(No Model.)

G. H. COATES.

HAIR CLIPPER.

No. 588,954. Patented Aug. 31, 1897.

Fig. 1

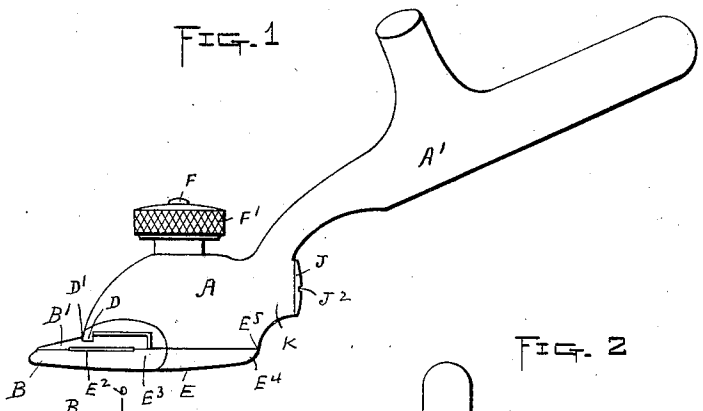


Fig. 2

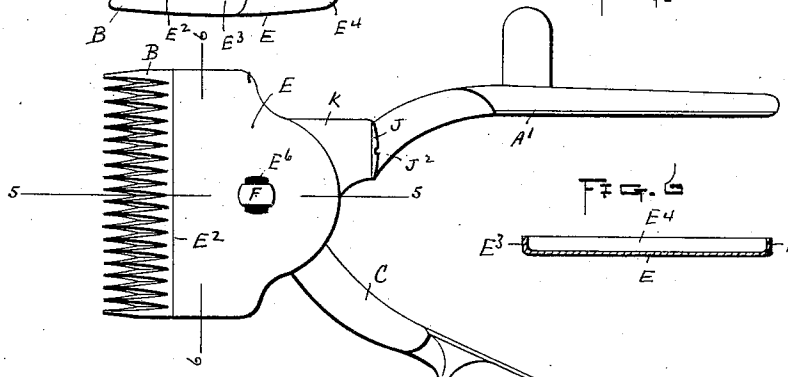


Fig. 6

Fig. 3

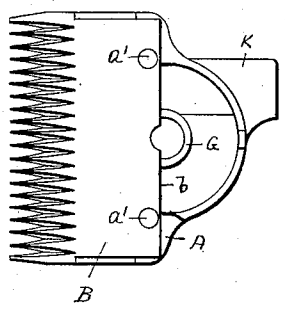


Fig. 4

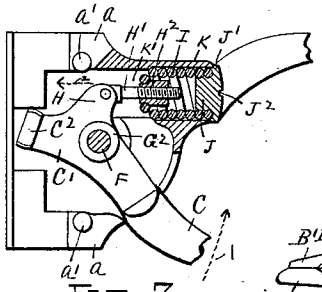


Fig. 5

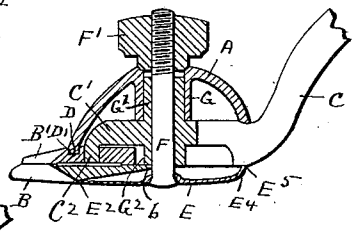
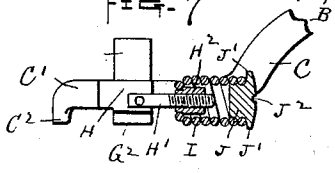


Fig. 7



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UNITED STATES PATENT OFFICE.

GEORGE H. COATES, OF WORCESTER, MASSACHUSETTS.

HAIR-CLIPPER.

SPECIFICATION forming part of Letters Patent No. 588,954, dated August 31, 1897.

Application filed December 1, 1893. Serial No. 492,565. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. COATES, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in Hair-Clippers, of which the following is a specification, accompanied by drawings representing a hair-clipper embodying my invention, and in which—

Figure 1 represents a side view of one of my improved clippers. Fig. 2 is a bottom view of the same. Fig. 3 represents a bottom view of the head of the clipper with the lower clamping-plate and movable handle removed, the figure representing the head of the clipper with the cutting-plates placed in position. Fig. 4 represents a bottom view of the head with the clamping-plate and the two cutting-plates removed, a portion of the head being shown in sectional view in order to disclose the interior of the chamber containing the spring by which the movable handle is actuated and the means for adjusting the tension of the actuating-spring. Fig. 5 is a central sectional view on line 5 5, Fig. 2. Fig. 6 is a sectional view of the clamping-plate shown on line 6 6, Fig. 2; and Fig. 7 is a detached view of the lever for actuating the movable plate, showing the actuating-spring, by which the lever is moved in one direction, and the means for varying the tension of the actuating-spring, the latter being shown in sectional view.

Similar letters refer to similar parts in the different figures.

My invention relates to the construction and application of the actuating-spring to the movable handle of the clipper; to an improved method of retaining the stationary cutting-plate in position; to means for applying a pressure to the outer surfaces of the cutting-plates near their cutting edges or at the base of the cutting-teeth, whereby the cutting-teeth are held in contact during the operation of the machine, and also to the method by which the movable handle is journaled in the head of the machine.

The several features of construction and arrangement of parts which embody my present invention are fully described in the following specification, and are clearly pointed out in the annexed claims.

The hair-clipper embodying my invention and represented in the accompanying drawings comprises a head A with a fixed handle A′, preferably integral therewith, a fixed or stationary cutting-plate B, attached to the head A, a movable cutting-plate B′, capable of a short reciprocating motion as actuated by the movable handle C, which is journaled within the head A, and provided with an actuating-lever C′, extending over the movable cutting-plate and having a downwardly-projecting prong C^2, entering a mortise in the movable cutting-plate in the usual manner in machines of this class.

The stationary cutting-plate B is held from longitudinal movement by the short studs a' a', projecting from the surfaces a a and entering holes near the rear edge of the stationary cutting-plate B.

The forward or toothed edge of the stationary cutting-plate bears against the lower side of the movable cutting-plate B′, while the rear edge of the stationary cutting-plate overlaps a boss G^2, formed upon the under side of the movable handle, so that the rear edge of the stationary cutting-plate is only supported at its center in order to secure an equal pressure along the entire length of its cutting edge without requiring an accurate alinement of the surface supporting the rear edge, as would be the case if the rear supporting-surface extended entirely across the stationary plate.

The movable cutting-plate B′ is placed upon the upper surface of the stationary cutting-plate and between the stationary cutting-plate and a lip D, formed upon the head A and entering a groove D′ upon the upper side of the movable cutting-plate.

The stationary cutting-plate is held in position by a clamping-plate E, which is preferably formed from sheet metal having its sides and rear edge turned up and having its front edge E^2 bearing against the under side of the stationary cutting-plate upon a line nearly opposite the lip D. The upturned sides E^3 of the clamping-plate E extend over and inclose the end of the stationary cutting-plate, while the rear and upturned edge E^4 rests against the under side of the head, as shown at E^5, Fig. 5.

The central section of the clamping-plate

E is provided with an elongated hole E^6 to receive a clamping-bolt F, which passes up through the movable handle C and head A and receives upon its upper end a nut F', bearing upon the upper surface of the head, whereby the clamping-plate E may be drawn toward the head A, causing a pressure to be applied at the front edge E^2 of the clamping-plate against the lower or stationary cutting-plate B, nearly opposite the lip D, causing the two cutting-plates B and B' to be pinched between the edge of the lip D and the front edge E^2 of the clamping-plate E, thereby applying the pressure to the cutting-plates immediately behind the base of the cutting-teeth to hold the opposing surfaces of the cutting-plates in close contact and prevent the cut hair from working between the cutting-plates.

The head A, which is formed in the shape of an arched or dome-shaped shell, is provided with a central interior tubular boss G to receive and form a bearing for the boss G', formed upon the upper side of the movable handle. Upon the under side of the movable handle is a short boss G^2, extending downward into contact with the rear edge *b* of the stationary cutting-plate B, serving as a fulcrum for the cutting-plate B as pressure is applied thereto by the clamping-plate E, as already described.

The movable handle C is journaled within the head A by means of the boss G', projecting from the upper side of the handle and turning within the hollow boss G, depending from the head A.

The movable handle C is provided with an arm H, projecting from one side of the handle and preferably bifurcated at the end to receive a screw-threaded bolt H', pivotally connected to the arm H and carrying a nut H^2, to which is attached one or more coils of the inner end of a closely-wound spiral spring I.

The outer end of the spring I is attached by one or more of its coils to a disk which is provided with a flange J' at its edge and a diametrical slot J^2, adapted to receive a screw-driver in order to rotate the disk and its connected spring and nut.

The head A is extended upon the rear side and directly beneath the fixed handle A' to form a tubular shell or case K, inclosing a chamber K' to receive the spring I.

The flange J' bears against the end of the shell K in order to hold the disk J from longitudinal movement against the spring I, which in the operation of the machine tends to pull the disk J within the chamber K' when the handles of the clipper are brought toward each other. The coils of the spiral spring I are wound close together or in contact with each other, and as the opposite ends of the spring I are attached to the nut H^2 and the disk J the movement of the movable handle C in the direction of the arrow 1, Fig. 4, will impart an angular movement to the arm H, carrying the nut H^2 in the direction of the arrow 2, Fig. 4, expanding the coils of the spring and causing the motion of the movable handle when released to be reversed by the tension of the spring.

If it is desired to increase the tension of the spring, the disk J is rotated by means of a screw-driver applied to the slot J^2, thereby rotating the spring I and the attached nut H^2 and expanding the coils of the spring I by screwing the nut upon the bolt H'.

It has been common to reverse the motion of the movable handle of a hair-clipping machine by means of a spring having its tension applied to the movable handle in various ways. For example, a flat blade-spring has sometimes been placed between the movable and fixed handles of the machine, a torsional spring has been applied to the movable handle, and spiral push-springs have been placed between the fixed and movable handles.

I am also aware that a spiral push-spring has been employed to reverse the motion of the movable handle with the spring held within the head of the clipper and acting against an arm, projection, or shoulder formed upon the movable handle, but the spiral push-spring must of necessity be wound with its coils open or separated, and when such a spring is applied to the movable handle within the head of the clipper it requires a longer spring and correspondingly larger chamber to contain it than I deem it advisable to use; and my present invention therefore, so far as it relates to the handle-actuating spring, has for one of its objects to allow a closely-wound spiral pull-spring to be used in place of an openly-wound or spiral push-spring. This form of spring, in addition to being more compact, also permits a greater variation in its tension for the reason that the amount of variation possible in a push-spring is limited by the space between the coils. The application of a closely-wound or pull spring to an arm H, as described, also allows the spring-chamber K', inclosed within the shell K, to be located at the rear of the head instead of at one side and directly beneath the fixed handle A, so as to be hidden from view from above, making the clipper more sightly in appearance. The variation in the tension of the spring is accomplished by the movement of the nut H^2 along the screw-threaded bolt H', requiring no change in the position of the disk J, which closes the open end of the shell K.

The clamping-plate E, I prefer to stamp out of sheet-steel, making an elastic plate which is capable of yielding slightly to the clamping-bolt F and thereby imparting a slightly-yielding pressure to the cutting-plates B and B'.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A hair-clipper, having a movable cutting-plate, a stationary cutting-plate held by the framework of the clipper, a movable handle operatively connected with said movable cutting-plate, an arm projecting from said movable handle, a screw-threaded bolt pivotally connected with said arm, a nut carried on

said bolt, a spiral spring with one end attached to said nut, a rotating disk attached to the opposite end of said spring, said disk being held from longitudinal movement, substantially as described.

2. A hair-clipper having a head A provided with a lip D bearing upon the movable cutting-plate, a movable cutting-plate, a stationary cutting-plate, a clamping-plate with its edge bearing against said stationary cutting-plate opposite said movable cutting-plate and in the plane of said lip and means for applying pressure to said clamping-plate, substantially as described.

3. A hair-clipper having a head, stationary and movable cutting-plates, a clamping-plate with its forward edge arranged to bear against said stationary cutting-plate and with its rear edge resting against said head and means for applying pressure to said clamping-plate, substantially as described.

4. A hair-clipper having a head, movable and stationary cutting-plates, a clamping-plate with its forward edge bearing against said stationary cutting-plate and with its rear edge bearing against said head, and a clamping-bolt and nut by which said clamping-plate is drawn toward the head, and pressure applied to said stationary cutting-plate in the plane of the forward edge of said clamping-plate, substantially as described.

5. The hair-clipper having a head, a movable cutting-plate, a stationary cutting-plate, with its forward edge bearing against said movable cutting-plate and with its rear edge supported at its central section only, in order to secure an equal pressure along the entire length of its forward edge, and means for applying pressure to said stationary cutting-plate, substantially as described.

6. A hair-clipper having a head, a tubular boss depending from said head, a movable handle provided with a boss journaled in said tubular boss, and having a boss G^2 projecting from the under side of said movable handle, a stationary cutting-plate having its rear edge bearing at its central section on said boss G^2, a movable cutting-plate held between said stationary cutting-plate and said head and means for applying pressure to said stationary cutting-plate, substantially as described.

7. A hair-clipper having stationary and movable cutting-plates and a clamping-plate E having its forward edge bearing against the central section of said stationary cutting-plate and having its rear edge bearing against said head and having its side edges upturned to inclose the ends of said stationary cutting-plate, substantially as described.

Dated this 27th day of November, 1893.

GEORGE H. COATES.

Witnesses:

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EMMA KESTER.