June 16, 1936. H. H. ROBERTS 2,044,259

HAIR CLIPPER

Filed June 1, 1935

Fig. 1.

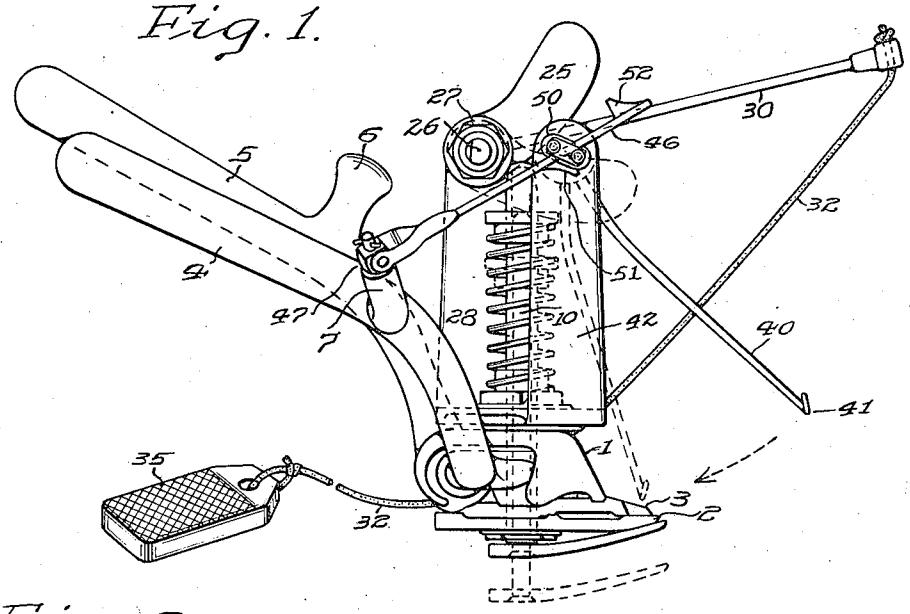


Fig. 2.

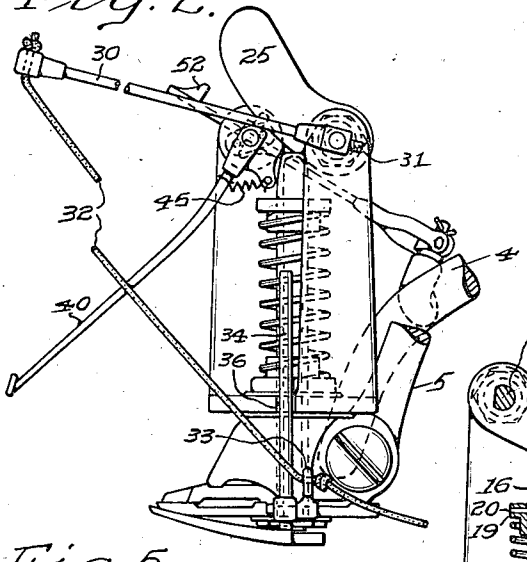


Fig. 3.

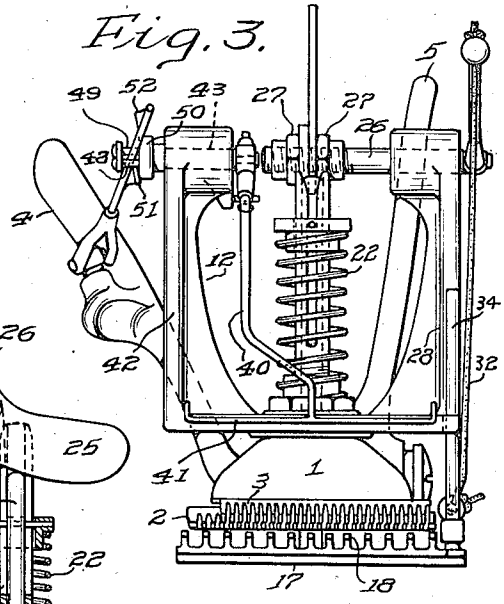


Fig. 5.

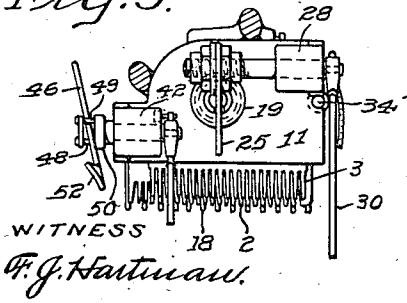
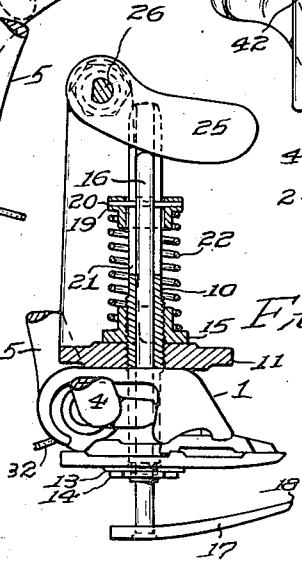


Fig. 4.



WITNESS

F. J. Hartunian.

INVENTOR

Henry H. Roberts.

BY Dwight K. Holbrook

ATTORNEY

Patented June 16, 1936 2,044,259

UNITED STATES PATENT OFFICE

2,044,259

HAIR CLIPPER

Henry H. Roberts, Philadelphia, Pa.

Application June 1, 1935, Serial No. 24,465

11 Claims. (Cl. 30—1)

This invention is directed to the provision of a hair clipper embodying novel mechanism permitting human hair to be neatly and evenly clipped by a relatively unskilled operator so as to afford the customary gradual taper or increase in hair length from the lower edges of the hair at the sides and back of the head to the upper part thereof where present styles dictate that the hair shall be relatively long and, in association and combination therewith, means for feeding the hair to the cutting teeth of the clipper even when relatively long and soft hair is being cut thereby.

A principal object of the invention, therefor, is to provide a clipper by means of which a relatively unskilled operator can cut another person's hair or even his own hair in such way as to present the smooth and regular finish ordinarily capable of attainment only by highly skilled barbers.

A further object of the invention is to provide a hair clipper comprising means operative to gradually raise the shearing or cutting blades relatively to the scalp in proportion to the distance the clipper is moved thereover whereby the hairs at any point are cut the proper length according to their position with respect to the lower edge of the hair generally.

Another object of the invention is to provide a hair clipper embodying means for automatically feeding the hair to, and holding it in proper position for cutting by, the clipper blades whereby the clipping of relatively long hair may be readily effected without manual feeding of the hair to the blades with a comb or the like.

The invention further contemplates attainment of the foregoing objects by operative combination and association with a hair clipper of usual type without extensive modification or reorganization thereof or radical alteration of its basic design, of certain instrumentalities of relatively simple design and construction and of a character not liable to get out of order under the conditions of use to which they are necessarily subjected, thereby facilitating manufacture and reducing cost.

Other objects, purposes and advantages of the invention will hereinafter more fully appear or will be understood from the following description of one embodiment thereof shown in the accompanying drawing, in which

Fig. 1 is a side elevation of the clipper in which the action of certain of the parts is demonstrated by representation in dotted lines in certain positions they may respectively assume during cutting of the hair;

Fig. 2 is a fragmentary elevation of the opposite side of the clipper shown in Fig. 1;

Fig. 3 is a front elevation of the clipper;

Fig. 4 is a fragmentary side elevation corresponding to Fig. 1 but partially in central vertical longitudinal section, and

Fig 5 is a fragmentary top plan view of the clipper on a slightly smaller scale.

In the several figures like characters are used to designate the same parts.

Referring now more specifically to the drawing, it will be understood that the hair clipping mechanism generally, comprising a pair of blades and actuating means therefor, may be of any usual or desired type and, as shown, may therefore comprise a housing 1 from which is supported a toothed or serrated fixed blade 2 and a somewhat similar movable blade 3 reciprocable relatively thereto by means of a handle 4 arranged for pivotal movement with respect to a fixed handle 5 which may be integral with housing 1. Within the housing is preferably disposed a coil spring (not shown) operative to urge the movable handle away from the fixed handle so that the movable blade, controlled by the former, may be reciprocated relatively to the fixed blade in clipping the hair by grasping both handles in one hand and alternately contracting and releasing the grip, a guard 6 on the fixed handle and a guard 7 on the movable one preventing undue slipping of the handles in the hand. Since the parts just mentioned are of ordinary construction and commonly found in clippers designed for manual operation, they require no further description, so that reference will now be made to the means and instrumentalities I combine therewith to attain the objects of my invention.

The housing and the cutting blades in clippers of this general type are ordinarily yieldingly held in assembled relation by means of a screw and spring or similar device but in accordance with my invention this function inter alia is performed by an externally threaded tubular sleeve 10 threaded into a base plate 11 of a generally U-shaped frame 12, the functions of which will hereinafter more fully appear, and extending therefrom through the subjacent housing 1 and fixed blade 2 to provide a pivot for the movable handle 5, a spring washer 13 and nut 14 being arranged on its lower end to yieldingly clamp these parts to the base plate with the aid of a lock nut 15 threaded on the sleeve above the latter.

A stem 16 is slidably disposed within sleeve 10 and carries at its lower end a toothed gauge plate

17 the relatively coarse teeth 18 of which are generally aligned with the cutting teeth of the clipper blades but adapted for movement toward and away from the latter in accordance with sliding movement of stem 16 in the sleeve. A collar 19 surrounds the upper portion of sleeve 10 and is secured to stem 16 by a pin 20 which slides in a vertical slot 21 in the former, and between this collar 19 and lock nut 15 is disposed a coil spring which continually urges the collar and hence stem 16 and gauge plate 17 upwardly relatively to the clipper as a whole.

Movement of these parts in the opposite direction against the force of spring 22 is effected by means of a cam 25 carried by a transversely disposed shaft 26 flattened on one side, as shown in Fig. 4, so that the cam will be turned by the shaft when fitted thereon, the cam being removably clamped in place between nuts 27 threaded on the shaft which is journaled in a bearing at the upper end of one leg 28 of the frame 12, a web integral with the leg and base plate being preferably located between them to insure rigidity of the shaft mounting. The shaft projects a short distance through and beyond the bearing to receive an actuating arm 30 secured to its stub end by a set screw 31, the actuating arm being thus adapted for movement in a limited arc to rotate the shaft. This movement is preferably effected by means of a cord 32 secured at one end to the outer end of the arm and led through an eyelet 33, supported from a guide rod 34 on gauge plate 17, to a tab 35 the purpose of which will hereinafter appear. Guide rod 34 projects upwardly from the gauge plate and slides in a slot 36 in base plate 11 to prevent turning of the gauge on its supporting stem, but other means may be provided to perform this function, and eyelet 33 may then be carried directly by the gauge plate if desired.

From the foregoing description it will be apparent that shaft 26 may be rotated to move cam 30 and hence depress stem 16 and gauge plate 17 relatively to the clipper blades in response to a pull upon cord 32. In practice, however, it is desirable that tab 35, which may be of corrugated rubber or other suitable material preferably having a high coefficient of friction, be firmly held at a fixed point while the hair is being cut, and when so held, movement of the clipper relatively thereto, as upwardly in cutting the human hair when beginning the cut at the lower edge thereof near the upper end of the neck or in front of the ears, causes movement of gauge plate 17 downwardly relatively to the clipper. Consequently, as the gauge plate remains in substantial contact with the scalp of the person whose hair is being cut, when the tab is so held at a fixed point and the clipper moved over the scalp, the clipper housing and cutting blades are gradually raised from the scalp in accordance with the distance they are moved away from the said point. The length to which the hair is cut as the clipper is progressively moved relatively to the tab thus progressively increases at a rate determined by the shape of cam 25 irrespective of the rate of reciprocation of the clipper blades, and a smooth and even taper is thereby obtained, the teeth on the gauge plate 17 assisting in arranging the hair for reception by the cutting teeth as well as insuring smoothness and evenness of movement of the clipper as a whole over the scalp.

To render still more positive the feeding of the hair into the cutting teeth, particularly the longer and hence less erect strands near and at the upper part of the scalp, and to hold it in proper position to be cut thereby, I provide an oscillating feed bar 40 movable in an arc terminating inwardly adjacent and just above the cutting teeth, this bar, preferably formed of spring wire, being more or less T-shaped and comprising a head 41 substantially overlying all the teeth when the bar is at the inner extremity of its travel and thus operative to feed the hair equally and properly to the blades and hold it adjacent thereto during their relative reciprocation. The feed bar is supported from the other leg 42 of frame 12, likewise preferably stiffened by an integral web, being fixed to a short shaft 43 journaled in a bearing at the upper extremity of this leg, and is continuously urged inwardly and downwardly by a slight tension spring 45 interposed between the bar and the frame which thus tends as well to turn the shaft counter clockwise when viewed as in Fig. 2. However, shaft 43 is positively moved in the opposite direction at the termination of each transverse movement of the movable cutting blade of the clipper by mechanism hereinafter described and the feed bar is thereby raised from juxtaposition to the cutting teeth to engage a fresh quantity of hair so that when it is subsequently released substantially at the initiation of movement of the cutting blade in reverse direction, the tension of the spring yieldingly presses the bar, and hence the hair beneath it, in the direction of the cutting blade teeth to positively feed the hair thereinto and thereafter hold it adjacent the blades until the ensuing transverse movement of the movable blade is completed or substantially so.

This periodic raising of the feed bar may desirably be effected by means of an actuating rod 46 having one end connected, desirably through a universal joint 47, with the movable handle 4 and its other or outer end extended between diametrically opposed pins 48, 49 of a head 50 secured to the end of shaft 43 opposite that to which the feed bar is secured. The rod is provided with diametrically opposed horizontally spaced lugs 51, 52 respectively adapted to engage pins 48, 49 when the rod is moved axially by reciprocation of the movable clipper handle and thereby turn shaft 43 and lift the feed bar, preferably approximately as the movable handle 4 reaches one extremity or the other of its normal travel, the parts being so arranged that the bar is lifted quickly as these points are reached and equally quickly released for return movement under the influence of the spring substantially at the initiation of reverse movement of the handle. By thus providing yieldingly actuated mechanism for the feed bar, which is itself of light weight, all pulling or jerking of the hair which might otherwise occur with resultant discomfort to the person whose hair is being cut is substantially avoided, and effective feeding, even of very soft, fine and relatively long hairs to the cutting teeth is assured.

My improved hair clipper thus embodies feeding mechanism adapted to positively direct the hair to the cutting teeth and retain them in proper position with respect thereto while they are being cut in operative association and combination with means for progressively moving the blades away from the scalp so that a uniform and satisfactorily tapered or graded hair cut may be readily and substantially automatically attained, even by one not proficient in the use of hair clippers of ordinary character. In this

connection I desire to again direct attention to the fact that the extent to which the blades are retracted from the scalp is primarily determined by the distance the clipper is moved thereover with respect to the point at which the tab **35** is disposed, and not by the number of times the clipper handles are relatively reciprocated. This is a matter of distinct advantage for if an unskilled operator momentarily neglects to move the clipper forward but continues to reciprocate the handles, no harm is done for the relation of the blades to the scalp remains unchanged until the clipper is again advanced, whereas if this relation is varied in accordance with the reciprocation of the handles, as in certain clippers heretofore proposed, under like circumstances an abrupt step in or interruption to the desired smooth and gradual taper of the hair is brought about. Moreover, this taper is, of course, governed by the configuration of cam **25**, so that if the purchaser of the clipper is supplied by the manufacturer with several different cams, he can by interchanging them readily adjust the clipper to cut a corresponding variety of tapers.

While I have herein shown and described with some particularity one embodiment of my invention as comprised in a manually operated clipper primarily designed for cutting human hair, it is to be understood that I do not desire or intend thereby to limit or confine myself thereto in any way, as changes and modifications in the form, construction and arrangement of the several parts may be made if desired and/or the principles of the invention incorporated in other types of clippers intended for similar or for other uses without departing from the spirit and scope of the invention as defined in the appended claims.

Having thus described my invention I claim and desire to protect by Letters Patent of the United States:

1. In a hair clipper comprising a pair of relatively reciprocable cutting blades and actuating means therefor, a gauge plate supported for movement toward and away from the blades, means including a flexible strand for moving the gauge plate away from the blades and yielding means for moving it in the opposite direction, a feed bar movable in an arcuate path toward and away from the blades, means operative to urge the bar toward the blades, and means interposed between the blade actuating means and the bar operative to move the bar away from the blades in periodic timed relation with the reciprocation of the blades.

2. In a hair clipper comprising a pair of relatively reciprocable cutting blades and actuating means therefor, a feed bar having a transverse head adapted for arcuate movement toward and away from the blades, yielding means operative to urge the bar toward the blades, and means interposed between the blade actuating means and the bar operative to positively move the bar in the opposite direction in periodic timed relation with the reciprocation of the blades.

3. In a hair clipper comprising a housing, a relatively stationary blade, a movable blade and handles respectively associated with each blade, a substantially rectangular frame carried by the housing having diagonally disposed upstanding legs, a vertically oscillatory feed bar supported from one leg having a head movable into juxtaposition to the blades, yielding means operative to urge the bar toward the blades, means actuated from the handle associated with the movable blade for moving the bar away from the blades in timed relation with the movements of said handle, a gauge plate beneath and movable relatively to the blades in a right line, and actuating means for the gauge plate comprising an element adapted to be held at a fixed point during movement of the blades, gauge plate and housing as a whole relatively thereto, means carried by the other leg of the frame interconnecting the element and the gauge plate operative to progressively move the gauge plate away from the blades when the blades, gauge plate and housing are moved away from said fixed point, and yielding means operative to progressively move the gauge plate toward the blades if they are subsequently moved toward said point.

4. In a hair clipper, a frame having a pair of upstanding legs, a shaft journaled in the upper end of each leg, a feed bar carried by one shaft, means for turning said shaft to thereby oscillate the feed bar, a cam and an actuating arm carried by the other shaft, a gauge plate having a reciprocable stem projecting into the path of movement of the cam, yielding means operative to urge the stem in one direction into engagement with the cam, and a flexible strand secured to the arm for moving it in the opposite direction.

5. In a hair clipper comprising a housing and relatively reciprocable cutting blades associated therewith, a frame mounted on the housing, a shaft journaled therein, a generally T-shaped feed bar carried by the shaft having a transversely extending head movable in an arcuate path into proximity with the blades, yielding means operative to urge the bar in one direction, and means operable to move the bar in the opposite direction in periodic timed relation with the reciprocation of the blades relatively to each other.

6. In a hair clipper comprising a housing and relatively reciprocable cutting blades associated therewith, a frame mounted on the housing, a shaft journaled therein, a cam and an actuating arm carried by the shaft, means for elevating the blades with respect to a supporting surface in correspondence with movement of the cam in one direction, a flexible element secured to the actuating arm, and means attached to the element adapted to be held at a fixed point while the clipper is moved relatively thereto to thereby move the actuating arm and cam in said direction.

7. In a hair clipper comprising a housing and relatively reciprocable cutting blades associated therewith, means for elevating the blades with respect to a supporting surface in correspondence with progressive movement of the clipper thereover comprising a gauge plate beneath the blades having an upwardly directed stem, a movable cam cooperative therewith, an actuating arm for moving the cam, and a flexible element secured to said arm whereby when said element is held at a fixed point and the clipper moved over said surface the cam is turned in correspondence with the progression of the clipper to depress the stem.

8. In a hair clipper comprising a housing, a fixed blade and fixed handle carried thereby, a movable handle pivoted to the housing and a reciprocable blade actuated thereby, said blades having cooperative cutting teeth, a tubular sleeve extending through the housing and the fixed blade forming the pivot for the movable handle and having a slot in its upper end, a frame superposed on the housing, means carried by the sleeve above the frame and below the fixed blade operative to maintain the frame, housing and blades

in assembled relation, a stem extending through the sleeve, a gauge plate fixed to the lower end of the stem, a collar disposed about the sleeve adjacent the upper end of the stem, a pin extending through the collar, stem and sleeve slot, yielding means interposed between the collar and the housing to urge the stem upwardly, an upstanding leg integral with the frame, a shaft journaled therein, a cam carried by the shaft and movable in the slot to engage and depress the stem, an actuating arm operable to rotate the shaft, a flexible strand secured to the actuating arm, an element carried thereby adapted to be held at a fixed point while the clipper is in operation, means inhibiting rotation of the gauge plate relatively to the housing and strand guiding means loosely surrounding the flexible strand.

9. In a hair clipper comprising a housing, a fixed blade and fixed handle carried thereby, a movable handle pivoted to the housing and a reciprocable blade actuated thereby, said blades having cooperative cutting teeth, a frame superposed on the housing, a shaft journaled therein, a feed bar carried by the shaft having a transverse head movable in an arcuate path toward and away from said teeth, yielding means operative to urge the head toward the teeth, diametrically disposed spaced projecting pins carried by the shaft, a rod extending transversely of the shaft between the pins having spaced projections respectively adapted to engage the latter when the rod is translated substantially axially to thereby effect limited movement of the shaft and feed bar in opposition to the force of the yielding means, and a connection between the rod and the movable handle whereby movement of the latter is effective to oscillate the feed bar in timed relation with the movements of the movable blade relatively to the fixed blade.

10. In a hair clipper comprising a pair of relatively reciprocable cutting blades and actuating means therefor, means for progressively moving said blades away from a surface over which the clipper is travelling comprising a gauge plate disposed beneath and movable to and from the blades, a flexible element adapted to be positioned at a fixed point during movement of the clipper over said surface, and camming means actuated thereby to progressively move the gauge plate away from the blades as the clipper is moved away from said point while said element is held thereat.

11. In a hair clipper comprising relatively reciprocable cutting blades and actuating means therefor, a feed bar pivotally mounted for oscillation in a vertical plane towards and away from the blades, and means operative to oscillate the bar in periodic timed relation with the relative reciprocation of the blades.

HENRY H. ROBERTS.