

(No Model.)

2 Sheets—Sheet 1.

C. CARLETON.
CLIPPERS.

No. 536,170.

Patented Mar. 19, 1895.

FIG. 1.

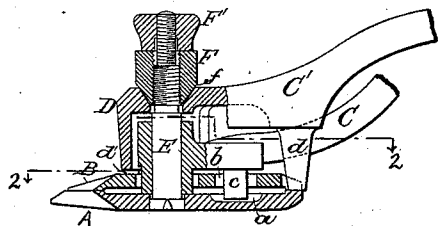


FIG. 12.

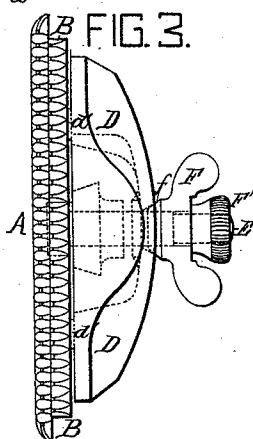
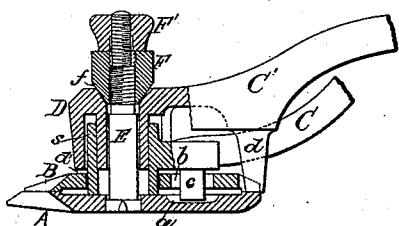


FIG. 2.

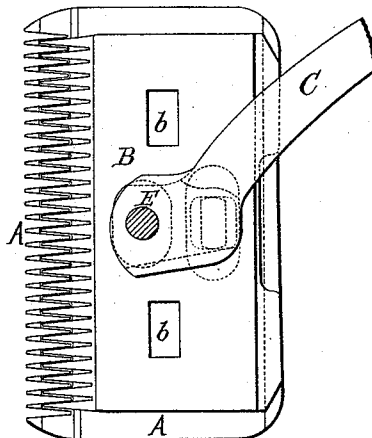


FIG. 4.

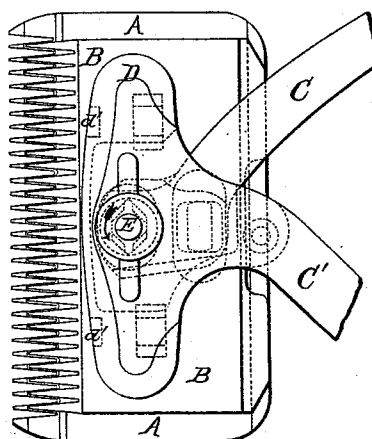
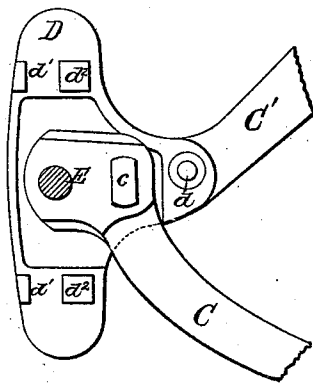


FIG. 5.



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FIG. 6.

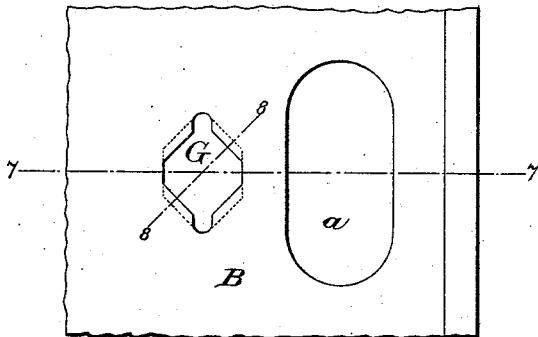


FIG. 8.

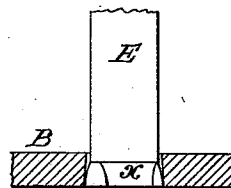


FIG. 9.

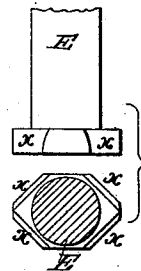


FIG. 7.

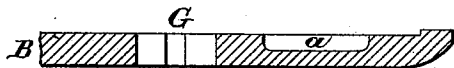


FIG. 10.

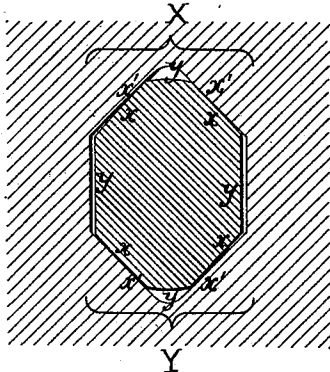
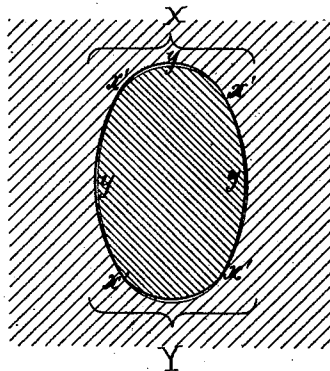


FIG. 11.



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CLIPPERS.

SPECIFICATION forming part of Letters Patent No. 536,170, dated March 19, 1895.

Application filed January 27, 1894. Serial No. 498,197. (No model.)

To all whom it may concern:

Be it known that I, CYRUS CARLETON, a citizen of the United States, and a resident of Providence, Providence county, Rhode Island, have invented Improved Clippers, of which the following is a specification.

My present invention relates more particularly to that class of clippers in which the same bolt or pin which serves as the pivot or fulcrum for the movable lever also serves to secure the several parts together.

In the accompanying drawings I have shown my improvements as applied to a clipper in which no spring is used, the movement of the reciprocating cutter in both directions being obtained by manipulation of the levers by hand, such clippers being usually of the class designated as "horse clippers."

The main object of my present invention is to produce a clipper with few parts, of very simple construction, and which can be economically manufactured, and yet be substantial and not liable to wear out quickly, and furthermore of such construction that the adjustment of the pressure of the cutting plates cannot be changed by the movement or jar of the several parts when the clipper is in use.

In the drawings, Figure 1 is a vertical section of my improved clipper. Fig. 2 is a sectional plan on the line 2—2, Fig. 1. Fig. 3 is a face view. Fig. 4 is a top or plan view. Fig. 5 is an under side view of the cap and operating lever detached. Fig. 6 is an enlarged view of a part of the bottom or comb-plate. Fig. 7 is a sectional view on the line 7—7, Fig. 6; Fig. 8 is a sectional view on the line 8—8, Fig. 6, showing the bolt in place. Fig. 9 shows the bolt head in side elevation, and sectional plan. Figs. 10 and 11 are sectional diagrams on a still larger scale; and Fig. 12 is a view similar to Fig. 1, but of a modification.

In the several figures in which the movable cutter is shown, it is intended to be represented about mid-way of its stroke.

In many of its features my present clipper is not unlike that illustrated in the Letters Patent granted to me July 1, 1885, No. 321,685. Like the clipper of that patent, it has a comb plate A, an upper reciprocating cutter plate B and movable handle C for operating the movable cutter plate and mounted to turn

about the central bolt E, which also serves to secure the cap or frame D to the comb plate, and so hold the several parts together, with the necessary pressure of the reciprocating cutter upon the fixed comb plate. The fixed handle or lever C' may be made in one with or affixed to the cap D. As will be seen more fully on reference to Fig. 1, the back part of this cap or frame D is provided with a bearing pin *d* adapted to rest upon the back edge of the comb plate A. On the lower face of this cap plate, at the extreme front edge, there are provided two bearing spots *d'* as shown in Figs. 3, 4 and 5, to bear with frictional contact upon the upper face of the reciprocating cutter B. Directly in line with these bearing spots, but a little distance behind them, there are provided upon the under side of the cap two pins *d²* preferably of rectangular form, as illustrated in Figs. 4 and 5. These pins pass through slots *b* in the reciprocating cutter, and these slots are of such length as to allow the proper extent of reciprocating movement of the cutter upon these guide pins *d²*. It may be observed that the bearing spots and guide pins are arranged in line with each other, as shown, in order to facilitate the milling. Each bearing spot and the adjacent guide pin are, however, spaced from each other for several reasons, and among others, to have these bearing spots as far forward as possible, and on the other hand to have the guide pins at about the longitudinal center line of the reciprocating cutter plate, and also to leave a clear space for the milling of the faces of the bearing spots *d'* which are the only parts of the cap having frictional pressure upon the surface of the reciprocating cutter.

In horse clippers of the class under consideration in which the pivot for the movable operating lever also serves as the bolt to secure the several parts together, it is of importance that the bolt shall have such a secure connection with the bottom or comb plate that it cannot turn in the bottom plate even to a limited extent under the action of the oscillating operating lever, and cannot slip longitudinally in the bottom plate in the direction of the movement of the reciprocating cutter plate. If there is any degree of

looseness or slip of the parts in either of these ways when the clipper is in use, it loses its efficiency, with a tendency to loosen the securing nut on the bolt bearing upon the cap and when this nut becomes at all loose the clipper becomes useless until readjusted. On the other hand it is important in my improved clipper to provide for setting up the cutter plate to make up for wear and grinding and the elasticity of the cutters, and for this purpose, since the cap plate D has a bearing upon the back of the comb plate, the front part of the cap will move downward and forward on a curve whose radius is at the point where the pin operates on the comb plate, as will be readily understood on reference to Fig. 1. It, therefore, becomes desirable to provide such a connection of the bolt E with the comb plate as to allow the upper end of the latter to swing outward a little with this movement of the cap. Otherwise there would be a cramping or binding of the parts. To meet these various requirements, I construct the head of the bolt E and the part of the bottom plate to which it is fitted, to give a joint or connection with a double wedging action, in a manner which I will now describe, referring more particularly to the enlarged views, Figs. 6 to 11. In the first place I make the opening G for the reception of the bolt head of such a shape as to afford two or more wedge-shaped parts, preferably two opposite each other as indicated at X and Y in Fig. 10, and in the second place, I form either the walls of these wedge-shaped parts of the opening or those parts of the head of the bolt which are to engage with them, or both, of a beveled or tapering form, which will afford another wedge shape, but in a plane practically at right angles to the wedges afforded by the outline or shape of the opening G. It is thus that I secure the desired wedging action in two directions.

The cross section of the head of the bolt corresponds in the main with the outline of the opening G in the comb plate; but at the points *y* between the wedge-shaped parts of the opening the head of the bolt is made of somewhat smaller cross section than the opening in the comb plate in order not to interfere with the other parts of the bolt head finding their desired bearings in the wedge-shaped parts of the opening. When the opening in the comb plate is made of the shape illustrated in Figs. 6, 7, and 10, the wedge-shaped sides *x* of the bolt head may be made to correspond exactly with the inclination of the wedge parts X and Y of the opening, but I prefer to make them as shown in Fig. 10, so that the bolt head only bears in the comb plate at *x' x'* toward the opposite ends of the edges of the wedge-shaped parts of the opening. It will be readily understood that the same result will be attained when the opening in the comb plate and the head of the bolt are made of approximately oval forms, as illustrated in Fig. 11, care, however, being

taken to make the ovals such as to leave free spaces at *y* as in the construction illustrated in Fig. 10, to permit of the wedging action at *x' x'*.

In the construction shown in Figs. 6 to 9, the bearing walls of the wedge shaped parts of the opening in the comb plate are tapered outward so as to produce a vertical wedge-shape, and by preference the corresponding bearing faces of the head E' of the bolt are made tapering, but slightly rounded or curved, longitudinally of the bolt, as indicated in Figs. 8 and 9. This is the preferred construction, as it most readily affords that universal or self-adjusting connection of the bolt head with the comb plate which is desired to permit of the setting up of the cap plate to make up for wear and grinding of the plates and yet at the same time there is the desired self-adjusting wedging action of the parts which results in such a firm securing of the bolt to the comb plate, when the parts are fitted together and the nut is screwed in place, as to effectually prevent any movement or slip of the bolt in the comb plate.

As I have already explained it is very important, particularly in horse clippers, that there shall be no slip of the nut which secures the parts together, for if the nut works loose, the coarse hairs will inevitably get in between the teeth of the cutters and stop the cutting action, and this liability of the securing nut to work loose is greatest in that class of horse clippers in which the securing bolt is also used as the pivot for the operating lever. In order to effectually prevent this working loose of the nut, I have devised the following construction, illustrated more fully in Fig. 1, and which consists in cutting upon the upper end of the bolt two screw threads, one right-handed, and the other left-handed, that part of the bolt which contains the upper thread being smaller in diameter than the lower threaded portion. I adapt to these right and left-handed threaded portions of the bolt corresponding right and left handed nuts, the lower one, F', preferably being a winged thumb nut, and having a tapered bearing face *f* adapted to a corresponding tapered seat in the cap plate D, while the upper securing nut F' may be a milled nut. I prefer to make this upper nut the left-handed one, and in order to indicate which way it is to be turned to tighten it up I prefer to put on the head of the nut an arrow, as shown in Fig. 4. When the lower nut F' has been screwed down to bring the proper pressure upon the cap plate to cause the cutting edges of the cutters to bear with the desired pressure upon each other, the upper nut is screwed in the opposite direction until it bears firmly upon the lower one, and then as will be readily understood, it is a practical impossibility for the lower nut to be turned back by the movement or jar of the several parts when the clipper is in use.

Experience has shown me that in horse clippers, it is of primary importance that the two

cutters should be held up to each other with a firm pressure at all times, for there is a constant tendency of the coarse hairs to get in between the cutters, spread them apart and stop their action. It is equally desirable that there should be relatively little pressure at the back part of the cutters. It is for this reason that I give the cap D a bearing at *d* upon the back part of the comb plate and have only the extreme front parts of the front plate bear upon the forward part of the reciprocating cutter but in order to get the necessary pressure of the front edge of the cap on the cutters, it is important that the securing bolt E should be as far forward as possible. As I want to avail myself of this bolt as the center about which the operating lever turns I put the teat *c* which acts upon the movable cutter (passing through a suitable opening in the latter for this purpose) back of the pivoting point of the lever as will be readily understood on reference to the drawings.

To allow for the setting up of the cap D as the plates wear away or grind away, it is necessary that the hub of the operating lever C shall be of less length than the space between the under side of the cap and the comb-plate as will be understood on reference to Fig. 1, and accordingly when the cutter first goes into use the hub of the operating lever may have a limited amount of play longitudinally of the bolt E. In order to allow room for a sufficiently long teat *c* to pass entirely through the opening in the movable cutter in all positions of the lever, I make a recess *a* in the inner face of the comb plate, in rear of the securing bolt, as illustrated in Figs. 1, 6 and 7.

In the construction illustrated in Fig. 1, I have shown the operating lever C as turning directly upon the bolt E itself, but this is not essential, for, as shown in Fig. 12, it may while in fact turning about the bolt, be mounted upon a sleeve *s* upon the inner face of the cap D, through which the bolt E passes.

I claim as my invention—

1. In a clipper, the combination with a comb plate and movable cutter, of a cap, a bolt securing the parts together and an operating lever turning upon this bolt, the head of the latter being fitted into the comb plate with a double wedging action, one such action being substantially at right angles to the other.

2. In a clipper, the combination with a comb plate and movable cutter, of a cap, a bolt securing the parts together and an operating lever turning about this bolt, the comb plate having a wedge-shaped opening tapering outward and the bolt having a wedge-shaped tapering head to engage with the said opening in the comb plate, substantially as described.

3. In a clipper, the combination with the comb plate having a wedge-shaped opening tapering outward, of the movable cutter, the cap, and the securing bolt having a tapered head with longitudinally rounded bearing surfaces engaging the tapered opening in said comb plate, substantially as set forth.

4. In a clipper the combination with a comb plate having a tapering opening, of the movable cutter, the cap, and the securing bolt having a head fitted to the opening in the said comb plate with a tapering joint, a securing nut on the upper end of the bolt having a tapering face adapted to a tapering seat in the cap, and an operating lever turning about the said bolt, substantially as described.

5. In a clipper the combination with a comb plate, movable cutter plate and cap plate, of a securing bolt and operating lever mounted to turn on the said bolt, the latter having at its upper end right-and-left handed threads, with right-and-left handed nuts, the lower one bearing upon the cap plate and the upper one bearing upon the said lower nut, substantially as and for the purposes described.

6. In a clipper the combination with the comb plate provided with a recess on its inner face, located in the rear of the securing bolt, and the cap plate, of the movable cutter, an operating lever therefor having a teat to act upon said movable cutter, the securing bolt, and a hub from which the operating lever projects having when first put into use a play between the cap and comb plate, whereby free movement of the teat is provided, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CYRUS CARLETON.

Witnesses:

GILMAN E. JOPP,
THOS. A. MILLETT.