July 4, 1933. R. KNUDSEN 1,916,731

AUTOMATIC HAIR CLIPPER

Filed Nov. 16, 1932

Fig. 1.

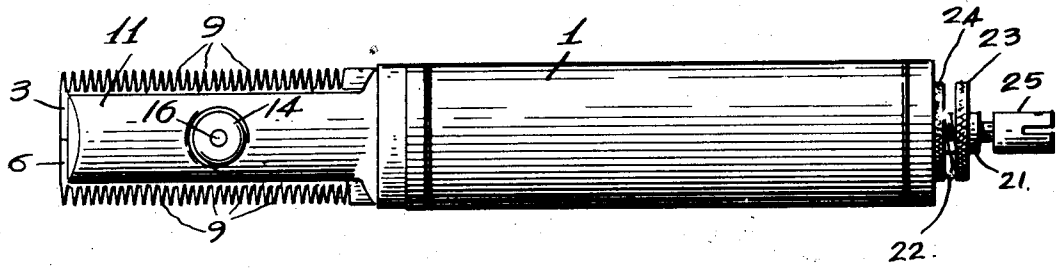


Fig. 2.

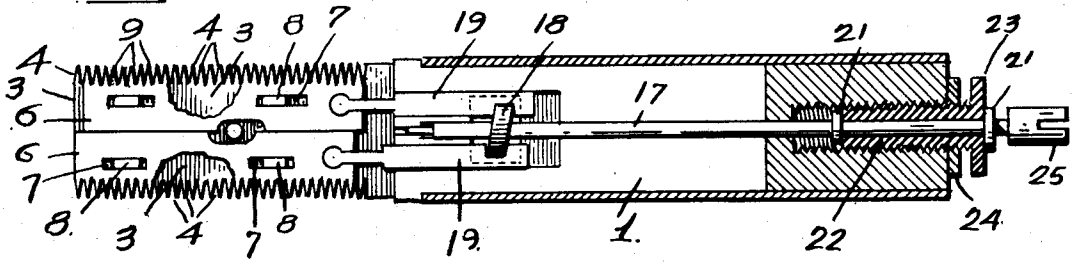


Fig. 3.

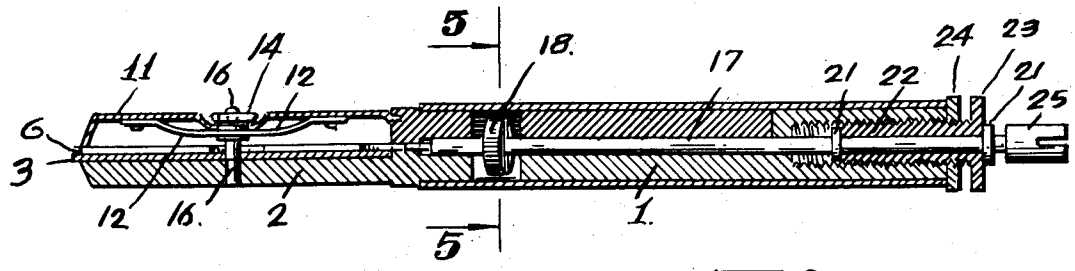


Fig. 4.

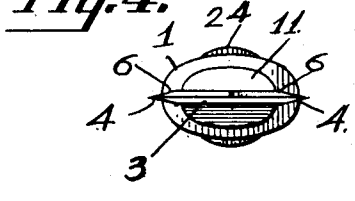


Fig. 5.

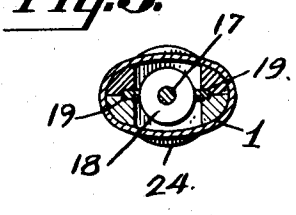
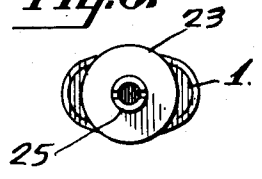


Fig. 6.



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UNITED STATES PATENT OFFICE

ROBERT KNUDSEN, OF MARTINEZ, CALIFORNIA

AUTOMATIC HAIR-CLIPPER

Application filed November 16, 1932. Serial No. 644,662.

My invention relates to improvements in hair-clippers wherein a handle is provided with a longitudinally disposed extension having a plate thereon in turn provided with serrated teeth upon the opposite longitudinal edges thereof, which operates in conjunction with a pair of reciprocating blades having similar teeth and reciprocated in opposite directions by a rotating shaft and reciprocating means attached thereto and to said blades, whereby said blades and plate, and their respective teeth, may be operated as a cutting element or hair-clipper.

The primary object of the present invention is to provide a new and improved hair-clipper.

Another object of the present invention is to provide a new and improved hair-clipper of simplified construction and operation, and having two cutting edges whereby hair may be cut with either side or edge of said clipper, one edge being of different fineness or coarseness from the opposite edge, thereby providing a double clipper in one instrument.

A further object is to provide a new and improved hair-clipper of the character set forth having improved means for adjusting the relative positions of the stationary and reciprocating cutting teeth relatively to each other.

A still further object is to provide an automatic hair-clipper arranged to be power-driven, and having improved and simplified means for reciprocating a pair of cutting blades in opposite directions in order to relieve the load or thrust upon the reciprocating means.

I accomplish these and other objects by means of the improved device disclosed in the drawing forming a part of the present application, wherein similar characters of reference are used to designate similar parts throughout the specification and drawing, and in which—

Fig. 1 is a plan view of my improved device;

Fig. 2 is a plan view of a longitudinal sectional view of the device taken just above the reciprocating blades;

Fig. 3 is a longitudinal sectional view taken at right angles to the section disclosed in Fig. 2;

Fig. 4 is an end elevation of the cutting end of the device;

Fig. 5 is a transverse sectional view taken on line 5—5 of Fig. 3, in the direction indicated; and

Fig. 6 is an end elevation of the opposite end to that shown in Fig. 4 of the drawing.

Referring to the drawing, the numeral 1 is used to designate in general a handle provided at one end with a longitudinally disposed extension 2 upon which is detachably mounted what I term a cutting plate 3 provided with serrated cutting teeth 4 on opposite longitudinal edges thereof, as disclosed in Figs. 2 and 4 of the drawing.

Slidably mounted upon this plate 3 are a pair of reciprocating cutting blades 6 each provided with longitudinally disposed slots 7 slidably engaging lugs 8 upon the plate 3. The blades 6 are also provided with serrated cutting teeth 9, said teeth registering or matching with the teeth 4 of the plate 3 when said blades 6 are in either extreme position.

A housing or cover 11 normally rests upon the blades 6 and is provided with a spring 12 rotatably engaged by a suitable thumb-nut 14 also engaging a threaded stem 16 secured to the extension 2, and extending upwardly through the plate 3, as disclosed in Fig. 3 of the drawing.

By means of the nut 14 the tension of the spring 12 may be increased or decreased to press the plate or cover 11 with a greater or lesser tension upon the plates 6 to hold them in slidably engaging relation with the cutting plate 3.

A shaft 17 is rotatably mounted longitudinally and centrally of the handle and is provided with an inclined reciprocating cam 18 which is engaged upon diametrically opposite sides by a pair of links 19 each link detachably engaging one of the blades 6, as disclosed in Fig. 2 of the drawing, so that when the shaft 17 and cam 18 are rotated the blades 6 will be reciprocated in opposite directions and thereby tend to relieve the

shaft 17 of any excessive end thrust and thereby facilitate the operation of the device.

The shaft 17 is also provided with a pair of collars 21 between which is interposed a sleeve 22 threaded into the handle of the device and provided with a turning flange 23 and a lock nut 24 therefor, by means of which sleeve 23, the shaft 17, cam 18, links 19, and blades 6 may be moved and adjusted longitudinally to properly register the relative positions of the teeth 4 and 9 upon the blades 6 and plate 3 respectively.

A suitable coupling 25 is provided upon the exterior end of the shaft 17 whereby a flexible rotating shaft, or other source of power, not shown, may be directly applied to said shaft to operate the device.

In operation, a suitable source of power is applied to the coupling 25 which will rotate the shaft 17 and cam 18 thereon, and, through the medium of the links 19, reciprocate the cutting blades 6 and their teeth 9 and in conjunction with the stationary teeth 4 of the plate 3, and thereby form an automatic hair-clipper, having two cutting edges, which may be, as hereinbefore described, of different degrees of fineness.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is—

1. An automatic hair-clipper comprising a handle having an extension on one end thereof; a cutting blade detachably mounted upon said extension and having opposite longitudinal edges provided with serrated cutting teeth; a pair of blades slidably mounted upon said plate and each provided with serrated cutting teeth registering, when either plate is in either extreme position, with the teeth on said plate; a shaft rotatably mounted within said handle; and reciprocating means mounted upon said shaft and operatively connected to said blades for simultaneously reciprocating said blades in opposite directions whereby the cutting teeth of said blades may operate in conjunction with the teeth of the plate as cutting elements.

2. An automatic hair-clipper comprising a handle provided with a longitudinal extension on one end thereof; a plate detachably mounted upon said extension and provided with serrated cutting teeth upon its opposite longitudinal edges, said teeth extending to the end of said plate; a pair of blades slidably mounted upon said plate, each blade being provided with cutting teeth matching with the teeth upon the plate when said blades are in either extreme slidable position; a shaft rotatably mounted within said handle; a reciprocating cam mounted upon the shaft; and links slidably mounted within said handle and connected to the opposite sides of the cam and to said blades whereby rotating of said shaft and cam thereon may reciprocate said blades upon said plate and thereby form a clipper.

3. An automatic hair-clipper comprising a handle provided with a longitudinal extension on one end thereof; a plate detachably mounted upon said extension and provided with serrated cutting teeth upon its opposite longitudinal edges, said teeth extending to the end of said plate; a pair of blades slidably mounted upon said plate, each blade being provided with cutting teeth matching with the teeth upon the plate when said blades are in either extreme slidable position; a shaft rotatably mounted within said handle; a reciprocating cam mounted upon the shaft; and links slidably mounted within said handle and connected to the opposite sides of the cam and to said blades whereby rotating of said shaft and cam thereon may reciprocate said blades upon said plate and thereby form a clipper, and means for normally holding said cutting blades in engaging relations with said plate.

4. An automatic hair-clipper comprising a handle provided with a longitudinal extension on one end thereof; a plate detachably mounted upon said extension and provided with serrated cutting teeth upon its opposite longitudinal edges, said teeth extending to the end of said plate; a pair of blades slidably mounted upon said plate, each blade being provided with cutting teeth matching with the teeth upon the plate when said blades are in either extreme slidable position; a shaft rotatably mounted within said handle; a reciprocating cam mounted upon the shaft; and links slidably mounted within said handle and connected to the opposite sides of the cam and to said blades whereby rotating of said shaft and cam thereon may reciprocate said blades upon said plate and thereby form a clipper, and means for resiliently pressing said cutting blades in engaging relation with said plate.

5. An automatic hair-clipper comprising a handle provided with a longitudinal extension on one end thereof; a plate detachably mounted upon said extension and provided with serrated cutting teeth upon its opposite longitudinal edges, said teeth extending to the end of said plate; a pair of blades slidably mounted upon said plate, each blade being provided with cutting teeth matching with the teeth upon the plate when said blades are in either extreme slidable position; a shaft rotatably mounted within said handle; a reciprocating cam mounted upon the shaft; and links slidably mounted within said handle and connected to the opposite sides of the cam and to said blades whereby rotating of said shaft and cam thereon may reciprocate said blades upon said plate and thereby form a clipper, and means for resiliently pressing said cutting blades in engaging relation with said plate, and means for regulating and ad-

justing the pressure of said pressing means.

6. An automatic hair-clipper comprising a handle provided with a longitudinal extension on one end thereof; a plate detachably mounted upon said extension and provided with serrated cutting teeth upon its opposite longitudinal edges, said teeth extending to the end of said plate; a pair of blades slidably mounted upon said plate, each blade being provided with cutting teeth matching with the teeth upon the plate when said blades are in either extreme slidable position; a shaft rotatably mounted within said handle; a reciprocating cam mounted upon the shaft; and links slidably mounted within said handle and connected to the opposite sides of the cam and to said blades whereby rotating of said shaft and cam thereon may reciprocate said blades upon said plate and thereby form a clipper, and means for adjusting the relative position of the teeth of the blades with the teeth of the plate.

7. An automatic hair-clipper comprising a handle provided with a longitudinal extension on one end thereof; a plate detachably mounted upon said extension and provided with serrated cutting teeth upon its opposite longitudinal edges, said teeth extending to the end of said plate; a pair of blades slidably mounted upon said plate, each blade being provided with cutting teeth matching with the teeth upon the plate when said blades are in either extreme slidable position; a shaft rotatably mounted within said handle; a reciprocating cam mounted upon the shaft; and links slidably mounted within said handle and connected to the opposite sides of the cam and to said blades whereby rotating of said shaft and cam thereon may reciprocate said blades upon said plate and thereby form a clipper, and means mounted exteriorly of said handle for adjusting the relative positions of the teeth of the blades with the teeth of said plate.

In witness whereof, I hereunto set my signature.

ROBERT KNUDSEN.