

June 18, 1963

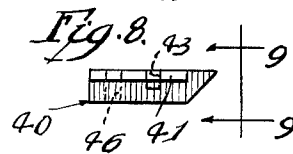
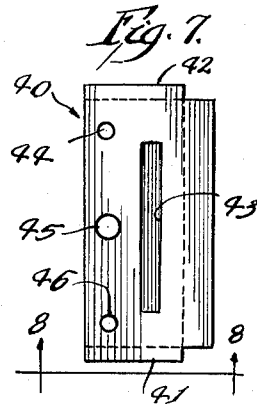
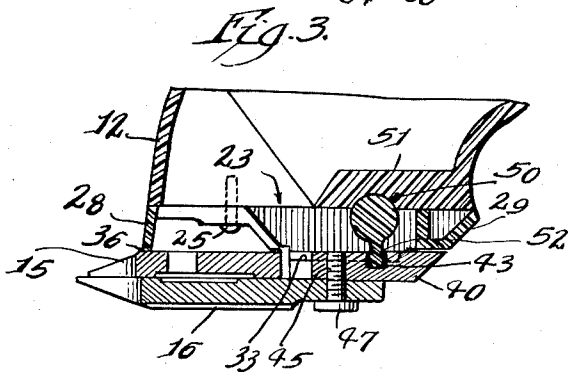
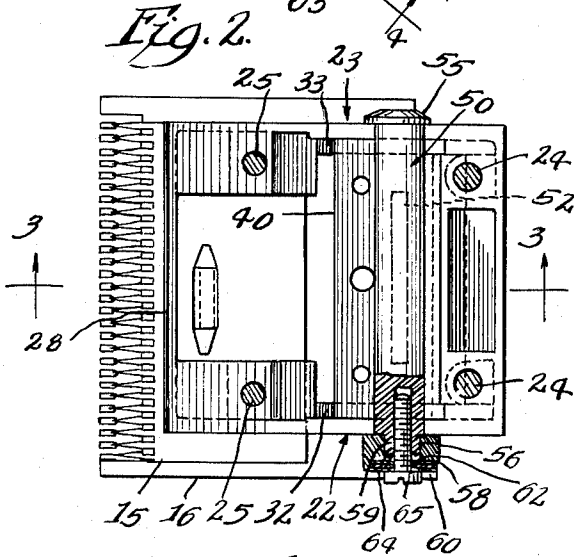
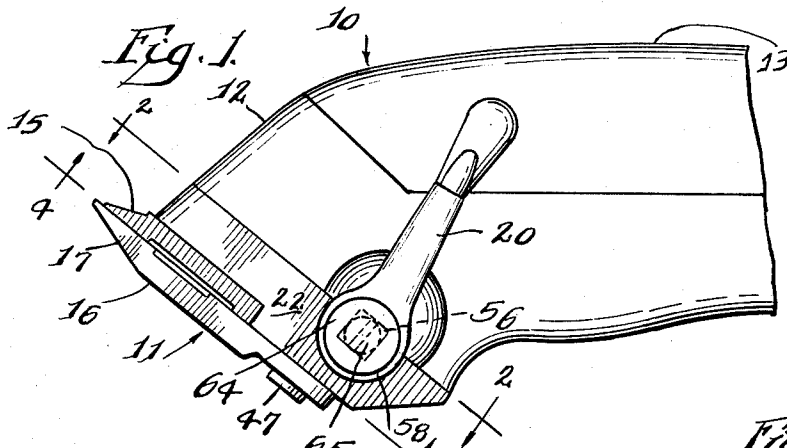
W. P. WAHL

3,093,901

ADJUSTABLE CLIPPER HEAD

Filed May 10, 1962

2 Sheets-Sheet 1



Inventor.
Warren P. Wahl.

By: Zabel, Baker, York, Jones & Dittman
Attorneys.

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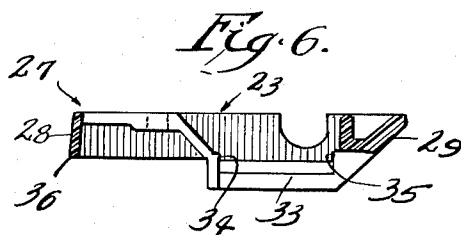
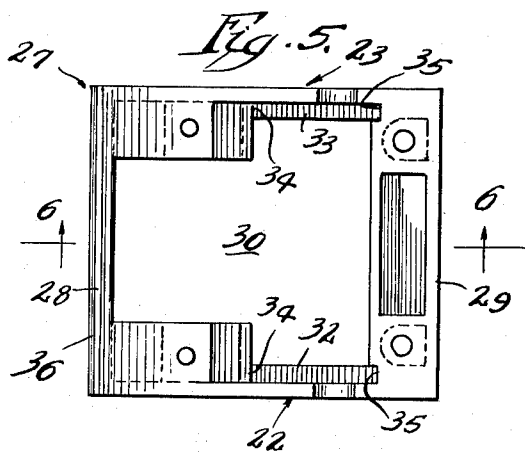
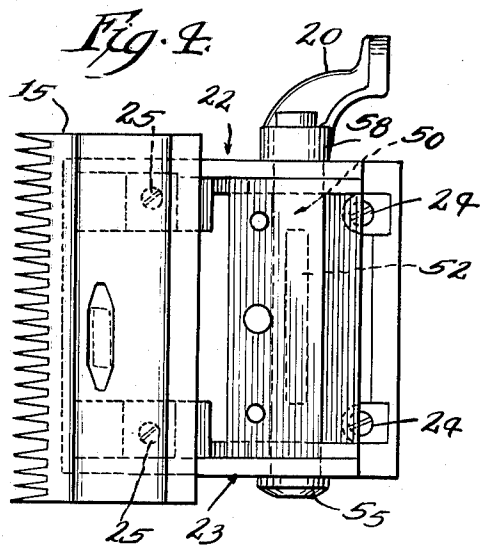
W. P. WAHL

3,093,901

ADJUSTABLE CLIPPER HEAD

Filed May 10, 1962

2 Sheets-Sheet 2



Inventor.
Warren P. Wahl.

By *Zabl, Baker, York, Jones & Dikmar*
Attorneys.

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3,093,901

ADJUSTABLE CLIPPER HEAD

Warren P. Wahl, Sterling, Ill., assignor to Wahl Clipper Corporation, Sterling, Ill., a corporation of Illinois
Filed May 10, 1962, Ser. No. 193,739
7 Claims. (Cl. 30—201)

This invention relates to a hair clipper, and more particularly to a hair clipper having an adjustable clipper head of the type wherein the stationary or comb blade of the clipper in movable longitudinally in order to vary the length of cut.

The invention is an improvement over the constructions shown in my prior U.S. Patent No. 3,031,758 and the prior U.S. Patent No. 2,795,967 to Leo J. Wahl. Certain teachings of the latter patent have been incorporated in the present invention.

As shown in the above-mentioned prior patents and others, an adjustable clipper head includes mechanism whereby the stationary or comb blade may be moved longitudinally with respect to the reciprocating cutter blade. Because the forward or leading edge of the comb blade is tapered, such longitudinal movement of the comb blade adjusts the clipper head for cutting hair to desired length.

One object of the invention is to provide an adjustable clipper head wherein the adjusting mechanism comprises parts which do not require close manufacturing tolerances. Despite the absence of close tolerances, the mechanism is free of lost motion and highly effective for its intended purpose.

Another object is to provide an adjustable clipper head wherein the adjustment mechanism may consist mainly of molded plastic components. Further, the present clipper head has improved appearance characteristics compared with prior adjustable clipper heads.

Another object is to provide an adjustable clipper head which has a desirable and controllable frictional relationship between relatively moving parts. The relationship is such that the parts respond readily and smoothly to intended adjustment, and retain the adjustment despite stresses and vibrations occurring during use of the clipper.

Still another object is to provide an adjustable clipper head wherein the adjustment mechanism to a large extent it self-compensating for wear occasioned by extended usage. Further, if extreme wear occurs, the self-compensating quality easily may be restored by the partial revolution of a single screw.

Another object is to provide an adjustable clipper head having an adjustment lever which is held in position by a simple screw. The construction is such that the screw is threaded into an associated part which rotates when the lever is actuated. There thus is no relative movement between the screw and the associated part, and no tendency for the screw to work loose when the mechanism is adjusted.

Yet another object is to provide an adjustable clipper head wherein certain standard components readily may be reversed in position, whereby the clipper is adaptable for either right-handed or left-handed users.

Another object is to provide an adjustable clipper head wherein the relationship between certain relatively movable members is such that the adjustable comb blade, despite its longitudinal movement, cannot twist or lose its desired alignment with the associated cutter blade. In addition, the adjustment mechanism is free of any tendency to bind.

Other objects, advantages and details of the invention will be apparent as the description proceeds, reference being had to the accompanying drawings wherein one form of the invention is shown. It will be understood, however, that the description and drawings are illustrative only, and that the scope of the invention is to be measured by the appended claims.

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In the drawings:

FIG. 1 is a fragmentary side elevational view of a hair clipper embodying the adjustable clipper head of the invention.

FIG. 2 is a sectional view generally on line 2—2 of FIG. 1.

FIG. 3 is a sectional view on line 3—3 of FIG. 2, the figure including associated portions of the clipper case.

FIG. 4 is a sectional view on line 4—4 of FIG. 1.

FIG. 5 is a top plan view of a plastic part used in the invention.

FIG. 6 is a sectional view on line 6—6 of FIG. 5.

FIG. 7 is a top plan view of a relatively movable plate used in the invention.

FIG. 8 is an end elevational view on line 8—8 of FIG. 7.

FIG. 9 is front elevational view on line 9—9 of FIG. 8.

Referring now to the drawings, and particularly to FIG. 1, the numeral 10 designates the forward end of a hair clipper embodying the adjustable clipper head 11 of the invention. Clipper 10 includes a case 12 having a cover 13.

Adjustable clipper head 11 has a movable cutter blade 15 which is driven back and forth transversely by a suitable motor (not shown), and a stationary or comb blade 16. The latter is tapered at its forward edge as shown at 17.

An adjustment lever 20 cooperates with mechanism in head 11 to move comb blade 16 longitudinally of the head. Thus, still referring to FIG. 1, when lever 20 is rotated clockwise comb blade 16 moves forwardly, and vice versa. Such movement of comb blade 16 adjusts the clipper head for cutting hair to desired length.

Proceeding to a detailed description of the present invention, the forward end of case 12 has spaced side portions 22 and 23, best shown in FIGS. 2, 4 and 5. While side portions 22 and 23 may be integral with case 12, they comprise separate parts in the illustrated form of the invention. As shown in FIG. 4, side portions 22 and 23 are secured to case 12 by rear screws 24 and front screws 25.

In the form of the invention illustrated, side portions 22 and 23 are incorporated in a part 27 shown in detail in FIGS. 5 and 6. Part 27 also includes a front portion 28 and a rear portion 29, the front, rear and side portions defining a generally rectangular central opening 30. Part 27 preferably is formed from molded plastic material, for example, nylon, and in some aspects of the invention it is important that side portions 22 and 23 be transversely yieldable.

In the form of the invention shown, side portions 22 and 23 respectively have inwardly directed guide flanges 32 and 33 (FIG. 5). Each flange 32 and 33 has front and rear shoulders 34 and 35 which define stops for a movable plate presently to be described.

Front portion 28 of part 27, as shown in FIGS. 3, 5 and 6, may terminate in a free edge portion 36 which serves to establish a seal with the upper surface of movable cutter blade 15. This arrangement is disclosed and claimed in prior U.S. Patent 2,789,347 to John F. Wahl and Leo J. Wahl.

A longitudinally movable transverse plate 40, shown in detail in FIGS. 7—9, extends between side portions 22 and 23. Plate 40 preferably is made of metal, although other suitable material may be used, for example plastic. Ends 41 and 42 of plate 40 engage with and are guided by side portions 22 and 23. As best shown in FIG. 9, ends 41 and 42 of plate 40 are undercut to provide re-

duced portions. These reduced portions are adapted to engage upper surfaces of the guide flanges 32 and 33 of side portions 22 and 23.

The upper surface of plate 40 has a recess 43 (FIG. 7), preferably an elongated transverse recess. The purpose for this recess will be described later. Plate 40 also has threaded openings 44, 45 and 46 to receive screws which secure comb blade 16 to plate 40. FIG. 3 shows a screw 47 threaded into plate opening 45.

Comb blade 16 thus is detachably secured to the lower face of plate 40. The sides of blade 16 extend laterally beyond ends 41 and 42 of plate 40. The upper faces of these projecting sides of blade 16 engage lower surfaces of side portions 22 and 23, thereby stabilizing plate 40 with respect to the side portions 22 and 23.

From the foregoing, taken in conjunction with the drawings, it will be seen that in the illustrated embodiment the reduced ends of plate 40 cooperate with associated blade 16 to provide a pair of outwardly facing lateral guide channels. The inwardly directed guide flanges 32 and 33 are disposed within these channels, thereby establishing a guided relationship between plate 40 and side portions 22 and 23.

A transverse rotatable member 50 (FIGS. 2, 3 and 4), which may be formed of plastic material, is journaled at least in part in side portions 22 and 23. As best shown in FIG. 3, rotatable member 30 is journaled partly in side portions 22 and 23 and partly in portion 51 of case 12.

Rotatable member 50 has a protuberance or key 52, best shown in FIG. 3, which is received within recess 43 in plate 40. Preferably both recess 43 and key 52 are elongated to provide an extended bearing relationship between rotatable member 50 and plate 40. Such relationship contributes to the smooth operation of the adjustment mechanism and avoids any tendency toward binding.

As shown in FIGS. 2 and 4, rotatable member 50 in the illustrated form of the invention is provided with an enlarged head 55 at one end. This head 55 bears on the exterior surface of side portion 23. The other end of rotatable member 50 terminates in a reduced length 56 of non-circular cross section. The cross section may be square as indicated in broken line in FIG. 1.

Adjustment lever 20 has an enlarged end 58 which engages rotatable member 50. Enlarged end 58 is provided with a non-circular recess 59 (FIG. 2) which snugly receives reduced end 56 of rotatable member 50.

The outwardly facing surface of enlarged end 58 has a circular recess 60 (FIG. 2) which is somewhat larger than non-circular recess 59. The two recesses 59 and 60 communicate with each other in the mid-portion of end 58 and thereby define an exteriorly facing shoulder 62 within end 58. It will be noted that the reduced length 56 of rotatable member 50 is somewhat shorter than the depth of recess 59 into which length 56 extends.

One or more spring washers 64 (FIG. 2) are disposed within recess 60 of enlarged lever end 58, one of the washers resting on shoulder 62. A screw 65 extends through washers 64 and is threaded axially into rotatable member 50. Screw 65 is tightened down until the screw head slightly deforms the washers.

The deformed washers 64 produce a bias force which bears inwardly on side portions 22 and 23. In particular, head 55 of rotatable member 50 applies inward pressure on side portion 23 and enlarged lever end 58 applies inward pressure on side portion 22. These pressures are communicated through the side portions, which deflect if there is any clearance, to the ends 41 and 42 of plate 40, thereby establishing a frictional and wear-compensating relationship between plate 40 and side portions 22 and 23.

It is apparent from FIGS. 2, 4 and 5 that the adjustment mechanism is generally symmetrical on the longitudinal center line, except for rotatable member 50 and associated lever 20. This symmetry permits rotatable

member 50 to be reversed in position, thereby rendering the adjustment mechanism more convenient for left-handed users.

In a modified form of the invention, enlarged head 55 (FIG. 2) on rotatable member 50 may be changed from the position shown and relocated adjacent the inside surface of side portion 22. In this form of the invention the bias pressure is applied to opposite surfaces of side portion 22, thereby providing desired friction between relatively moving parts in the mechanism.

The modification described above has not been separately illustrated because the construction is readily apparent from the present drawings and the above description. Further, no claims are addressed specifically to the modified form.

From the above description it is thought that the construction and advantages of the invention will be readily apparent to those skilled in the art. Various changes in detail may be made without departing from the spirit or losing the advantages of the invention.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent is:

1. In a hair clipper having a case, an adjustable clipper head comprising:

- a transversely yieldable plastic part secured to the forward end of said case, said part having side portions and front and rear portions defining a generally rectangular central opening;
- an inwardly directed guide flange on each side portion having front and rear shoulders defining stops;
- a transverse metal plate within said plastic part, the ends of said plate engaging said side portions and guided thereby for longitudinal movement, said ends having reduced portions engaging upper surfaces of said guide flanges, said plate having a transverse recess therein;
- a comb blade secured to said metal plate and engaging lower surfaces of said side portions;
- a transverse rotatable member journaled at least in part in said plastic part and having an elongated key extending into said transverse recess of said metal plate, whereby rotation of said member moves said plate longitudinally of said plastic part between said stops, said comb blade moving with said plate; and
- resilient means on said rotatable member exerting inward pressure on said side portions whereby a frictional and wear-compensating relation is established between said metal plate and said side portions.

2. In a hair clipper having a case, an adjustable clipper head comprising:

- a transversely yieldable plastic part secured to the forward end of said case, said part having side portions and front and rear portions defining a generally rectangular central opening;
- an inwardly directed guide flange on each side portion;
- a transverse metal plate within said plastic part, the ends of said plate engaging said side portions and guided thereby for longitudinal movement, said ends having reduced portions engaging upper surfaces of said guide flanges, said plate having a transverse recess therein;
- a comb blade secured to said metal plate and engaging lower surfaces of said side portions;
- a transverse rotatable member journaled at least in part in said plastic part and having an elongated key extending into said transverse recess of said metal plate, whereby rotation of said member moves said plate longitudinally of said plastic part, said comb blade moving with said plate; and
- resilient means on said rotatable member exerting inward pressure on said side portions whereby a frictional and wear-compensating relation is established between said metal plate and said side portions.

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3. In a hair clipper having a case, an adjustable clipper head comprising:
- transversely yieldable spaced side portions at the forward end of said case;
 - an inwardly directed guide flange on each side portion 5 having front and rear shoulders defining stops;
 - a transverse plate having ends engaging said side portions and guided thereby for longitudinal movement, said ends having reduced portions engaging upper surfaces of said guide flanges, said plate having a transverse recess therein;
 - a comb blade secured to said plate and engaging lower surfaces of said side portions;
 - a transverse rotatable member journaled in said side portions and having an elongated key extending into said transverse recess whereby rotation of said member moves said plate longitudinally between said stops; and
 - resilient means on said rotatable member exerting inward pressure on said side portions whereby a frictional and wear-compensating relation is established between said plate and said end portions. 20
4. In a hair clipper having a case, an adjustable clipper head comprising:
- transversely yieldable spaced side portions at the forward end of said case;
 - an inwardly directed guide flange on each side portion;
 - a transverse plate having ends engaging said side portions and guided thereby for longitudinal movement, said ends having reduced portions engaging upper surfaces of said guide flanges, said plate having a transverse recess therein;
 - a comb blade secured to said plate and engaging lower surfaces of said side portions;
 - a transverse rotatable member journaled in said side portions and having an elongated key extending into said transverse recess, whereby rotation of said member moves said plate longitudinally; and
 - resilient means on said rotatable member exerting inward pressure on said side portions whereby a frictional and wear-compensating relation is established between said plate and said end portions. 40
5. In a hair clipper having a case, an adjustable clipper head comprising: 45

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- transversely yieldable spaced side portions at the forward end of said case;
- a transverse plate having ends engaging said side portions and guided thereby for longitudinal movement, said plate having a transverse recess therein;
 - a comb blade secured to said plate;
 - a transverse rotatable member journaled in said side portions and having an elongated key extending into said transverse recess, whereby rotation of said member moves said plate longitudinally; and
 - resilient means on said rotatable member exerting inward pressure on said side portions whereby a frictional and wear-compensating relation is established between said plate and said end portions.
6. In a hair clipper having a case, an adjustable clipper head comprising:
- spaced side portions at the forward end of said case;
 - a transverse plate having ends engaging said side portions and guided thereby for longitudinal movement, said plate having a recess therein;
 - a comb blade secured to said plate;
 - a transverse rotatable member journaled in said side portions and having key means extending into said recess, whereby rotation of said member moves said plate longitudinally; and
 - resilient means on said rotatable member exerting inward pressure on said side portions whereby a frictional and wear-compensating relation is established between said plate and said end portions.
7. In a hair clipper having a case, an adjustable clipper head comprising:
- spaced side portions at the forward end of said case;
 - a transverse plate having ends engaging said side portions and guided thereby for longitudinal movement, said plate having a recess therein;
 - a comb blade secured to said plate;
 - a transverse rotatable member journaled in said side portions and having key means extending into said recess, whereby rotation of said member moves said plate longitudinally; and
 - means exerting pressure between said rotatable member and at least one of said side portions whereby a frictional relation is established between said member and said at least one side portion.

No references cited.