

No. 621,673.

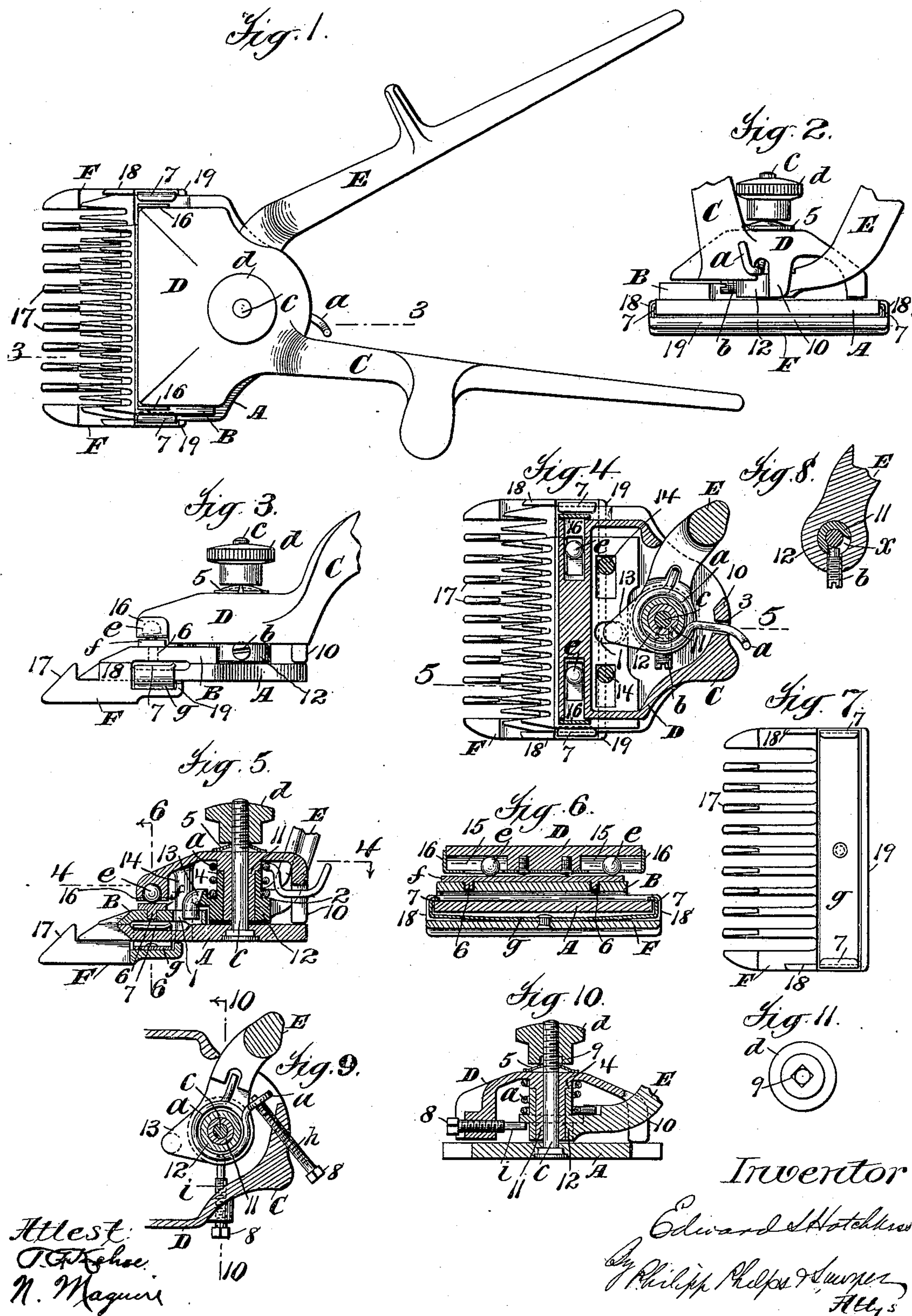
Patented Mar. 21, 1899.

E. S. HOTCHKISS.

CLIPPER.

(Application filed May 2, 1898.)

(No Model.)



UNITED STATES PATENT OFFICE.

EDWARD S. HOTCHKISS, OF BRIDGEPORT, CONNECTICUT.

CLIPPER.

SPECIFICATION forming part of Letters Patent No. 621,673, dated March 21, 1899.

Application filed May 2, 1898. Serial No. 679,445. (No model.)

To all whom it may concern:

Be it known that I, EDWARD S. HOTCHKISS, a citizen of the United States, residing at Bridgeport, county of Fairfield, and State of Connecticut, have invented certain new and useful Improvements in Clippers, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

10 The object of the present invention is to provide an improved construction of clipper, and especially to provide an improved toilet hair-clipper which shall be simple in construction while easy and efficient in operation and so arranged that the clipper may readily be assembled and disassembled for renewal of parts or other purposes.

15 The invention relates particularly to the construction and arrangement of the operating-handles and actuating-spring and to an improved ball-bearing for securing the desired ease of movement and includes also an improved guard-plate construction and various specific features of construction and combinations of parts in a clipper, all of which will be fully described hereinafter and specifically pointed out in the claims.

20 As a full understanding of the invention can best be given by a detailed description of a construction embodying the same, such a description will now be given in connection with the accompanying drawings, showing a toilet hair-clipper embodying all the features of the invention in the preferred form and a modified construction, in which—

25 Figure 1 is a plan view of the clipper in its preferred form. Fig. 2 is a rear edge view of the same. Fig. 3 is a side view of the same. Fig. 4 is a section on the line 4 of Fig. 5. Fig. 5 is a section on the line 5 of Fig. 4. Fig. 6 is a section on the line 6 of Fig. 5. Fig. 7 is a top plan view of the guard-plate detached from the clipper. Fig. 8 is a detail section hereinafter referred to. Fig. 9 is a partial horizontal section similar to Fig. 4, showing a modified construction of the handles and operating-spring. Fig. 10 is a section of this modification on the line 10 of Fig. 9. Fig. 11 is a bottom plan view of the friction-nut shown in Fig. 10.

30 Referring now particularly to the construction shown in Figs. 1 to 8, A is the bottom or

stationary comb-plate. B is the top or movable comb-plate. C is the stationary handle carrying the housing or cap D, E the movable handle, and F the detachable guard-plate. 55 The housing D upon the stationary handle C bears upon the top of the stationary plate A by the rear foot or downward projection 10 and upon the movable plate B by the ball-bearing presently to be described, and this housing is provided with a depending sleeve 11, which is encircled by and forms the bearing for the sleeve 12 on the movable handle E, this sleeve 12 having the usual projecting 65 arm 13 engaging the movable comb-plate B in the slot 1, so as to actuate the latter by the movable handle. The sleeve 11 is preferably formed with a shoulder 4, against which the sleeve 12 abuts. The outside diameter of the sleeve 11 above the shoulder 4 is preferably 70 equal to that of the sleeve 12. The sleeve 12 is provided with a shoulder 2, and upon this shoulder is seated the operating-spring *a*, which is coiled about the sleeves 12 and 11, 75 and this spring *a* has one of its ends secured to the movable handle, as by entering an opening therein, as shown in Fig. 4, and its other end is bent downward and outward, so as to project from under the rear side of the housing D, the edge of the housing being provided with a notch 3, in which the end of the spring is held when the spring is under tension, as shown in Fig. 2. By forcing the end of the spring *a* downward out of the notch 3 the 85 tension will be relieved by the end of the spring moving to the left on the lower surface of the wall of the housing, so that the handles and spring may readily be disassembled, as the spring is not under tension. In assembling the handles and spring the tension is 90 put upon the spring after the handles are assembled by forcing the end of the spring to the right until it catches in the notch 3, so that the handles are assembled complete and 95 under tension when separate from the plate A.

I preferably secure the two handles C and E together independently of their connection with the stationary plate, so that after the handles are assembled with the spring a single complete construction with no loose parts or risk of accidental separation is provided, which single construction is then completed by the addition of the movable and station- 100

ary comb-plates. In the construction shown in Figs. 1 to 8 a screw *b* is projected through the sleeve 12 of the movable handle E and enters a groove *x* in the sleeve 11, which groove is made of such length as to permit the operating movement of the movable handle C. The two handles, with the spring inclosed between the movable handle and the housing D, are held against separation when the screw *b* is forced in, as shown in Fig. 8, while by withdrawing this screw *b* from the groove *x* in the sleeve 11 the movable handle and spring may readily be removed downward from the sleeve 11 on the housing D when the stationary comb-plate A is removed. It will be understood that this feature of securing the handles together when assembled with the spring is not essential, although very convenient and forming a specific feature of the invention. Any other suitable means may be used for securing this result. A screw construction is preferably used, however. After the handles and the housing D have been assembled and secured together, as described, if such securing means are employed the movable comb-plate B and the stationary comb-plate A are added and the handles secured thereto by placing the movable comb-plate in position, with the guide-pins 14 on the housing passing through the guide-slots in the movable comb-plate, as usual in such constructions and as shown in Fig. 4, and into openings in the stationary comb-plate for the purpose of relatively positioning the housing and the stationary comb-plate and with the arm 13 on the movable handle entering the slot 1. The pressure-bolt *c* is then passed upward through the stationary plate and sleeve 11 and the parts secured together with the desired pressure of the front edge of the housing, which forms the pressure-plate of the clipper, upon the movable comb-plate B by the pressure-nut *d*, screwed upon the upper end of the pressure-bolt *c*, so as to bear upon the top of the housing D, a spring-washer 5 preferably being interposed between the nut *d* and the housing D, so as to secure a yielding pressure upon the movable comb-plate B, as usual in such constructions.

It will be understood that with the construction thus far described the front edge of the housing D, which forms a pressure-plate, may bear directly upon the top of the comb-plate B, or any suitable construction of bearing-plate or antifriction devices may be employed; but I preferably use the improved ball-bearing construction shown, which in itself forms a part of the invention and may be used with clippers of other construction and whether the pressure on the movable comb-plate is secured by a cap separate from the other parts of the clipper or forming a part of the stationary handle, as shown. In this improved ball-bearing construction the pressure-plate formed by the edge of the housing D is of sufficient thickness to form run-

ways for antifriction-balls and is milled out or bored in any suitable manner, being preferably, as shown, bored inward from the opposite ends a sufficient distance to form the channels or runways 15, in which are placed antifriction-balls *e*. For the purpose of holding the balls in said runways suitably, while permitting the transmission of the pressure upon the housing to the movable comb-plate B through these balls, I employ a plate 16, which forms the bottom of the runways 15 and is provided with slots of sufficient width to allow the balls to project through the under side of the plate, but too narrow to permit the balls to pass through the slots, so that the balls are held in the runways 15, but projecting below the plate 16. The plate 16 is a spring-plate and may be secured to the housing in any suitable manner, being shown as secured to the central part of the housing by screws, and is preferably formed and secured so that its ends are under spring-tension upward, the ends thus being disconnected from the block but firmly held by the upward spring-pressure of the plate. The ends of the plate may thus be bent down to permit balls to be inserted or removed from the ends of the channels without detaching the plate 16. The plate 16 also is preferably turned up at its opposite ends, so as to close the ends of the runways 15, as shown; but the balls may be held in the channels only by the ends of the slots in the plate 16. The balls *e* may rest directly upon the upper side of the movable comb-plate B, the latter being formed in any suitable manner so as to secure durability; but I preferably use a removable bearing-plate *f* between the balls and the comb-plate B, so that in case of wear this bearing-plate may readily be removed and another plate substituted. The bearing-plate *f* is shown as secured to the movable comb-plate B, so as to move therewith, by pins 6 on the under side of the bearing-plate entering holes in the comb-plate.

My improved guard-plate construction is shown detached in Fig. 7 and as applied to the clipper in Figs. 1 to 6. This guard-plate has the usual guard teeth or fingers 17 and is provided at opposite ends with rigid flanges 18, projecting upwardly from the end teeth and adapted to bear against the edges of the stationary comb-plate F, so as to hold the guard-plate rigidly in position sidewise of the clipper. Behind the flanges 18 the guard-plate is provided with a spring, which in the form shown consists of a plate-spring *g*, secured to the guard-plate, centrally of the latter, and having its opposite ends provided with upwardly and inwardly turned flanges 7, which overlap the top of the stationary comb-plate A, the spring being so arranged that when the guard-plate is in place upon the stationary comb-plate A the ends of the spring are under tension, tending to pull the guard-plate upward against the stationary comb-plate, so as to hold the guard-plate in

place. Any other suitable form of spring acting in the same manner may be used. The guard-plate is readily attached to the clipper by forcing the stationary plate under the int
 5 turned flanges 7 of the spring *g* and pressing the guard-plate into position on the stationary plate, the stationary plate pulling the ends of the spring upward as the guard-plate moves into position, and thus securing the pull upon
 10 the upper face of the stationary plate A, which holds the guard-plate in position upon the clipper and against accidental displacement or removal therefrom. The guard-plate may readily be removed by simply pull
 15 ing the guard-plate and stationary plate apart, so as to draw the stationary plate rearward and out from under the intumed flanges 7. It will be seen that the guard-plate may be used with clippers having stationary comb
 20 plates of different thicknesses, the spring being self-adjusting to that end.

The spring *g* is shown as seated in a longitudinal recess in the guard-plate, so that the body of the spring *g* lies below the level of
 25 the top surface of the teeth 17 and of the rib 19, forming the rear edge of the guard-plate, and entirely out of the way in moving the guard onto the comb-plate A. It will be understood, however, that this is not necessary,
 30 although it is preferred, as placing the spring below the level of the surface over which the stationary plate A moves when the guard-plate is being placed in position upon the clipper and providing in a convenient man
 35 ner the space desired for the movement of the ends of the spring-plate *g* to secure the desired spring action as the stationary plate A and guard-plate F are forced together and without recessing the plate A.

40 In Figs. 9 to 11 I have shown a modified construction employing an adjusting-screw for increasing or decreasing the tension of the spring *a* and a modified arrangement of the means for holding the handles together.
 45 In this construction the arrangement of the handles and spring is the same as in the construction shown in Figs. 1 to 6 and above described, but the end of the spring *a* instead of being carried outside the housing and ar
 50 ranged to be thrown into and out of tension directly by hand is connected within the housing to an adjusting-screw *h*, tapped through the housing, so that by the action of this screw the tension of the spring *a* may be
 55 thrown on or off for assembling and disassembling and may be adjusted as desired. In this construction the handles are secured together when assembled with the spring *a* between them by a screw *i*, which is tapped
 60 through the side of the housing D and takes under a flange on the sleeve 12, so that the parts are held together by this screw when it is screwed in so as to engage the flange, and the parts may readily be separated by with
 65 drawing the screw from engagement with the flange in the same manner as with the construction employing the screw *b*, as above de-

scribed. The screws *h i* may be provided with heads of any suitable form, but a very convenient construction is provided, avoid
 70 ing the use of any tools apart from the clipper for actuating the screws by forming the screws with angular heads or nuts 8 and providing the friction-nut *d* with an angular recess 9 at its end, so that this nut *d* may be
 75 used to turn the screws *h i* for the adjustment of the spring *a* and the securing of the handles together and their release.

It will be understood that I am not to be limited to the details of the construction
 80 shown as embodying my invention, but that the invention includes many modifications that may be made in these constructions by those skilled in the art without departing from the invention.

What I claim is—

1. The combination with the stationary and movable comb-plates of a clipper, of a stationary handle separate from the stationary
 90 comb-plate and having its body portion provided with a downwardly-extending sleeve, a movable handle having its body portion journaled on and outside of said sleeve of the stationary handle, an operating-spring coiled about said sleeve between the station
 95 ary handle and the movable handle, and a bolt extending through the sleeve of the stationary handle for holding the handles on the stationary comb-plate, substantially as described.

2. The combination with the stationary and movable comb-plates of a clipper, of a stationary handle separate from the stationary
 100 comb-plate and having its body portion provided with a downwardly-extending sleeve, a movable handle having an upwardly-extending sleeve journaled on and outside of said sleeve of the stationary handle, an operating-spring coiled about said sleeves between the
 105 stationary handle and the movable handle, and a bolt extending through the sleeve of the stationary handle for holding the handles on the stationary comb-plate, substantially as described.

3. The combination with the stationary and
 115 movable comb-plates of a clipper, of a stationary handle separate from the stationary comb-plate and having its body portion provided with a downwardly-extending bearing for the movable handle, a movable handle
 120 having its body portion journaled on and outside of said bearing, a coiled operating-spring located between the stationary handle and the movable handle, and means for holding the handles on the stationary comb-plate,
 125 substantially as described.

4. The combination with the stationary and movable comb-plates of a clipper, of a stationary handle having its body portion provided with a downwardly-extending sleeve
 130 which forms a bearing for the movable handle, a movable handle journaled on said bearing, a coiled operating-spring located between the stationary and movable handles, means

for holding the handles on the stationary comb-plate, and means for holding said handles together when separate from the comb-plate, substantially as described.

5 5. The combination with the stationary and movable comb-plates of a clipper, of a stationary handle having its body portion provided with a sleeve which forms a bearing for the movable handle, a movable handle jour-
10 naled on said bearing, and a pin extending from one handle over a bearing-surface on the other handle to hold the stationary and movable handles together, substantially as described.

15 6. The combination with the stationary and movable comb-plates of a clipper, of a movable handle, a stationary handle, a housing carried by the stationary handle and having a downwardly-extending sleeve forming a
20 bearing for the movable handle, an operating-spring coiled about said sleeve between the movable handle and the housing, means for holding the movable handle on said sleeve, and means for holding said housing on the
25 stationary comb-plate, substantially as described.

7. The combination with the stationary and movable comb-plates of a clipper, of a stationary handle, a housing carried by the sta-
30 tionary handle and having a downwardly-extending sleeve, a movable handle having its body portion provided with an upwardly-extending sleeve journaled on said sleeve of the housing, an operating-spring coiled about said
35 sleeves between the movable handle and the housing, a bolt passing upward through the stationary comb-plate and sleeves and a pressure-nut on said bolt, substantially as described.

40 8. The combination with the stationary and movable comb-plates of a clipper, of a stationary handle, a housing carried by the stationary handle and having a downwardly-extending sleeve, a movable handle having
45 its body portion provided with an upwardly-extending sleeve journaled on said sleeve of the housing, means for holding the handles together, an operating-spring coiled about said sleeves, and a pressure-bolt passing
50 through said sleeve and the stationary comb-plate, substantially as described.

9. The combination with the stationary and movable comb-plates of a clipper, of a movable handle, a stationary handle, a housing
55 carried by the stationary handle, a pressure-bolt for securing the housing to the stationary comb-plate and about which the movable handle oscillates, and an operating-spring coiled about said bolt between the housing and the
60 movable handle, said spring having one of its ends bent downward and outward to project from under the rear side of the housing, substantially as described.

10. The combination with the stationary
65 and movable comb-plates of a clipper, of a movable handle, a stationary handle, a housing carried by the stationary handle, a pres-

sure-bolt for securing the housing to the stationary comb-plate and about which the movable handle oscillates, an operating-spring
70 coiled about said bolt between the housing and the movable handle, said spring having one of its ends bent downward and outward to project from under the rear side of the housing, the rear side of the housing being
75 formed with an opening for said end of the spring having a notch to hold said end of the spring when the spring is under tension, substantially as described.

11. The combination with the stationary
80 handle, housing, and movable handle of a clipper, of a coiled operating-spring between the housing and movable handle having one of its ends connected to the movable handle and its other end bent downward and out-
85 ward to project from under the lower edge of the housing, substantially as described.

12. The combination with the stationary and movable comb-plates of a clipper, of a pressure-plate having a ball-channel, an anti-
90 friction-ball in said channel through which pressure is transmitted to the movable comb-plate, and a spring ball-retaining plate secured to the pressure-plate, substantially as described.

13. The combination with the stationary and movable comb-plates of a clipper, of a pressure-plate having a ball-channel, an anti-
95 friction-ball in said channel through which pressure is transmitted to the movable comb-plate, and a spring ball-retaining plate secured to the pressure-plate having an opening of less width than the diameter of the ball, said spring retaining-plate being se-
100 cured to the pressure-plate at one side only of the ball-channel and under tension to hold the ball in the channel, substantially as described.

14. The combination with the stationary and movable comb-plates of a clipper, of a
110 pressure-plate having two ball-channels 15 in line, antifriction-balls in said channels, and a separate ball-retaining plate 16 secured to the pressure-plate between the channels 15 and free at its ends, substantially as de-
115 scribed.

15. The combination with the stationary and movable comb-plates of a clipper, of a pressure-plate having two ball-channels 15 in
120 line, antifriction-balls in said channels, and a spring ball-retaining plate 16 secured to the pressure-plate between the channels 15 and having its ends free and turned up to close the channels 15, substantially as described.

16. The combination with the stationary and movable comb-plates of a clipper, of a pressure-plate having two ball-channels 15 in
125 line, antifriction-balls in said channels, and a separate ball-retaining plate secured to the pressure-plate, substantially as described.

17. The combination with the stationary comb-plate of a clipper, of a removable guard-plate and a spring carried by the guard-plate

and provided with flanges engaging the top of the stationary comb-plate to draw the guard-plate upward against and transversely to the comb-plate, said guard-plate having in its upper face a recess of greater depth than the thickness of the spring and in which the spring is placed, whereby the spring is allowed to yield vertically in said recess below the comb-plate, substantially as described.

18. The combination with the stationary comb-plate of a clipper, of a removable guard-plate having end positioning-flanges and a spring carried by the guard-plate and having a vertically-yielding spring portion below the comb-plate and engaging the top of the comb-plate to draw the guard-plate upward against and transversely to the comb-plate, substantially as described.

19. The combination with the stationary comb-plate of a clipper, of a removable guard-plate having end positioning-flanges and having its upper face recessed longitudinally, and a spring secured in the recess of the guard-plate and adapted to yield vertically in said recess and having its ends provided with upwardly and inwardly turned flanges which engage the ends of the comb-plate to draw the guard-plate upward against the comb-plate, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

EDWARD S. HOTCHKISS.

Witnesses:

ALFRED B. BEERS,
CARL FOSTER.