(No Model.)

# G. H. COATES.

## HAIR CLIPPERS.

No. 551,617. Patented Dec. 17, 1895.

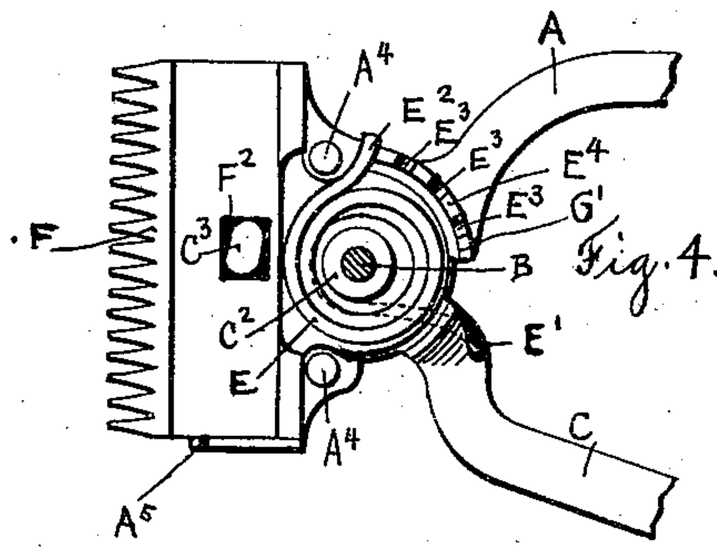


Fig. 4.

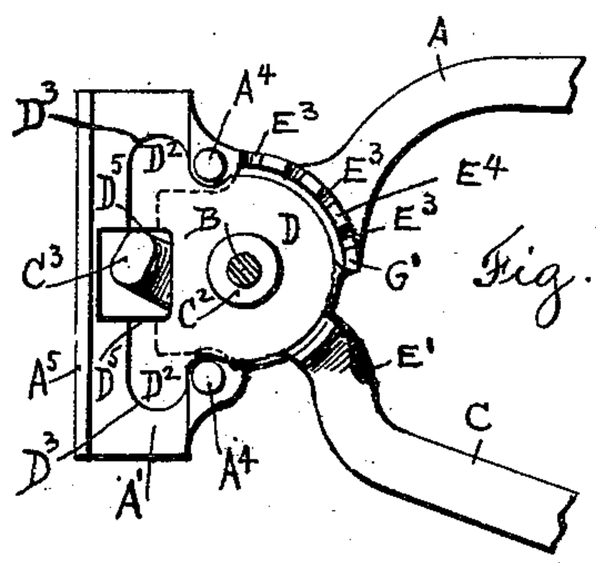


Fig. 5.

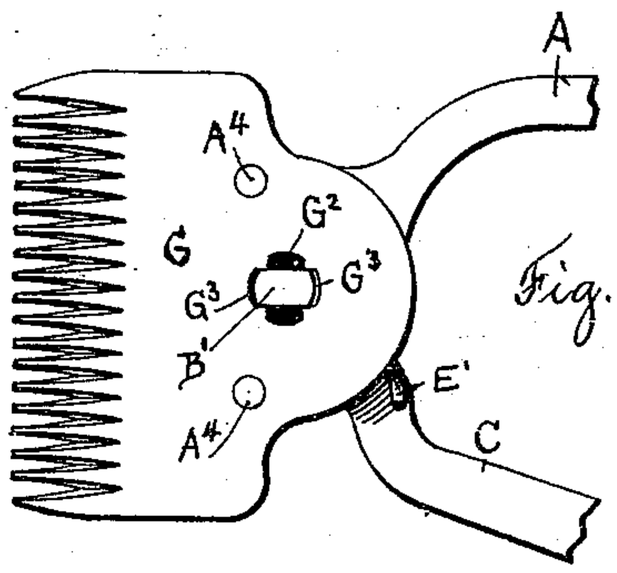


Fig. 3

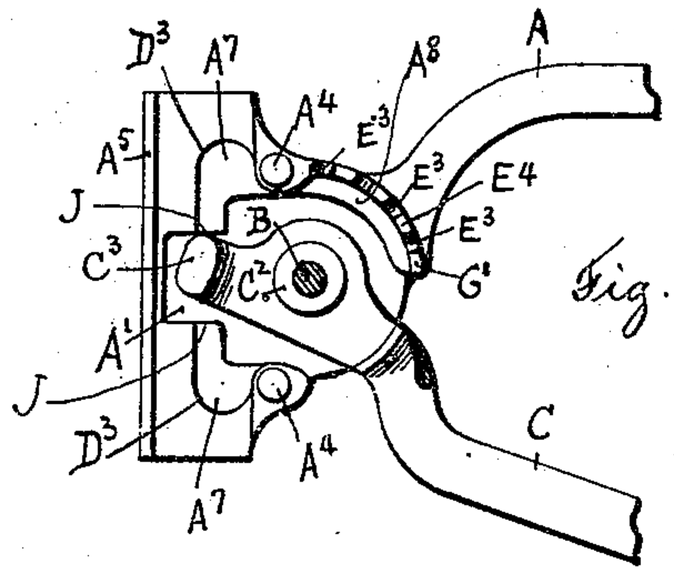


Fig. 6.

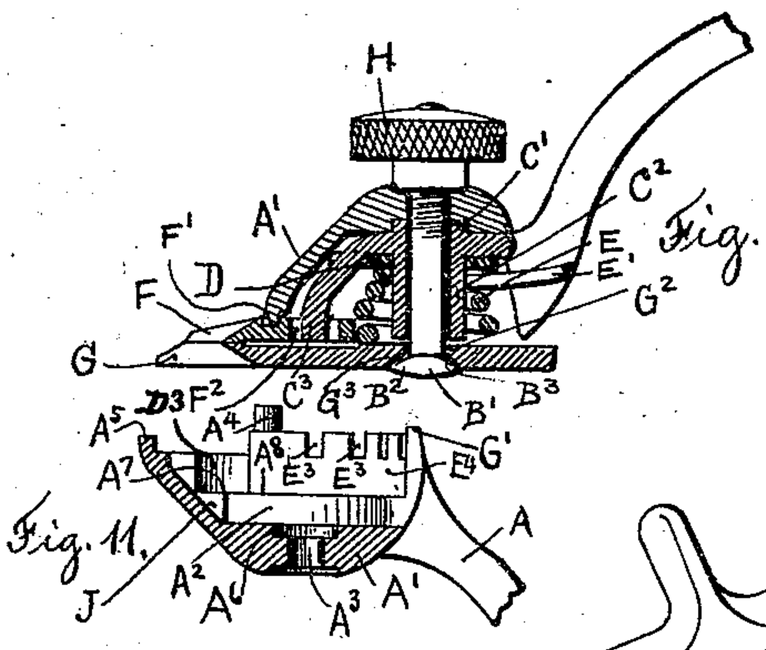


Fig. 11.

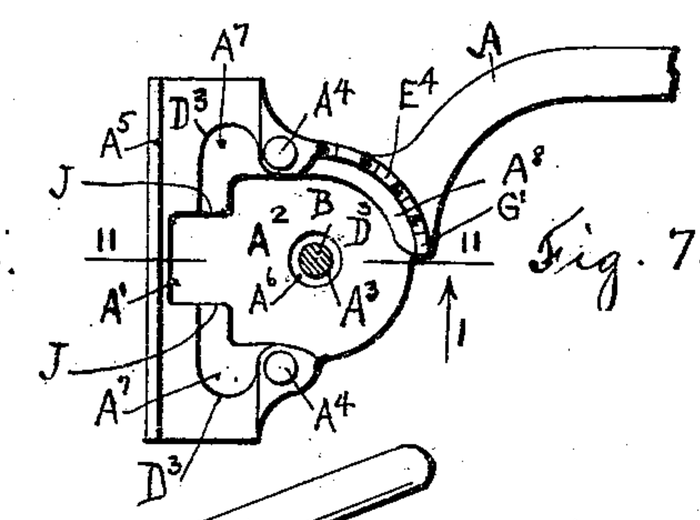


Fig. 7.

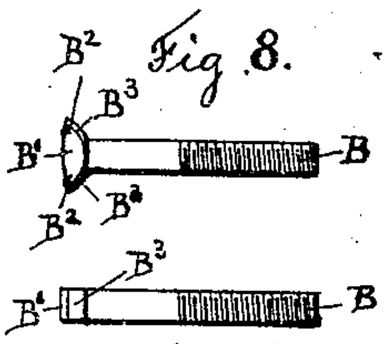


Fig. 8.

Fig. 9.

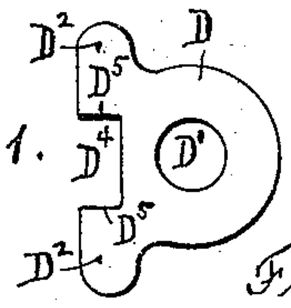


Fig. 1.

Fig. 10.




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# UNITED STATES PATENT OFFICE.

GEORGE H. COATES, OF WORCESTER, MASSACHUSETTS.

## HAIR-CLIPPERS.

SPECIFICATION forming part of Letters Patent No. 551,617, dated December 17, 1895.

Application filed April 29, 1893. Serial No. 472,380. (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 forming a part of the same, in which—

Figure 1 represents a top view of a hair-clipper embodying my invention. Fig. 2 is a central sectional view on line 2 2, Fig. 1. Fig. 3 represents a bottom view. Fig. 4 is a bottom view with the lower or stationary cutting-plate removed and showing the movable cutting-plate and the coiled actuating-spring. Fig. 5 is a bottom view with both the stationary and movable cutting-plates and actuating-spring removed. Fig. 6 is a bottom view of the fixed and movable handles. Fig. 7 is a bottom view of the fixed handle with the operating parts of the clipper removed. Figs. 8 and 9 represent the tightening-bolt by which the stationary cutting-plate is attached to the fixed handle. Fig. 10 is a view of the washer by which the movable handle is held in position; and Fig. 11 represents a central sectional view of the head on line 11 11, Fig. 7, in the direction of the arrow 1.

Similar letters refer to similar parts in the different figures.

My invention relates to certain improvements in hair-clippers for barbers' use, having for its object to secure greater efficiency of operation and simplicity of construction; and it consists in the several features of construction hereinafter described, and specifically pointed out in the annexed claims.

The hair-clipper forming the subject of my invention, like those now in general use, comprises a fixed handle having one end expanded to form a head, to which the stationary plate is attached, and within which the operating parts of the machine are housed; a movable or lever handle, by which the movable cutting-plate is moved in one direction; an actuating-spring with its tension applied to the movable handle for the purpose of reversing its motion and that of the movable cutting-plate; stationary and movable cutting-plates, and means for clamping the movable and stationary cutting-plates together, and the operation of these several parts is similar to that of hair-clipping machines now in common use, my present invention relating to certain changes in the details of construction by which I secure several advantages, as hereinafter set forth.

Referring to the drawings, A denotes the fixed handle having one end expanded or enlarged to form the head A′, which is chambered upon its under side, as represented at $A^2$, Fig. 7, to receive the operating parts of the machine. The head A′ is provided with a central hole $A^3$ to receive the tightening-bolt B, spurs $A^4$ $A^4$ entering holes in the stationary cutting-plate, and at the front edge with a lip $A^5$, adapted to enter a longitudinal groove in the upper side of the movable cutting-plate. The head is also provided with an annular recess $A^6$ counterbored concentrically with the hole $A^3$ and also with the plane surfaces $A^7$, $A^7$, and $A^8$ lying in the same plane and forming seats for a plate or washer D, by which the movable handle is held. The movable handle C is provided with an annular boss C′, fitting the annular recess $A^6$, and upon the opposite or lower side with an annular boss $C^2$, upon which is placed a plate or washer D, Fig. 10. The washer D is provided with a circular hole D′, fitting the boss $C^2$ and forming one of the bearings for the movable handle, and also with the wings $D^2$ $D^2$, provided with rounded ends fitting the semicircular recesses $D^3$, which are milled in the head A′ to hold the washer D with the center of the hole D′ coincident with the axis of the movable handle C. The wings $D^2$ rest upon the seats $A^7$ $A^7$ and the rear edge of the plate D rests upon the seat $A^8$. The forward edge of the plate D is provided with a notch $D^4$, through which the curved arm $C^3$ of the movable handle passes and the notch is made long enough to allow a limited angular motion to the movable handle C, the edges $D^5$ $D^5$ serving as stops to limit the movement of the handle.

Upon the plate D and around the annular boss $C^2$ is a coiled spring E having one end E′ bearing against the movable handle C and the opposite end $E^2$ held in one of the notches $E^3$, formed in the lower edge of the curved

wall $E^4$ on the head A′, so the tension of the spring will be applied to hold the movable handle at one end of its angular movement.

The movable cutting-plate F is provided with a longitudinal groove F′ to receive the lip $A^5$ upon the forward edge of the head, the lip serving as a guide to control the movement of the cutting-plate F in a straight line. The cutting-plate F is provided with a rectangular opening $F^2$ to receive the end of the curved arm $C^3$ of the movable handle, by which a reciprocating motion is imparted to the cutting-plate F, in one direction, as the handles are brought together by the operator, and in the opposite direction by the action of the coiled spring E.

A stationary cutting-plate G is attached to the head A′ by the tightening-bolt B and nut H. The stationary plate at its forward section bears against the under side of the movable cutting-plate and at its rear edge the plate G rests upon a spur G′, which allows the pressure which is applied to the stationary cutting-plate, by tightening the bolt B, to be distributed equally throughout the length of the movable cutting-plate. The bolt B is provided with a head B′, consisting of the two wings $B^2$ $B^2$, which are inserted through the opening $G^2$ in the stationary cutting-plate and are then turned at right angles with the opening to engage the plate. The sides $B^3$ $B^3$ next the plate G are curved and bear against curved seats $G^3$, formed in the stationary cutting-plate, so as to allow a slight rocking motion of the bolt-head, in order to maintain an equal pressure upon both wings, in case the stationary cutting-plate is not at right angles with the axis of the bolt. A milled nut H is applied to the upper end of the bolt B, which passes through the hole in the movable handle, made slightly larger than the bolt, so that the movable handle will not bear upon the bolt B, but upon the annular boss C′ turning in the recess $A^6$ and upon the annular boss $C^2$ turning within the hole D′ in the plate D. By loosening the nut H and turning the bolt B one-quarter of a revolution, so as to bring the wings $B^2$ in alignment with the opening $G^2$, the stationary cutting-plate G, the movable cutting-plate F, the coiled spring E, the washer D and the movable handle C can all be removed from the machine, rendering all the operating parts easily accessible, for the purpose of sharpening, or repairing, and greatly facilitating the assembling of the parts together during the process of manufacture.

The coiled spring E is preferably wound in a helical form so the smallest coil will fit the annular boss $C^2$, and the largest coil will rest upon the stationary cutting-plate G, the spring being so wound that the smallest coil will bear against the under side of the plate D and the largest will bear against the upper side of the stationary cutting-plate, so that when the stationary cutting-plate is held in position by the bolt B the coiled spring will serve to hold the washer D in the position shown in sectional view in Fig. 2.

I have described the washer D as provided with the opposing edges $D^5$ $D^5$ arranged to serve as stops to limit the angular motion of the movable handle C; but it will be obvious that shoulders J J can be formed in the head A′ which will perform the same function, the object being to provide stops to limit the angular motion of the movable handle C and the reciprocating movement of the movable cutting-plate.

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

1. The combination with stationary and movable cutting plates, of a fixed handle, enlarged at one end to form a head A′, said head being chambered to receive the operating parts of the clipper, a stationary plate as D, held in said head, a movable handle inclosed between said plate and said head, and having a boss C′ journaled in said head and a boss $C^2$ journaled in said plate, said movable handle engaging said movable plate, substantially as described.

2. The combination with a head A′ chambered to form a housing for the operating parts of the machine, and provided with the recesses $D^3$, $D^3$ and seats $A^7$, $A^7$ and $A^8$, of a plate D provided with wings $D^2$, $D^2$ fitting said recesses and having an opening D′ and a movable handle C having a boss held in the opening D′, substantially as described.

3. The combination with a head A′, having seats to receive a stationary plate, of a stationary plate as D, a movable handle held between said head and said stationary plate, a movable cutting plate engaged by said movable handle, a stationary cutting plate attached to said head, and a coiled spring interposed between said stationary cutting plate and said stationary plate D, whereby said plate D is held against the seats formed in the head A′, substantially as described.

4. The combination of the head A′ provided with seats for a plate, or washer D, a plate, or washer, held in said seats, a stationary cutting plate attached to said head and a coiled spring held between said stationary cutting plate and said plate, or washer, whereby said plate, or washer, is held against its seats and a movable handle provided with a boss journaled in said plate, or washer, substantially as described.

5. The combination of a fixed handle, a movable handle pivoted in said fixed handle, a plate, or washer held by said fixed handle and provided with a bearing for said movable handle and having a notch to receive the actuating arm of the movable handle, and with the stops $D^5$, $D^5$, by which the motion of the movable handle is limited, substantially as described.

6. The combination with a fixed handle, provided with a head A′ and with stationary and movable cutting plates, of a plate D held in said head, a movable handle inserted be-

tween said plate D and said head and engaging the movable cutting plate, a bolt B extending through said stationary cutting plate and said head, a tightening nut H held on said bolt and a coiled spring placed between said plate D and said stationary cutting plate and concentrically with the axis of the movable handle, said spring being operatively connected with said movable handle so its tension will be applied by a torsional strain to actuate said movable handle, and said spring, and having its tension applied in the line of its axis to hold said plate D in position, substantially as described.

Dated this 21st day of April, 1893.

GEORGE H. COATES.

Witnesses:
RUFUS B. FOWLER,
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