J. CAMPBELL.

POWER DRIVEN HAIR CLIPPER.

APPLICATION FILED JULY 6, 1920.

1,428,836.

Patented Sept. 12, 1922.

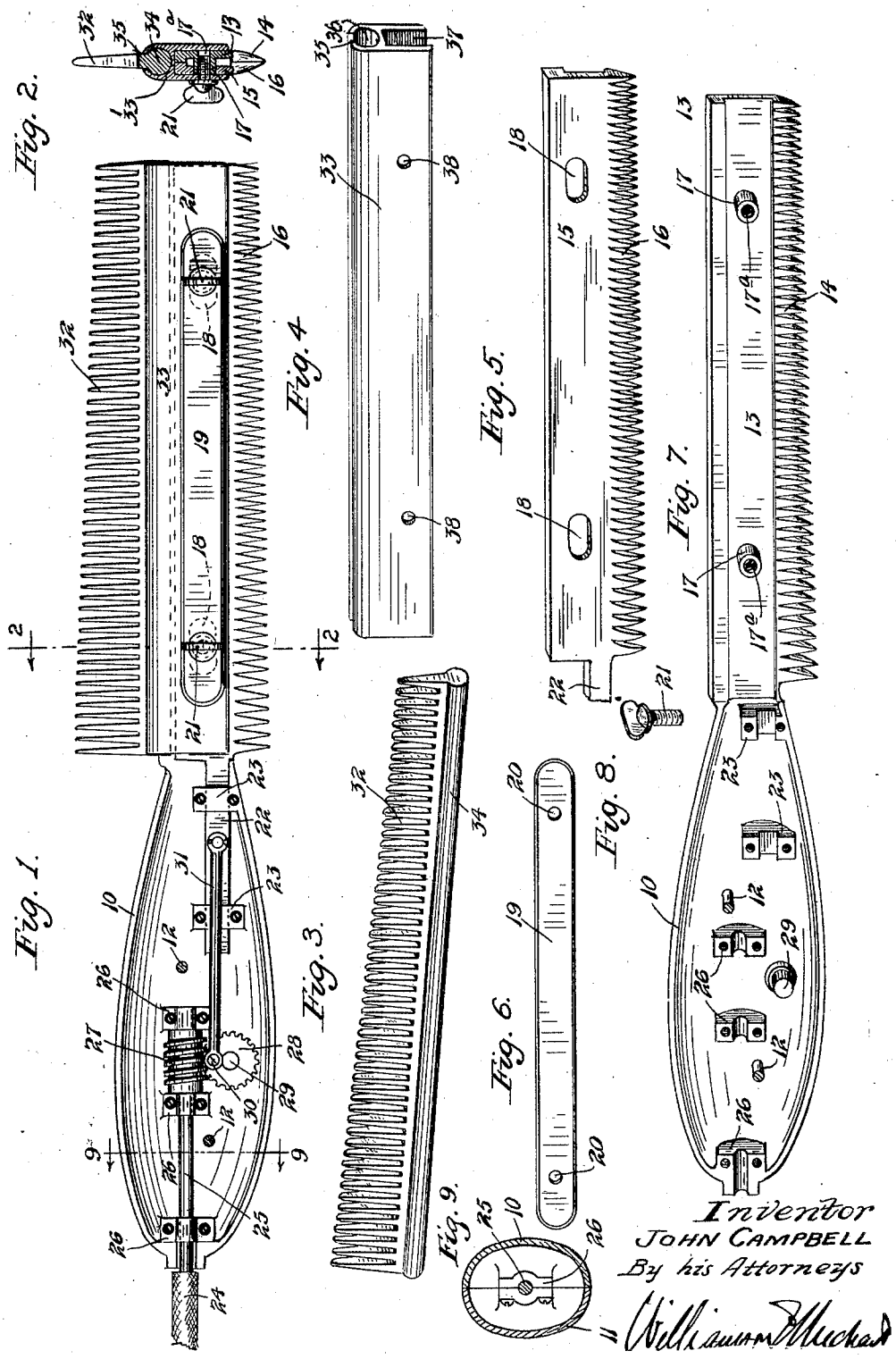


Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

Fig. 6.

Fig. 7.

Fig. 8.

Fig. 9.

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Patented Sept. 12, 1922. 1,428,836

# UNITED STATES PATENT OFFICE.

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## POWER-DRIVEN HAIR CLIPPER.

Application filed July 6, 1920. Serial No. 394,107.

*To all whom it may concern:*

Be it known that I, JOHN CAMPBELL, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Power-Driven Hair Clippers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has for its object to provide an extremely simple and highly efficient power driven hair clipper, and to such ends, generally stated, the invention consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

The invention also involves a comb combined with co-operating toothed clipper blades in such a manner that it may be effectually utilized in the hair clipping action. The power for driving the movable clipper blade is preferably transmitted through a flexible shaft, and the mechanism for transmitting the rotary motion of the shaft into reciprocating movement of the movable clipper blade is located within the hollow handle of the clipper.

In the accompanying drawings, which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings:

Fig. 1 is a plan view of the clipper with one side of the handle removed;

Fig. 2 is a section on the line 2—2 of Fig. 1;

Fig. 3 is a perspective view showing the comb removed;

Fig. 4 is a perspective view showing the sheath and comb holder in detail;

Fig. 5 is a perspective view showing the removable clipper blade removed;

Fig. 6 is a side view of the retaining bar used in the device;

Fig. 7 is a perspective view showing a relatively fixed clipper blade and handle section to which it is secured;

Fig. 8 is a perspective view of one of the clamping screws; and

Fig. 9 is a section on the line 9—9 of Fig. 1.

The handle of the device is a hollow structure made up of two sections 10 and 11 rigidly secured together by screws or rivets 12. The handle section 10 is either formed integral with or otherwise rigidly secured to a relatively fixed clipper blade 13, which, at one edge, has sharp edged, long teeth 14 that afford a sort of comb-like structure. Working against the face of the clipper blade 13 is a quite similar, but relatively movable blade 15 provided with cutting teeth 16 that co-operate with the teeth 14 to cut the hair when the movable blade is reciprocated. The blade 13 is provided with projecting bosses 17 that project through longitudinal slots 18, in the movable blade 15, and guide the same for straight-line movement longitudinally thereof.

The numeral 19 indicates a retaining bar provided with perforations 20 that are adapted to align with holes $17^a$ in the bosses 17. These holes $17^a$ are internally threaded to receive clamping screws 21. By means of the screws 21, the bar 19 can be directly secured to the bosses 17 so as to thereby operatively connect the two clipper blades without the use of any other devices.

The movable clipper blade 15 has an extended bar 22 that slides through keepers 23 on the handle sections 10. The numeral 24 indicates a flexible power shaft, which may be driven from any source of power, such as a stationary electric motor. This shaft 24, at its extended end, is connected to a driving shaft 25 journaled in bearings 26 on the interior of the handle section 10. This shaft 25 carries a worm 27, that meshes with a worm gear 28 journaled on a stud 29 located on the interior of the handle section 10. The worm gear 28 has a wrist pin or crank 30, that is connected by a pitman 31 to the bar 22 of the movable clipper blade 15.

The shaft 25 and worm 27, when driven from an electric motor, will necessarily be rotated at very high speed, but this speed will be greatly reduced by the worm and gear, so that the reciprocating movement imparted to the blade 15 will be greatly reduced, but will, nevertheless, be fast enough to produce the proper hair cutting action.

For the attachment of the comb 32, shown in detail in Fig. 3, I provide the combined sheath and comb holder 33, shown in detail in Fig. 4. The comb 32, at its back edge, has an enlarged rounded bead 34, and to receive this bead, the sheath 33, at one edge is provided with a slot 35 that opens into a longitudinal hole 36. The hole 36 is of such

size as to frictionally clamp the bead 34 of the comb 32 when the latter is slid endwise into the same. At its opposite edge, the sheath 33 has a longitudinal slot 37 that is wide enough to embrace and closely fit the outer faces of the two clipper blades 13 and 15 when the two are assembled, but with the retaining bar 19 removed. When the sheath is thus applied, the clamping screw 21 may be passed through holes 38 in one side of said sheath and screwed into the bosses 17, thereby anchoring the sheath to the relatively fixed blade 13, but leaving the blade 15 free for reciprocation. When the sheath is applied, as just described, the bar 19 may, if desired, be clamped against one side of the sheath, as shown in Fig. 1, by means of the screws 21.

The above described arrangement of the clipper blades at one side or edge and of the comb at the other, is highly important. In cutting hair very short, the clipper blades will, of course, be run close to the scalp, but in cutting or trimming hair of any considerable length, the device will be moved in one direction so as to collect the hair in the comb, then the hair will be gripped in the usual way, between the fingers of the left-hand, and the outer portion thereof will be trimmed off by a backward swinging movement of the device such as required to force the clipper blades against the hair. Thus, it will be seen that the combined combing and cutting action can be produced very rapidly and properly by a to and fro lateral swinging movement of the clipper. Rapid hair cutting is thus made possible.

What I claim is:

1. A power driven hair clipper comprising a handle, co-operative relatively fixed and movable clipper blades applied to said handle and having teeth at one side edge thereof, a sheath detachably applied to the fixed blade and embracing both blades, said sheath, at the side edge opposite the teeth of said clipper blades, having a comb-holding channel, and a comb detachably held in said channel with its teeth projecting in a direction away from the teeth of said clipper blades and in substantially the same plane as said blades.

2. A substantially flat hair cutting implement having in combination a handle portion, a toothed comb secured thereto and extending longitudinally thereof, and a reciprocating cutting mechanism secured to said handle and extending longitudinally thereof, comprising a stationary toothed member and a movable toothed member, the teeth of said members being disposed oppositely to the teeth of said comb.

3. A substantially flat hair cutting implement having in combination a handle member comprising a fixed toothed portion, a movable toothed cutting member adapted to reciprocate in close proximity to said toothed portion, the teeth of said members extending at one side of said device, and a comb at the other side of said device having its teeth projecting in the opposite direction to the teeth of said members and in substantially the same plane.

4. The structure set forth in claim 4, and means in said handle for reciprocating said movable cutting member.

5. The structure set forth in claim 4, and a sheath member secured to said handle and enclosing said toothed portion and toothed cutting member and in which said comb is removably mounted.

In testimony whereof I affix my signature.

JOHN CAMPBELL.