July 28, 1942. M. ANDIS 2,291,439

HAIR CLIPPER COMB PLATE

Filed July 19, 1941

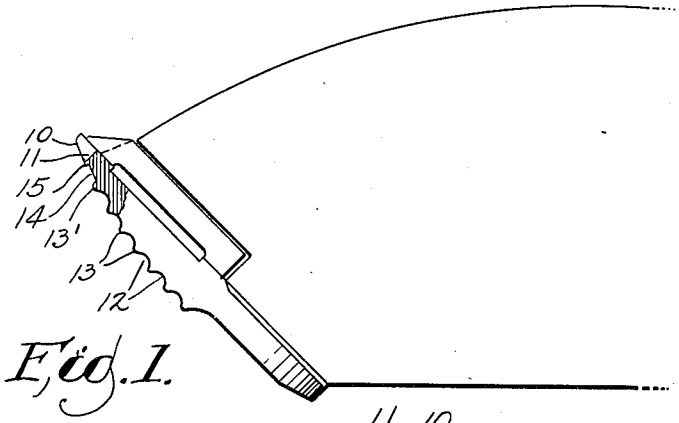


Fig. 1.

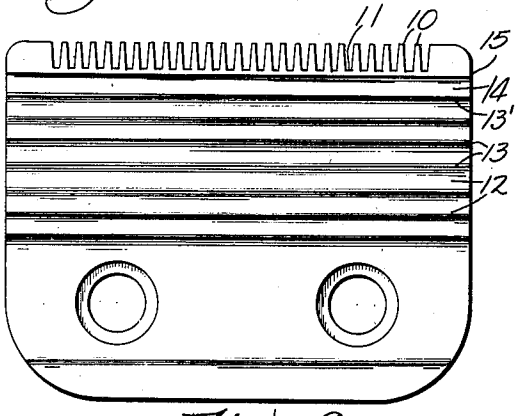


Fig. 2.

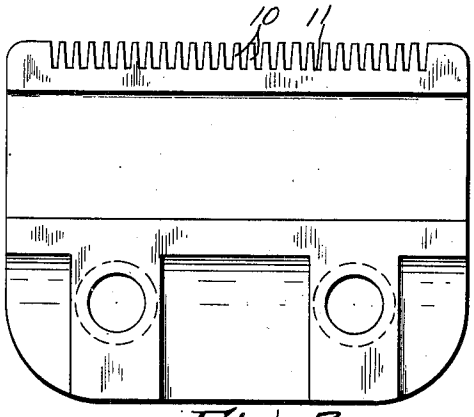


Fig. 3.

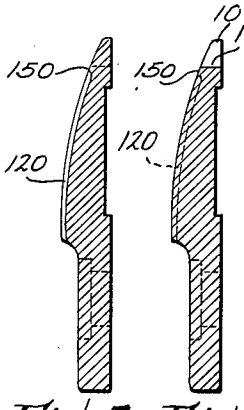


Fig. 5. Fig. 6.

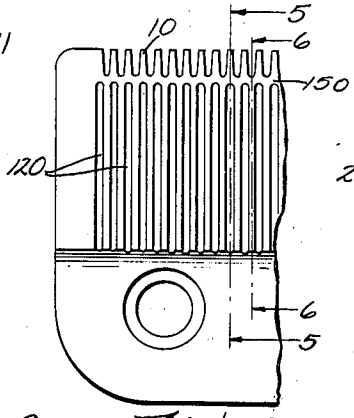


Fig. 4.



Fig. 8.

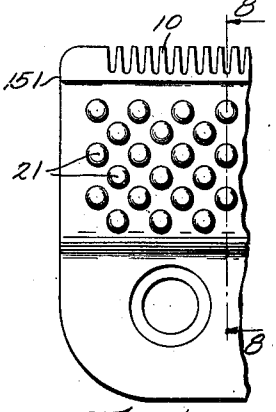


Fig. 7.

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HAIR CLIPPER COMB PLATE

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7 Claims. (Cl. 30—30)

My invention relates to improvements in hair clipper comb plates.

My primary objects are to improve the efficiency of a hair clipper comb plate for lifting hair lying close to the skin and presenting it in a proper position for clipping—to provide means whereby to obtain improved standardization of the plates with reference to their thinness or so-called "sizes,"—and also to provide means whereby comb plates may be ground on both sides to a correct standardized size or plate thickness after the plate has been die-cut or form-milled and tempered, and notwithstanding warpage during the tempering or hardening operation.

Further and more specific objects will be apparent from the description.

In the drawing:

Figure 1 is a side elevation of the nose or working end of a hair clipper provided with a comb plate embodying a preferred form of my invention.

Figure 2 is a view of the comb plate as seen from the under side.

Figure 3 is a view of the same as seen from the top side.

Figure 4 is a fragmentary view similar to Figure 2, showing a modified form of construction.

Figures 5 and 6 are sectional views drawn respectively to planes indicated by lines 5—5 and 6—6 in Figure 4.

Figure 7 is a view similar to Figure 4 showing a further modification.

Figure 8 is a sectional view drawn to line 8—8 of Figure 7.

Like parts are identified by the same reference characters throughout the several views.

Ordinary comb plates as heretofore constructed have had their teeth cut by rotary milling tools or grinders which form channels in the under surface of the plate, and which progressively deepen in the direction of the front margin until the grooves extend entirely through the plate and form the spaces or gaps between teeth. Therefore, while the upper surface of the plate at the roots of the teeth is in a common plane with the upper surfaces of the teeth, the lower surface is deeply channeled and presents a beveled margin between the roots of the teeth which has an upward inclination into the gap between the teeth, terminating where it meets the upper surface. Also, the rilled plates of the prior art have been formed with their rilling grooves in alignment with the spaces betwen the teeth, and at their forward ends these grooves merge with the progressively depending channel made by the above mentioned milling cutter or grinder.

I have found that if the untoothed portion of the plate is of uniform thickness at the roots of the teeth 10, whereby the base 11 of each space or gap between any two teeth is a rectangle substantially in a plane at right angles to either the lower or the upper surface of the plate, hair lifting or plowing edges will be presented at the bottom of the plate between the teeth which will effectively lift hair lying close to the skin.

While the lower surface of the plate is usually formed with a rocker bearing surface convergent toward the points of the teeth, whereas the bearing surfaces of the upper side are flat, the variation from parallelism between the upper and lower surfaces is insufficient to prevent the bases of the gaps from being substantially perpendicular to both surfaces for the purpose herein set forth, viz,—to provide plowing edges or shoulders on the bottom of the plate where it registers with the gaps between the teeth.

If desired, the base of each gap between the teeth may be flat, as indicated in Figures 2 and 3, or it may be concave as shown in Figures 4 and 7, without materially changing the hair lifting function. I find that in either case the shoulder or edge coincident with the bottom surface can be depended upon to lift even the fuzzy hair found on the necks of young children, and which has heretofore been very difficult to clip to a uniform length.

Instead of providing rilling grooves which register with the spaces between teeth, I preferably provide rilling grooves 12 which extend longitudinally of the plate or parallel with its toothed margin. These rilling grooves 12 have ridges 13 between them.

In front of the forward ridge 13' there is a flat bottomed channel 14, parallel with the grooves 12 and margined at the roots of the teeth by what may be termed a wrinkling ridge 15 which bears upon the skin, and the front side of which forms a part of the rectangular walls 11 at the bases of the teeth.

In the embodiment shown in Figures 4, 5 and 6, I provide rilling grooves 120 which are parallel with the axes of the teeth, but are in line with the teeth axes, and therefore out of registry with the spaces betwen the teeth. Also, these rilling grooves 120 terminate in a ridge 150 corresponding in position and function to the ridge 15 shown in Figures 1 and 2.

In the modification shown in Figures 7 and 8, I employ an embossed comb plate having con-

cave circular depressions 20 in its upper surface and corresponding convex bulges 21 on its lower surface. These embossed portions are staggered, as illustrated, and the zone which they occupy is preferably separated from the teeth by a longitudinally extending rill or groove 22 and a ridge 151, similar in position and function to the ridge 15 shown in Figures 1 and 2.

In the ordinary hair clipper the rills or grooves are of substantially no value except for the purpose of reducing the frictional contact of the comb plate with the skin. The ridges between them serve as runners, and the groove portions are out of contact with the skin.

But in the preferred embodiment of my invention, as shown in Figures 1, 2 and 3, the ridges 13 cause wave-like elevations of the skin over which the comb plate is being advanced, thus tensioning the skin, and the crest of the forward wave immediately in front of the rib 15 will, with the assistance of this ridge, cause even the finest hairs to swing to a position perpendicular to the skin, thereby positioning such hairs across the spaces between the teeth to be clipped by the vibratory cutter blade 25. Even the finest and most fuzzy hair may therefore be clipped with substantial uniformity.

Barbers usually employ six different "sizes" of clipper plates, the term "size" being used with reference to thickness of the plate or the length of cut to be obtained by the plate. The so-called "finer" sizes used for close cutting include about 98 percent of the clippers in use, and at the points of the teeth there is only from .005 to .0010 of an inch difference in thickness. This means that the blades in process of hardening must be kept from warping more than .002 of an inch to .003 of an inch, or else must go through expensive straightening operations. The thinner the plate, the harder it is to keep it straight in the process of hardening, and the less tolerance there is to warpage.

Without grinding such plates across the teeth on both sides to produce comb plates of the finer sizes, it is impossible to obtain perfect uniformity with more than a small percentage of plates, and therefore a large percentage of the prior art plates vary in size within the different groups, perfect standardization not being realized. Also, due to warpage, the teeth vary in thickness in different portions of the same plate.

By running the rills laterally across the comb plate as shown in Figures 1, 2 and 3, it is possible to allow the necessary material for grinding not only on the cutting surface, but also on the opposite side in front of the rills across the teeth. Therefore standardization or uniform thickness in the respective groups can be obtained, and parallelism of the teeth across the width of the plate can be fully controlled regardless of the average warpage during the hardening process.

As the comb plate moves forwardly during the process of cutting hair, the rib nearest to the teeth raises a slight ripple on the skin underneath the teeth, and this tends to cause the ends of the hairs lying close to the surface of the skin to separate from it and progressively strike the grooveless bottom of the gap between the teeth, thus forcing the hairs up into shearing position. Also, the first rib next to the teeth keeps the skin stretched to some extent and eliminates some of the friction between the following ribs and the skin. The outer or bottom surface of the plate is arcuately curved from rear to front in the usual manner, thus permitting a rocking of the clipper to raise or lower the teeth with reference to the skin and facilitate tapering the hair around the neck and side of the head.

In accordance with ordinary practice, all surplus material on the upper surface of the plate is eliminated to reduce the friction between the two plates and the area to be finished by the grinding operation.

I claim:

1. A hair clipper comb plate having shear teeth and being of substantially uniform thickness along a line common to the bases of the teeth.

2. A hair clipper comb plate having shear teeth and being of substantially uniform thickness along a line common to the bases of the teeth, said plate having rilling on its bottom surface out of registry with the spaces between the teeth.

3. A hair clipper comb plate having a margin provided with shear teeth and being of substantially uniform thickness along a line common to the bases of the teeth, said plate having rilling on its bottom surface out of registry with the spaces between the teeth and extending transversely of the toothed margin of the plate.

4. A hair clipper comb plate having shear teeth with intervening gaps and having substantially planiform top and bottom surfaces adjacent the bases of said gaps, the bases of the gaps between the teeth extending transversely across the plate and forming with the bottom of the plate an abrupt hair lifting shoulder.

5. A hair clipper comb plate having a toothed margin and a supporting surface along said margin, said plate being provided with rilling grooves along lines parallel with the toothed margin of the plate.

6. A hair clipper comb plate having a toothed margin and friction relieving projections on its under surface, separated from the comb teeth by a substantially planiform area elongated and extending parallel and contiguous to the toothed margin of the plate.

7. A hair clipper comb plate having its forward margin provided with spaced shear teeth and with a lower surface portion which is substantially rectilinear at a given level across the spaces between said teeth, said plate having immediately behind said portion an upwardly offset area throughout which are convex downwardly projecting bosses distributed in sufficient numbers over the offset area to provide support for the comb plate from a skin surface traversed thereby.

MATHEW ANDIS.