

Nov. 22, 1932.

J. OSTER

1,388,688

UNITARY CUTTING ASSEMBLY FOR HAIR CLIPPERS

Filed Aug. 25, 1930

Fig. 1

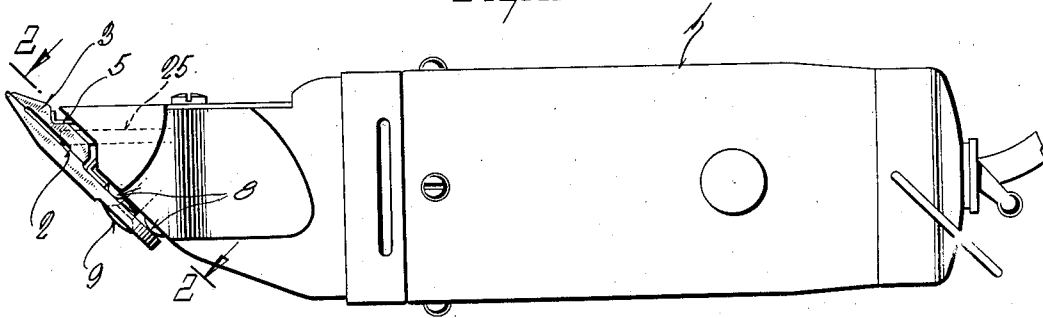


Fig. 2

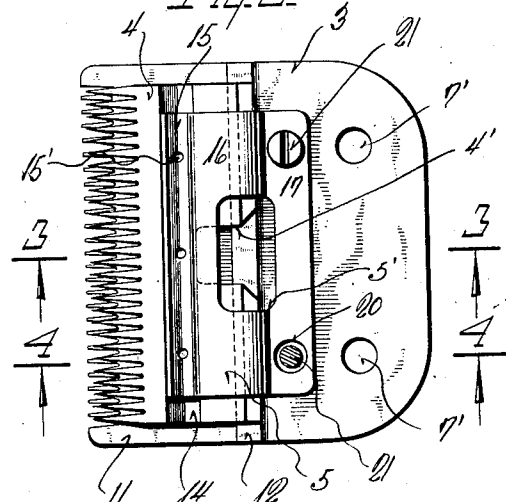


Fig. 3

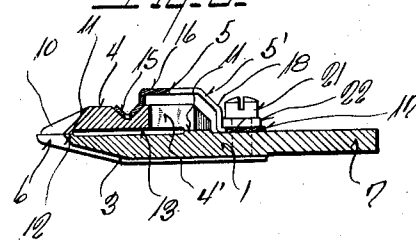


Fig. 4

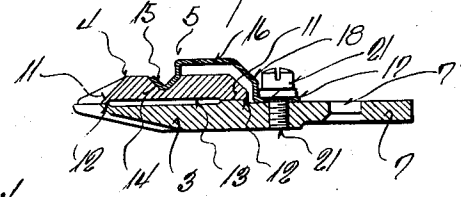
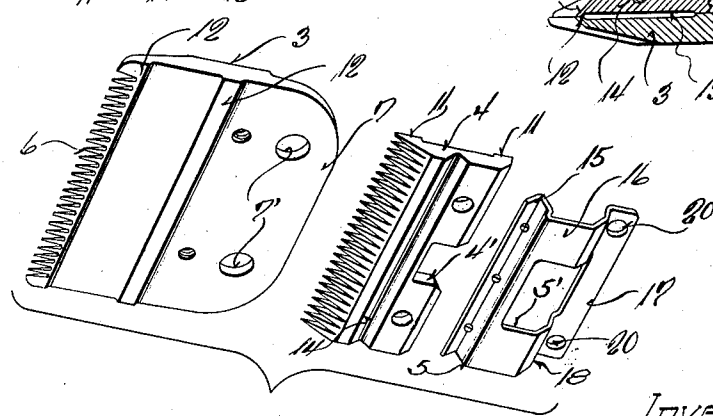


Fig. 5



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## UNITARY CUTTING ASSEMBLY FOR HAIR CLIPPERS

Application filed August 25, 1930. Serial No. 477,535.

This invention relates in general to hair clippers and more particularly to a unitary cutter or blade assembly.

Hair clippers, as widely employed, comprise generally a base plate or fixed blade, a cooperable movable blade, guides for constraining the movable blade to motion in a predetermined path back and forth across the fixed blade, tensioning means for forcing the movable blade against the fixed blade with the proper pressure and some form of operating mechanism for the movable blade. The operating mechanism may consist of a pair of hand levers or one of a various number of different types of power drives. In all of the various types of constructions heretofore devised, difficulty has been encountered in connection with the proper alinement of the blades and the setting up of the proper tension or pressure between the blades. All of the constructions have been such as to require or at least to invite barbers or others using the clippers to adjust or vary the tension. The result of the attempt by anyone but an expert mechanic to vary the tension frequently impairs the efficiency of the operation of the clipper. Another difficulty with prior constructions has been the impairment of alinement of the blades resulting from wear on the guiding means between the blades. Further, the constructions of prior clippers have been such that it has been the practice to replace only the movable blade when the blades become worn. This has distinct disadvantages as the old and somewhat worn fixed blade is not adapted for efficient coaction with the new movable blade. While not so apparent, the result of assembling a new movable blade with an old fixed blade is about the same as an attempt to mesh an old gear with a new gear.

One of the principal objects of the present invention is to provide a unitary cutter assembly for hair clippers adapted to be attached as a unit to the clipper and which is so constituted as to set up an invariable and proper tension or pressure between the blades and to maintain alinement of the blades even if the blades have been in use over a long period of time. The tension is determined at

the factory and is not variable by barbers or by inexperienced or inexpert persons. The alinement is also set and determined at the factory and when the blades have been worn out the whole assembly may be removed and replaced by a similar but new assembly. The nature of the interengaging means between the movable blade and the combined guide and tension member is such as to uniformly distribute any wear that may occur and to take up such wear and thereby prolong the life of the cutting assembly and maintain its efficiency over a long period.

Another object of the invention is to provide a unitary cutting assembly for clippers having these advantages and capacities and which is of simple and durable construction, reliable and effective in operation, and easy and comparatively inexpensive to manufacture. The unitary cutter assembly of the present invention is adapted for interchangeable use with all other various types of clippers.

Other objects and advantages reside in certain novel features of the construction, arrangement and combination of parts which will be hereinafter more fully described and particularly pointed out in the appended claims, reference being had to the accompanying drawing, forming a part of the specification, and in which:

Figure 1 is a view in side elevation showing a hair clipper equipped with a unitary cutting assembly embodying the present invention;

Figure 2 is a top plan view of the cutter assembly detached or, referring to Figure 1, a view taken in the plane of line 2-2 and looking in the direction of the arrows, with the attaching screws and operating lever omitted;

Figures 3 and 4 are detail sectional views taken on lines 3-3 and 4-4, respectively, of Figure 2; and

Figure 5 is a group view in perspective showing the fixed and movable cutters and the cooperable guide and tension member.

Referring to the drawing, and more particularly to Figure 1, the numeral 1 designates generally a hair clipper, which, for the

sake of illustration, is shown as motor driven or of power type. At the forward end of the hair clipper a unitary cutting assembly designated generally at 2 and embodying the present invention is provided.

6 The unitary cutter assembly comprises generally a fixed blade 3, a movable blade 4 and a combined guide and tension member designated generally at 5.

10 The fixed cutter 1 has cutting teeth 6 at its forward end and at its rearward end has an attaching portion 7 provided with spaced openings 7'. The attaching portion 7 is adapted to engage suitable abutments or a suitable seat 8 on the clipper and is secured in position against the same by means of attaching screws 9 (see Figure 1).

15 The movable blade 4 also has cutting teeth 10 at its forward end which coast with the cutting teeth 6. The front and rear edges of the movable blade have machined surfaces 11 engageable with the corresponding surfaces 12 of the fixed blade. Intermediate these engaging surfaces the blades are spaced as indicated at 13.

25 In the top face of the movable blade a transversely extending guide groove 14 of V-shape in cross section is provided and coacts with a correspondingly formed rib 15 provided at the forward edge of the combined guide and tension plate 5. The body portion or intermediate portion of the combined guide and tension plate 5 is designated at 16 and, as clearly shown in Figures 3 and 30 4, extends above and rearwardly of the movable blade. The extreme rear end of the combined guide and tension plate 5 terminates in an attaching portion or flange 17 which is offset downwardly or depressed from the body portion 16 by means of angled connecting sections 18. The angularity of the sections 18 with respect to the body portion 16, the angularity of the attaching portion 17 to these sections 18, the extent of offsetting of the attaching portion or the combined effect of such dimensioning and shaping is such that when the attaching portion or flange 17 is firmly clamped and held against the fixed blade its guide rib 15 will 35 press down in the guide groove 14 with such sufficient force to set up the proper force or tension between the blades.

40 The attaching portion 17 of the combined guide and tension plate 5 is formed with spaced openings 20 and through these openings extend the shanks of screws 21. The openings 20 are somewhat larger than the shanks of the screws 21, to permit the combined guide and tension plate 5 to be shifted and positioned to properly aline the blades. Interposed between the heads of the screws 21 and the attaching portion 17 are lock washers 22. With this construction the blades are alined at the factory by means of 45 suitable gauges and by expert mechanics and

may be held properly alined by suitable clamps or other mechanical means during the time that the combined tension member and guide 5 is being put in place and secured in proper position by the screws 21 and lock washer 22. When the screws 21 are threaded 50 into the fixed cutting plate 3 as far as they may be the attaching portion 17 is clamped flatly and firmly against the fixed cutting blade and this flexes or bends the combined guide and tension plate 5 to such extent that its guide rib 15 presses with the proper force down on the movable blade. The combined tension plate and guide 5 is constructed of spring steel or other material that is stiffly 55 resilient, that is to say, will tend to retain the shape that it is given and yet may be slightly distorted or flexed to set up the required tension. The entire assembly may be readily attached or detached as a unit.

60 The guide rib 15 extends entirely across the forward edge of the combined guide and tension plate 5 and presents a large area which engages the walls of the guide groove of the movable blade. This construction 65 tends to minimize or distribute wear and such wear as occurs is not sufficient to impair alinement or materially affect the tension. Persons using the clipper or applying the blades thereto are not required to disturb the tension or alinement. All that is involved in application or removal of a cutting assembly is the manipulation of the screws 9.

70 The guide rib 15 is provided with a number of spaced oil holes 15' to provide for lubrication of the engaging surface of the guide rib 15 and the movable blade.

75 It is to be noted that the movable blade is provided with a notch 4' designed to receive the operating lever 25 of the clipper (shown in dotted lines in Figure 1). The combined guide and tension plate 5 is formed with a similar notch or cut-out portion 5' to afford the clearance for the drive or operating 80 lever.

The invention claimed is:

1. A cutter assembly adapted to be attached to and detached from a hair clipper as a unitary assembly and comprising a fixed 85 blade having cutting teeth, at its forward end and having an attaching portion at its rearward end adapted to be secured to the clipper, a movable blade slidable back and forth across the fixed blade and having cooperable cutting teeth, said movable blade having a transverse guide groove in its top face, a combined tension plate and guide having a guide rib along its forward edge engageable in the groove 90 of the movable blade, the intermediate portion of the plate extending above the fixed blade, said plate terminating at its rearward end in a downwardly offset attaching flange and means for securing the attaching flange flatly against the fixed blade forwardly of 95

the attaching portion of the fixed blade and rearwardly of the movable blade and for flexing the plate to cause its guide rib to press the movable blade against the fixed blade with the proper pressure, said means so positioning said combined tension plate and guide that its guide rib functions to aline and maintain alinement between the fixed and movable blades.

2. A unitary cutter assembly for use with hair clippers and comprising cooperable fixed and movable blades, a combined tension and guide plate constructed of spring steel and having its forward edge portion shaped to form a guide and interengaged with the movable blade to aline it with the fixed blade and to constrain the movable blade to proper movement relative to the fixed blade, said plate having its intermediate portion extending above the movable blade and also having an attaching portion flatly engaged with the fixed blade and provided with openings, screws having shanks smaller than said openings and extending therethrough, said screws coacting with the attaching portion and with the fixed blade for adjustably securing the combined tension and guide plate in proper position to aline the blades and also functioning to place the combined tension and guide plate under a flexing tension to cause it to force the blades together with the proper pressure, said fixed blade having a portion extending beyond the attaching portion of the combined tension and guide plate and provided with openings facilitating the attachment of the assembly as a unit to a clipper.

3. A unitary cutter assembly for use with clippers comprising cooperable fixed and movable blades, a combined tension and guide plate constructed of spring steel and having an integral V-shaped guide rib against its forward edge, said movable blade having a correspondingly formed groove with which said guide rib is engageable, said plate having its intermediate portion extending above and rearwardly with respect to the movable blade and having angled sections adjacent its rearward end terminating in a downwardly offset attaching flange, fastening devices cooperable with the attaching flange and with the fixed blade for adjustably securing the plate in position and for placing it under sufficient tension to cause it to press said blades together and maintain the same in proper alinement, said fixed blade having an attaching portion adapted to be secured to the clipper.

4. A cutter assembly adapted to be attached to and detached from a hair clipper as a unitary assembly and comprising a fixed blade having cutting teeth and adapted to be secured to the clipper, a movable blade slidable back and forth across the fixed blade and having cooperable cutting teeth, a com-

bined tension plate and guide having an attaching portion adjacent the fixed blade and a portion extending over the movable blade, interengageable guiding means between said plate and said movable blade for guiding the movable blade and determining the position thereof relative to the fixed blade, and means for securing the attaching portion of said plate to the fixed blade and for placing a flexing tension on said plate to cause said plate to act through said inter-engaging guide means to press the movable blade against the fixed blade with the proper pressure and to aline the movable blade with the fixed blade.

5. A separate and unitary cutting assembly adapted to be attached to and detached from a power operated hair clipper as a unitary cutting assembly and comprising a fixed blade having cutting teeth and also having an attaching portion adapted to be releasably secured to the clipper, a movable blade slidable back and forth across the fixed blade and having cooperable cutting teeth, a single combined tension plate and guide having an attaching portion engaged with the fixed blade and a portion extending over the movable blade, interengageable guiding means between said plate and said movable blade for guiding the movable blade and determining the position thereof relative to the fixed blade and means for securing the attaching portion of said plate to the fixed blade and for placing a flexing tension on said plate to cause said plate to act through said interengaging guide means to press the movable blade against the fixed blade with the proper pressure and to aline the movable blade with the fixed blade in addition to exerting its guiding function.

6. A separate and unitary cutting assembly adapted to be attached to and detached from a power operated hair clipper as a unitary cutting assembly and comprising a fixed blade having cutting teeth and also having an attaching portion adapted to be releasably secured to the clipper, a movable blade slidable back and forth across the fixed blade and having cooperable cutting teeth, a single combined tension plate and guide having an attaching portion engaged with the fixed blade and a portion extending over the movable blade, interengageable guiding means between said plate and said movable blade for guiding the movable blade and determining the position thereof relative to the fixed blade and means for securing the attaching portion of said plate to the fixed blade and for placing a flexing tension on said plate to cause said plate to act through said interengaging guide means to press the movable blade against the fixed blade with the proper pressure and to aline the movable blade with the fixed blade in addition to exerting its guiding function, said plate

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having a transverse extent just slightly less than that of the fixed blade and being recessed intermediate its side edges to accommodate the power means which reciprocates the movable blade.

<sup>5</sup> In witness whereof, I hereto affix my signature.

JOHN OSTER.

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