Jan. 14, 1958 I. JEPSON ET AL 2,819,522

IMPROVED SHEARING HEAD FOR HAIR CLIPPER

Original Filed Feb. 7, 1950 2 Sheets-Sheet 1

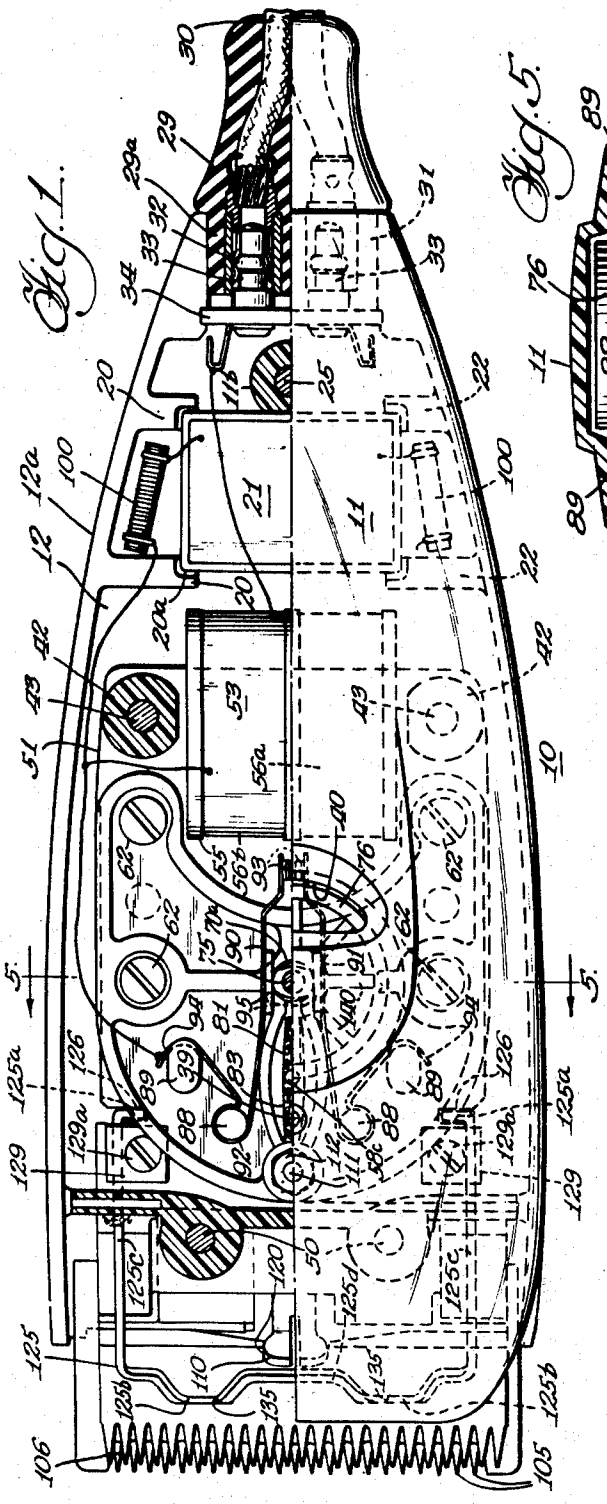


Fig. 1.

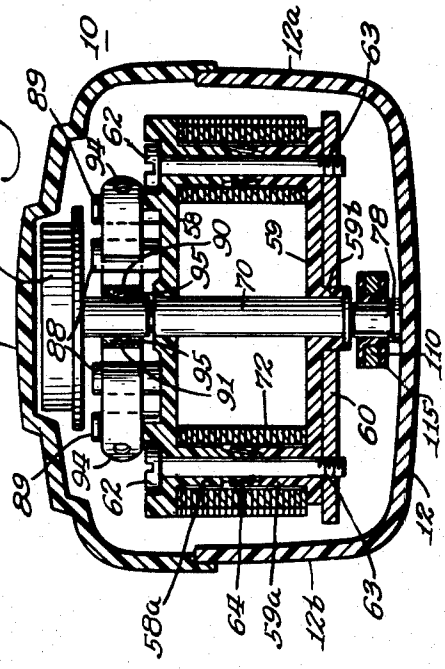


Fig. 5.

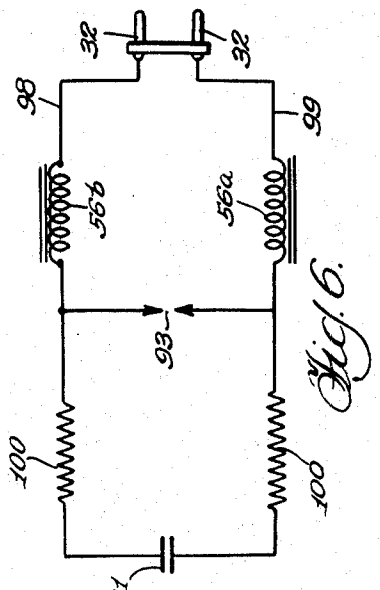


Fig. 6.

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Fig. 2.

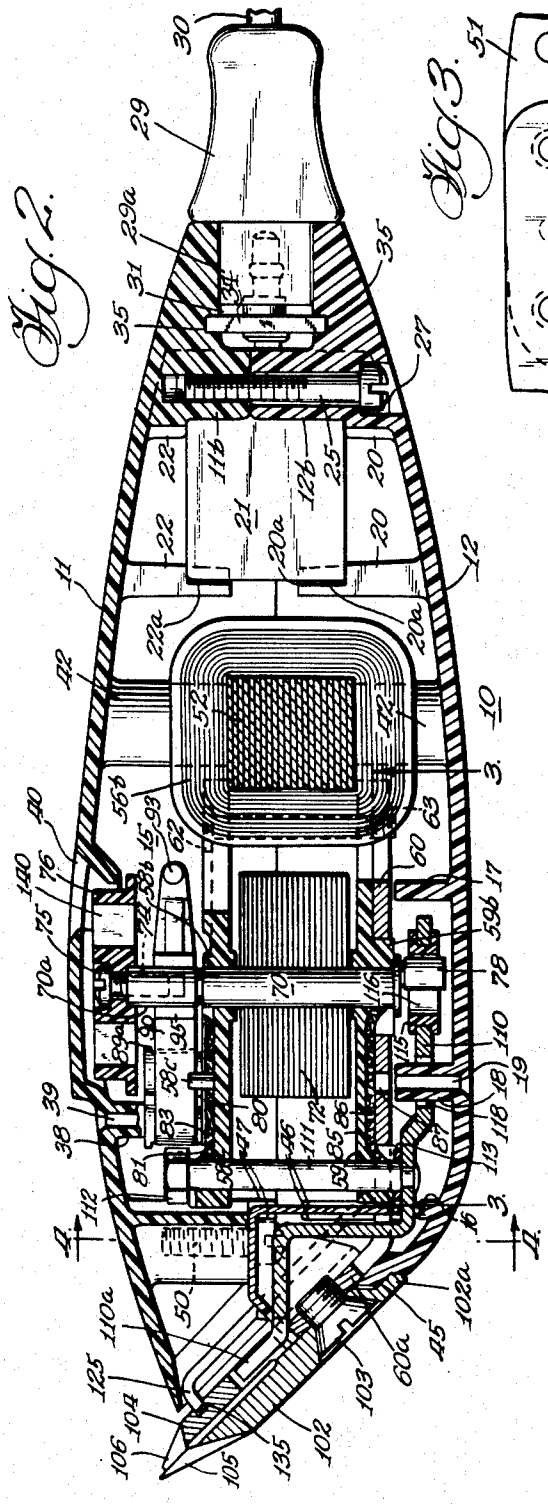


Fig. 3.

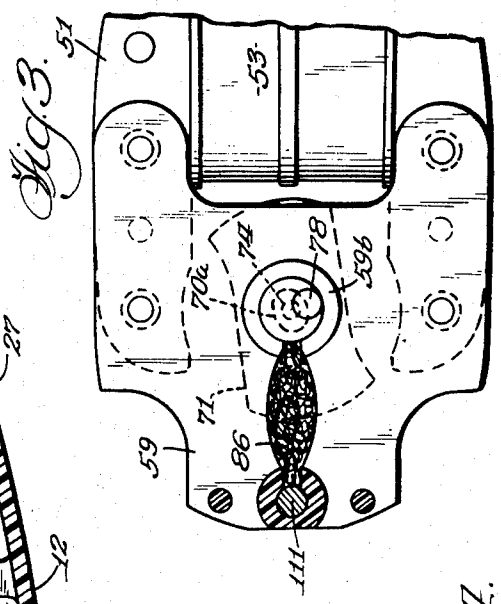
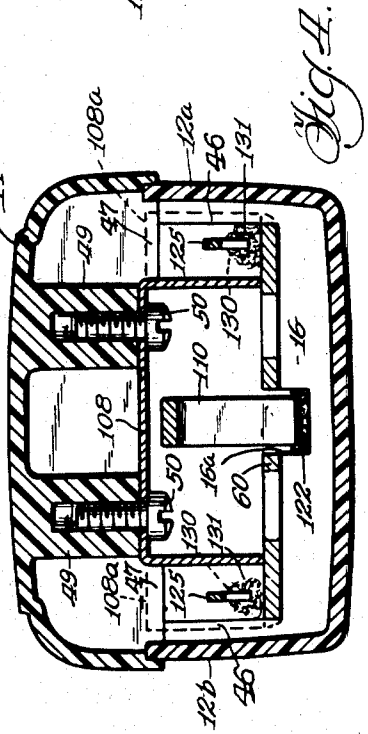


Fig. 4.



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IMPROVED SHEARING HEAD FOR HAIR CLIPPER

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Original application February 7, 1950, Serial No. 142,752. Divided and this application February 25, 1954, Serial No. 412,541

7 Claims. (Cl. 30—216)

The present invention relates to hair clippers, and, more specifically, to electric hair clippers particularly well adapted for home use in clipping human hair. This application is a division of application Serial No. 142,752, filed February 7, 1950, now Patent 2,696,568, and assigned to the same assignee as the present application.

A great many people do not have ready access to barber shops because they live at considerable distances from such barber shops, or are effectively prohibited by the high charges for getting professional haircuts in such shops. For this reason a great many people, and particularly children, have their hair cut at home by their parents, other members of their household, neighbors or the like, employing the conventional scissors and perhaps hand clippers, and, more rarely, electric clippers. During the past decade, a large number of rural areas have been supplied with electricity so that a majority of the rural homes, rather than an occasional home, use electricity as a sourse of power and light. There is an extensive market, therefore, for an inexpensive electric hair clipper to be used by amateurs in connection with giving haircuts, particularly to children, not only to cut down the expense of keeping such children well groomed, but also to eliminate the difficulty of getting to barber shops when located at some distance from such shops.

There have been on the market many hair clippers designed for use, particularly for professional hair cutters such as barbers, which, although very satisfactory from the standpoint of hair clipping, are relatively expensive and, hence, commercially unattractive to the amateur hair cutter discussed above. It would be desirable to provide an inexpensive yet very satisfactory hair clipper which would have a long life with a minimum of care and yet which could be extensively used even by professional hair cutters.

Accordingly, it is a primary object of the present invention to provide a new and improved electric hair clipper particularly designed for home use.

It is another object of the present invention to provide an electric hair clipper having an improved and powerful electric motor of the impulse type capable of satisfactory operation on alternating or direct current.

Still another object of the present invention is to provide an electric hair clipper which is simple and compact and which lends itself to high speed manufacturing on a mass production basis so that it may be sold at a low cost to reach the enormous market with respect to sales of the clipper for home use.

It is a further object of the present invention to provide an electric hair clipper having improved means for assembling the clipper parts whereby, if the occasion arises, the clipper may be disassembled in a simple manner without especially designed tools or the like.

Further objects and advantages of the present invention will become apparent as the following description proceeds and the features of novelty which characterize the invention will be pointed out with particularity in the

claims annexed to and forming a part of this specification.

For a better understanding of the present invention reference may be had to the accompanying drawings in which:

Fig. 1 is a top plan view partially in section of an electric hair clipper embodying the present invention;

Fig. 2 is an elevational sectional view of the electric hair clipper shown in Fig. 1;

Fig. 3 is a sectional view taken on line 3—3 of Fig. 2, assuming that Fig. 2 discloses the complete unit;

Fig. 4 is a sectional view taken on line 4—4 of Fig. 2, also assuming that Fig. 2 discloses a complete unit;

Fig. 5 is a sectional view taken on line 5—5 of Fig. 1; and

Fig. 6 is a schematic circuit diagram of the electric circuit embodied in the electric hair clipper of Fig. 1.

The present invention contemplates an inexpensive electric hair clipper comprising a unitary subassembly of an impulse motor and shearing head arranged for mounting within a two-part molded casing which provides a handle for the clipper readily graspable by the operator when the clipper is used. The impulse motor includes novel means for supporting the periodically operable contacts for controlling the motor energization and the electrical circuit includes suitable means for preventing deleterious arcing at such contacts to insure long contact life as well as means for preventing radio interference, etc. The shearing or clipping portion includes a readily removable cutter member with novel means for holding the cutter in place and for biasing it into shearing engagement with a comb or the like. Improved means are provided for drivingly relating the cutter with the motor, and the entire mechanism is arranged in a compact manner for simple and high speed assembly and for providing a small inexpensive hair clipper.

Referring now to the drawings, there is illustrated an electric hair clipper generally designated at **10** which comprises a generally elongated split or two-part housing or casing comprising upper housing section **11** and lower housing section **12**. These housing sections define a casing of a size so as to readily be grasped within the hand of an operator. Preferably also the casing is molded or cast from a suitable plastic material having electric insulating characteristics, which material also will take suitable dyes so that a casing or housing of very pleasing appearance may be produced. A casing of this type may be comparatively light and inexpensive, since various ribs, supporting elements and strengthening means may be molded as an integral part thereof, and threaded bushings, inserts and the like may similarly be molded therein.

As is best shown in Figs. 2 and 4 of the drawings, the lower housing section **12** is provided with upwardly extending side flanges **12***a* and **12***b* to define a cup-shaped member for receiving therein a motor and shearing head subassembly generally designated at **15** and described in greater detail hereinafter. For increasing the strength and rigidity of the casing, a plurality of transversely extending ribs **16** and **17** may be provided integrally molded with the casing. Also adjacent the forward central portion of the lower housing section **12** is an inwardly extending tubular member **18** also integrally formed therewith and having a passageway **19** leading from the exterior to the interior of the casing, the purpose of which will become apparent from the ensuing description. Adjacent the rear portion of the lower casing section **12** are a plurality of pairs of spaced inwardly projecting members **20** having corner recesses **20***a* defined therein at the ends most remote from the housing section proper so as to support therebetween a suitable condenser or capaci-

tor 21. The upper housing section 11 similarly includes such projections designated at 22, each provided with a corner recess 22a to engage the corners of the upper portion of the condenser 21 so that when the housing is assembled, as best shown in Fig. 2, the condenser 21 is rigidly supported in the casing to prevent any movement relative thereto. Adjacent the rear of the housing sections 11 and 12 are defined a pair of pillar members 11b and 12b, respectively, which have their ends abutting to position the housing sections when held together by fastening means such as the screw 25 extending into openings defined within the pillars 11b and 12b and threadedly engaging suitable threads defined in the pillar 11b. Preferably, the opening for receiving the screw 25 in the lower casing section 12 is counterbored as indicated at 27, so that the screw head is within the confines of the casing surface.

To the rear of the abutting pillars 11b and 12b is an enlarged recess for receiving the end of a suitable electric plug connector 29 connected to an electric conductor 30 of a conventional cord set which may suitably be connected to a source of electric energy, not shown. Preferably, the plug connector 29 includes an insulated extension 29a adapted to be received within the recess 31 defined at the rear end of the casing. With this arrangement the plug connector 29 may be designed to have a streamlined appearance with the casing proper, as is clearly shown in Figs. 1 and 2 of the drawings. Preferably also the plug connector 29 is provided with female plug type contacts 33 to receive the male type plug contacts or prongs 32 associated with the casing comprising the housing sections 11 and 12. The prongs 32 should be split prongs or the like to provide a slightly expansible construction, thereby insuring good electric contact with the female type plug contacts 33.

For the purpose of supporting the prongs 32 defining the male type plug contacts, there is provided an insulating plate 34 which is adapted to be disposed in cooperating grooves 35 defined in each of the housing sections, so that when the casing is assembled the insulating terminal plate 34 is firmly and rigidly held in position, whereas when the casing is disassembled the terminal plae 34 may readily be removed.

The upper casing section 11 is provided with an inwardly disposed inner tubular extension 38 having a passageway 39 therein similar to the tubular extension 18 and disposed in the casing section at a point more or less opposite the tubular extension 18. The casing section 11 further includes a somewhat semicircular opening 40 to which access to a starting thumb wheel may be had, as will become apparent from the following description. Both the upper and lower casing sections 11 and 12 are provided with opposed enlargements 42 adjacent the central portion of the casing for accommodating suitable screws 43 to maintain the casing sections 11 and 12 in assembled relationship. The forward end of the casing, as best shown in Figs. 2 and 4, is open to permit the shearing head, hereinafter described, to extend therefrom. The lower casing section is provided with an offset lip 45 extending across the casing section and disposed at an angle so as to properly support a shearing head. Both the upper and lower casing sections are also provided with inwardly extending ribs 46 and 47 defining a groove for receiving a portion of the clipper motor and shearing head assembly therein, as will be described hereinafter. Suitable inwardly depending enlargements 49 adjacent the forward end of the upper casing section are provided to receive suitable fastening means 50 whereby the casing section 11 may be fastened to the motor subassembly.

For the purpose of providing a simple, compact and highly efficient motor subassembly 15, there is disposed within the casing defined by the upper and lower housing sections 11 and 12 a suitable impulse type motor which comprises a field structure 51 made up preferably of a stack of U-shaped laminations 52 thereby to form a U-shaped field structure. Encircling the base or bight of the field structure 51 is a field coil unit 53 comprising an insulating spool 55 having two sections for receiving therein two field windings 56a and 56b, best shown in the schematic diagram of Fig. 6 of the drawings. It will be understood that the insulating spool 55 may be formed from any suitable material, such, for example, as a heat resistant cellulose acetate, and, furthermore, is preferably formed of two spool parts capable of being interrelated when placed around the base or bight of the U-shaped field structure 51.

Secured to the field structure 51 are upper and lower insulating bearing plates 58 and 59, respectively, which extend for a substantial distance beyond the open end of the U-shaped field structure. Also attached to the U-shaped field structure is a base plate 60 formed of metal and having at the forward end an angularly disposed bifurcated portion 60a for supporting part of the shearing head to be described hereinafter.

Preferably, the bearing plates 58 and 59 and the base plate 60 are rigidly related to the field structure 51 in the manner shown in Figs. 1 and 2 of the drawings by suitable screws or fastening means 62 which extend through aligned openings in these members and threadedly engage the base plate 60 as indicated at 63. For the purpose of insulating the fastening means 62 from the laminations 52, the insulating bearing plates 58 and 59 are provided with integral tubular extensions 58a and 59a, best shown in Fig. 5 of the drawings, for completely insulating the fastening means. These tubular extensions 58a and 59a preferably include interfitting portions designated at 64 in Fig. 5 of the drawings.

To hold the subassembly 15 in assembled relation with the upper housing section 11, the field structure 53 is furthermore provided with suitable openings to accommodate the screws or fastening means 43. Preferably, the insulating bearing plates 58 and 59 are formed of a molded plastic such as nylon, which has been found to be very satisfactory. These bearing plates are each provided adjacent the end of the field structure with an opening surrounded by flange portions integrally formed therewith defining bearings designated as 58b and 59b for the bearing plates 58 and 59, respectively. Journalled within the bearings 58b and 59b is a crank shaft 70 to which is suitably fastened as by a set screw or the like an armature 71 formed of a stack of laminations 72 riveted or otherwise secured together. The armature laminations 72 have a configuration such as is best shown in Fig. 3 of the drawings to provide a two-pole armature capable of rotating between the ends of the U-shaped field structure 51. The longitudinal axis of the crank shaft 70 is disposed perpendicular to the longitudinal axis of the casing, and also perpendicular to the base of the U-shaped field structure 51. The upper end of the crank shaft 70 extending above the bearing plate 58 and designated by the reference numeral 70a has an elliptical cross section for controlling the contacts of the impulse motor to be described hereinafter. This upper end of the crank shaft 70 furthermore is provided with a threaded opening 74 extending along the longitudinal axis thereof for receiving a screw 75 whereby a starting thumb wheel 76 may be attached thereto. The lower end of the crank shaft 70 extending beneath the base plate 60 terminates in a crank comprising an eccentric pin 78.

For the purpose of lubricating the upper armature bearing 58b, the upper bearing plate is provided with a shallow somewhat elliptical-shaped recess 80 for receiving therein a lubrication wick 81 preferably held in position by a projection 58c integrally formed with the upper bearing plate 58 and a suitable metal wick retainer 83. The wick preferably extends to the crank shaft 70 to cause lubrication to be supplied to the bearing 58b. The lower bearing plate 59 similarly is provided with a recess 85 for having disposed therein a suitable wick 86. The base plate 60 retains the wick

86 in position. As will be apparent from Fig. 2 of the drawings, the base plate 60 is provided with a suitable opening 87 disposed coaxially with respect to the passageway 19 in the tubular extension 18, whereby one may readily supply the oil retaining wick 86 with lubrication from the exterior of the casing. It will be noted that the upper tubular extension 38 extends substantially to the upper wick 80 whereby it may readily be supplied with lubrication through the passageway 39.

In accordance with the present invention the upper bearing plate 58 is provided with integral upwardly extending pairs of projections 88 and 89. The pair of projections 89 are each provided at their upper ends with an overhanging lip 89*a*. These projections serve to maintain in position a pair of resilient contact arms 90 and 91, one disposed on either side of the elliptical extension 70*a* of the crank shaft 70. In accordance with the present invention, each of the contact arms 90 and 91 are provided with a central portion 92 of circular configuration so as to substantially encircle its associated projection 88. One end of each resilient contact arm, preferably formed of phosphor bronze or beryllium copper, is provided with an arc resisting contact 93, while the other end is provided with a hook-shaped portion 94 adapted to engage the associated projection 89. This construction makes for a very simple and foolproof assembly of the resilient contact arms 90 and 91, since it is merely necessary to place the circular portions 92 of these contact arms so as substantially to encircle the associated projections 88 with the hook-shaped portions 94 engaging the associated projections 89 and disposed beneath the overhanging lips 89*a* thereof. These lips 89*a* prevent upward movement of the resilient contact arms and, consequently, although readily assembled, they are firmly held in place. Each of the contact arms is also provided with a block of insulating material 95 disposed adjacent the elliptical extension 70*a* of the crank shaft 70. These contact blocks 95 are engageable with the elliptical extension 70*a* upon rotation of the crank shaft 70 so as to alternately make and break the circuit at the contacts 93. When the ends of the maximum diameter of the elliptical portion 70*a* engage the insulating contact blocks 95, which latter are preferably formed of nylon or the like, the circuit at the contacts 93 is broken. On the other hand, when the elliptical portion 70*a* of the crank shaft 70 is disposed so that the ends of its minimum diameter are suitably engaged by the contact blocks 95, a circuit is completed at the contacts 93. It should be understood that rotation of the crank shaft 70 will cause alternate making and breaking of the circuit contacts 93.

The electrical circuit of the impulse motor of the present invention can now be considered with reference to Fig. 6 of the drawings where the circuit elements are schematically illustrated. The contact prongs 32 are connected by suitable conductors 98 and 99 with one terminal of the field windings 56*a* and 56*b*, respectively. The other ends of these field windings are connected to one each of the contacts 93. It should be understood that the impulse motor per se is old and the operation thereof is well understood by those skilled in the art. The contacts 93 engage each other to complete the field circuit when the armature poles approach the field or stator poles of the field structure 51, and the contacts 93 are opened when the armature poles are about to recede from the stator poles. In other words, the armature is so shaped and positioned with respect to the field structure that the torque produced by the action of the field magnet upon the armature would be alternately clockwise and counterclockwise if the armature were mechanically rotated while the field magnet was constantly excited without any interruptions in its excitation. It is for this reason that the contacts 93 are provided, which are so interrelated by means of the elliptical portion 70*a* of the crank shaft 70 that the energization circuit for the field structure is opened at those times when the torque tends to be negative with respect to the desired direction of rotation. An impulse motor operates at a speed of the order of 8,000 revolutions per minute, and by virtue of the periodically operated contacts 93 operates equally well when connected to a source of direct or alternating current.

For the purpose of preventing excessive arcing at the contacts 93 and thereby to increase the contact life, the capacitor 21 is connected across the contacts, preferably through two serially arranged identical resistors 100. The resistors 100 tend to limit the magnitude of the discharge current of the capacitor 21 so as to reduce arcing when the charged capacitor 21 is suddenly short circuited by closure of the contacts 93. For a particular application of the present invention very satisfactory operation was obtained by employing a capacitor having a capacitance of .025 microfarads and with the resistors 100, each having a resistance of 24 ohms. It should be understood, however, that very satisfactory operation can be obtained with considerably different values of resistance and capacitance.

In order to perform a hair cutting or clipping operation, the hair clipper 10 of the present invention comprises cutting elements in the form of a comb 102 rigidly attached to the angularly disposed bifurcations 60*a* of the base plate 60 by suitable screws 103, and a reciprocating cutter 104. The cutter and comb are preferably formed of suitable blade steel and are each provided at the cutting edge thereof with suitable cutting teeth designated as 105 on the comb and 106 on the cutter. By virtue of the angular disposition of the bifurcations 60*a* relative to the base plate 60, the comb 102 is disposed at a suitable angle with respect to the clipper casing which has been found most satisfactory. Since the surface of the comb remote from the cutter 104 is in engagement with the skin, the surface is preferably relatively smooth and the screws 103 are recessed so that the heads will cause no interference in the movement of the clipper over the skin. If desired, the comb may have flutings on the skin engaging surface thereof so as to provide limited contact with the skin and thereby reduce the friction of the clipper in moving it along the skin. The interengaging surfaces of the comb and cutter are accurately finished to insure ready reciprocal movement of the cutter while in shearing engagement with the comb.

Suitably supported from the base plate 60 on the opposite side of the bifurcations 60*a* to which the cutter 102 is fastened, is a cover bracket 108 which may be welded or otherwise secured to the bifurcations 60*a*. This cover bracket is provided with suitable openings to receive the screws 50 for attaching the forward portion of the clipper motor assembly to the upper casing section 11. The cover bracket 108 furthermore includes lateral extensions 108*a* adapted to be received in the grooves defined between the ribs 46 and 47 of the housing sections 11 and 12, as is best shown in Figs. 2 and 4 of the drawings. Is should be noted that the comb 102 includes a lip portion 102*a* which engages with the offset lip 45 of the lower housing section 12 whereby the clipper casing and comb blend together in a streamlined manner to afford a pleasing appearance and furthermore close the casing against the access of dirt or hair at this point .

In order to transmit rotatable motion of the crank shaft 70 to reciprocal movement of the cutter 104, there is provided a drive lever 110 pivotally mounted to a suitable pivot pin 111 extending between the ends of the bearing plates 58 and 59 remote from the field structure 51. As illustrated, the pivot pin 111 has one end riveted to the drive lever 110, whereupon the pivot pin 111 extends through aligned openings defined in the bearing plates 58 and 59. A suitable nut 112 attached to the upper threaded end of the pivot pin 111 maintains the pivot pin 111 and its associated drive lever in assembled

relationship with the motor subassembly. If desired, a drive lever thrust washer 113 may be interposed between the base plate 60 and the drive lever 110.

For drivingly connecting the crank shaft 70 and the drive lever 110, the latter is provided at one end with an elongated opening for receiving therein a nylon bearing block 115 having an elongated opening 116 into which the eccentric pin 78 of the crank shaft 70 extends. The drive lever 110 also includes an elongated opening 118 through which the tubular extension 18 of the lower housing section 12 may extend without interfering with free movement of the drive lever. The other end of the drive lever 110 is of somewhat L-shaped configuration and includes a split end 110*a* with somewhat arcuate edges for drivingly engaging a cooperating slot 120 defined in the cutter 104. The L-shaped portion of the drive lever 110 is disposed within the cover bracket 108, but the bifurcated end 110*a* extends outside this bracket to engage the slot 120 centrally disposed along the lower edge of the cutter 104. It will be understood that the split end 110*a* of the drive lever 110 provides a cushioned cutter drive. Since the drive lever 110, as viewed in Fig. 4 of the drawings, is beneath the top of the transverse rib 16 of the lower housing section 12, a suitable recess 16*a* is provided in this transverse rib 16 in order to accommodate oscillatory movement of the drive lever. Preferably a layer of felt or other cushioning material 122 of a somewhat U-shaped configuration is disposed in the recess 16*a* around the drive lever 110.

To provide the desired force for maintaining the cutter 104 in shearing engagement with the comb 102, there is provided in accordance with the present invention a cutter spring 125 preferably formed of suitable spring steel and having a generally U-shaped configuration with the arms 125*c* of the U each including an inwardly directed lateral extension 125*a*, clearly shown in Fig. 1 of the drawings. In accordance with the present invention, the base plate 60 is provided at its upper surface with a pair of L-shaped grooves 126 for receiving therein the ends including the extension 125*a* of the U-shaped cutter spring 125. These ends are clamped against the base plate by suitable cutter spring clamps 129 and fastening means 129*a*. The arms of the U-shaped cutter spring 125 pass through slots 130 defined in the extensions 108*a* of the cover bracket 108, as clearly shown in Fig. 4 of the drawings. A resilient material such as felt or the like, indicated at 131, is preferably disposed around the arms of the U-shaped cutter spring 125 where they pass through the openings 130 in the extensions 108*a* of the cover bracket 108.

The bight or base portion 125*d* of the U-shaped spring 125 is provided with a pair of deformations 125*b* extending toward the cutter 104 so as to be disposed in spaced grooves 135 defined in the cutter. It will be apparent that oscillating movement of the cutter will cause oscillating movement of the base portion of the cutter spring 125 which will, however, provide the desired force for biasing the cutter constantly into shearing engagement with the comb 102. It will be apparent that for cleaning or other purposes the cutter 104 may readily be removed from the remainder of the apparatus merely by lifting the deformations 125*b* ofthe U-shaped spring 125 out of the groves 135.

In accordance with the present invention, the thumb wheel 76, which is accessible from outside the casing for applying a starting force to the impulse motor, is provided with a plurality of helically curved spokes 140 so as to operate as fan blades to cause cooling air to circulate through the casing by moving through the opening 40 and out past the shearing or clipping portion of the device. Preferably the thumb wheel 76 is provided with suitable indicia for locating the same relative to the elliptical portion 70*a* of the crank shaft 70 for proper timing of the operation of the contacts 93.

From the above description it will be apparent that there has been provided a simple and compact clipper mechanism in which an impulse motor of improved construction is employed and in which a motor and shearing subassembly is provided completely operative so that it may be inserted within a casing defined by the housing sections 11 and 12. The subassembly is inserted into the upper casing section 11, and the screws 50 are inserted to hold the bracket cover, forming a part of the assembly, to the casing section. The lower casing section 12 is then applied, and the fastening means comprising the screw 25 and the screws 43 complete the assembly with all the parts including the terminal plate 44 and the condenser 41 firmly maintained within the casing. The resistors 100 are disposed in a suitable space at either end of the condenser 21.

In view of the detailed description included above, the operation of the clipper embodying the present invention will readily be understood by those skilled in the art. Moreover, from the above description it will be apparent that a very simple, compact clipper is provided which is especially well adapted for home use and which can be sold at a relatively low cost. The clipper furthermore is adapted to give long years of foolproof service.

While there has been shown and described a particular embodiment of the present invention, it will be understood that various changes and modifications may obviously be made by those skilled in the art without departing from the invention in its broader aspects, and it is desired in the appended claims to cover all such changes and modifications as fall within the true spirit and scope of the present invention.

What is claimed as new and desired to be secured by Letters Patent of the United States is:

1. In a hair clipper of the type comprising a pair of relatively movable shearing elements associated with a casing defining a handle for manipulating said clipper, motor means disposed in said casing, means for connecting said motor to one of said relatively movable shearing elements for producing relative movement therebetween in response to operation of said motor, means for biasing said shearing elements into shearing engagement and retaining the same in such engagement comprising a U-shaped spring member having the arms thereof supported within said casing and the bight thereof engaging one of said shearing elements, and a deformation on said bight in a plane different from that of said arms engageable with said cutter for removably holding said cutter and comb in shearing relationship.

2. In a hair clipper, a clipper head including a fixed comb, a cutter slidable back and forth relative to said comb, a spring strip of greater width than thickness provided with a pair of arm portions having the width of said spring strip facing each other and also having a central portion interconnecting said two arms, cooperating means on said central portion of said strip and said cutter for holding said cutter in shearing engagement with said comb, and means for holding said arm portions of said spring strip at points thereon removed from said central portion in a manner to flex said arm portions in the direction of the width of said strip to press the central portion of said strip against said cutter to hold said cutter in shearing engagement with said comb.

3. In a hair clipper of the type comprising a pair of relatively movable shearing elements associated with a casing defining a handle for manipulating said clipper, a subassembly including a motor disposed in said casing, means for connecting said motor to one of said relatively movable shearing elements for producing relative movement therebetween in response to operation of said motor, means for biasing said shearing elements into shearing engagement and retaining the same in such engagement comprising a U-shaped spring member having the arms thereof fastened to said subassembly and the bight thereof engaging one of said shearing elements, and a pair of spaced deformations on said bight engageable with spaced grooves

in said one of said elements for holding said shearing elements in position.

4. In a hair clipper comprising a casing defining a handle for manipulating said clipper, a subassembly including a motor disposed in said casing, said subassembly including a comb, and a cutter disposed for relative movement with said comb to produce a shearing action, means defining a groove in said cutter, means for connecting said motor to said cutter to produce reciprocating movement of said cutter in response to operation of said motor, means for biasing said cutter into shearing engagement with said comb and retaining the same in such engagement comprising a U-shaped spring member having the arms thereof fastened to said subassembly and the bight thereof engaging said cutter, and a deformation on said bight engageable with said groove in said cutter for removably holding said cutter and comb in position.

5. In a hair clipper comprising a casing defining a handle for manipulating said clipper, a subassembly including a motor disposed in said casing, said subassembly including a comb, and a cutter disposed for relative movement with said comb to produce a shearing action, means defining a pair of spaced grooves in said cutter, a lever pivotally mounted to said subassembly for drivingly connecting said motor to said cutter to produce movement of said cutter relative to said comb in response to operation of said motor, means for biasing said cutter into shearing engagement with said comb and retaining the same in such engagement comprising a U-shaped spring member having the arms thereof fastened to said subassembly and the bight thereof engaging cutter, and a pair of spaced deformations on said bight engageable with said grooves in said cutter for removably holding said cutter and comb in position.

6. In a hair clipper of the type comprising a pair of relatively movable shearing elements associated with a casing defining a handle for manipulating said clipper, a

subassembly including a motor disposed in said casing, means for connecting said motor to one of said relatively movable shearing elements for producing relative movement therebetween in response to operation of said motor, means for biasing said shearing elements into shearing engagement and retaining the same in such engagement comprising a U-shaped spring member having the arms thereof fastened to said subassembly and the bight thereof engaging one of said shearing elements, and cooperating means on said bight and one of said elements for holding said shearing elements in position.

7. In a hair clipper of the type comprising a pair of relatively movable shearing elements associated with a casing defining a handle for manipulating said clipper, a subassembly including a motor disposed in said casing, means for connecting said motor to one of said relatively movable shearing elements for producing relative movement therebetween in response to operation of said motor, means for biasing said shearing elements into shearing engagement and retaining the same in such engagement comprising a U-shaped spring member having the arms thereof fastened to said subassembly and the bight thereof engaging one of said shearing elements, and means on said bight engageable with a depression in said one of said elements for holding said shearing elements in position.

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