

K. A. HELLSTRÖM.
HAIR CLIPPER.
APPLICATION FILED APR. 9, 1909.

1,044,455.

Patented Nov. 12, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

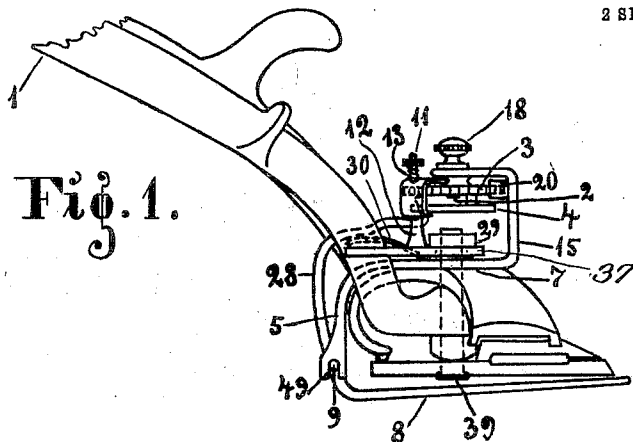


Fig. 2.

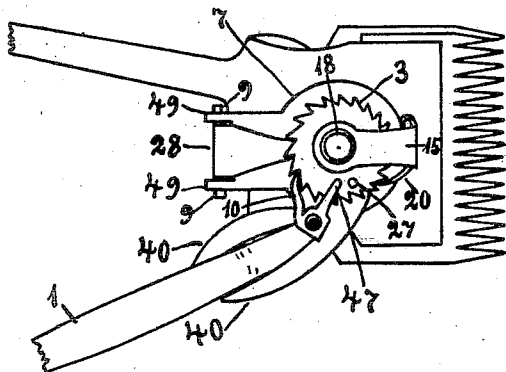


Fig. 3.

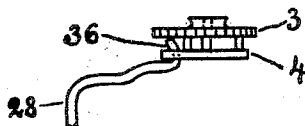


Fig. 4.

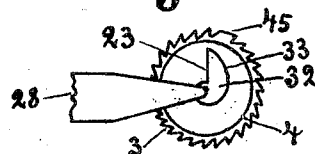


Fig. 5.

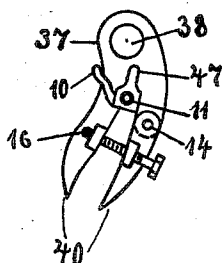


Fig. 6.

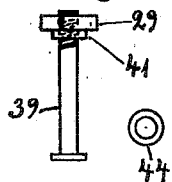
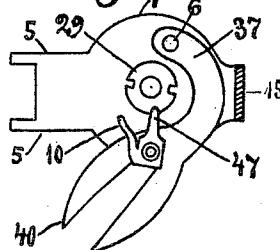


Fig. 7.



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2 SHEETS—SHEET 2.

Fig. 8.

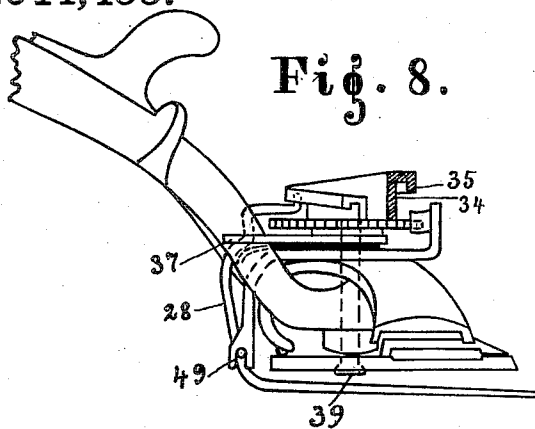


Fig. 9.

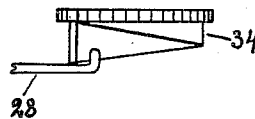


Fig. 10.

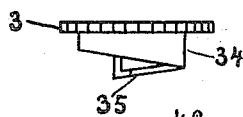


Fig. 12.

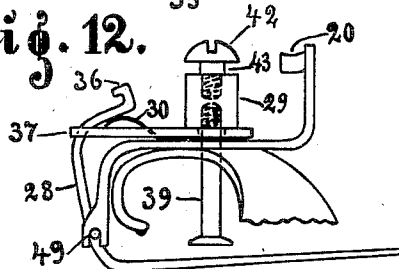


Fig. 11.

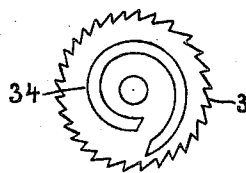


Fig. 13.



Fig. 14.

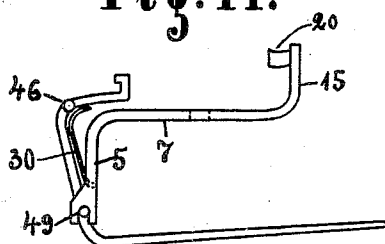
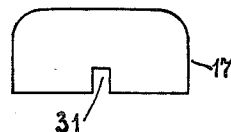


Fig. 15.



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UNITED STATES PATENT OFFICE.

KARL ANTON HELLSTRÖM, OF STOCKHOLM, SWEDEN.

HAIR-CLIPPER.

1,044,455.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, KARL ANTON HELLSTRÖM, a subject of the King of Sweden, and a resident of Kungsgatan 32, in the city of Stockholm, Sweden, music-master, have invented new and useful Improvements in Hair-Clippers, of which the following is a specification.

The invention relates to hair-clippers and especially to that kind having a movable comb-plate, which is automatically moved downward when using the clipper so as to gradually increase the distance between the skin and the cutters, and the object is to afford a mechanism for such automatic movement of the comb-plate adapted to automatically restore the starting position of the comb-plate, when a certain length of hair-stubble is reached and generally adapted to be applied on any common hair-clipper now in use without changing the latter. Generally I use means for bringing the feeding-mechanism out of action at any time so as to be able to proceed with the clipping with the actual position of the comb-plate unchanged.

On the accompanying drawings Figure 1 is a perspective side view and Fig. 2 a plan view of a hair-clipper provided with the new mechanism. Fig. 3 is side view of a ratchet with a cam cooperating with an arm rigidly connected to the comb-plate. Fig. 4 is a plan view showing the same as seen from below. Fig. 5 is plan view of a fork on which the pawl operating the ratchet is mounted. Fig. 6 is side view of the bolt and nut which keep the parts together the nut having a neck on its underside adapted to serve as pivot for the fork shown in Fig. 5. Fig. 7 is plan view of the fork showing it pivoted on a frame piece instead of on the bolt or nut. Fig. 8 is a side view (partial section) of a modification. Fig. 9 is side view of the ratchet with cam of another form. Fig. 10 is side view of the ratchet with a spiral cam. Fig. 11 is plan view of the same as seen from below. Fig. 12 is side view of a modification, showing a thick nut on the bolt adapted to receive a screw in its top so that the ratchet may be passed on the neck of said screw. Fig. 13 is side view of the ratchet with a spiral cam of uniform vertical height. Fig. 14 is side view of the comb-plate and its arm showing the latter made in two pieces

hinged together at 46. This figure shows also the frame piece in which the comb-plate has its bearings at 49. Fig. 15 is side view of a bell adapted to serve as casing or cover for the mechanism.

Referring to Fig. 1 the movable comb-plate 8 is adapted to swivel on pivots 9 resting in bearings 49 formed on a piece 5, 7, 15, which is bent into the shape of Z or other suitable form. This piece, which I hereafter will call the Z-piece, has a hole so as to be passed on the upper end of a bolt 39 (Fig. 6), which acts as a pivot for the movable handle 1. The nut 29 screwed on top of the bolt 39 keeps the Z-piece in rigid position. The upper end 15 of the Z-piece is bent inward and acts as a bearing for a short stud or shaft 2, on which is fastened a ratchet wheel 3. On this wheel is fastened a cam disk 4, which acts upon an arm 28 extending upward from the rear part of the movable comb-plate 8 so as to swing the latter downward by rotating the ratchet wheel. A spring 30 tends to keep the comb-plate in contact with the underside of the clipper. The ratchet wheel is rotated by means of a pawl 10, which is mounted on a fork 37, see Fig. 7, the prongs 40 of which engage the movable handle 1 so that the fork and thereby the pawl is caused to partake in the movement of the handle 1. In Fig. 1 the fork 37 is mounted on the bolt 39, having a hole 38, Fig. 5, so as to be passed on a neck 41, Fig. 6, of the nut 29, or on a loose ring 44 substituting said neck, this neck or ring being thicker in vertical direction than the fork 37, so that the latter can swivel on the neck or ring, when the nut is tightened.

If the fork is mounted on the horizontal part 7 of the Z-piece, as shown at 6 in Fig. 7, the nut 29 can have the usual shape and the neck 41 or ring 44 may be omitted.

In Fig. 1 the stud or spindle 11 for the pawl 10 consists of an upward bent lap or tongue 12 of the plate from which the fork is made, but any other suitable kind of mounting for the pawl may be used if preferred. A spring 13, Fig. 1, tends to keep the pawl in engagement with the ratchet wheel 3. A spring pawl 20, Fig. 2, fastened on the upright part 15 of the Z-piece prevents backward movement of the ratchet wheel.

In Figs. 1 and 4 the cam 4 consists of a disk having an opening 32 of about the

shape shown in Fig. 4, one side and a part of the other side of said opening forming a spiral curve 33, the other part 23 of the latter side being straight and lying about

5 in radial direction.
The spring 30, which may be passed on the bolt 39 so as to be fastened between the nut 29 and the Z-piece, as shown in Fig. 1, or on the Z-piece as shown in Fig. 14, tends to keep the hook-shaped upper end 36, see
10 Fig. 3, of arm 28 in contact with the curve 33, so that the arm 28 and comb-plate 8, which form a rigid whole, will be swung in one direction when the ends 36 moves along the curve 33 from the starting position
15 shown in Fig. 1. When the end 36 has reached the innermost (highest) part of the curve 33, it will drop down along the straight edge 23 so as to return to the starting position again, where it is in contact with the outermost (lowest) part of the curve 33.
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In some instances it may be desirable to use an arrangement, which automatically releases the pawl when the wheel has nearly completed the turn so as to prevent the automatic returning to the starting position. For such purpose the wheel 3 has a pin 27, Fig. 2, which catches a projection 47 on the pawl so as to bring the latter out of
30 action at the proper moment.

The pin 27 may be substituted by omitting one or more spaces of tooth on the ratchet wheel 3 so as to form a broader tooth as
35 shown at 45 in Fig. 4. The pawl then will slide on this broad tooth without turning the wheel.

If the bearings 49 are open as shown the comb-plate can be detached by pulling, the
40 spring 30 tending to keep it in the bearings.

The cam instead of having the form shown in Fig. 4 may have about the forms shown in Figs. 8, 9, 10, 11, 13. Here the cam consists of a flange formed or fastened
45 on the wheel 3. In Fig. 9 this flange is cylindrical but has increasing height, the arm 28 being held in contact with its downward edge, which forms an inclined spiral line.

In Figs. 8 and 10 the cam consists of a spiral flange with increasing height, so as to form simultaneously an inclined line, this latter form being preferred as it corresponds best to the movement of arm 28. The edge of the cam or flange may be turned over outward as shown in Fig. 8 or inward as shown
55 in Fig. 10, so as to form a rim 35 engaging the top 36 of arm 28.

If the arm 28 is made of two pieces hinged together as shown at 46 in Fig. 14, the spiral cam 34 may be of uniform vertical height as shown in Fig. 13.

In order to avoid dead movement between the prongs 40 and the handle 1, one prong may consist of two parts hinged together as
65 shown at 14 in Fig. 5 and a screw 16 may

be used for regulating the distance between the prongs.

The stud or shaft 2 of wheel 3 may be provided with a knob 18, so that the wheel can be moved by turning said knob 18 so as to disengage the pin 27 from arm 47 when desired.
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It is not necessary to mount the wheel 3 on the Z-piece. It may be mounted in any other suitable manner, for instance as shown in Fig. 12, where the nut 29 has a sufficient vertical height for receiving a screw 42, said screw having a neck 43 of larger diameter fitting in the hole of the wheel and being a little longer than the thickness of the wheel, so that the latter can rotate on the neck, when the screw 42 is tightened.
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The whole mechanism may be covered by a bell 17, Fig. 15, having a slot 31 for arm 28.
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Claims:

1. A hair clipper, a movable comb-plate therefor, a cam for operating the plate in one direction, and means for actuating the cam by the cutting operation of the clipper, said cam having a comb-operating cam edge having an actuating portion and a release offset, whereby to gradually operate the comb-plate in one direction and release it at a determinate point for its return to normal position.
90 95

2. A hair clipper, a movable comb-plate therefor, a cam for operating the plate in one direction, and means for actuating the cam by the cutting operation of the clipper, said cam having a comb-plate operating cam edge having an actuating portion and a release offset, whereby to gradually operate the comb-plate in one direction and release it at a determinate point for its return to normal position, and means for maintaining coöperative relation between the comb-plate and cam edge.
100 105

3. A hair clipper, a comb-plate pivoted thereto, a cam, means for operating the cam in the cutting movement of the clipper, and an arm extending from the comb-plate and engaging the cam, said cam being formed to gradually operate the comb-plate in one direction and to release it at the limit of such movement.
110 115

4. A hair clipper, a comb-plate pivoted thereto, a cam, means for operating the cam in the cutting movement of the clipper, and an arm extending from the comb-plate and engaging the cam, said cam being formed to gradually operate the comb-plate in one direction and to release it at the limit of such movement, and a spring for returning the comb-plate to normal position upon its release by the cam.
120 125

5. A hair clipper including an operating handle, a comb-plate pivotally connected with the clipper and a cam operable in the movement of the handle to swing the comb-
130

plate in its bearings to adjust one edge thereof with relation to the cutting plane of the clipper.

5 6. A hair clipper including cutting elements, an operating handle, a comb-plate pivotally connected with the clipper and arranged with a free edge adjacent the cutting elements, a cam operable by the handle, and means arranged between said cam and
10 comb-plate to swing the free edge of the latter from the cutting elements in the movement of the cam.

7. A hair-clipper, an operating handle, a comb-plate pivotally connected thereto, an

arm carried by said comb-plate, a cam engaged by said arm and acting in the operation of the handle to swing the comb-plate on its pivotal support, and a spring serving to secure the comb-plate in its pivotal mounting and maintain coöperation between said cam and arm. 15 20

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

KARL ANTON HELLSTRÖM.

Witnesses:

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H. NYMAN.