

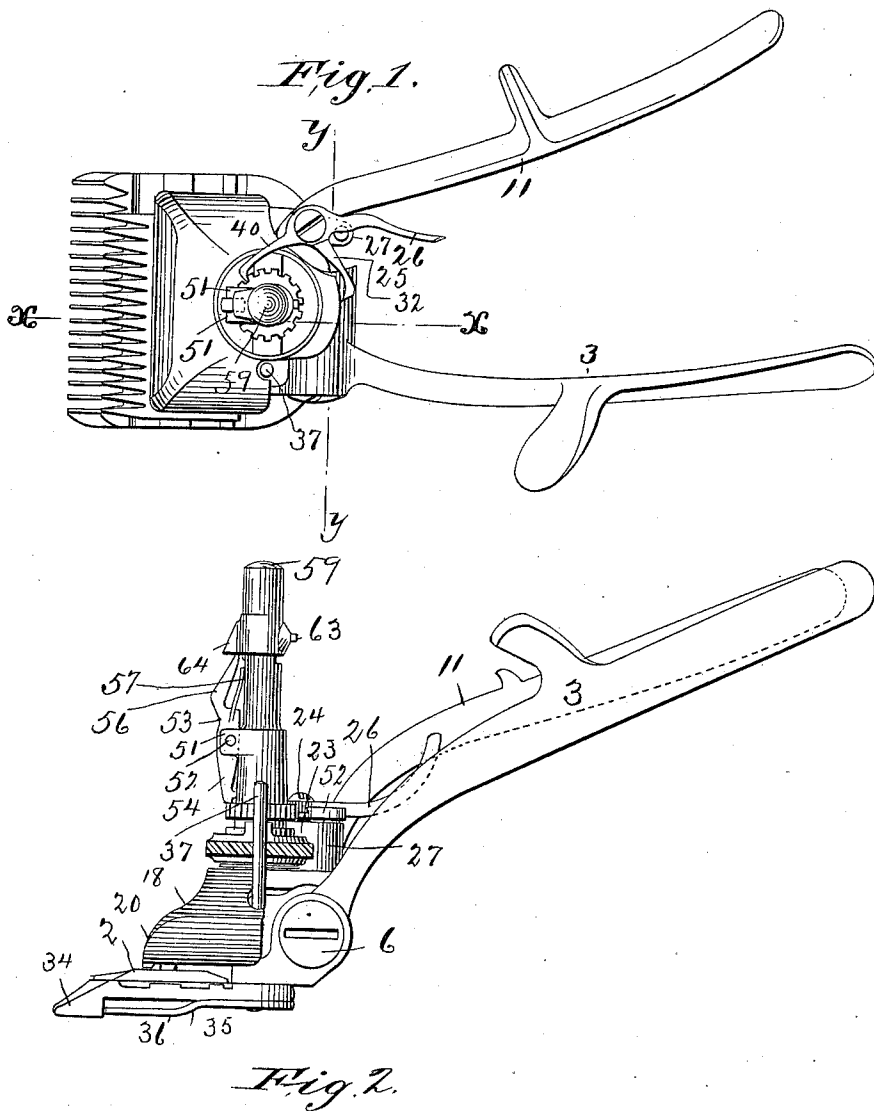
(No Model.)

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H. COOPER.
HAIR CLIPPING MACHINE.

No. 566,377.

Patented Aug. 25, 1896.



WITNESSES

C. W. Benjamin
Wm. Jacobson

INVENTOR

Herbert Cooper

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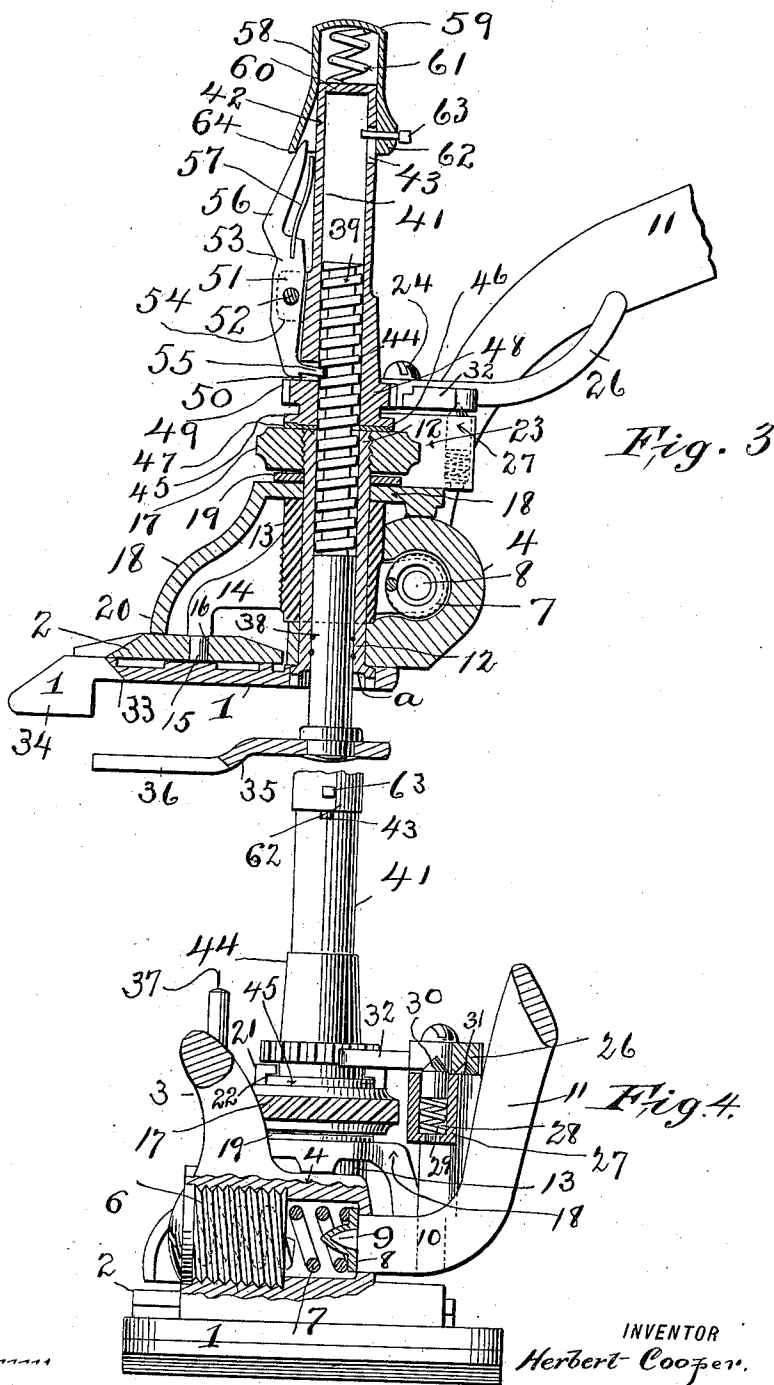
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UNITED STATES PATENT OFFICE.

HERBERT COOPER, OF JERSEY CITY, NEW JERSEY, ASSIGNOR TO ISIDOR STERN, OF NEW YORK, N. Y., AND LOUIS KLEIN, OF DANVILLE, OHIO.

HAIR-CLIPPING MACHINE.

SPECIFICATION forming part of Letters Patent No. 566,377, dated August 25, 1896.

Application filed June 29, 1896. Serial No. 597,346. (No model.)

To all whom it may concern:

Be it known that I, HERBERT COOPER, a citizen of the United States, residing at Jersey City, county of Hudson, and State of New Jersey, have invented certain new and useful Improvements in Hair-Clipping Machines, of which the following is a specification.

My invention relates to that class of hair-cutting machines wherein a stationary comb-plate, a reciprocating cutter-plate, an auxiliary or guide plate, and means for automatically feeding the guide-plate to regulate the cut and for changing or dispensing with the movement of the guide-plate are provided.

The primary object of my invention is to improve on the construction shown in the patent to W. H. Bush, No. 556,399, dated March 17, 1896.

The invention consists in the novel details of improvement and the combination of parts that will be more fully hereinafter set forth, and then pointed out in the claims.

Reference is had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a plan view, and Fig. 2 a side elevation, of a clipper embodying my improvements. Fig. 3 is an enlarged sectional elevation substantially on the line *xx*, Fig. 1; and Fig. 4 is a rear elevation, partly in section, taken substantially on the plane of line *yy*, Fig. 1.

Like numerals of reference indicate corresponding parts throughout the several views.

I have applied my improvements to the clipper shown and described in the United States Patent to C. Carleton, No. 481,254, dated August 23, 1892, and I do not therefore claim anything therein shown and described, my invention residing in the specific improvements hereinafter set forth.

The clipper to which I have applied my improvements embodies a stationary comb 1, a movable cutter 2, a stationary handle 3, provided with a tubular and laterally-extending pocket 4, to which the comb 1 is secured by screws, the pocket having a tubular screw 6, which contains one end of a coil-spring 7, the other end of the spring being detained by abutting against a follower 8, confined on a pointed extension 9 of a lug 10, formed on the

movable operating-handle 11, the lug compressing the spring when the handle 11 is moved toward the handle 3, which, when released, returns the cutter 2 in the reverse direction, as recited in said patent. A cylindrical arbor 12, screwed into the comb-plate 1, as at *a*, Fig. 3, extends upwardly and passes through a hub 13, formed on the handle 11, and which arbor forms the pivotal connection of the handle 11 with the comb-plate 1, &c., the hub having a forwardly-extending arm 14 and downwardly-extending finger 15, which latter pivotally engages a hole 16 in the cutter 2, the top of the arbor being screw-threaded to receive a thumb-screw 17, between which and the top of the inclosing casing or housing 18 is located a spring-washer 19 to regulate the friction between the comb-plate 1 and cutter 2, the cutter 2 having slots, the comb-plate having lugs engaging the slots, the peak 20 of the housing engaging the cutter, and the finger 15 engaging the cutter, all in the manner shown in said patent, whereby a stationary comb-plate, a movable cutter suitably guided and restrained, a movable operating-handle, &c., all necessary for the clipping of hair, are provided.

Starting out with this well-organized machine, I will now describe my improvements on the Bush mechanism.

In order to adapt my improvements to this specific form of clipper, before described, I substitute for the solid arbor E of the Carleton patent the tubular arbor 12, and on the thumb-screw 17 I form two lips 21, each one having a segmental and concentric groove 22, the diameter of the groove in each lip on one side being greater than on the other, for a purpose hereinafter pointed out. Close to the arbor 12 I have secured a standard 23 on the movable handle 11, and on the top of the standard is pivoted, by means of the screw 24, a double-toothed pawl 25, having an outwardly and upwardly extending handle 26, which lies in close proximity to the handle 11 and in easy reach of the forefinger of the right hand. The standard is provided with an offset 27, extending within the plane of movement of the pawl-handle 26, and in the offset is formed a barrel 28 for containing a spiral spring 29, which latter movably supports a

stop-pin 30, having a pointed top, the point engaging a recess 31, formed in the pawl-handle, and which pin acts as a detent to restrain the inopportune vibration of the pawl at one time engaging the recess, and at another by springing up between the pawl-tooth 32 and the base of the pawl-handle, and at another time by bearing against an inclined recess formed on the outside of the base of the pawl-handle, the three points of contact indicating the three points of adjustment of the pawl, viz: to automatically increase depth of cut, the reverse, and cutting with equal depth, the pin being restrained from leaving the barrel by contacting with the pawl handle or tooth in their various positions.

The bottom of the comb-plate 1 is counter-sunk or recessed, as at 33, leaving the toothed nose 34 at the outer edge, in which recess is adapted to lie, when idle, the movable guide-plate 35, which is depressed, as at 36, at its forward edge to form a toothed entrant portion or comb for the guide-plate, and to the guide-plate is secured a guide-post 37, which extends upwardly through the comb-plate 1 and housing 18 to form means for preventing the guide-plate from turning.

Extending upwardly from the guide-plate, and fast thereto, is a post 38, provided for a portion of its length from the top down with a worm or double thread 39, which is formed on the post to the extent or range of expulsion of the post from the tubular arbor, as hereinafter described.

The worm-post is adapted to be moved up and down in the arbor to project the guide-plate from or bring it to the comb-plate to regulate the depth of the cut by the movement of the handle 11 imparted through the intervening pawl-teeth 32 40, and to transfer the vibration of the handle to the worm on the post the following mechanism is employed: At 41 is a rotary tube closed at the top, as at 60, and below this is, in the upper portion 42, a vertical slot 43, the lower portion or base 44 being of increased thickness, into the tubular portion of which the threaded portion of the worm-post extends. At the lowermost extremity of the tube is formed an annular collar 45, adapted to rotate in the grooves 22 in the lips 21, before described, the grooves being formed slightly eccentric to the collar for the purpose of enabling the collar to be readily inserted therein from the side having the greatest opening, the lips 21 preventing the lifting of the collar and confining the tube 41 down on the thumb-screw 17, the contact of the tube and post retaining the former in position, so that it can be rotated. In order to prevent looseness in this connection and to prevent the tube from rotating excepting when influenced in the proper direction by the respective pawl-tooth, an elastic washer 46, slightly upset and provided with a hole for the passage of the post 38, is interposed between the collar 45 and the screw 17, the washer forcing the collar up

against the lips 21 with the desired amount of friction. In order to prevent the washer from turning with the tube, it is provided with a lug 47, which enters a corresponding recess formed in the collar, as shown in Fig. 3. On the base 44 of the tube, above the collar, is formed a ratchet 48, the teeth 49 of which are concentric, and above the ratchet a slot 50 is formed in the base 44 of the tube, transversely thereof. Above the slot 50 the tube is provided with two outwardly-extending lugs 51, between which extends a pin 52, on which is pivoted a latch 53, the lower end 54 of which is provided with a tooth 55, extending inwardly through the slot 50 and engaging the post 38 between the worm or thread 39 thereon, the upper arm 56 being provided with a flat spring 57, secured to the arm 56 near the pivot, the free end of the spring engaging the exterior of the tube. The tube 41 is surmounted by a cap 58, closed at the top and embracing the upper end of the tube. Interposed between the top 59 of the cap and the head 60 of the tube is a spiral spring 61, and extending from a boss 62, formed on the lower portion of the cap and passing through the slot 43 in the tube, is a stud 63. The opposite side of the cap is provided with an outwardly-extending deflector or cam 64, into which the arm 56 of the latch extends and against which the spring keeps the arm in contact. When the cap is pressed down on the tube against the stress of the spiral spring 61, the cam vibrates the tooth 55 of the latch out of engagement with the worm 39 on the post, allowing the guide-plate free movement in or out, excessive downward movement of the cap being prevented by the stud 63, the spring 61 raising the cap when freed of pressure, releasing the latch to enable the spring 57 to force the tooth 55 back into contact with the worm.

In operation, when it is desired that no graduation of the cut be made, the clipping is commenced with the guide-plate in the recess and the teeth of the pawl out of engagement with the ratchet, when movement of the handle 11 will reciprocate the cutter-plate through the connections heretofore described. To produce a cut of gradually-increasing height or depth, as the case may be, the appropriate tooth of the pawl is moved into contact with the ratchet by moving the pawl-handle by the forefinger, and movement of the handle 11 will rotate the tube 41, carrying with it the tooth 55 of the latch, which acts on the worm to expel the post 38, thereby moving the guide-plate away from the comb-plate intermittently with each succeeding movement of the handle, causing the cut to be made of gradually-increasing depth. At the desired time the other tooth is thrown into engagement with the ratchet, releasing the other tooth and reversing the movement of the tube, and moving the guide-plate toward the comb-plate, causing the depth of the cut to be gradually reduced. From either

extreme the guide-plate can be caused to remain stationary, either in the projected position or in the recess, to make a continuous cut of constant depth by releasing both pawl-teeth from the ratchet. From any point of projection of the guide-plate it can be instantly moved back into contact with the comb-plate by pressure on the cap, which, as before described, frees the latch-tooth from engagement with the worm, and should the tube 41 be rotated past the point necessary to bring the guide-plate and comb-plate together the tooth 55 of the latch will ride over the worm 39.

Having described my invention, I claim—

1. In a hair-clipper, the combination with the stationary handle, of the pivotal handle, and the cutting device, worm-post, guide-plate, and tube operated thereby, a vertical standard on the movable handle, a lug on the standard, a barrel in the lug, a spring in the barrel, a movable pin on the spring and a pawl on said standard adapted to engage said pin, substantially as described.

2. In a hair-clipper, the combination with the stationary handle, of the pivoted handle, a vertical standard on the handle, the pawl having two or more teeth pivoted on said standard, a lug on the standard, a barrel in said lug, a spring in the barrel, a movable and pointed stud on the spring, and recesses in the pawl for engagement with the point of the stud, substantially as described.

3. In a hair-clipper, the combination with the tubular arbor, of the guide-plate, and worm-post extending through said arbor, a thumb-screw on said arbor and about said post, an annular groove formed on said nut, a tubular post about said worm-post, a collar on the tubular post working in said annular groove, and means for rotating said tubular post, substantially as described.

4. In a hair-clipper, the combination with the cutting devices, of the guide-plate, the

worm-post, the rotative tube, a latch having a tooth passing through the tube into engagement with said worm, and a cap on the tube for vibrating the tooth of the latch out of engagement with said worm, substantially as described.

5. In a hair-clipper, the combination with the nut 17 having the grooved lips 21, a tube having the collar 45 confined on the nut by said lips, and an elastic washer 46 between the nut and collar, substantially as described.

6. In a hair-clipper, the combination with the nut 17 having the grooved lips 21, the tube 41, the collar 45 on the tube, provided with a stem-recess, and a spring-washer 46 interposed between the collar and thumb-screw and having a lug 47 engaging said recess, substantially as described.

7. In a hair-clipper, the combination with the worm-post 38 and guide-plate 35, of the tube 41 having the lugs 51, the latch 53 pivoted to said lugs along the length of the tube, the lower arm of the latch having a tooth 55 extending through a slot 50 in the tube, said tooth engaging the worm 39, the upper arm of the latch extending to and near the top of the tube, a spring 57 on the arm 56 of the latch bearing against the tube and a cap 58 for vibrating said latch, substantially as described.

8. In a hair-clipper, the combination with the tube 41 having the slot 43, the cap 58, the spring 61 extending between the tube and cap and retained in the tube, the boss 62 on the cap, a pin 63 extending through the lug and slot, the cam-like projection 64 on the cap, and a latch 53 pivoted on the tube engaging said cam, substantially as described.

Signed at the city, county, and State of New York this 23d day of June, 1896.

HERBERT COOPER.

Witnesses:

JOSEPH L. LEVY,
WM. JACOBSEN.