

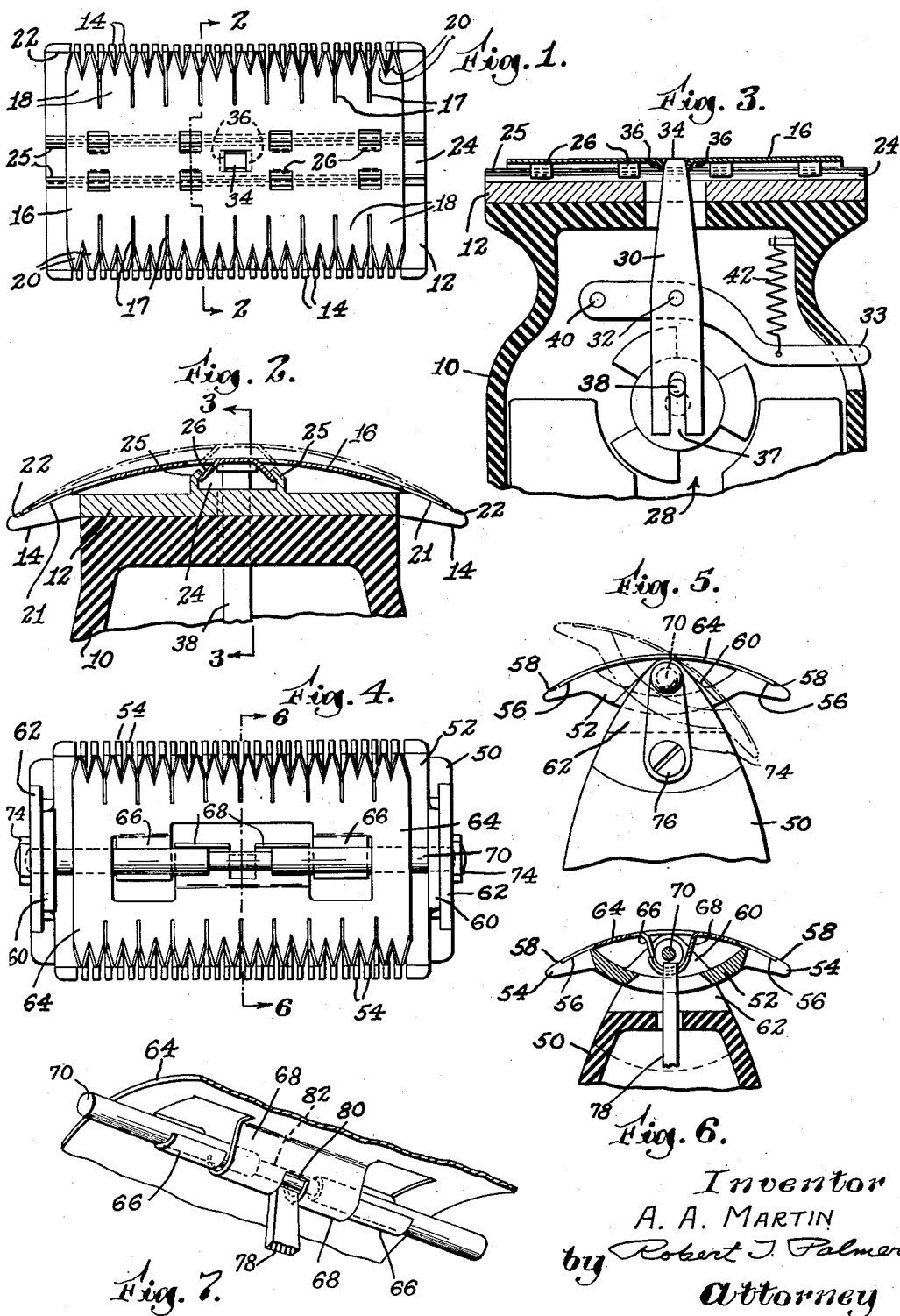
Dec. 9, 1941.

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2,265,382

HAIR CLIPPING INSTRUMENT

Filed Oct. 20, 1937



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UNITED STATES PATENT OFFICE

2,265,382

HAIR CLIPPING INSTRUMENT

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Application October 20, 1937, Serial No. 169,997

14 Claims. (Cl 30—43)

This invention relates to hair-cutting instruments of the clipper type wherein two sets of cooperating teeth or shearing edges engage and sever the hair therebetween, and more particularly of the type disclosed in my Patent No. 2,217,760 dated October 15, 1940. Hair-cutting clippers of this general nature have been known and in use for years, and closer cutting instruments commonly known as "dry shavers" have more recently come into use. While these latter instruments cannot sever the hair at the skin surface as is done with the razor employing a single continuous cutting edge, they do, by employing relatively thin guard teeth, sever the hair closely adjacent to such surface. It will be understood that it is desirable to sever the hair as closely as possible since the character of the shave depends largely upon this approximation. One object of my invention is the production of an improved instrument of this nature which will shave closer than other like instruments heretofore known and which comprises a new and novel mounting of a resilient sheet metal blade on the head of the instrument.

These clipper type instruments employ a stationary toothed member and cooperating therewith is a toothed member arranged to have a relative shearing movement. In accordance with the preferred embodiment of my invention, the movable shearing member comprises a relatively thin, resilient and preferably concavo-convex sheet metal blade having fingers projecting therefrom with shearing edges adjacent to their free ends for cooperating with the stationary teeth, the arrangement being such that the shearing edges are brought closely adjacent to the face whereby shearing the hair very closely to the skin surface. The blade has projecting from the concave side thereof and preferably integral therewith lugs or wings for engaging with the body of the instrument to hold the blade resiliently in operative position thereon. Furthermore, this connection between the blade and body of the instrument is such as to permit clipping reciprocation of the blade.

In its preferred form, the instrument is double edged and of a shape similar to that of the well-known "Gillette" type safety razor. The blade is normally concavo-convex and is so constructed as to be conveniently applied to and removed from the instrument, and when applied thereto it is drawn down resiliently onto the head to a position handling its clipping teeth resiliently engaged with the clipping teeth of the head. Means carried by the instrument is adapted to

engage and reciprocate the blade longitudinally of its clipping teeth. The production of such an improved instrument and the improved blade cooperating therewith comprises a further object of the invention.

These and other features of the invention will be best understood and appreciated from the following description of preferred embodiments thereof selected for purposes of illustration and shown in the accompanying drawing in which—

Fig. 1 is a front end elevation of an instrument embodying my invention,

Fig. 2 is an enlarged cross-sectional view taken on line 2—2 of Fig. 1,

Fig. 3 is a sectional view taken on line 3—3 of Fig. 2,

Fig. 4 is a front end elevation of a modified form of the invention,

Fig. 5 is a side elevation thereof,

Fig. 6 is a sectional view taken on line 6—6 of Fig. 4, and

Fig. 7 is a fragmentary perspective view of the concave side of the blade and the connections thereto.

Referring first to the form of my invention illustrated in Figs. 1—3, 10 indicates a body member which serves as a handle and 12 indicates a head or comb plate on the forward end thereof. The head is of rectangular shape and is generally similar to the corresponding head of the well-known "Gillette" safety razor. Comb teeth 14 are formed along the opposite longitudinal edges of the head, the teeth being formed by notching or serrating these edges.

The blade 16 is of resilient sheet metal and is preferably concavo-convex. The opposite straight edges thereof are slotted at 17 to produce resilient fingers 18 and the free end of each finger is notched to form two clipping teeth 20. The front face of each set of teeth 14 is cut away or grooved in a manner forming flat surfaces 21 on the teeth in a common plane and protecting shoulders 22 on the teeth forwardly of these surfaces. The depth of this groove is substantially the thickness of the blade, as illustrated in Fig. 2.

The outer face of the head 12 is formed with a channel 24 extending longitudinally along its center line, as by two spaced flanges having overhanging edges 25. Lugs or wings 26 are cut from the blade and bent inwardly of the concave face and are so disposed as to fit slidably within the channel in contact with the inwardly facing bearing surfaces of the overhanging edges 25. The arrangement is such that the blade can be

slid longitudinally onto the head with the fingers 26 in the channel and, when in such position, the blade is held flexed slightly from its concavo-convex shape, as illustrated in Fig. 2, and its clipping teeth 20 are held in resilient flat clipping engagement with the flat surfaces 21 on the teeth 14, the ends of the teeth 20 being adjacent to the shoulders 22.

The blade may be reciprocated along the channel 24 by a motor 28 in the body 10 of the instrument. A lever 30 pivoted at 32 on an arm 33 has its forward end 34 somewhat rounded to engage between two lugs 36 cut and bent inwardly from the blade. The rear end of the lever is slotted at 37 to engage a crank pin 38 driven by the motor. The arm 33 is pivoted to the member 10 at 40 and is normally held in the forwardly direction position by a spring 42. The lever may be withdrawn from the lugs 36 to permit removal of the blade, by forcing the free end of the arm rearwardly. It will be apparent that rotation of the motor serves to reciprocate the blade along the channel 24.

In Figs. 4-7, I have illustrated a somewhat modified form of the invention embodying a body member 50 on which is mounted a blade-supporting head 52. The opposite edges of the head are slotted to provide two sets of guard and clipping teeth 54 and these teeth are grooved in like manner as the teeth 14 to provide flat surfaces 56 and protective shoulders 58. The head is provided with two lugs 60 at its ends fitting within and against the inner faces of two cooperating lugs 62 carried by the member 50.

The blade 64 is similar to the blade 16 except that its interior is cut to provide outer wings 66 and an inner wing 68 respectively projecting in opposite directions. The wings are bent inwardly of the concave face of the blade and their free ends are curved to provide a trough-like channel for receiving a pintle 70 providing inwardly facing bearing surfaces to be engaged by the wings 66 and 68. This pintle serves to secure the blade to the head and the head to the member 50.

In assembling the parts, the combined blade and head are placed between the lugs 62 with the pintle receiving perforations in the lugs 60 and 62 and the trough-like channel of the blade all in longitudinal alignment, such positioning flexing the blade to a somewhat flatter position, as illustrated in Fig. 2, and bringing its clipping teeth 72 into flat and resilient engagement with the surfaces 56 of the teeth 54. The parts are then secured in this position by inserting the pintle 70 therethrough. The pintle is held therein by clips 74 pivoted to the member 50 at 76.

The blade is reciprocated on or along the pintle 70 by a motor-operated arm 78, the wing 68 being cut out at 80 to receive the free end of this arm. It is also desirable to cut away a portion of the pintle at 82 to provide clearance for the arm. As illustrated in Fig. 5, the head 52 may be adjusted to different angular positions about the pintle 70 and the apparatus is adapted to reciprocate the blade in all positions of head adjustment.

It will now be apparent that I have produced a relatively simple instrument of the class described and employing an inexpensive but very efficient sheet metal blade similar to the well known flexible safety razor blade, the used blades thereby being replaceable with new blades at little expense. Furthermore, the instrument provides a blade and head combination wherein the

blade is most conveniently fitted to the head and is held thereon merely by a longitudinal sliding action of the blade or of a cooperating part such as the pintle 70, this construction not only supporting the blade on the head but also supporting the blade in working position while permitting the necessary reciprocating movement thereof. Also the blade is preferably concavo-convex whereby the blade teeth are held resiliently in flat engagement with the clipping teeth of the head and the outer face of the head is of a convex shape which adapts the instrument more conveniently to shaving engagement with the skin.

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

1. A hair-cutting instrument comprising a member having clipping teeth along one edge, means providing a channel with overhanging edges along an outer face of the member and parallel with said one edge, a resilient sheet metal blade at said outer face and having relatively angular portions integral therewith and in sliding engagement with the channel beneath said overhanging edges and clipping teeth in resilient contact with the first named teeth, and means for reciprocating the blade along the channel.

2. A hair-cutting instrument comprising a member having clipping teeth along opposite edges thereof, means providing a channel with overhanging edges along an outer face of the member between and parallel with said opposite edges, a resilient sheet metal blade at said outer face and having relatively angular portions integral therewith and in sliding engagement with the channel beneath said overhanging edges and clipping teeth on opposite edges in resilient contact with the first named teeth, and means for reciprocating the blade along the channel.

3. A hair-cutting instrument comprising a member having clipping teeth along one edge, a resilient sheet metal blade having clipping teeth projecting from an edge thereof and cooperating with the first named teeth, means integral with and projecting from the inner face of the blade and forming a trough-like channel parallel with the toothed edge of the blade, a removable pintle carried by the member and extending along the channel and holding the blade resiliently in clipping position on the member, and means for reciprocating the blade along the pintle.

4. The instrument defined in claim 3 in which said member is mounted on a holding member and is adjustable thereon to different angular positions about the longitudinal axis of the pintle.

5. A hair-cutting instrument comprising a member having clipping teeth along opposite edges thereof, a resilient sheet metal blade having clipping teeth along opposite edges cooperating with the first named teeth, means integral with and projecting from the inner face of the blade and forming a trough-like channel parallel with and between said opposite edges of the blade, a removable pintle carried by the member and extending along the channel and holding the blade resiliently in clipping position on the member, and means for reciprocating the blade along the pintle.

6. A hair-cutting instrument comprising a member having clipping teeth along one edge, a resilient sheet metal blade having clipping teeth projecting from a free edge thereof and cooperat-

ing with the first-named teeth, means including inwardly facing bearing surfaces carried by the member and integral portions cut from the interior of the blade and bent to extend relatively angular from the blade toward the member and engaging said surfaces for holding the blade attached to the member and the blade teeth in clipping contact with the first-named teeth, and means for reciprocating the blade while it is thus held.

7. A hair cutting instrument comprising a member having clipping teeth along opposite edges thereof, a resilient sheet metal blade having clipping teeth along opposite edges cooperating with the first-named teeth, means including inwardly facing bearing surfaces carried by the member and integral portions cut from the interior of the blade between its said edges and bent to extend relatively angular from the blade toward the member and engaging said surfaces for holding the blade teeth in clipping contact with the first-named teeth and the blade flexed toward the member, and means for reciprocating the blade while it is thus held.

8. The instrument defined in claim 7 in which said portions of the blade are located intermediate of and parallel with said opposite edges of the blade and have sliding contact with said surfaces in a direction parallel with said edges.

9. The instrument defined in claim 7 in which said portions of the blade are located along the longitudinal center line of the blade and parallel with said opposite edges thereof.

10. A hair-cutting instrument comprising a member having clipping teeth along one edge, a normally concavo-convex and resilient sheet metal blade having clipping teeth projecting from a straight edge thereof and cooperating with the first named teeth with the concave face of the blade adjacent to the member, means forming a guideway on the member and including inwardly facing bearing surfaces, means integral with the blade and projecting from the concave side thereof and engaging said surfaces for holding the blade teeth in clipping engagement with the first named teeth and the blade flexed inwardly from its normal position, and means for reciprocating the blade along the guideway.

11. A hair-cutting instrument comprising a

member having clipping teeth along opposite edges thereof, a normally concavo-convex and resilient sheet metal blade having clipping teeth along opposite straight edges thereof cooperating with the first-named teeth and with the concave face of the blade adjacent to the member, means forming a guideway on the member and including inwardly facing bearing surfaces, means integral with the blade and projecting from the concave side thereof intermediate of and parallel with its said opposite edges and engaging said surfaces for holding the blade flexed inwardly from its normal position and the teeth thereof in clipping engagement with the first-named teeth, and means for reciprocating the blade along the guideway.

12. A hair cutting instrument comprising a body, a cutting head having fixed clipping teeth along an outer portion thereof, a movable cutter mounted for longitudinal reciprocation on the head and having clipping teeth cooperating with the first-named teeth, a rotary driving shaft in the body, means including a member cooperating with the shaft and movable cutter to reciprocate the cutter upon rotation of the shaft, means mounting the member for movement to and from cooperation with the movable cutter, and means within the instrument and having a portion accessible from the exterior thereof for withdrawing the member from cooperation with the movable cutter.

13. The instrument defined in claim 12 plus means on the cutting head providing a channel receiving and supporting the movable cutter for longitudinal reciprocation and including oppositely disposed walls overhanging portions thereof and from which the cutter is removable longitudinally, and a spring normally forcing the said member forwardly into cooperation with the cutter.

14. The instrument defined in claim 12 in which the shaft is disposed transversely of the body and in which the said member is an arm mounted for pivotal movement about an axis located intermediate the ends of the arm, the two ends of the arm respectively cooperating with the shaft and cutter.

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