

2,725,627

2 Sheets-Sheet 2



ATTORNEYS

1

2,725,627

ATTACHMENT FOR AUTOMATICALLY ADJUSTING HAIR CLIPPERS

Paul Rekettye, Akron, Ohio, assignor to
Simon R. Rudolph, Akron, Ohio

Application March 16, 1954, Serial No. 416,599

13 Claims. (Cl. 30—202)

The invention relates generally to hair clippers, and more particularly to an attachment which is readily attachable to conventional forms of electric clippers to adapt the clippers for taper-cutting hair by an unskilled person.

Certain prior constructions have been proposed for automatically adjusting hair clippers to produce a tapering cut of the hair on a person's head, but these have been cumbersome and unwieldy to handle, and complicated and expensive to manufacture.

It is an object of the present invention to provide a novel and improved attachment for automatically adjusting hair clippers to produce a taper-cut, which is simple in construction, easy to attach to conventional clippers, and has a minimum number of parts.

Another object is to provide an improved taper-cut attachment which is easily swung out of the way to allow the clippers to make close cuts.

A further object is to provide an improved taper-cut attachment which is easily set selectively for making fixed cuts at a plurality of hair lengths.

Another object is to provide an improved taper-cut attachment which is easily adjusted for making cuts having different degrees of taper.

A still further object is to provide an improved attachment having an automatically adjustable guide plate for making a taper cut, said plate being independently adjustable angularly of the clippers.

These, and other objects which will become apparent from the following description, are accomplished by the constructions, arrangements and combinations of parts comprising the present invention, a preferred embodiment of which is shown by way of example in the accompanying drawings and described in detail herein. Various modifications and changes in details of construction are comprehended within the scope of the invention as defined in the appended claims.

Referring to the drawings:

Fig. 1 is a side elevation of an electric hair clipper of conventional form, with the improved attachment thereon, being applied to a person's hair to make a taper-cut, the upper chain line position showing the clipper at the top of a cut, and the lower chain line position showing the attachment swung out of the way;

Fig. 2 is an enlarged sectional view on line 2—2, Fig. 1;

Fig. 3 is an elevational view as on line 3—3, Fig. 1;

Fig. 4 is an elevational view, partly in section, on line 4—4, Fig. 6;

Fig. 5 is a sectional view on line 5—5, Fig. 3;

Fig. 6 is a similar view showing the attachment in adjusted position;

Fig. 7 is an enlarged fragmentary view as on line 7—7, Fig. 6;

Fig. 8 is a transverse sectional view on line 8—8, Fig. 7;

Fig. 9 is a similar view showing the guide plate in angularly adjusted position;

Fig. 10 is a sectional view on line 10—10, Fig. 7;

2

Fig. 11 is a front elevational view showing the guide plate in angularly adjusted position relative to the clipper; and

Fig. 12 is a side elevation showing the guide plate fixed in adjusted position for making a cut at a desired hair length.

The electric hair clipper includes an electric motor of usual construction having a housing 14, with electric wires 15 entering the rear end of the housing for supplying current to the motor. A control switch is provided having a slide button 16 on the exterior of the housing. On the front end of the motor housing is a stationary comb plate 17 mounted in an inclined position, and a serrated cutter bar 18 is slidably supported on the comb plate 17. The cutter bar is rapidly reciprocated by the motor transversely of the comb plate to clip the hairs projecting through the serrations 19 of the comb plate, in a well-known manner.

The parts thus far described are conventional and well-known, and the clippers are applied to a person's hair in the manner shown in Fig. 1. Starting with the short hair on the neck with the clippers in the full line position, as the clippers are moved upwardly in normal operation, the barber must gradually rock the motor housing downwardly and pull the cutter bar gradually outward away from the head to produce a taper cut. Obviously, this operation requires a substantial amount of skill and is nevertheless bound to produce more or less unevenness between successive cuts.

The novel attachment preferably includes a mounting plate 20 which is attached to the comb plate 17 of the clipper by screws 21, and these screws serve also to attach the comb plate to the housing 14. The plate 20 has an offset 22 which fits under the bottom end of the comb plate and an inclined portion 23 which extends rearwardly under the front end of the motor housing. A hinge-arm 24 extends downwardly from the end of portion 23 and is provided with spaced ears 25 at its lower end.

A substantially rectangular guide frame is mounted in front of the mounting plate 20 and has a cross bar 26 at its bottom end from the central portion of which a hinge ear 27 extends between the ears 25 and is pivoted thereto by a screw stud 28. The side bars 29 of the frame preferably have notches 30 at their front ends to fit around the mounting plate 20, and between their ends have ears 31 in which the shaft 32 of a roller 33 is journaled. The roller preferably is provided with a substantially soft knurled outer surface as indicated.

As best shown in Figs. 7—10, the upper ends of the side bars 29 are connected by a cross plate 35 which is disposed generally in a plane normally inclined toward the comb plate 17 of the clippers. This cross plate 35 forms a channel with the side bars 29, and an outer guide plate 36 is mounted in said channel and has serrations 37 at its upper end adapted to contact and register with the serrations 19 of the comb plate. The cross plate has a transverse slot 38 extending therethrough registering with a similar slot 39 in the guide plate 36. Each of the slots 38 and 39 are preferably surrounded by recessed shoulders. A rivet 40 extends through the slots and has a head 41 fitting slidably in one recess and a resilient washer 42 slidably and frictionally engaged in the other recess. Thus the rivet 40 can be slid from one end of the slots to the other and the washer 42 frictionally holds it in adjusted position and clamps the guide plate 36 in the channel against the cross plate.

As indicated in Figs. 8 and 9, the cross plate 35 and the guide plate 36 have their abutting surfaces divergent at each side of the central co-planar portions. Thus as the rivet 40 is moved to one end or the other of the slots 38 and 39, the plate 36 rocks laterally with respect to the cross plate 35, as clearly shown in Fig. 9. This causes the guide

3

plate 36 to become tilted transversely of the comb plate 17 so that in closed position one side of the serrated edge of plate 36 will contact one side of the serrated edge of plate 17, while the other side of the guide plate is spaced from the plate 17, as shown in Fig. 11. The purpose of this tilting adjustment is to facilitate making a taper cut in difficult locations, as in trimming the hair around the ears.

The means for automatically adjusting the outer guide plate 36 relative to the comb plate 17 of the clippers preferably includes a cam disk 44 which fits on a flattened end 45 of the roller shaft 32 and bears against the outer surface of the adjacent side bar 29 of the frame. The cam disk 44 has a spiral groove or slot 46 therein in which a follower pin or roller 47 rides. The follower roller 47 projects inwardly from a follower plate 48 which normally bears against the outer surface of the cam disk 44 and holds the cam disk on the roller shaft 32, and when the follower engages the inner end of the spiral slot 46 the outer guide plate is in closed position.

The rear end of the follower plate 48 is pivoted on the lower end of the bracket plate 23. Preferably a pin 49 extends from the plate 48 through a transverse bore 50 (Fig. 2) and has a head 51 screwed on its opposite end and slidable in the bore 50. A coil spring 52 is interposed between the head 51 and the other end of the bore for yieldingly holding the follower plate against the cam disk. An offset retainer pin 53 extends from the follower plate into a hole in the side of the bracket plate to normally prevent rotation of the follower plate about the pivot pin 49 as a center. Thus, when the follower roller 47 is engaged in the spiral slot 46, rotation of the rubber roller 33 will cause the outer guide plate 36 to move away from the inner comb plate 17, to a position as shown in chain lines in the upper part of Fig. 1.

In the normal operation of the clippers embodying the novel attachment, the clippers are placed with the cutter bar in cutting position against the short hairs at the hair line of the person's head or neck, as shown in full lines in Fig. 1, and with the roller 33 bearing against the head or neck below the hair line. The clippers are then moved upwardly over the hair, while pressing inwardly to maintain the end of the outer guide plate against the head, and as the roller 33 is rotated by its contact with the head or neck, the clippers are progressively moved away from outer guide bar until the follower reaches the outer end of the cam slot 46. This gradually outward movement of the clippers produces a taper cut of the hair and the serrations 37 at the end of the outer guide plate constantly guide the hair into the path of the cutter bar during the cut.

At the end of a cut, the clippers are moved downwardly to return the roller 33 and guide plate 36 to closed position, and then moved laterally over the uncut hair adjoining the preceding cut, and the operation repeated. When trimming around the ears, the outer guide plate is tilted by sliding the rivet 40 to one end of the slots 38, 39, and then by turning the clippers sidewise and running them around the ear a tapered trimming cut can be made along the hair line.

If it is desired to make a close cut at the hair line, the attachment can be swung quickly to an out-of-the-way position as shown in the lower part of Fig. 1, merely by pulling on the follower plate at the inner end to lift the offset pin 53 out of its hole, and swinging the attachment about its pivot 28 to a position alongside of the motor housing. In this position the follower plate should be turned so that its outer end bears against the cam disk and holds in on the flattened end 45 of the shaft.

The cam disk 44 has several holes 55 (three being shown) which are located at different radii from the center of the disk, for selectively receiving the follower 47 to hold the outer guide at different fixed positions for cutting hair at certain desired lengths. Fig. 12 shows the position of the outer guide plate when the follower is in the intermediate one of the three holes 55.

4

When the follower plate 48 is swung to one side of the cam plate 44 after first lifting the offset pin 53 out of its hole, the cam plate 44 is easily removed from the flattened end of the roller shaft. Several plates 44 having cam slots of different pitch may be provided, so that the degree of taper of the cut can be varied or adjusted merely by changing the cam plate.

The novel attachment is simply constructed of a minimum number of parts comprising the mounting plate 20, rectangular frame, outer guide plate 36, cam disk and follower plate with its pivot pin assembly. It is quickly swung out of the way as shown in Fig. 1, or adjusted for edge trimming as in Fig. 11, or for straight cuts as in Fig. 12. In normal operation it automatically adjusts itself to produce any number of taper cuts all having the same taper, so that any unskilled person can operate clippers having the attachment to satisfactorily cut hair, including his own hair. The attachment is easily assembled and disassembled, and is adapted to be attached to conventional electric hair clippers.

What is claimed is:

1. In a hair clipper having a cutter plate and a stationary comb plate therefor, a taper cut guiding attachment having a mounting plate attached to said clipper, a guide frame hinged on the mounting plate, an outer guide plate laterally tiltable on the frame and normally contacting said comb plate, a roller journaled in said frame, a cam disk rotatable with said roller, and a plate mounted on said mounting plate and having a follower engaging said cam disk to move the outer guide and comb plate apart as the roller rotates.

2. In a hair clipper having a cutter plate and a stationary comb plate therefor, a taper cut guiding attachment having a mounting plate attached to said clipper, a guide frame hinged on the mounting plate, an outer guide plate laterally tiltable on the frame and normally contacting said comb plate, a roller journaled in said frame, a cam element on said roller, and follower means mounted on the mounting plate and engaging the cam element to separate the outer guide and comb plate as the roller is rotated.

3. In a hair clipper having a cutter plate and a stationary comb plate therefor, a mounting member attached to said clipper, a guide frame hinged to said mounting member, an outer guide plate on the frame normally contacting said comb plate, means adjustably mounting said outer guide plate for lateral tilting relative to said frame, a roller journaled in said frame, a cam disk rotatable with said roller, and a plate mounted on the mounting member and having a follower engaging the cam disk to move the outer guide plate and comb plate apart as the roller rotates.

4. In a hair clipper having a cutter plate and a stationary comb plate therefor, a mounting member attached to said clipper, a guide frame hinged to said mounting member, an outer guide plate on the frame normally contacting said comb plate, means adjustably mounting said outer guide plate for lateral tilting relative to said frame, a roller journaled in said frame, a cam element on said roller, and follower means mounted on the mounting plate and engaging the cam element to separate the outer guide plate and comb plate as the roller is rotated.

5. In a hair clipper having a cutter plate and a stationary comb plate therefor, a mounting member attached to said clipper, an outer guide hinged to said mounting member and normally contacting the comb plate, a roller journaled on said outer guide, a cam disk on one end of the roller having a spiral cam slot, a follower plate extending over said cam disk and having a follower engaging in said cam slot to separate the outer guide and comb plate as the roller is rotated, means pivotally mounting said follower plate on said mounting member, means yieldingly urging said follower plate

5

against said cam disk, and means normally preventing pivotal movement of said follower plate.

6. In a hair clipper having a cutter plate and a stationary comb plate therefor, a mounting member attached to said clipper, an outer guide hinged to said mounting member and normally contacting the comb plate, a roller journaled on said outer guide, a cam disk on one end of the roller having a spiral cam slot, a follower plate extending over said cam disk and having a follower engaging in said cam slot to move the outer guide and comb plate apart as the roller is rotated, a pin on said follower plate extending slidably through said mounting member, a spring yieldingly urging said follower plate against the cam disk, and restraining means between the follower plate and mounting member normally preventing pivotal movement of the follower plate.

7. In a hair clipper having a cutter plate and a stationary comb plate therefor, a mounting member attached to said clipper, an outer guide hinged to said mounting member and normally contacting the comb plate, a roller journaled on said outer guide, a cam disk on one end of the roller having a spiral cam slot, a follower plate extending over said cam disk and having a follower engaging in said cam slot to move the outer guide and comb plate apart as the roller is rotated, a pin on said follower plate extending slidably through said mounting member, a spring yieldingly urging said follower plate against the cam disk, means normally preventing pivotal movement of said follower plate on said pin, and said follower plate having sufficient length to bear against the cam disk when the outer guide is swung away from the comb plate to an out-of-the-way position.

8. In a hair clipper having a cutter plate and a stationary comb plate therefor, a taper cut guiding attachment having a mounting member attached to said clipper, an outer guide plate hinged on said mounting member for movement flatwise toward and away from said comb plate, a roller journaled on said outer guide plate, a cam element on said roller, and a follower plate detachably mounted on said mounting member and having a follower engaging the cam element to move the outer guide plate and comb plate apart as the roller is rotated.

9. In a hair clipper having a cutter plate and a stationary comb plate therefor, a taper cut guiding attachment having a mounting member attached to said clipper, an outer guide plate hinged on said mounting member for movement flatwise toward and away from said comb plate, a roller journaled on said outer guide plate, a cam disk on one end of said roller having a cam groove, and a follower plate detachably mounted at one end on said mounting member and extending over said cam disk, and a follower on said follower plate engaging in said cam groove to move the outer guide plate and comb plate apart as the roller is rotated.

10. In a hair clipper having a cutter plate and a stationary comb plate therefor, a taper cut guiding attach-

6

ment having a mounting member attached to said clipper, an outer guide plate hinged on said mounting member for movement flatwise toward and away from said comb plate, a roller journaled on said outer guide plate, a cam element on said roller, a follower plate detachably mounted on said mounting member and having a follower engaging the cam element to move the outer guide plate and comb plate apart as the roller is rotated, and means yieldingly urging said follower plate toward said cam element.

11. In a hair clipper having a cutter plate and a stationary comb plate therefor, a taper cut guiding attachment having a mounting member attached to said clipper, an outer guide plate hinged on said mounting member for movement flatwise toward and away from said comb plate, a roller journaled on said outer guide plate, a cam disk on one end of said roller having a cam groove, a follower plate detachably mounted at one end on said mounting member and extending over said cam disk, a follower on said follower plate engaging in said cam groove to move the outer guide plate and comb plate apart as the roller is rotated, and means yieldingly urging said follower plate toward said cam disk.

12. In a hair clipper having a cutter plate and a stationary comb plate therefor, a taper cut guiding attachment having a mounting member attached to said clipper, an outer guide plate hinged on said mounting member for movement flatwise toward and away from said comb plate, a roller journaled on said outer guide plate, a cam element on said roller, a follower plate having a pin at one end journaled transversely in said mounting member and having a follower engaging the cam element to move the outer guide plate and comb plate apart as the roller is rotated, and a spring surrounding said pin to urge the follower plate against the cam element.

13. In a hair clipper having a cutter plate and a stationary comb plate therefor, a taper cut guiding attachment having a mounting member attached to said clipper, an outer guide plate hinged on said mounting member for movement flatwise toward and away from said comb plate, a roller journaled on said outer guide plate, a cam element on said roller, a follower plate having a pin at one end journaled transversely in said mounting member and having a follower engaging the cam element to move the outer guide plate and comb plate apart as the roller is rotated, a spring surrounding said pin to urge the follower plate against the cam element, and means detachably connecting the follower plate and mounting member to prevent pivotal movement of said follower plate.

References Cited in the file of this patent

UNITED STATES PATENTS

1,364,559 Kaufman Jan. 4, 1921