

No. 621,674.

Patented Mar. 21, 1899.

E. S. HOTCHKISS.

CLIPPER.

(Application filed May 2, 1898.)

(No Model.)

Fig. 1.

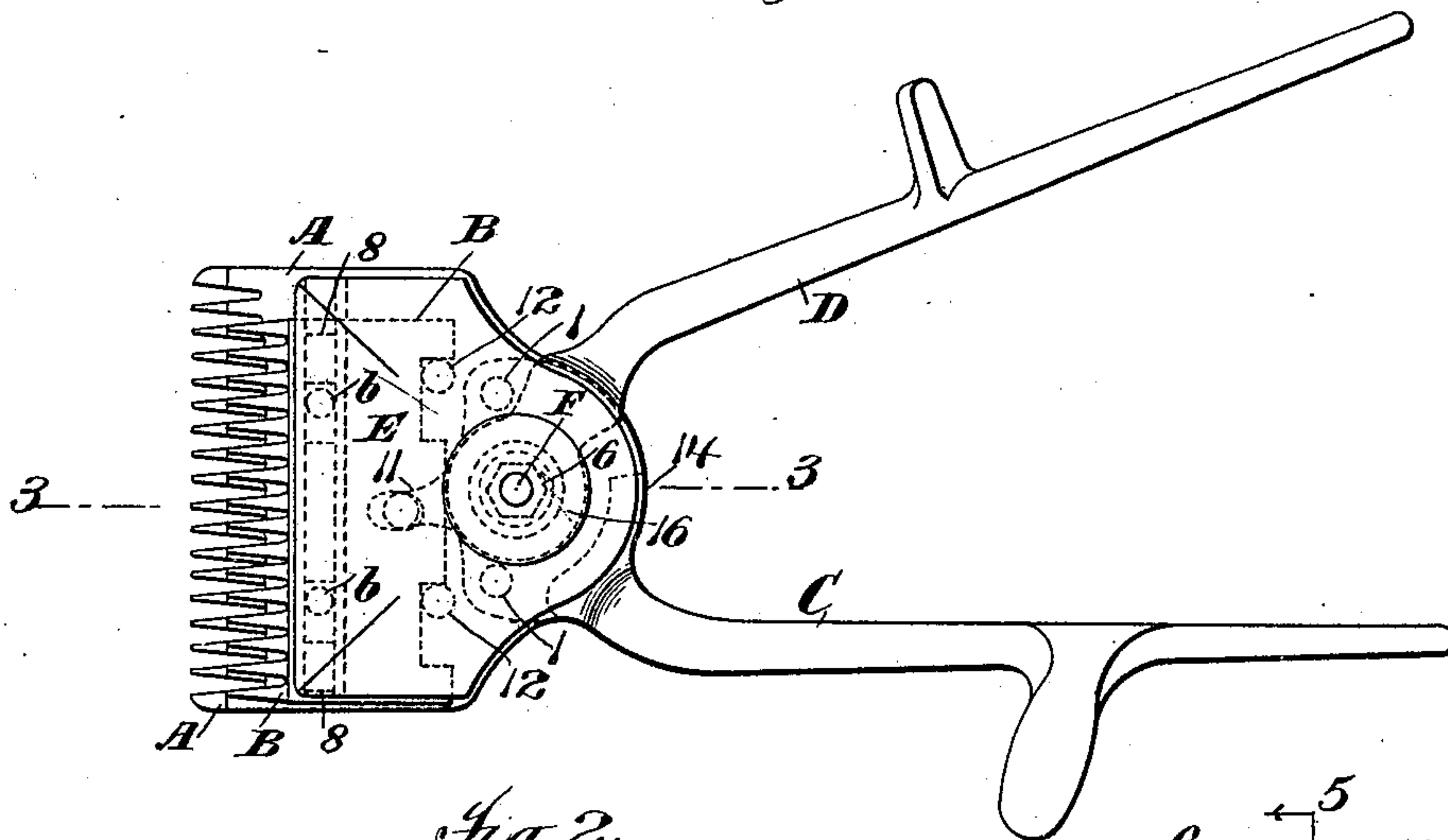


Fig. 2.

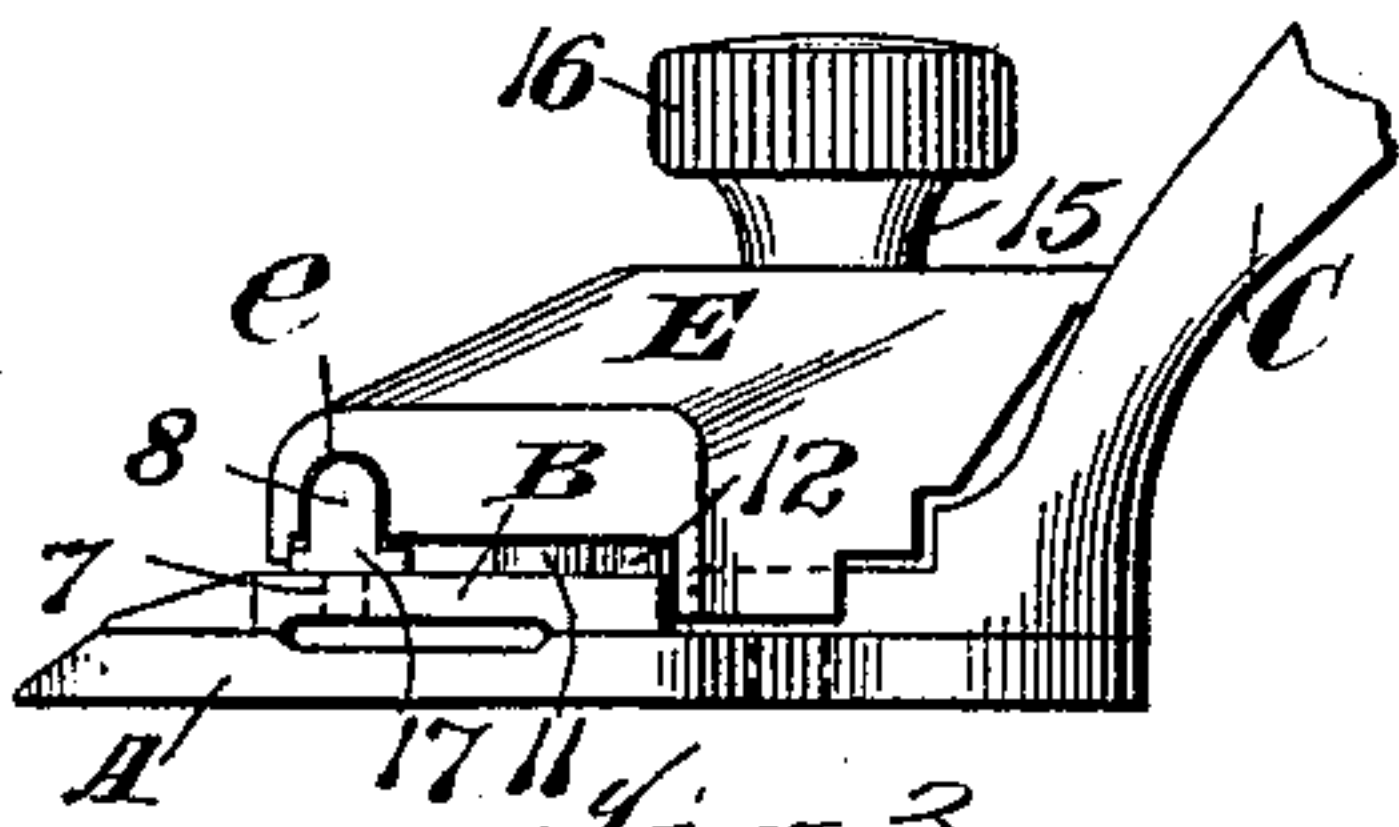


Fig. 3.

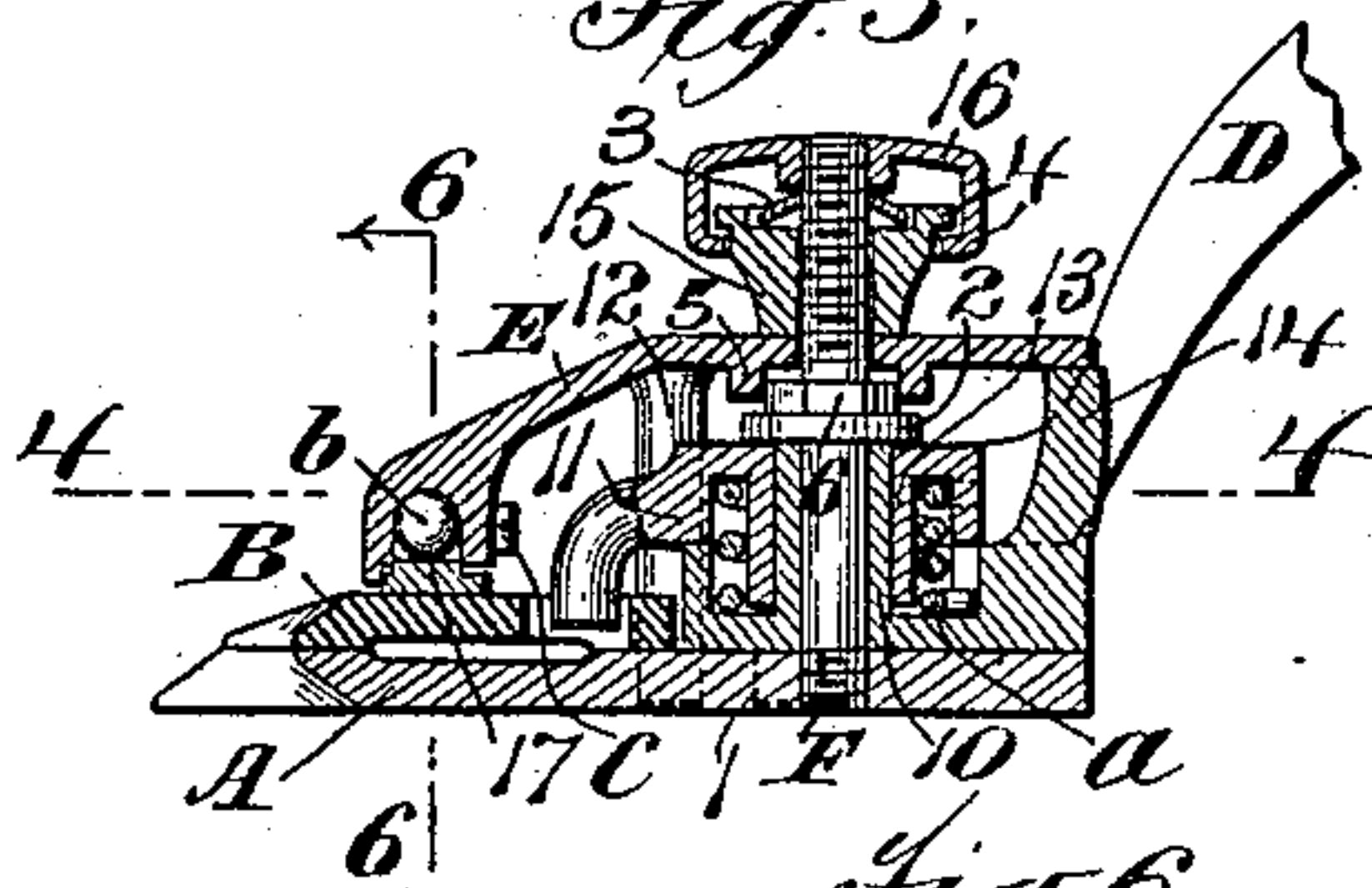


Fig. 4.

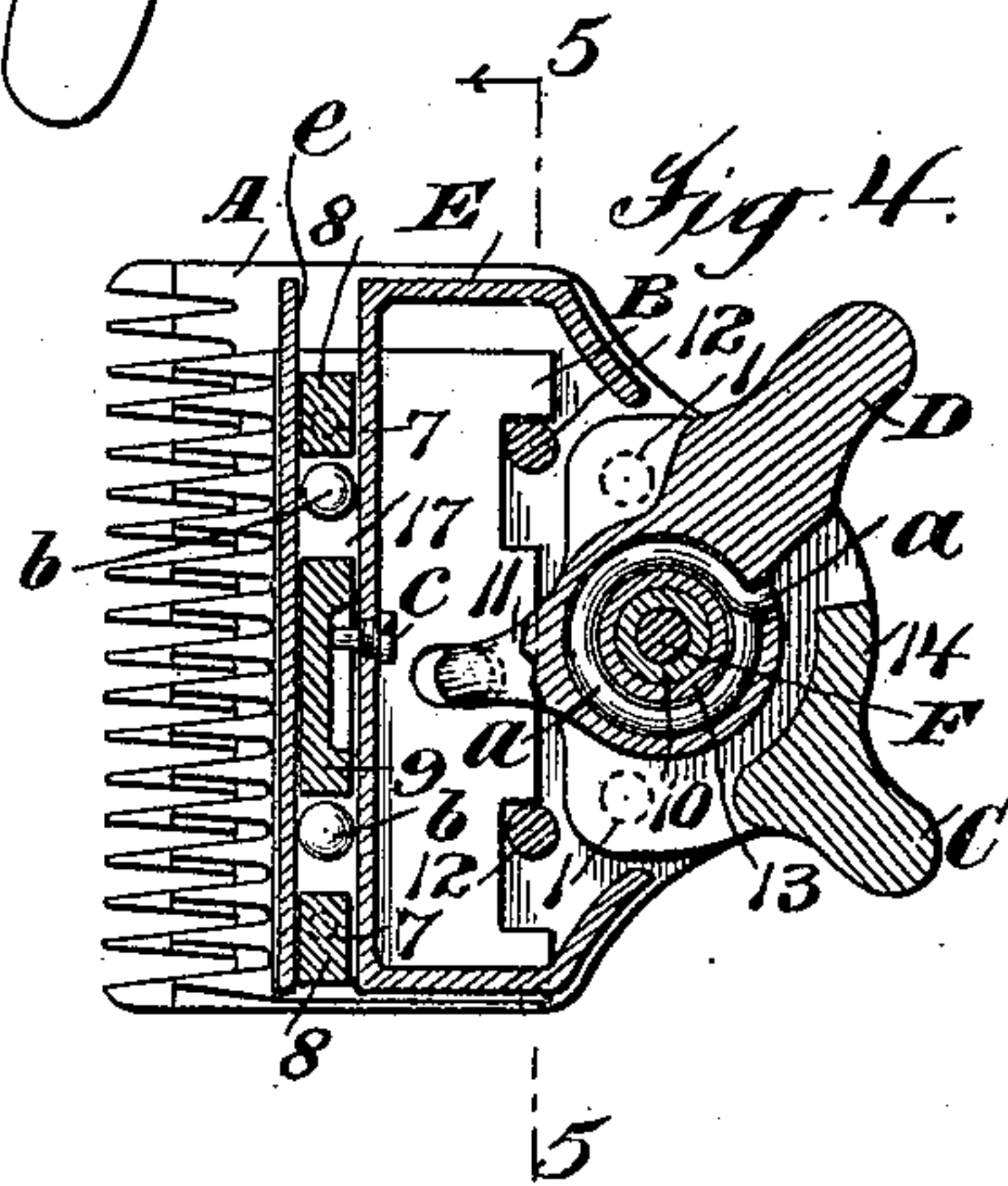


Fig. 5.

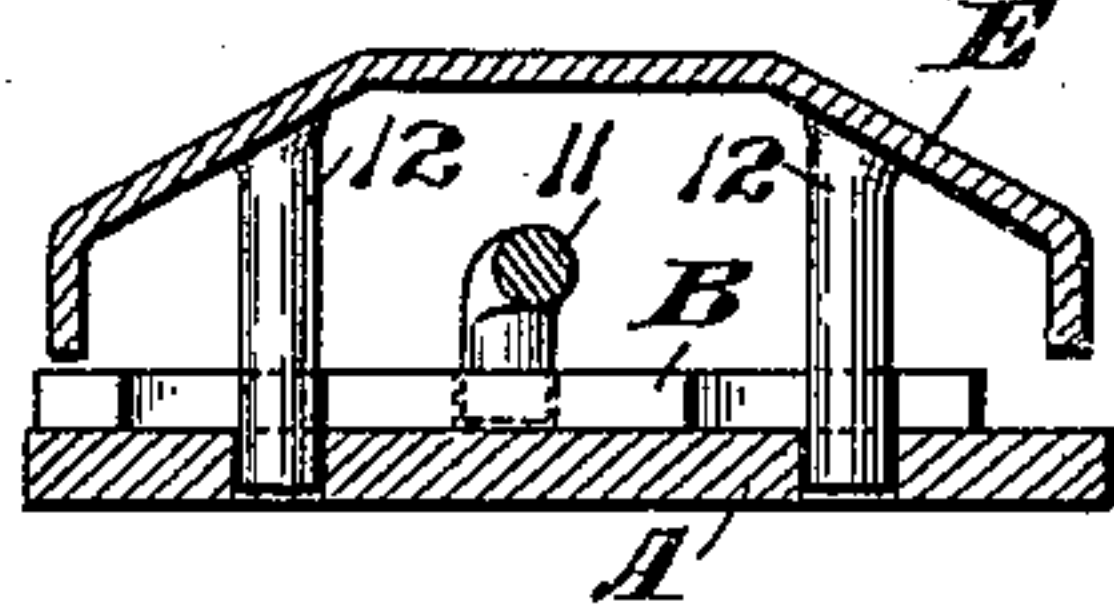


Fig. 6.

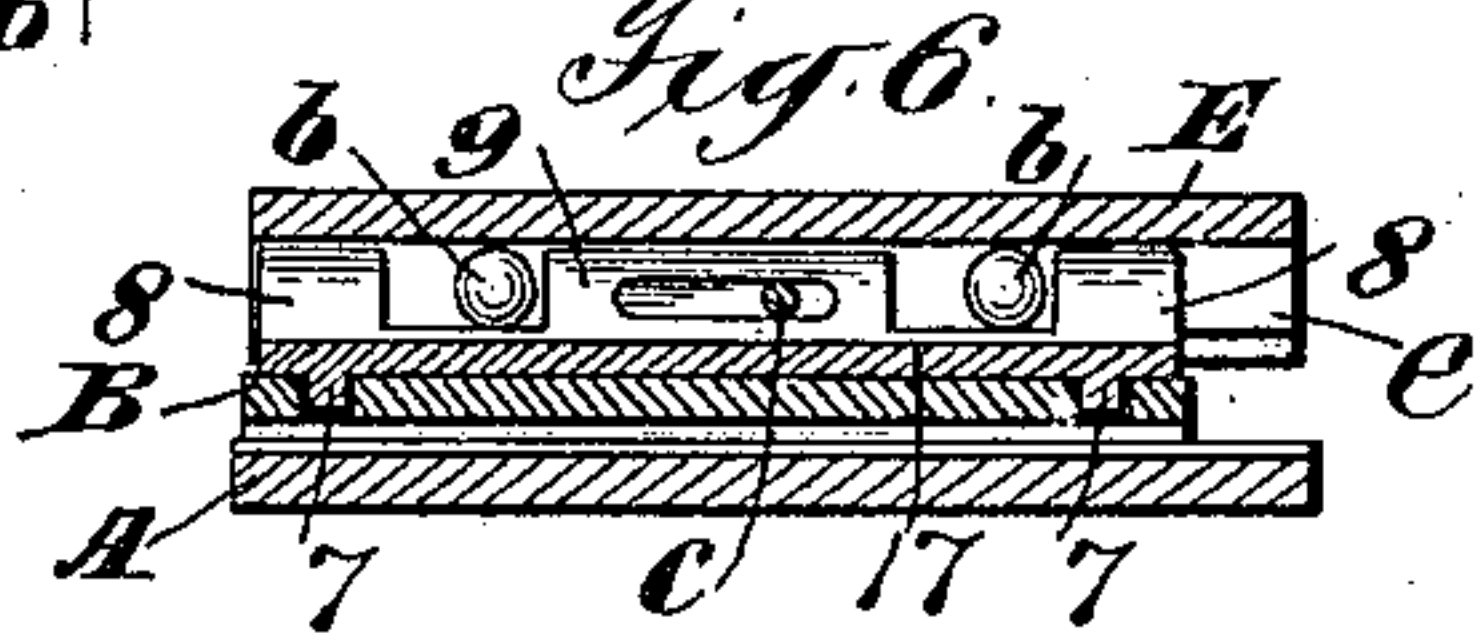
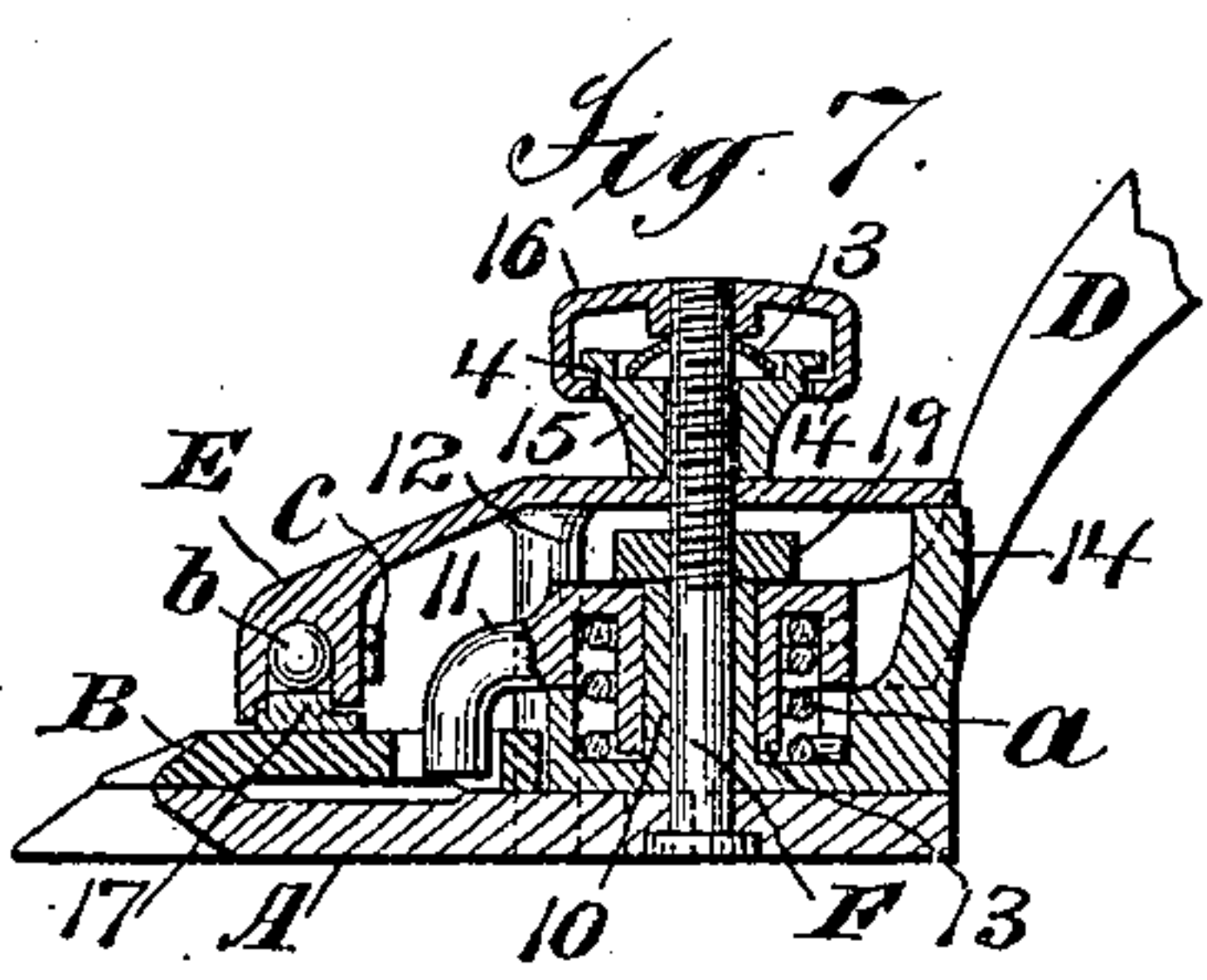


Fig. 7.



Attest:
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Attys

UNITED STATES PATENT OFFICE.

EDWARD S. HOTCHKISS, OF BRIDGEPORT, CONNECTICUT.

CLIPPER.

SPECIFICATION forming part of Letters Patent No. 621,674, dated March 21, 1899.

Application filed May 2, 1898. Serial No. 679,446. (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.

The object of the present invention is to provide an improved construction of clipper.

The invention relates especially to improvements by which a toilet hair-clipper is provided that is simple in construction while easy and efficient in operation and so arranged that adjustment of the parts is convenient and that the clipper may readily be assembled and disassembled for renewal of parts or other purposes.

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, and the features forming the invention will then be specifically pointed out in the claims.

In said drawings, Figure 1 is a plan view of the clipper in its preferred form. Fig. 2 is a side view of the same with the handles broken away. Fig. 3 is a section on the line 3 of Fig. 1. Fig. 4 is a section on the line 4 of Fig. 3. Fig. 5 is a section on the line 5 of Fig. 4. Fig. 6 is a section on the line 6 of Fig. 3. Fig. 7 is a section similar to Fig. 3, showing a modified construction embodying certain features of the invention.

Referring now to the construction shown in Figs. 1 to 6, A is the bottom or stationary comb-plate. B is the top or movable comb-plate. C is the stationary handle. D is the movable handle, and E the cap, by which the parts are covered and the requisite pressure transmitted to the movable comb-plate B. The cap E is preferably formed with downwardly-extending sides, as usual, to protect the parts beneath and to give a finished appearance to the clipper. The body of the stationary handle C carries two studs 1, which pass through openings in the bottom comb-

plate, so as to hold this handle against turning on the pressure-bolt F, which in the construction now being described passes freely through a sleeve 10, projecting upwardly from the body of the stationary handle C, and is screwed down into the bottom comb-plate A. The movable handle D is provided with the usual operating-arm 11, carrying a stud which enters the usual slot in the top of the movable comb-plate B for moving the latter, and the usual guide or stop pins 12, carried by the cap E and passing through slots in the rear edge of the movable plate and holes in the bottom plate A, are shown, the cap thus being held in proper position on the bottom plate. The body of the movable handle D is preferably milled out on the under side, as shown, to form a circular groove, the inner wall of which forms a sleeve 13, inclosing the stationary sleeve 10, and thus forming a long bearing for the movable handle, and within the groove formed partially in the body portion of the movable handle and partially in the body portion of the stationary handle, so as to be inclosed, is placed the coiled operating-spring *a*, one end of which is secured to the movable handle and the other to some stationary part of the construction, preferably to the stationary handle, as shown, the ends of the spring being simply passed through openings in the respective handles or otherwise secured thereto, as usual in this class of constructions. It will be understood, however, that it is not essential to the present invention that the spring be inclosed, although this is preferable. When the two handles are assembled with the stationary plate, therefore, the sleeve 13 incloses the sleeve 10 and the latter forms a bearing for the movable handle and the two handles are secured to the bottom stationary plate A by the pressure-bolt F, which in the construction now being described is screwed into the plate A until the fixed collar 2 on the pressure-bolt is seated upon the top of the sleeve 10 of the stationary handle, this sleeve 10 projecting slightly above the movable handle, so as to avoid pressure of the collar 2 upon the movable handle and permit the latter to move freely. These parts are then held firmly together by the pressure-bolt F, and the twisting of the handle C upon the bottom plate is

prevented by studs 1 passing through the openings in the latter on the opposite sides of the pressure-bolt.

In the construction shown, in which the opening in the plate 13 for the stud on operating-arm 11 is closed at the rear, the movable comb-plate B is put in place before the handles are thus secured to the stationary plate A; but if this opening extends through the rear edge of the plate B, as is also common, it will be understood that the movable plate B may be slipped into place after the handles and bottom plate are thus assembled.

The cap E rests upon bearing-surfaces 14, formed on the stationary handle rearward of the pressure-bolt F, so as to secure the required leverage for the pressure of its front edge upon the top of the movable comb-plate B, an antifriction ball-bearing device being preferably employed, which ball-bearing device will be fully described hereinafter and forms a part of the present invention, although it will be understood that other features of the invention may be employed with the front edge of the cap E bearing directly upon the top of the comb-plate B or with an antifriction-bearing of any other suitable form. The cap E is pressed downward, so as to secure the desired spring-pressure upon the movable comb-plate B, by a spring-washer nut upon the upper end of the pressure-bolt F, which may be of any suitable form. I have devised, however, an improved spring-washer nut, which is preferably used. In this nut construction the bearing-piece 15, or lower part of the nut, moves freely up and down on the screw portion of the bolt F above the cap E, and between the bearing-piece 15 and the nut proper, 16, above it is inserted a spring-washer 3, the nut 16 pressing against the upper side of the spring-washer 3, so as to secure the spring-pressure desired. I preferably use a hub on the nut bearing on the washer and seat the washer within a recess in the top of the bearing-piece 15, as shown; but these features may be omitted. The upper edge of the bearing-piece 15 and the lower edge of the rim of nut 16 are provided with flanges 4, projecting, respectively, outwardly and inwardly from the portions on which they are formed, so as to overlap and thus hold the two parts of the spring-washer nut together, while at the same time permitting movement of the parts on each other longitudinally of the pressure-bolt F. This construction provides a very simple and efficient spring-washer pressure-nut construction, in which there are no loose parts to be displaced or lost.

In the construction now being described, in which the pressure-bolt holds the handles on the stationary plate independently of the pressure of the cap, I preferably provide the cap E with a downwardly-projecting hub 5 on its under side, having an angular opening which fits over a corresponding angular collar 6 on the pressure-bolt F, so that by the seating of this hub upon the collar 6 the bolt

is held positively against rotation as the friction-nut is turned down and the proper adjustment of the parts assured. It will be seen that in this construction the single bolt F secures all the parts together and forms the pressure-bolt, and this bolt passes through the bearing of the movable handle, so that the latter oscillates about it. A very efficient and durable construction is thus secured and the assembling and disassembling of the parts is convenient.

Referring now to the ball-bearing construction, which is preferably used, the cap E is provided on the under side of its forward or pressure edge with a groove or channel *e*, extending longitudinally of the comb-plates—that is, in the line of movement of the movable comb-plate—this channel preferably being formed by thickening the edge of the cap suitably and milling the channel through the edge. This channel is open on its under side and receives a ball-carriage 17, provided on its underside with pins 7, entering holes in the top of the movable comb-plate B, so that the ball-carriage 17 moves with the comb-plate B. This ball-carriage 17 is provided with end blocks 8 and a center block 9, which form between them runways for the balls *b*, these runways extending in the line of movement of the movable comb-plate and being of such length as to secure the proper action of the balls *b* as the carriage moves in the channel of the cap with the movable comb-plate.

The ball-carriage 17 is preferably secured to the cap E, so as to form a single part therewith for convenience in assembling and disassembling of all parts and especially to avoid misplacement or loss of the balls. I secure this result, while at the same time permitting the free movement of the ball-carriage 17 in the channel of the cap, by providing a groove in the center block 9 of the carriage, which is entered by a screw *c*, which is tapped through the rear wall of the channel in the cap, so that this screw holds the ball-carriage 17 and the balls *b* in the cap when the latter is removed. The ball-carriage and balls may be readily detached from the cap by removing the screw *c*. It will be seen that in this construction the bottom plate of the ball-carriage 17 forms a bearing-plate which supports the pressure of the cap E, transmitted through the balls *b*, so that there is no wear upon the top of the movable comb-plate B, with the result that in case of wear on account of the ball action the movable comb-plate need not be renewed, but it is necessary only to renew the ball-carriage 17 or its bottom plate. The ball-carriage 17, moving in the groove or channel *e*, also serves to guide the comb-plate in its movement, the blocks 8 9 forming with groove or channel *e* a guiding tongue-and-groove connection between the movable comb-plate and the pressure-plate formed by the edge of the cap E. This feature of a guiding tongue-and-groove connection between a clipper pressure-plate and the movable comb-

plate may be used without balls or other anti-friction-bearings, and is thus claimed.

In Fig. 7 I have shown a construction employing a modified arrangement of the pressure-bolt and other parts of the construction. This construction is the same as previously described except that the pressure-bolt F is passed upward through the bottom plate A and sleeve 10, being provided with a head seated in a recess in the under side of the bottom plate A, and the handles are secured together and to the bottom plate A by a nut 19, screwed downward upon the pressure-bolt F, which is screw-threaded inside the cap E for this purpose, this nut 19 thus performing the functions of the collar 2 on the pressure-bolt F of the construction previously described.

In both constructions shown in the drawings and above described it will be seen that the stationary handle is pressed upon the stationary plate A by the cap E pressing upon the bearing-surfaces 14. This is not absolutely essential in these constructions, in which the handles are held upon the stationary plate by means independent of the pressure-cap; but in such constructions in which the handles are held upon the stationary plate independently of the pressure-cap the latter may be arranged to bear upon any other suitable fixed part of the clipper. In constructions in which the pressure-cap bears upon the stationary handle, as in the constructions shown, the parts may be held together by the single bolt F acting through the pressure-cap, and while it is preferable to employ a collar or nut on the bolt F, by which the movable and stationary handles are held on the stationary comb-plate independently of the pressure-cap, as in the constructions shown, and this feature forms an important part of the invention, it is possible to omit this feature and secure fairly good results, the pressure of the cap E on the surfaces 14 of the stationary handle then holding the parts together, and the invention includes certain combinations in such constructions. If the collar or nut on bolt F be thus omitted, it will be understood that the cap E will not press upon the hub portion of the stationary handle, but will be separated from it a short distance, so as to permit the movable handle to move freely, but prevent the movable handle from working upward during operation.

It will be understood that other modifications may be made in the constructions shown without departing from the invention as defined by the claims, and I am not to be limited to the exact form or arrangement of any of the parts in the constructions illustrated.

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 plate, a movable handle, a pressure-cap separate from the stationary handle, a pressure-bolt about which the movable handle oscillates and forming the sole means by which all

the parts are held together vertically on the stationary comb-plate, and one or more studs fixed to the stationary handle and entering openings in the stationary plate to hold the stationary handle from turning, substantially as described.

2. The combination with the stationary and movable comb-plates of a clipper, of a stationary handle, a movable handle, a coiled operating-spring between the body portions of the stationary and movable handles, a pressure-cap, a pressure-bolt about which the movable handle oscillates and about which the operating-spring is coiled, and means whereby the stationary and movable handles are held on the stationary comb-plate by the bolt independently of the cap, substantially as described.

3. The combination with the stationary and movable comb-plates of a clipper, of a stationary handle, a movable handle, a pressure-cap, a bolt about which the body portion of the movable handle oscillates, means whereby the movable handle is held on the stationary comb-plate by the bolt independently of the cap, and a pressure-nut for said cap on said bolt, substantially as described.

4. The combination with the stationary and movable comb-plates of a clipper, of a stationary handle separate from the stationary comb-plate, a movable handle, a pressure-cap, a bolt about which the body portion of the movable handle oscillates, means whereby the stationary and movable handles are held on the stationary comb-plate by the bolt independently of the cap, and a pressure-nut for said cap on said bolt, substantially as described.

5. The combination with the stationary and movable comb-plates of a clipper, of a stationary handle, a movable handle, a pressure-cap, a pressure-bolt, and means whereby the stationary and movable handles are held on the stationary plate by the bolt independently of the pressure-cap, substantially as described.

6. The combination with the stationary and movable comb-plates of a clipper, of a stationary handle, a movable handle, a bolt passing through the stationary handle and having its lower end threaded to screw into the stationary comb-plate and having a collar by which the stationary and movable handles are held on the stationary comb-plate, a pressure-cap, and means for applying pressure to said cap, substantially as described.

7. The combination with the stationary and movable comb-plates of a clipper, of a stationary handle, a movable handle, a pressure-cap, a bolt having its lower end threaded to screw into the stationary comb-plate and about which the body portion of the movable handle oscillates, a collar on said bolt to bear on the body portion of the stationary handle, and a pressure-nut on said bolt above said collar to bear on the pressure-cap, substantially as described.

8. The combination with the stationary and

movable comb-plates of a clipper, of a movable handle having its body portion provided with a sleeve 13 extending downwardly from its body portion, a stationary handle separate
 5 from the stationary comb-plate and having its body portion provided with a sleeve 10 extending upwardly from its body portion and within and forming a bearing for the sleeve 13, whereby the movable handle may be drawn
 10 upwardly off the stationary handle, an operating-spring coiled about the sleeve 13, a pressure-cap separate from the stationary handle, and a pressure-bolt passing from the stationary plate through the sleeve 10 and pressure-
 15 cap and by which the stationary and movable handles are held on the stationary comb-plate, substantially as described.

9. The combination with the stationary and movable comb-plates of a clipper, of a movable handle having its body portion provided with a sleeve extending downwardly from its body portion, a stationary handle separate from the stationary comb-plate and having its body portion provided with a sleeve extending upwardly from its body portion, one
 25 of said sleeves being arranged within the other, whereby one of the sleeves forms a bearing for the other and the movable handle may be drawn upwardly off the stationary handle, a pressure-cap separate from the stationary handle, a bolt passing from the stationary comb-plate through said sleeves, and by which the stationary and movable handles are held
 30 on the stationary comb-plate, and a pressure-nut on said bolt to bear on the pressure-cap, substantially as described.

10. The combination with the stationary and movable comb-plates of a clipper, of a movable handle having its body portion provided with a sleeve, a stationary handle separate from the stationary comb-plate and having its body portion provided with a sleeve, one of said sleeves forming a bearing for the
 45 other, an operating-spring coiled about said sleeves, a pressure-cap, a bolt passing from the stationary plate through said sleeves, means for holding the stationary and movable handles on the stationary plate by said bolt
 50 independently of the pressure-cap, and a pressure-nut on said bolt to bear on the pressure-cap, substantially as described.

11. The combination with the stationary and movable comb-plates of a clipper, of a stationary handle, a movable handle, a pressure-cap, a bolt passing through said pressure-cap and screwed into a stationary part of the clipper, and a pressure-nut on said bolt outside the cap, said pressure-cap and bolt being
 60 formed to engage and hold the bolt by the cap to prevent the bolt turning when the cap is in position, substantially as described.

12. The combination with the stationary and movable comb-plates of a clipper, of a stationary handle, a movable handle, a pressure-cap, a bolt having its lower end threaded to screw into the stationary comb-plate, a col-

lar 2 on said bolt to bear on the stationary handle, an angular collar 6 on said bolt, a pressure-nut on said bolt above said collars
 70 to bear on the pressure-cap, and an angular opening in the under side of the cap into which the angular collar 6 extends to prevent the bolt turning when the cap is in position, substantially as described. 75

13. The combination with the movable comb-plate and pressure-plate of a clipper, of a ball-bearing device having a guiding-tongue rigid with one of said plates and entering a groove in the other plate, said tongue
 80 being formed in sections longitudinally, and antifrictional balls in said groove between the sections of the tongue, substantially as described.

14. The combination with the movable comb-plate and pressure-plate of a clipper, of a tongue detachably secured to and moving with the comb-plate and moving in a guiding-groove in the pressure-plate, substantially as described. 90

15. A pressure-cap for a clipper having a ball-carriage carried by but movably secured thereto and adapted to move with the movable comb-plate of the clipper, and antifriction-balls between the cap and the carriage,
 95 substantially as described.

16. The combination with the stationary and movable comb-plates of a clipper, of a pressure-cap, a ball-carriage carried by but movably secured to the cap in position to engage and move with the movable comb-plate, and antifriction-balls between the cap and the carriage, substantially as described. 100

17. The combination with the stationary and movable comb-plates of a clipper, of a pressure-cap having a channel extending longitudinally of the movable comb-plate, antifriction-balls in said channel through which pressure is transmitted from the cap to the movable comb-plate, and a removable part
 110 carried by the cap for retaining said balls in said channel, substantially as described.

18. The combination with the stationary and movable comb-plates of a clipper, of a pressure-cap having a channel extending longitudinally of the movable comb-plate, a ball-carriage extending into said channel between the side walls thereof and moving with the movable comb-plate, and antifriction-balls between the cap and the carriage in said channel,
 120 substantially as described.

19. The combination with the stationary and movable comb-plates of a clipper, of a pressure-plate having a channel extending longitudinally of the movable comb-plate, a ball-carriage secured to the plate to slide in said channel, and antifriction-balls between the plate and the carriage in said channel, substantially as described. 125

20. The combination with the stationary and movable comb-plates of a clipper, of a pressure-plate having a channel extending longitudinally of the movable comb-plate, a ball-carriage detachably secured to the plate 130

to slide in said channel, and antifriction-balls between the plate and the carriage in said channel, substantially as described.

21. The combination with the stationary
5 and movable comb-plates of a clipper, of a pressure-plate having a channel *e* extending longitudinally of the movable comb-plate, a ball-carriage 17 extending into said channel and engaging the movable comb-plate and
10 having end blocks 8 and a center block 9, antifriction-balls in said channel between the end blocks 8 and the center block 9 of the carriage, and a screw *c* extending into an elongated opening in the block 9 for securing
15 the carriage in said channel, substantially as described.

22. The combination with the stationary and movable comb-plates of a clipper, of a

pressure-plate having a channel *e* extending longitudinally of the movable comb-plate, a 20 ball-carriage 17 extending into said channel and having pins 7 extending into openings in the movable comb-plate, antifriction-balls between said carriage and the cap in said channel, means for holding the balls in posi- 25 tion longitudinally of the comb-plate, and means for securing the carriage to the plate, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing 30 witnesses.

EDWARD S. HOTCHKISS.

Witnesses:

ALFRED B. BEERS,
CARL FOSTER.