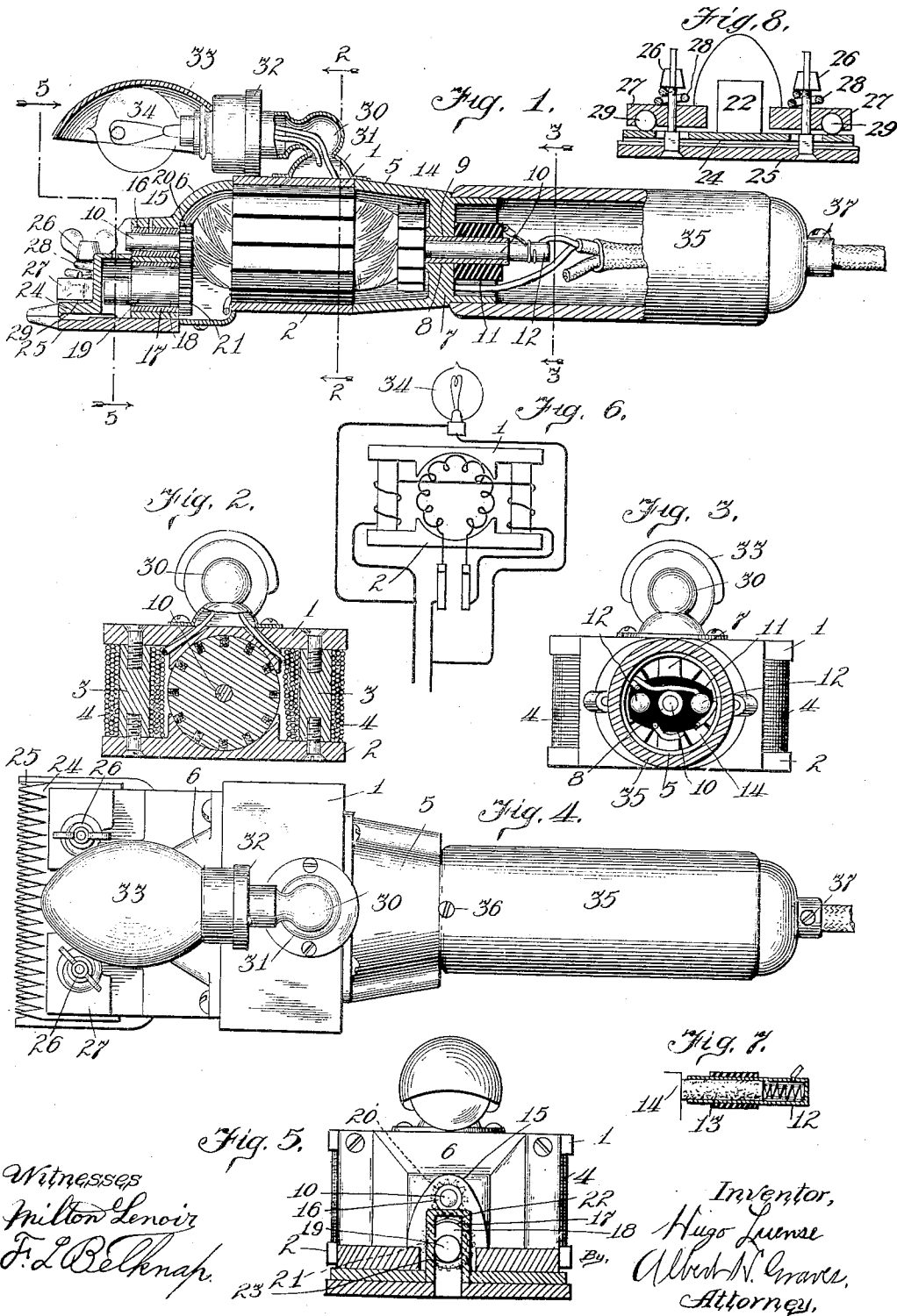


H. LUENSE.
ELECTRICALLY ACTUATED HAIR AND WOOL CLIPPER.
APPLICATION FILED MAR. 5, 1908.

911,139.

Patented Feb. 2, 1909.



UNITED STATES PATENT OFFICE.

HUGO LUENSE, OF CHICAGO, ILLINOIS.

ELECTRICALLY-ACTUATED HAIR AND WOOL CLIPPER.

No. 911,139.

Specification of Letters Patent.

Patented Feb. 2, 1909.

Application filed March 5, 1908. Serial No. 419,271.

To all whom it may concern:

Be it known that I, HUGO LUENSE, a subject of the Emperor of Germany, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Electrically-Actuated Hair and Wool Clippers, of which the following is a specification.

This invention relates to improvements in electrically actuated hair and wool clippers and among the salient objects of the invention are to provide an extremely compact and powerful electric motor to which the clipping blades are directly attached without the intervention of the usual flexible shaft, thus forming a hand tool; to provide a motor construction which exposes the windings largely to the outer air and thereby prevents overheating; to provide a construction which may be quickly taken to pieces for inspection, adjustment or repair; to provide certain features of adjustment of those parts most susceptible to wear; to provide an improved hooded or protected illuminating attachment which throws a beam of light upon the cutter, thus enabling the device to be used in dark stables and the like, and in general to provide an improved device of the character referred to.

To the above ends the invention consists in the matters hereinafter described and more particularly pointed out in the appended claims.

The invention will be readily understood from the following description, reference being had to the accompanying drawings, in which—

Figure 1 is a view chiefly in longitudinal vertical section, certain internal parts being, however, shown in elevation; Fig. 2 is a transverse sectional view taken approximately on line 2—2 of Fig. 1, and looking in direction of the arrows. Fig. 3 is a cross-sectional view taken on line 3—3 of Fig. 1, and looking in the direction of the arrow. Fig. 4 is a top plan view of the device. Fig. 5 is a sectional view taken on the interior line 5—5 of Fig. 1, and looking in the direction of the arrow. Fig. 6 is a diagrammatic view showing the circuit connections. Fig. 7 is a detail view of one of the brush tubes. Fig. 8 is a transverse sectional view taken through the two cutter plates.

Referring to the drawings, 1 and 2 designate respectively upper and lower pole plates of iron extending transversely and be-

tween which are interposed and suitably secured the core pieces 3, 3 which support the field windings 4. To the rear edges of the plates 1 and 2 is secured by suitable tap screws a hollow casting 5 preferably made of aluminum so as to be light, and to the forward edges of the same plates is similarly secured a second hollow casting 6, also preferably of aluminum.

Within and across the rear end of the hollow casting 5 is arranged to extend a vertically disposed supporting bar or web 7, through which is formed an aperture 8 to receive a sleeve or bushing 9 within which, in turn, is journaled an armature shaft 10 of the armature. Just in the rear, *i. e.*, outside of the support 7, is mounted upon the bushing 9 an insulating support 11 which carries a pair of diametrically opposite longitudinally disposed brush tubes 12 (see detail Fig. 3). The outer end of each tube is closed and contains a coiled expansion spring which acts against a carbon brush or pencil 13 mounted within the tube and held yieldingly in bearing with the commutator tube 14 of the armature. The support 11 is capable of rotary adjustment to give the brush proper adjustment.

The front casting 6 is provided with a relatively thick front end wall 15 provided with two apertures adapted to receive slightly eccentric journal bushings 16 and 17, respectively. These bushings are driven into their seats tight enough to hold them against movement, but, nevertheless, may be forced out and rotated slightly to change the relations of the journal bearing apertures to each other. The bushing 16 receives the front end of the armature shaft 10, as shown clearly in Fig. 1, while the lower bushing receives a short shaft 18 carrying at its outer end an eccentric wrist 19. The armature shaft carries a gear 20 which meshes with the corresponding gear 21 on the shaft 18.

The eccentric wrist 19 engages a vertical eccentric slot 22 (see Fig. 5), formed within a casing 23, which is rigid with the upper side of the reciprocating cutter blade 24; the arrangement being such that rotation of the shaft 18 imparts a short reciprocatory movement to the cutter blade. The fixed cutter blade 25 is rigidly secured to the lower side of the casting 6 by means of suitable screws (not shown) and the reciprocating plate is confined and guided by means of guide studs 26 rigidly mounted in the lower cutter blade

extending up through suitable slots in the movable blade and through overlying clamping plates 27. These clamping plates are held in yielding bearing with the movable blade by means of coiled springs 28 interposed between the upper sides of the plates and the thumb nuts of the respective studs 26. Antifriction rollers are interposed between the reciprocating plate and the overlying confining plates, as indicated at 29.

Upon the top plate 1 of the motor is mounted a lamp fixture, designated as a whole 30, comprising a hollow base 31 suitably secured to the motor, socket 32 extending at right angles to the base, and a sheet-metal hood 33 suitably connected with the socket and arranged to protect the incandescent lamp bulb 34 and to serve as a reflector.

A tubular handle 35 is suitably connected with the rear end of the rear casting 5 whereby the device may be handled, this handle being detachably united with the motor frame by means of a screw 36, being provided at its opposite end with a screw clamp 37 whereby the conductor cord may be clamped so as to prevent pulls which may come upon the cord from being transmitted to the connections of the conductors with the motor and lamp.

The circuit connections are clearly shown in the diagram Fig. 6, as well as being indicated in the other figures of the drawings.

I claim as my invention:

1. In a device of the character described, the combination of upper and lower motor pole plates, cores extending between said pole plates at each end thereof, field windings surrounding said cores and openly exposed as to their outer sides, an armature interposed between said windings and pole plates, a hollow frame member rigidly secured to the rear edges of the pole plates, an armature shaft journal opening in said frame member receiving the shaft of said armature, commutator brushes yieldingly mounted to extend longitudinally within said frame member and bearing yieldingly against the commutator of the armature, a tubular handle rigidly connected with the rear end of said frame member, a second hollow frame member rigidly connected with the front edges of said pole plates, an armature shaft journal opening in the latter frame member, a counter shaft bearing formed to extend through the front end of the latter frame member, intermeshing gears upon the armature shaft and counter shaft, respectively, a fixed shear blade rigid with said second hollow frame member, a reciprocatory shear blade movably mounted upon said fixed blade, and driving connections between the counter shaft and movable blade.

2. In a device of the character described, the combination of upper and lower motor pole plates, cores extending between said

pole plates at each end thereof, field windings surrounding said cores and openly exposed as to their outer sides, an armature interposed between said windings and pole plates, a hollow frame member rigidly secured to the rear edges of the pole plates, an armature shaft journal opening in said frame member receiving the shaft of said armature, commutator brushes yieldably mounted to extend longitudinally within said frame member and bearing yieldably against the commutator of the armature, a tubular handle rigidly connected with the rear end of said frame member, a second hollow frame member rigidly connected with the front edges of said pole plates, an armature shaft journal opening in the latter frame member, a counter shaft bearing formed to extend through the front end of the latter frame member, intermeshing gears upon the armature shaft and counter shaft, respectively, a fixed shear blade rigid with said second hollow frame member, a reciprocatory shear blade movably mounted upon said fixed blade, an eccentric housing fixed upon the movable shear blade, an eccentric wrist upon the end of said counter shaft engaging said eccentric housing, and means for adjusting said counter shaft relatively to the end of the armature shaft carrying the gear bodily and without disturbing the parallelism of said shafts.

3. In a device of the general character described, the combination of a driving shaft and gear thereon, a parallel counter shaft and gear thereon, and an eccentric sleeve surrounding one of said shafts and susceptible of being rotatably adjusted to vary the distance between said shafts.

4. In a device of the general character described, the combination of upper and lower transversely extending pole plates, core pieces secured to and extending between said pole plates at each end of the latter, field windings upon the respective core pieces, an armature extending longitudinally between the pole plates and between said field windings, a hollow casing member rigidly secured to the rear edges of the pole plates and within which one end of the armature extends, commutator segments upon that end of the armature, a cross bar in said hollow casing within which the armature shaft is journaled, a sleeve fixed in said cross bar and surrounding the armature shaft, an insulating support mounted upon said sleeve, brush supporting guides carried by said insulating support, brushes mounted to reciprocate endwise on said guides and spring-pressed into bearing with the end face of the commutator, a hollow handle connected with the end of said casing and extending in extension thereof, suitable conductors leading in through said hollow handle and suitably connected with the motor, a second hollow casing rigidly

connected with the front edges of said pole plates and within which the front end of the armature extends, an armature shaft bearing formed through the front wall of said latter casing and receiving the front end of the armature shaft, a counter shaft bearing also formed through the front wall of said latter casing and parallel with the armature shaft, intermeshing screw gears upon the armature shaft and counter shaft, respectively, a fixed shear blade connected with the lower side of said front end casing, a movable shear blade movably mounted upon the upper side of said fixed blade, and eccentric slot-and-wrist connections between said counter shaft and movable shear blade.

5. In combination with a clipper of the general character described, an incandescent lamp socket rigidly mounted upon the upper side thereof, an incandescent lamp connected

with the said socket and arranged to overhang the cutter blades, and a protecting hood overlying and protecting the upper side of said lamp.

6. In combination with a clipper of the general character described, an incandescent lamp socket rigidly mounted upon the upper side thereof, an incandescent lamp connected with the said socket and arranged to overhang the cutter blades, a protecting hood overlying and protecting the upper side of said lamp, and circuit connections for said lamp extending from the lamp through the socket and thence through the body of the clipper, substantially as described.

HUGO LUENSE.

Witnesses:

LOIS FORCE,
F. G. BELKNAP.