slot formed between the bearing springs 23. In fact the sleeve 24 is slightly larger in diameter than the space between the loops of bearing springs 23 so as to cause a slight deflection thereof to accommodate it. Thus the wrist-pin travels in a vertical slot of the movable knife blade, the walls of which slot are yielding and are bowed to receive it. As the result there is no play between the wrist-pin of the motor shaft and the movable knife blade, and the wrist-pin travels quietly back and forth between the yielding cushioning walls of the slot, giving a spring action to the blade, and avoiding vibration and lost motion as the rotary motion of the shaft is converted into a reciprocatory motion of the knife blade.

It is necessary to provide means for hold-

ing the movable knife blade in bearing contact with the stationary knife blade to produce a shearing action between them and this without interfering with the movements of the knife blade. For this purpose a cover-piece 25 is secured in the angular seat provided for it in the head 15 and is removably held in place by screws 26. Its overlying front portion is close to the movable knife blade without contacting and is provided with a pair of spring-pressed balls 27 which slightly protrude from the face of the cover-piece and bear with light pressure upon the movable knife blade near the ends thereof. This insures the knife blades being held together with sufficient pressure to perform the shearing action without undue resistance to the movements.

Lubrication for the wrist-pin driving connection and for the bearing of the movable knife blade on the stationary knife blade is afforded by an oil hole 28 in the cover-piece 25, while oil holes 29 supply lubricant to the spring-pressed balls 27, and an oil hole 30 lubricates the motor bearing. The balls 27 are housed within recesses in the cover-piece 25 and are confined by slotted apertured screw plugs in the manner common with self-closing oil holes. The balls, while not intended to turn, are free to do so, but their yielding point contact with the movable knife blade gives the desired pressure without undue resistance to motion.

By reason of this invention the movable knife blade is firmly held in shearing contact with the stationary blade and is yieldingly coupled with the wrist-pin of the motor shaft without play and is therefore driven without noise and with spring action, rendering it most efficient in the performance of its functions and noiseless in its operation.

What I claim as new and desire to secure by Letters Patent is:

1. A hair clipper comprising a handle containing a motor-driven shaft, a wrist-pin thereon, a stationary knife blade on the handle at an angle to the shaft, a movable knife blade on the stationary knife blade, there being a cut-away portion in the movable knife blade to receive the wrist-pin, and bearing springs on the movable knife blade on either side of the cut-away portion bent to form closed spring loops parallel to each other and extending into the cut-away portion and receiving the wrist-pin between them and forming a way in which the wrist-pin slides.

2. A hair clipper comprising a motor-driven shaft, a movable knife blade, a pair of bearing springs thereon comprising strips of spring metal bent to form elongated closed loops with their ends brought together and secured to the movable knife blade between the ends of the loops, said spring loops being parallel to each other and forming a yielding slot between them fitting on the wrist-pin

and forming a way in which the wrist-pin slides, and a stationary knife blade co-operating with the movable knife blade.

3. A hair clipper comprising a handle containing an electric motor, a wrist-pin on the shaft of the electric motor, a head member on the handle surrounding the wrist-pin and having a face at an angle to the axis of the motor shaft, a stationary knife blade on the angular face of the head, a movable knife blade slidably mounted thereon and having a cut-away portion at its rear edge receiving the wrist-pin, bearing springs secured to the movable knife blade on either side of the cut away portion and forming parallel spring loops extending into said cut-away portion and angular to the plane of the movable knife blade to form a yielding guide slot between them receiving the wrist-pin and within which the wrist-pin slides, there being an angular seat on the head member, a cover-piece secured thereto to enclose the wrist-pin, and independent spring-pressed balls in the cover-piece bearing on the movable knife blade near the ends thereof to hold it in contact with the stationary knife blade.

In testimony whereof, I affix my signature.
HUBERT VAN BREE.