(No Model.)

J. P. LAVIGNE.

HAIR CLIPPER.

No. 561,058. Patented May 26, 1896.

Fig. 1

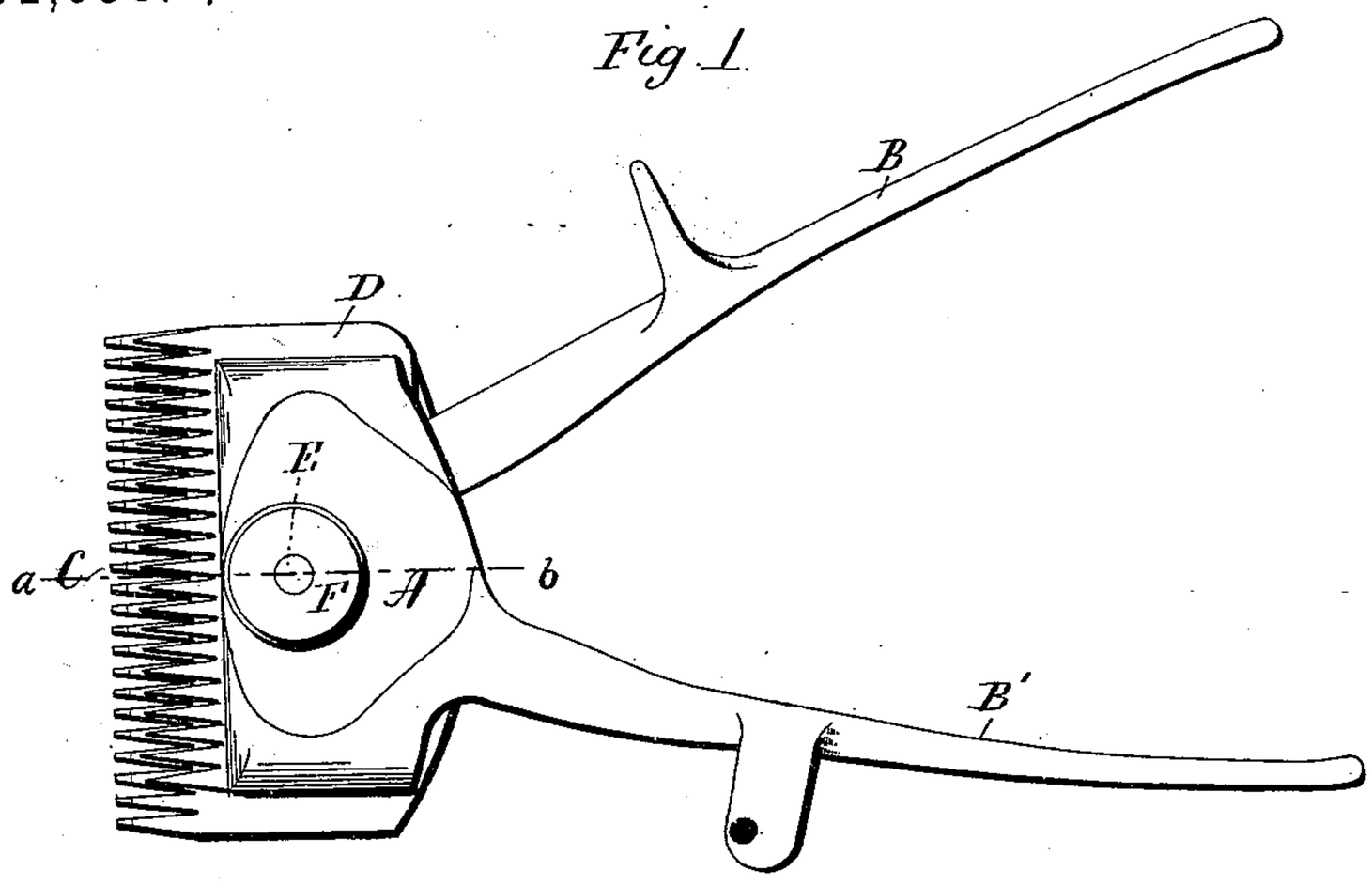


Fig. 4

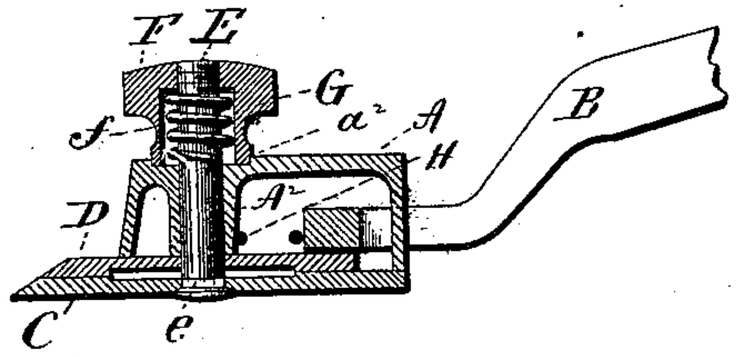


Fig. 5

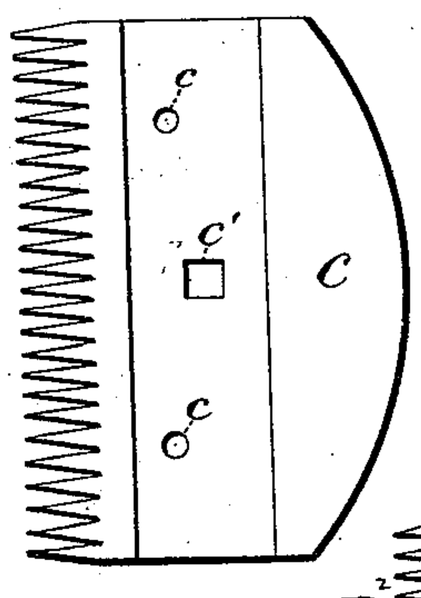


Fig. 2

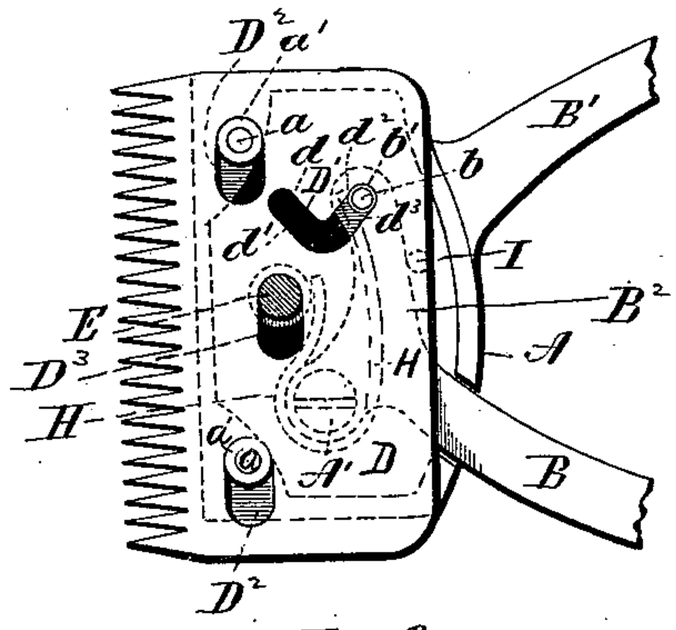
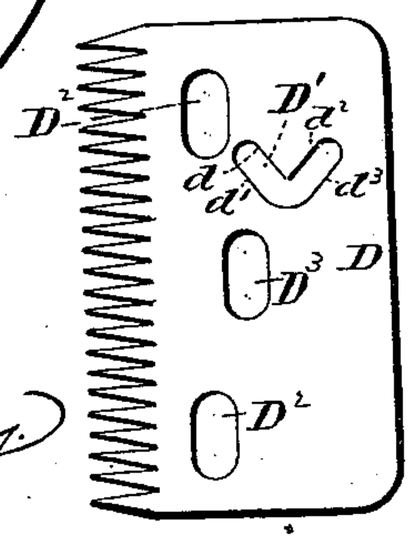
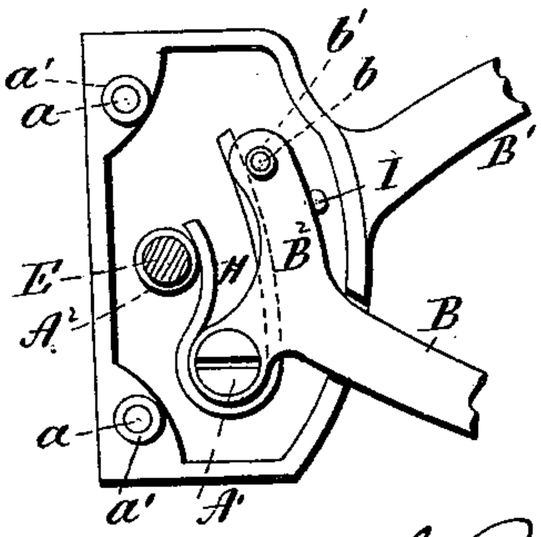


Fig. 3

Fig. 6





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UNITED STATES PATENT OFFICE.

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HAIR-CLIPPER.

SPECIFICATION forming part of Letters Patent No. 561,058, dated May 26, 1896.

Application filed January 8, 1894. Serial No. 496,106. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH P. LAVIGNE, of New Haven, in the county of New Haven and State of Connecticut, have invented a new Improvement in Hair-Clippers; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a plan view of one form which a hair-clipper constructed in accordance with my invention may assume; Fig. 2, a reverse broken plan view thereof with the handles broken away and the lower knife removed; Fig. 3, a corresponding view with the upper knife also removed; Fig. 4, a view of the device in transverse section on the line *a b* of Fig. 1; Fig. 5, a detached plan view of the lower knife; Fig. 6, a similar view of the upper knife.

My invention relates to an improvement in hair-clippers, the object being to produce a simple, compact, effective, and durable article, designed with particular reference to securing a maximum movement of the movable knife with a minimum movement of the fingers, whereby the clipper is used with the least fatigue and the pulling of the hair avoided.

With these ends in view my invention consists in a hair-clipper having certain details of construction and combinations of parts, as will be hereinafter described, and pointed out in the claim.

As herein shown, the device is of ordinary construction in its general form and comprises a chambered body A, a swinging handle B, a rigid handle B′, knives C and D, of which the latter is constructed and arranged to reciprocate at a right angle to the longitudinal plane of the device, and a coupling-screw E, which passes centrally upward through the said knives and body and receives a thumb-nut F, which is applied to its projecting upper end. The said knife D, which is the uppermost of the two knives, is placed directly against the lower face of the said chambered body and constructed with a cam-slot D′, which is V-shaped in form and arranged transversely to the length of the knife and to one side of the longitudinal center thereof. This slot may vary in form or pitch; but whatever that may be it will invariably open outward or away from the screw-stud A′, which is mounted in one end of the chambered body and which forms the pivot on which the handle B swings, the said handle entering the body at one side of the longitudinal center thereof. It is essential that the slot should open outward, as described, for reasons which I will set forth in connection with the operation of the device. The said slot D′ receives a stud *b*, carried by a short arm B^2, formed at the inner end of the swinging handle B, and extending into the opposite end of the said body from the end thereof in which the said screw-stud A′ is located, the said stud *b* being furnished with an antifriction-roller *b*′, very slightly smaller in diameter than the width of the said slot, which by reason of its cam form and arrangement causes the plate to be moved correspondingly in both directions, or back and forth for every inward or outward movement of the swinging handle B, as will be more fully described hereinafter. The said knife D is also constructed with two elongated guide-slots D^2 D^2, arranged in line with each other and located near its respective ends and receiving studs *a a*, depending from the lower face of the chambered body and also passing through stud-holes *c c*, formed in the knife C aforesaid, the said studs being furnished with antifriction-rolls *a*′ *a*′, Figs. 2 and 3, which are very slightly smaller in diameter than the width of the guide-slots D^2 D^2, which receive them. The said knife D is further constructed with a centrally-arranged clearance-slot D^3, through which the coupling-screw E passes, as clearly shown in Fig. 2. The said knife C, which is located below and in contact with the knife D, is constructed with a centrally-arranged square opening *c*′, which receives the squared portion *e*, formed closely adjacent to the head of the coupling-screw E, to prevent the same from rotating.

By reference to Fig. 4 of the drawings it will be observed that the chambered body A of the device is furnished with a hub A^2, through which the said coupling-screw passes.

The nut F is constructed with a concentric socket *f* to receive a spiral tension-spring G, the lower end of which bears against the upper face of the body, and which exerts a constant effort to lift the coupling-screw and hence draw the lower knife C upward against the upper knife D. For the purpose of concealing and protecting this spring, and for excluding hair and dust and other foreign substances from the clipper, the upper face of the body is constructed with a shallow circular recess a^2 to receive the inner end of the nut F, as shown in Fig. 4. The swinging handle B is operated in being automatically opened or moved away from the rigid handle B′ by means of a wire spring H, containing a coil which is arranged concentrically with the screw-stud A′, one end of the said spring being abutted against the base of the hub A^2 and the other end being engaged with the projecting upper end of the stud *b*, which is provided at its lower end with the antifriction-roller *b′* and enters the cam-slot D′ in the upper knife D, as already described.

For the purpose of facilitating the assemblance of the clipper I prefer to provide the body A with an assembling-pin I, located within its inner edge, as shown in Fig. 2 of the drawings. Then when the spring H is introduced into the body, which is done prior to the introduction thereinto of the inner end of the swinging handle B, its long end will engage with the said assembling-pin I, which will hold the said end sufficiently away from the adjacent edge of the body to permit the projecting upper end of the stud *b* to be inserted between the spring and the edge of the body. The screw-stud A′ is then passed through the swinging handle B and entered into the body, which is provided with an internally-threaded hub (not shown) to receive it. It will thus be seen that the assembling-pin I enables the stud *b* to be readily engaged with the spring, whereas if the said end of the spring were engaged with the wall of the body, which it would be in the absence of the assembling-pin, it would be something of a task to properly engage the stud with it.

The operation of the clipper will be understood by reference to Figs. 2 and 6 of the drawings. Let it be assumed, for instance, that the swinging handle B is in its open position and that the stud *b* is in the end of the inner member of the cam-slot D′, as shown in Fig. 2. Now when the said swinging handle is drawn inward, by the closing of the hand, toward the rigid handle B′ against the tension of the spring H the roller *b′* on the stud *b*, carried by the arm B^2 of the swinging handle, will bear against the wall d^2 of the cam-slot D′ and cause the knife D to move in the same direction as the swinging handle is moving; but while the said swinging handle is still being moved inward the stud *b* will emerge from the inner arm of the slot, and, entering the outer arm thereof, engage with its outer wall *d′*, reverse the movement of the knife, and cause it to move in the opposite direction from that in which the swinging handle is moving until the said handle reaches the limit of its inward movement. It will thus be seen that while the swinging handle is making its instroke the upper knife has been moved in two directions, or back and forth. When now the pivotal handle is allowed to recover or go back into its open position under the action of the spring H, the roller *b′* will operate against the wall *d* of the slot and then against the wall d^3 thereof, whereby the upper knife will be again operated in both directions, or back and forth, during the opening movement of the swinging handle. For each movement of the swinging handle I thus secure two movements of the upper knife, which, on account of the pitch of the cam-slot and the arrangement thereof with its opening outward, is moved quickly and for a sufficient distance to be most effective in operation. The rollers *a′ a′* on the studs *a a* reduce the friction of operating the upper knife D to the minimum.

It is obvious that in carrying out my invention some changes from the form shown and described may be made. Thus my improvement is applicable to power-clippers as well as toilet clippers, and in constructing a power-clipper some changes of form, at least, will be necessary. I would therefore have it understood that I do not limit myself to the exact construction set forth, but hold myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of my invention. I am aware, however, that a hair-clipper having a chambered body, a rigid handle, a swinging handle, two knives, one of which is connected with the swinging handle for reciprocation thereby, and a tension device is old. I am also aware that a shearing-machine having bowed slots opening outward for coaction with shearing-knives is old. I do not, therefore, claim either of those constructions broadly.

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

The herein-described hair-clipper consisting in the combination with a chambered body, of a handle rigid therewith, a pivotal handle entered at its inner end into one end of the said chambered body, and provided at its said end with a short arm which extends into the opposite end of the said body and carries a stud, a fixed stud located within the said body to one side of the center thereof, and having the said pivotal handle hung upon it, a spring located within the body and acting through the said arm to hold the pivotal handle in its open position, a fixed knife, a reciprocal knife interposed between the open lower face of the chambered body and the upper face of the said fixed knife, and con-

structed with a V-shaped cam-slot arranged transversely with the length of the knife, opening outwardly, located to one side of the longitudinal center of the knife and receiving the stud carried by the said arm of the pivotal handle, a coupling-screw passing upward through the center of the fixed and reciprocal knives and through the center of the said chambered body, and projecting above the upper face thereof, and a nut applied to the said projecting end of the said screw, substantially as described.

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

JOSEPH P. LAVIGNE.

Witnesses:
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A. S. HOTCHKISS.