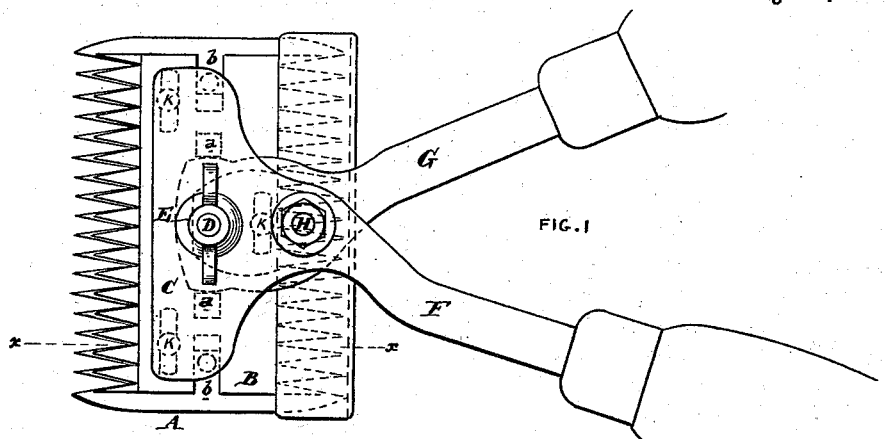
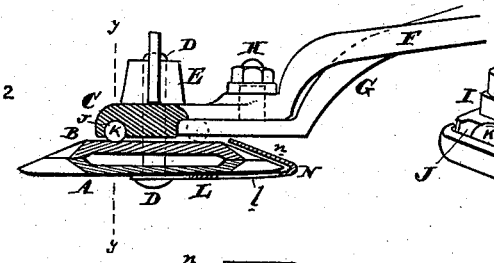
(Model.)

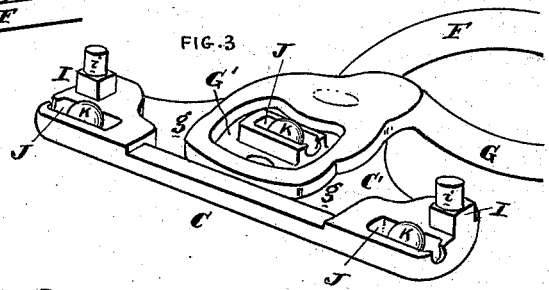
L. S. LEE.

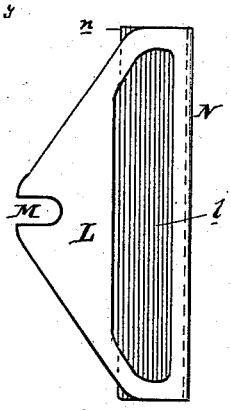
HAIR CLIPPING MACHINE.

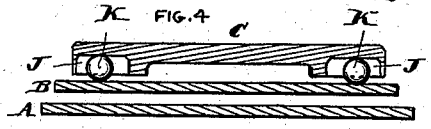
No. 382,288. Patented May 1, 1888.

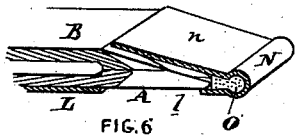


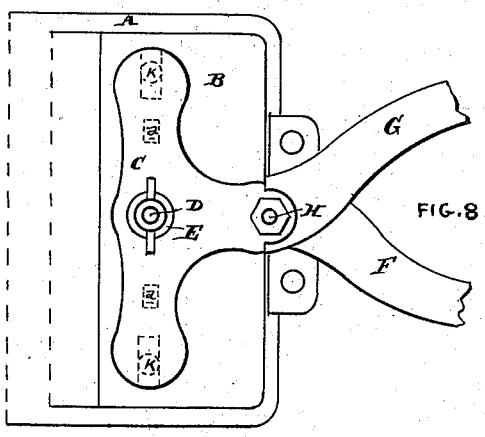


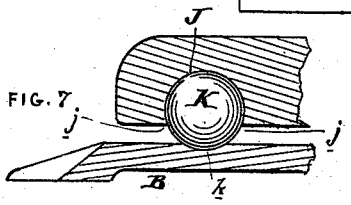












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UNITED STATES PATENT OFFICE.

LEWIS S. LEE, OF PHILADELPHIA, PENNSYLVANIA.

HAIR-CLIPPING MACHINE.

SPECIFICATION forming part of Letters Patent No. 382,288, dated May 1, 1888.

Application filed March 31, 1887. Serial No. 233,116. (Model.)

To all whom it may concern:

Be it known that I, LEWIS S. LEE, of the city and county of Philadelphia and State of Pennsylvania, have invented an Improvement in Hair-Clipping Machines, of which the following is a specification.

My invention has reference to hair-clipping machines; and it consists in certain improvements fully set forth in the following specification, and shown in the accompanying drawings, which form part thereof.

The object of my invention is to reduce the friction between the cap and the reciprocating cutter, whereby the machine may be operated with less power. My object is also to provide a suitable guard for the rear cutters of a reversible clipper, whereby any obstruction or hair which may pass in back of the guard may readily work out from the lower portion thereof.

In carrying out my invention I interpose between the cap and the cutter-plate two or more spheres or balls, preferably free to roll in suitable grooves parallel with the longitudinal reciprocation of the cutter-plate. Further, in providing a reversible clipper with a rear guard adapted to protect the teeth of the cutters and at the same time provide a suitable passage-way for the free escape of hair or whatever obstruction may enter the teeth from above. In addition to this there are minor improvements, which are fully described hereinafter.

In the drawings, Figure 1 is a plan view of a hair-clipping machine embodying my invention. Fig. 2 is a cross section of same on line *x x* of Fig. 1. Fig. 3 is an inverted perspective view of the cap and operating-lever ends, with the cutter-plates removed. Fig. 4 is a longitudinal section on line *y y* of Fig. 2. Fig. 5 is an inverted plan view of the cutter-guard. Fig. 6 is a sectional perspective view of a modification of the cutter-guard, showing it as applied to the cutters. Fig. 7 is a transverse section through part of the cap and cutter, showing their relation to the ball or sphere bearing; and Fig. 8 is a plan view of a modified arrangement of my invention.

A is the stationary or lower cutter-blade, and B is the upper or reciprocating cutter. These cutters may be provided with teeth on one or both sides, as desired, as indicated respectively in Figs. 1 and 8.

C is the cap, and is provided with the guide-projections I, which project down through the slots *b* in the cutter-plate B, and which projections have extensions *i*, which pass through holes in the stationary cutter-plate A in the well-known manner.

D is a clamping-bolt, which extends through the cutter-plates and cap, and is provided with a thumb-nut, E, above the cap. By turning the nut the tension between the plates may be varied. To reduce the friction between the reciprocating cutter-plate B and the cap C, I provide two or more balls or spheres, K, interposed between the said plate and cap. As shown, the balls are placed in longitudinal parallel grooves J, which are preferably provided with edges *j*, Fig. 7, bent over sufficient to hold the balls to the cap when the parts are removed, and these grooves J are made considerably longer than the diameter of the balls, whereby as the balls rotate they may travel over the cutter-plate B, and the cap C may travel over them. The result of this would be that the friction between the cap and cutter-plate would be reduced far more than if the balls were held in semi-spherical pockets.

As shown in Fig. 3, there are three balls arranged, two in front and one back of the clamping-bolt D, so as to form a support for the cap. In place of this, however, the balls may be two in number and arranged in line with the tension-bolt D, as shown in Fig. 8. If desired, the cutter-plate B may be slightly grooved in the line of contact with the balls, as indicated at *k*, Fig. 7, though this is not essential. These balls are preferably made of hardened steel.

The cap C is recessed at its under part, as at C′, and extends rearwardly in the handle F. Pivoted to the rear part of the cap, at H, is a second handle, G, which is extended forward into the recess C′ of the cap, and is made with lateral edges *g*, adapted to work between the lugs *a* on the plate B, as shown in dotted lines, Fig. 1. This extended part of the handle G is preferably perforated, as at G′, through which the rear ball-bearing projects to make contact with the cutter-plate.

L is a protecting-shield to be used on the reversible cutters. As shown, it is provided

with a slot, M, through which the bolt D passes, and by which the cap is secured to the cutters, and extends backward around the cutters at M and terminates in the top plate, *n*, shielding the teeth of the cutters. The space below the teeth in this guard is perforated, as at *l*, whereby any material working into it through the teeth of the cutter may readily find egress, and thus avoid clogging the machine, breaking the tube, or interfering with the automatic or self sharpening of the cutters upon each other, owing to the grinding up of the clogging material between the teeth. In the construction shown in Fig. 6 the part N of the guard is made to clamp a strip of rubber, O, which comes in line with the points of the cutter-teeth, so that any sudden jar will not injure the said teeth. This shield may be suitably strengthened by wiring in the well-known manner in sheet-metal working.

While I prefer the construction shown, I do not limit myself to the particular details, as the invention is applicable to many makes of hair-clipping machines, and therefore said details may be modified in various ways without departing from my invention.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a hair-clipping machine, the combination of the reversible cutters with a protecting-guard for the rear teeth, having its bottom open to allow of the ready discharge of any hair or other obstruction which might enter the teeth from above, substantially as described.

2. In a hair-clipping machine, the combination of the reversible cutters with a protecting-guard for the points of the rear teeth, provided with an elastic cushion arranged adjacent to the teeth, substantially as described.

3. In a hair-clipping machine, the combination of the reversible cutters with a protecting-guard for the points of the rear teeth, provided with an elastic cushion arranged adjacent to the teeth and made open on the bottom to allow of the passage of any hair, dirt, &c., which may find its way between the teeth, substantially as described.

4. In a hair-clipping machine, the combination of the reciprocating cutter, the stationary cap, and interposed ball or spherical bearings, with guides to hold the balls against lateral movement, but to allow of longitudinal movement with respect to both the cutter and cap.

5. In a hair-clipping machine, the combination of the reciprocating cutter, the cap having three longitudinal parallel grooves arranged out of line, so as to cover an extended area, loose balls or spheres in said grooves, a stationary cutting-plate, and a clamping-bolt extending through the cap between the said balls or spheres, and hence between their points of contact with the cutter and within the area between them.

6. The combination of the reciprocating cutter having two or more longitudinal grooves, *k*, the cap having two or more longitudinal grooves, J, and balls or spheres K, fitting into said grooves J and *k*, substantially as described.

In testimony of which invention I hereunto set my hand.

LEWIS S. LEE.

Witnesses:
R. M. HUNTER,
H. SEWARD HUNTER.