Feb. 4, 1930. W. KOCOUREK ET AL 1,745,997

HAIR CLIPPER

Filed Aug. 29, 1928 2 Sheets-Sheet 1

Fig. 1.

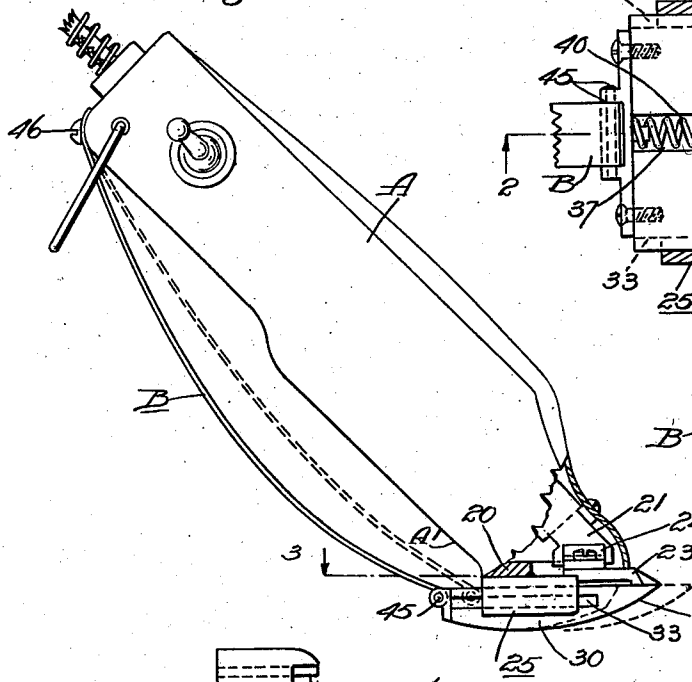


Fig. 3.

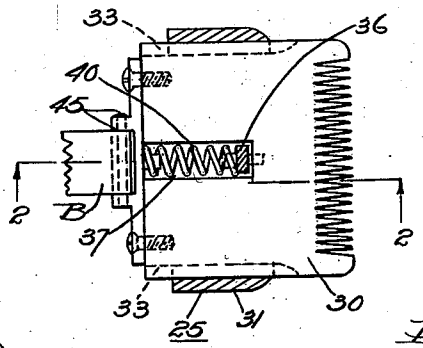


Fig. 2.

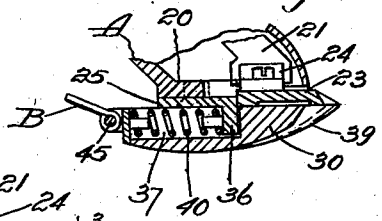


Fig. 4.

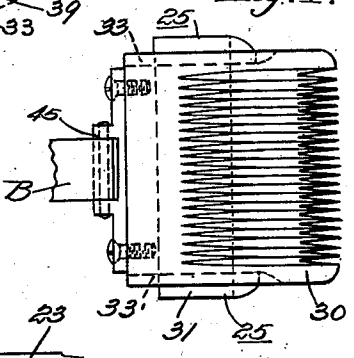


Fig. 5.

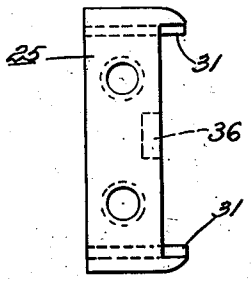


Fig. 6.

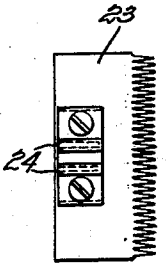
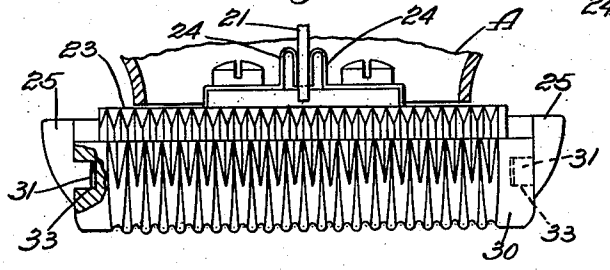


Fig. 7.



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Fig. 8.

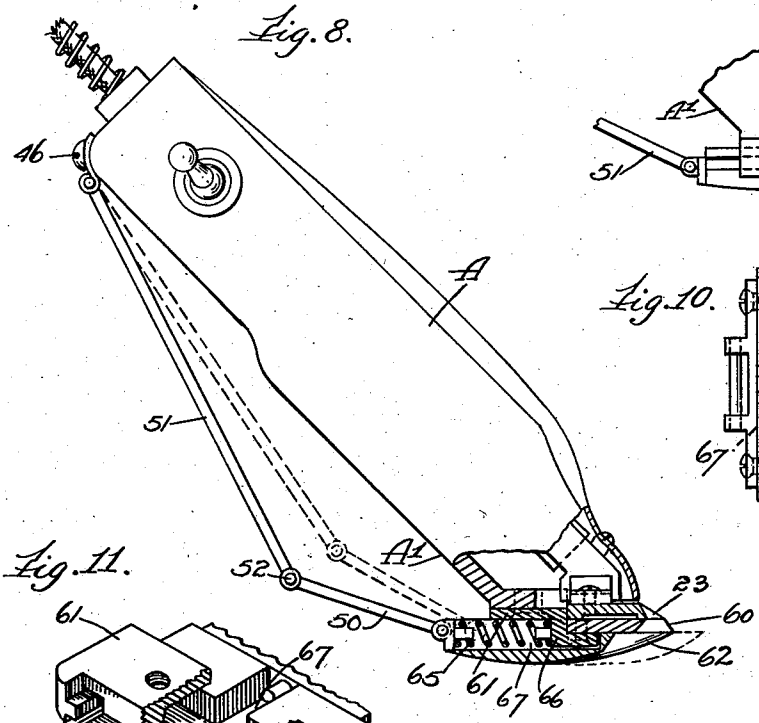


Fig. 9.

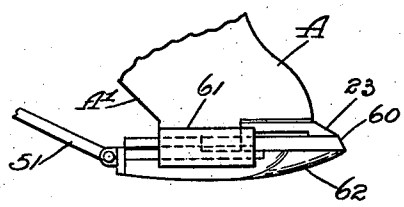


Fig. 10.

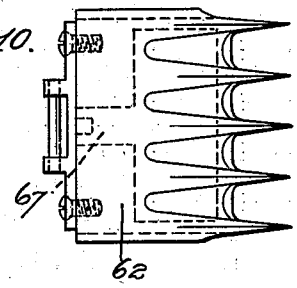


Fig. 11.

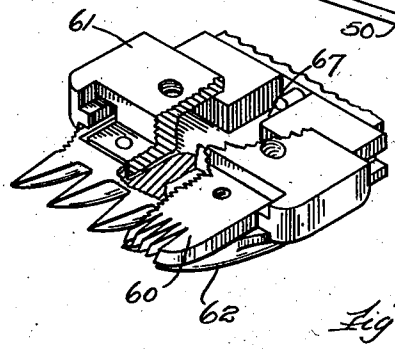


Fig. 12.

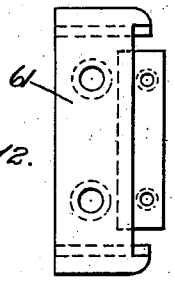


Fig. 13.

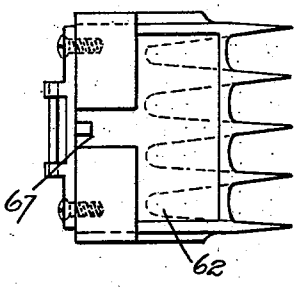


Fig. 15

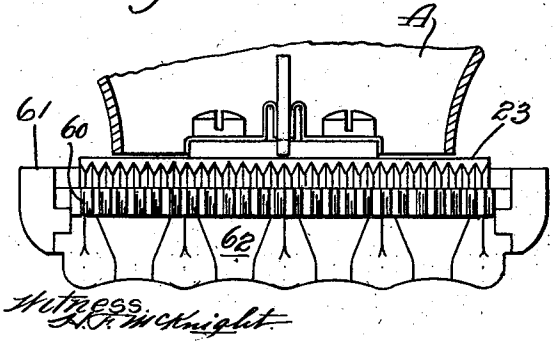
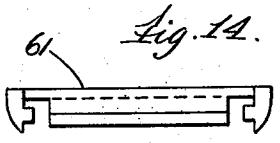


Fig. 14.



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Patented Feb. 4, 1930 1,745,997

UNITED STATES PATENT OFFICE

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HAIR CLIPPER

Application filed August 29, 1928. Serial No. 302,664.

The purpose of this invention is to provide an improved construction of a barber's hair clipper particularly adapted for easy graduation of the closeness of the cut by the hand of the barber which grasps the tool without interrupting the advance of the tool over the head from which the hair is cut. It consists in the elements and features of construction shown and described as indicated in the claims.

In the drawings:

Figure 1 is a partly sectional side elevation of a power driven hair clipper constructed according to the invention, section being made at a vertical fore-and-aft plane through the forward part of the casing immediately above the vibrating cutter.

Fig. 2 is a vertical section through a portion of the clipper on the line 2—2 of Fig. 3.

Figure 3 is a section at the plane 3—3 on Figure 1.

Figure 4 is a bottom end plan view of the tool.

Figure 5 is a bottom plan view of a plate rigid with the casing by means of which the combined cutter and comb member is slidingly mounted on the casing.

Figure 6 is a top plan view of the vibrating cutter.

Figure 7 is an enlarged partly sectional front elevation showing the comb and cutter blades of the vibrating cutter.

Figure 8 is a view similar to Figure 1 showing a modified form of the invention.

Figure 9 is a detail side elevation of a portion of the forward end of the tool shown in Figure 8.

Figure 10 is a bottom plan view of the comb of the modification form shown in Figure 8.

Figure 11 is a fragmentary perspective view of the forward end portion of the modification shown in Figure 8 with the vibrating cutter and its actuator removed.

Figure 12 is a top plan view of the plate employed in the modification shown in Figure 8 which corresponds to that shown in Figure 5.

Figure 13 is a top plan view of the sliding comb of the modification shown in Figure 11.

Figure 14 is a front edge elevation of the plate shown in Figure 12.

Figure 15 is a view of the modification shown in Figure 8 corresponding to Figure 7.

The construction shown in all figures of the drawings comprises a body, A, which carries the hair severing means and constitutes a casing for the actuating mechanism therefor. In the construction shown in Figures 1 to 5 the casing constituting the body has at the forward end portion thereof a web, 20, which supports a terminal element of the actuating mechanism seen at 21 engaging the vibrating cutter, 23, located immediately in front of said web, 21, whose forward edge serves as the guide for the vibrating movement of the cutter, 22, which is provided with upstanding lugs, 24, for engagement of the actuator, 21. Mounted rigidly upon the under side of the web, 20, there is provided a plate, 25, extending transversely with respect to the advancing movement of the tool in hair cutting,—that is parallel with the vibratory movement of the vibrating cutter,—for supporting in a manner hereinafter described a combined comb and cutter blade member, 30, upon whose upper face forward of the forward edge of said web, 20, the vibrating cutter, 23, is lodged, the two parts co-operating for severing the hair in the reciprocation of the vibratory cutter relatively to said combined cutter and comb, said combined member is engaged and carried in position for lodgment upon it and in co-operation with it of the vibrating cutter, 23, by a tongue-and-groove engagement between said combined member, 30, and the plate, 25, the latter being formed with down turned flanges at its opposite end between which the member, 30, is embraced, said flanges having tongues, 31, 31, and the end edges of the combined member, 30, having grooves, 33, 33, which engage said tongues whereby the member, 30, is mounted for sliding fore-and-aft with respect to the body, A, of the tool, and also with respect to the vibratory cutter, 23, which has only the transverse vibratory movement, and which is fixed as to its fore-and-aft position. The comb teeth of the member, 30, which are also cutter teeth, are

relatively longer than the teeth of the vibrating cutter, 23, and the parts are arranged for range of sliding movement of the member, 30, with respect to the member, 23, substantially equal to the excess of the length of the comb-and-cutter teeth of the combined member, 30, over that of the cutter teeth of the vibrating cutter, 23; so that at the limit of the forward movement of the member, 30, the teeth of the two members co-operate perfectly for admitting the hair to be entered to the full depth of the teeth, and for severing the hair at that point; and at a retracted position of the member, 30, the teeth of the two members, still co-operate for cutting the hair admitted to the full depth of the teeth of the vibrating cutter. The bar, 25, is provided at the middle point of its length with a downwardly projecting lug, 36, and the combined cutter and comb member, 30, has a longitudinal slot, 37, through which said lug, 36, projects and in which there is lodged a coil spring, 40, positioned between the lug, 36, and the rear end of the slot, and when the spring is extended the member, 30, is retracted to the limit at which the elongated teeth of said member stand projecting to a minimum extent beyond the teeth of the vibrating cutter, 23; so that when the combined cutter and comb member, 30, is engaged slidingly with the bar, 25, the member, 30, is held yieldingly thus retracted to the limit indicated; and the slot terminates at its forward end suitably for stopping the member, 30, at that position by encounter of the forward end of the slot with the lug, 36.

The member, 30, which at its upper face at the forward part co-operates with the vibrating cutter, 23, for cutting is tapered in thickness increasing rearwardly from the forward points of the comb teeth as indicated at 39 nearly to the rear end of said member, 30, and in any event past the line of cut, being preferably convexly curved as to its lower surface as seen in Figure 1, and being rounded up at the rear end or heel beyond the point of maximum thickness or limit of taper. For operating the member, 30, to thrust it forwardly subject to retraction by the spring, 40, there is provided a flexible connector indicated in totality by the letter B, which extends from the rear end of the combined cutter and comb member, 30, rearwardly under the handhold portion, A^1, of the body, A, to the rear end of the body, said connector being normally flexed away from the under side of the body opposite the handhold portion, and being held thus flexed by the reaction of the spring, 40, on the comb and cutter member, 30, to which at its forward end said connector is pivotally attached as seen at 45. In the form shown in Figures 1 to 5 this connector is a flat spring bar which by reason of its elastic flexibility obtains substantially pivotal connection at its rear end to the casing although secured rigidly by screw, 46.

If preferred for any reason this flexible connector instead of being a spring bar may be a jointed member as in the form shown in Figures 8 and 9; and we do not limit ourselves to the particular form shown in Figure 1, though for certain reasons this may be regarded as a preferred form of this connector.

Upon considering the construction as thus far described, it may be understood that the barber grasping the tool by the handhold portion A^1 of the body will at the same time have the connector, B, in the grasp of his fingers at the under side of the handhold and that as the tool is advanced over the head of the customer, the combined cutter and comb member, 30, being at its normal retracted position, the barber may hold the tool with the points of the comb teeth in touch with the surface of the skin and thereby will effect the clipping of the hair so as to leave a stubble only of the minimum length equal to the thickness of the comb teeth at a very short distance rearward from their points at which the line of cut is located, that line being very near the points of the teeth of the vibrating cutter when the tool is of the power operated type in which the rate of vibration is so rapid that the hairs are severed almost instantly upon entering the teeth and without delay for them to reach the bottom of the recesses between the teeth.

It will be seen that if it is desired to graduate the cut the barber may obtain this result while still holding the tool with the points of the comb teeth in touch with the skin, by merely exerting pressure with his fingers on the flexible connector, B, without materially altering his grasp upon the tool for guiding it, the straightening of the normally flexed connector which is caused by such pressure operating to thrust the cutter and comb member, 30, forwardly along the line of its sliding engagement with the body maintaining it in perfect co-operating relation with the vibrating cutter, but increasing the distance between the plane of cut and the skin by reason of the tapered thickness of the combined comb and cutter.

And it will be seen that this graduation can be effected to the limit of the increase of thickness of the tapered portion of the part, 30, from the forward points of the comb teeth back to the position on the comb teeth at which the line of cut becomes located when the member, 30, is thrust forward to the limit of the thrust movement which can be effected by the straightening of the flexible connector.

In the construction shown in Figures 8 and 9 the device is modified from that shown in Figures 1 to 5 in two respects, either of which modifications may be made without the other; and we do not limit ourselves to making both modifications in the same tool. The first

modification to be described consists in substituting for the flat spring bar as connector, a jointed member of which each part is or may be non-resilient in itself, the two parts indicated at 50 and 51, respectively being pivoted together as seen at 52 at a point opposite the handhold portion of the body, the part, 50, being pivotally connected at its forward end to the member, 30, as in the earlier figures, and the part, 51, being pivotally connected at its rear end to the body toward the rear end.

The second modification referred to consists in applying the feature of a comb tapered in thickness and longitudinally adjustable, to a hair clipper of not uncommon type in which the fixed or non-vibrating cutter is distinct from the comb, or at least in which there is provided a comb member not integral with—and in that sense distinct from—the non-vibrating cutter blade. In Figures 8, 9 and 15 the non-vibrating cutter blade is seen at 60 mounted on a forwardly projecting lug of the plate, 61, which corresponds to the plate, 25, of the earlier figures.

And the comb member, 62, is slidingly mounted by tongue-and-groove engagement with the plate, 61, in the same manner as in which the earlier figures, the member, 30, is engaged with the plate, 25. The spring, 65, in these figures corresponds to the spring, 40, in the earlier figures, and is similarly accommodated in a slot, 67, in the sliding comb member, 62, wherein it is stopped at the forward end by a lug, 66, projecting from the plate, 61, corresponding to the lug, 36, of the earlier figures.

Upon considering this construction it will be seen that it will operate in the same manner as the form shown in the earlier figures in respect to graduating the length of the stubble by the pressure of the barber's fingers on the jointed flexible connector.

We claim:—

1. In a barber's power-driven hair clipper, in combination with a body for housing the power driven mechanism and affording a handhold for guiding the tool in operation, a toothed cutter blade and power operated means for moving it for cutting; a member mounted slidingly in the body having at its forward end comb teeth relatively longer than the cutter blade teeth and adapted for sliding on the body for protruding the comb teeth forwardly of the cutter teeth substantially to the extent of the excess of length of said comb teeth over the cutter teeth; a spring reacting between the body and comb member for holding the comb member yieldingly at a position of minimum protrusion of the comb teeth; and a flexible connector extending under the handhold between the comb member and a rearwardly situated point of connection of said connector with the body.

2. In the construction defined in claim 1, the comb-toothed member having its comb teeth adapted also to serve as cutter teeth, said member being mounted for its sliding movement suitably for cutting co-operation of its said teeth with the teeth of the moving cutter blade.

3. In a barber's hair clipper, in combination with a body for carrying hair-severing means and for housing operating mechanism therefor, said hair-severing means comprising a toothed vibrating cutter blade, a comb-toothed member having its comb teeth relatively longer than the teeth of the vibrating cutter blade, said member being mounted for movement on the body transversely to the direction of vibration of the cutter blade for protruding the comb teeth forwardly of the teeth of the cutter blade substantially to the amount of the excess length of the comb teeth over the cutter teeth; spring means reacting between the body and the comb-toothed member for holding the comb member yieldingly at a retracted position of minimum protrusion of the comb teeth forwardly of the cutter teeth and means on the body within reach of the fingers of the operator in grasping the body for hair cutting operation, for thrusting the comb-toothed member forwardly for increasing the protrusion of the comb teeth.

4. In the construction defined in claim 3, the comb-toothed member being mounted upon the body in position to constitute the support of the tool in its advancing movement for hair severing and being tapered thickening from the point of the comb teeth rearwardly beyond the line of cut; whereby the length of the stubble may be graduated without requiring the barber to lift the points of the comb out of contact with the scalp.

5. In the construction defined in claim 1, the comb-toothed member being positioned for affording the support of the tool on the head of the person served by it at the line of cut and being tapered from the points of the teeth rearwardly to a line somewhat rearward of the line of cut for graduating the stubble length by fore-and-aft adjustment of said comb member without lifting the points of the comb teeth from the scalp.

6. A power driven barber's hair clipper having a body comprising a handhold portion and having in combination therewith a comb-and-cutter blade and a vibrating cutter blade, the combined member having its comb teeth relatively longer than the teeth of the vibrating cutter blade and being mounted slidingly on the body for fore-and-aft movement in the plane of the cut, the range of said movement being substantially the excess of length of the comb teeth over the teeth of the vibrating cutter; spring means reacting for holding the comb member at a retracted position of minimum protru-

sion of the comb teeth beyond the cutter teeth, and a flexible connector extending between the rear end of the comb member and the rear end portion of the body at the under side of the handhold portion thereof, said connector being arranged to be held normally flexed at the middle portion away from the handhold out of line with its end connections, and being positioned so as to be grasped at said middle portion by the operator in grasping the handhold of the body.

7. In a barber's power driven hair clipper in combination with a body for housing the power driven mechanism and affording a handhold for guiding the tool in operation, said body carrying co-operating cutter blades and a comb member, the comb member having its comb teeth longer by a substantial extent than the length of the teeth of the vibrating cutter, said comb member being mounted upon the body for fore-and-aft sliding movement to vary the extent of protrusion of comb teeth forwardly of the points of the cutter teeth, a spring reacting between the comb member and the body for holding the comb retracted to a position of minimum protrusion of the comb teeth beyond the cutter teeth, a flexible connector extending between the rear end of the comb member and the rear end portion of the body back of the handhold thereof and dimensioned relatively to the distance between its end connections at the retracted position of the comb member for being flexed at its middle portion outwardly from the handhold, said outwardly flexed portion being positioned for being grasped by the operator in grasping the handhold.

8. A power driven tool of the character of a barber's hair clipper comprising a body for housing the power driven mechanism and affording the handhold for operating it, a non-vibratory combined cutter and comb member mounted on the body for adjustment in fore-and-aft direction, and a vibrating cutter lodged upon said combined member, and the latter being tapered in thickness toward the point of the comb teeth, spring means for yieldingly maintaining said member at one limit of fore-and-aft adjustment, and means associated with the handhold of the body and connected with the combined member for thrusting it forward by movement of said means against the reaction of the spring means which may be caused by tightening the operator's hand grasp of the tool.

9. The construction defined in claim 8, the body having opposite side edges parallel at the portion of its length at which the comb moves and the comb having its lateral edges flanged downwardly for embracing the parallel edges of the body and the body and comb being co-operatively formed for tongue-and-groove engagement of the comb and body throughout a range of sliding adjustment of the comb on the body, whereby the grinding of the cutting face of the comb for sharpening does not affect the tongue and groove features.

10. In the construction defined in claim 8, the means for thrusting the comb forward against the resistance of the yielding spring means comprising a longitudinally extending member at the under side of the handhold part of the body in position to be grasped by the operator in grasping the body for operating the tool.

11. In a barber's hair clipper in combination with a body affording a handhold for the operator, carrying the hair severing means and housing the actuating mechanism therefor, a member mounted on the body at the under side thereof for lodgment and support of the tool in its advance over the head, said member being engaged with the body for movement longitudinally thereof and being tapered in thickness increasing from the front end rearwardly past the line of cut, a spring reacting between the body and said member for holding it yieldingly at a rearwardly retracted position, and a flexible connector extending longitudinally of the body on the handhold, connected at its forward end to said tapered member and at the rear end to the body somewhat rearwardly of the handhold, said connector being normally flexed away from the handhold at a medial portion of its length within the grasp of the fingers of the operator when grasping the handhold when operating the tool in hair cutting.

12. A power driven tool of the character of a barber's hair clipper comprising a body for housing the power driven mechanism and affording the handhold for operating it, a non-vibratory combined cutter and comb member mounted on the body for adjustment in fore-and-aft direction and yieldingly urged toward one of its limits of movement, a vibratory cutter lodged upon said combined member, the latter being tapered in thickness toward the point of the comb teeth, and means on the body located within reach of the fingers of the operator in grasping the body for hair cutting operation, adapted for thrusting said combined member in the direction opposite to the yielding opposition.

In testimony whereof, we have hereunto set our hands this 23rd day of August, 1928.

STEPHEN MINARIK.
WILLIAM KOCOUREK.