W. MILLER.

Hair-Cutting Machine.

No. 221,087. Patented Oct. 28, 1879.

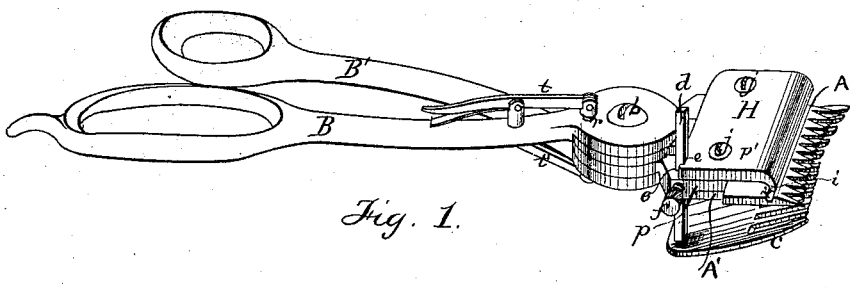


Fig. 1.

Fig. 5.

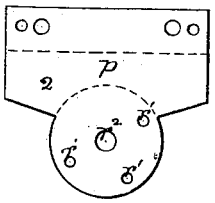


Fig. 2.

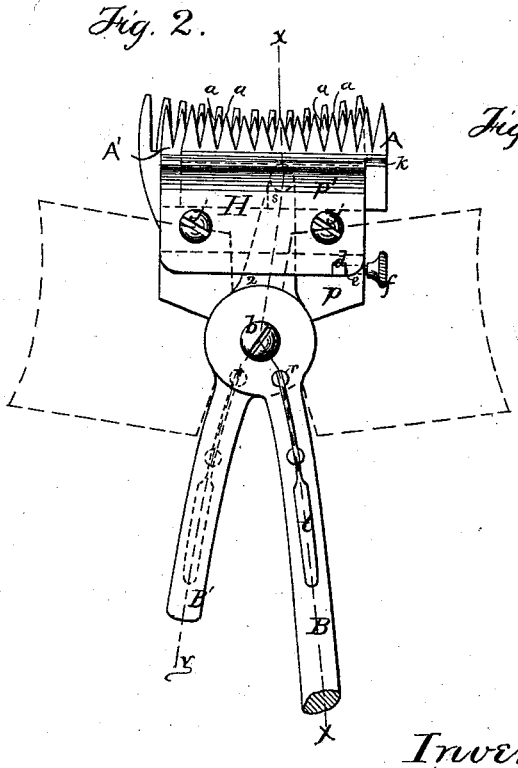


Fig. 4.

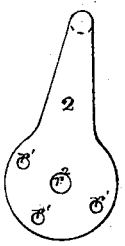
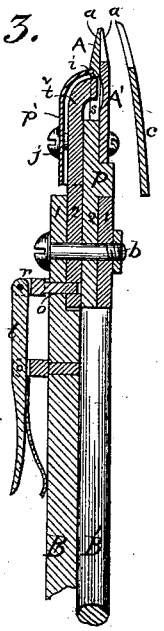


Fig. 3.



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Inventor:
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2 Sheets—Sheet 2.

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Fig. 6.

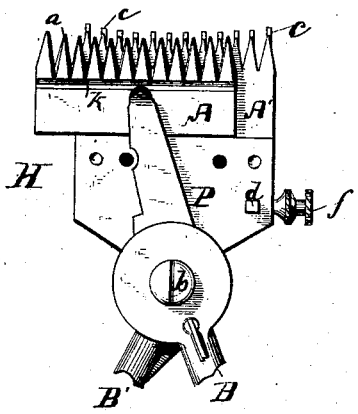
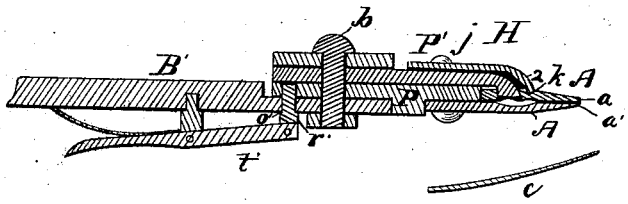


Fig. 7.



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UNITED STATES PATENT OFFICE.

WILLIAM MILLER, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN HAIR-CUTTING MACHINES.

Specification forming part of Letters Patent No. **221,087**, dated October 28, 1879; application filed August 28, 1878.

To all whom it may concern:

Be it known that I, WILLIAM MILLER, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Hair-Cutting Machines, of which the following is a specification.

This invention relates to that class of hair cutting or clipping apparatus in which two comb-shaped cutters are employed, one reciprocating on the other, like the cutters of animal-clipping apparatus.

The invention has for its general object to produce a cutter of the above-named class to be worked by hand, adapted particularly for cutting hair on the human head; and it is divided into two parts, the first having for its object to provide means for gaging or regulating the distance at which the cutters shall work from the surface of the head, while the second part has for its object to enable the cutters to be set or adjusted at various angles with relation to the handles by which they are operated, so that the ease and efficiency of operation of the instrument shall be promoted.

To these ends my invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a perspective view of a cutter embodying my improvements. Fig. 2 represents a top view of the same. Fig. 3 represents a section on line *x x*, Fig. 2. Figs. 4 and 5 represent views of parts detached. Fig. 6 is a top view of the cutter-head with the cap-plate removed. Fig. 7 is a section through the line *y*, Fig. 2.

Similar letters refer to like parts in all the figures.

In the drawings, H represents the head of the cutter, which is composed, mainly, of two general parts—viz., a lower plate or cutter, A′, rigidly attached to a plate, *p*, and an upper plate or cutter, A, resting on the plate A′ and adapted to reciprocate thereon. The cutting-edges of the plates A A′ are composed of teeth *a*, arranged like the teeth of a comb, the teeth of one plate co-operating with those of the other plate in severing the hair when one plate is reciprocated on the other.

B B′ represent suitable handles, which are secured together by a pivot or bolt, *b*, and are connected, respectively, to the cutters A A′ in such manner that by vibrating said handles on their common pivot the cutters will be caused to move simultaneously in opposite directions, or by vibrating one of said handles the cutter to which it is connected will be caused to reciprocate on the other cutter.

I prefer to attach the handle B′ rigidly to the plate *p*, to which the lower cutter, A′, is attached. The upper cutter, A, is not rigidly attached to its handle B, but is provided in its rear edge with a slot, *s*, into which projects a pin, t^2, on the outer end of the shorter arm of the handle B, which pin reciprocates the cutter A when the handle B is vibrated. The cutter A is held in place and guided in its reciprocating movement by the downwardly-projecting edge or flange *i* of a plate, *p′*, which is rigidly attached to the plate *p* by screws *j j*. The flange *i* enters a longitudinal groove, *k*, in the upper surface of cutter A, and thus holds and guides said cutter.

The plates *p p′* are sufficiently far apart to enable the shorter arm of the handle B to work between them. Under the lower cutter, A′, is located the device for regulating the length of hair to be left on the head. Said device consists of a comb, *c*, preferably arranged with its toothed portion substantially parallel with the under surface of the toothed portion of the under cutter, the teeth of the comb extending in the same direction as the teeth of the cutters.

The comb or guard *c* is arranged at an angle of about thirty-five degrees in regard to the parallel cutters, the object of this inclination being to prevent the comb from sticking into the scalp, and also to enable said comb to lift up the hair and present it properly to the cutters.

It will readily be understood that if the comb were made straight, it would be liable to stick into the scalp, and would also not serve to raise the hair from the scalp.

The comb *c* is so connected to the lower cutter that it can be adjusted and fixed at various distances from the cutters. This connection is preferably effected by means of a post, *d*, rigidly attached to the comb, an orifice, *e*, in the back portion of the plate *p*, (said orifice re-

ceiving the post *d*,) and a set-screw, *f*, adapted to bear against the post in the orifice *e* and hold the former at any desired point, the post being adapted to slide freely in the orifice.

In operating the cutter the under surface of the comb *c* rests upon the head and limits the approach of the cutters to the head, as will be readily seen, so that the length of hair remaining on the head will be about equal to the distance from the under surface of the comb and the point where the cutting takes place. The operator is therefore enabled to easily cut the hair to a uniform length all over the head, and to regulate the length as may be desired.

I am aware that an adjustable comb or guard has been used in combination with ordinary shears composed of two blades pivoted together; but it will be readily seen that such shears cannot simultaneously cut a large number of hairs to a uniform length, the blades being separated by a V-shaped space before cutting, and the cutting being performed along a central line, toward which the hair is bent by the shear-blades as they approach each other, so that the hair remaining on the head after a cut of the shears will be of different lengths, the length increasing with the extent to which the hairs are bent before being cut. Hence the combination of a comb or guard with such shears cannot operate with so good a result as with cutters having the teeth *a* arranged close together, so that no great amount of hair can be cut by any two co-operating edges, and consequently the hair cannot be bent before being cut.

A comb or guard attachment applied to ordinary two-bladed shears, as heretofore proposed, will serve to regulate the length of the hair in the same manner as the comb generally used by barbers during the performance of the hair-cutting operation. The comb, in the instances referred to, being arranged in a straight line in regard to the cutting-blades, will be liable to injure the scalp and will not properly present the hair to the said blades, so as to enable the cutting operation to take place, it being found necessary to lift and hold the hair with one hand.

In the present invention the guard-comb subserves several important functions and makes my cutting device particularly adapted for cutting hair on the human head.

It may be specifically stated that the inclined comb or guard will serve to determine the length of the hair. It will not be liable to stick into the scalp. It will present the hair to the action of the cutters without the necessity of raising the hair by hand. It will serve as a fulcrum or rest, and enable the cutters to work at different angles, as the device can be readily tilted on said fulcrum or rest.

I am also aware of the existence of animal-clipping shears having a hinged comb arranged below the lower cutter for determining the length of cut, said comb being held at the proper distance from the cutter by a stop or set screw. I disclaim this construction.

In carrying out the second part of my invention—*i. e.*, adapting the cutters to be set at various angles with relation to the handles—I pivot the handle B′ to the plate *p*, and provide means for rigidly connecting said handle and plate together, so that the cutters will stand at any desired angle relatively to said handle, and I make the longer and shorter arms of the handle B in two parts, 1 2, adapted to be fixed so that the shorter arm, 2, will stand at any desired angle with reference to the longer arm, 1, or, in other words, be converted either into a straight or a bell-crank lever. I am thus enabled to turn the head H on the handles, so that the cutters will assume various angles with relation to the handles, as shown in dotted lines in Fig. 2, without interfering with the operation of the cutters by the handles.

The construction described as follows is one practical method of carrying this part of my invention into effect: The parts of the handle B are both pivoted to the bolt *b*, and the latter also secures the handle B′ to the plate *p*. The handle B is provided with a spring-bolt, *r*, which passes through an orifice, *o*, in the handle and projects into one of a series of orifices, *r′*, in the plate *p*, said series being concentric with an aperture, r^2, through which the pivot or bolt *b* passes, and arranged to register successively with the orifice *o* when the plate *p* is rotated on the pivot or bolt *b*.

When the spring-bolt is engaged with one of the orifices *r′* it locks the handle B′ and plate *p* rigidly together. To unlock said parts the spring-bolt is retracted, preferably by a handle, *t*, until it is withdrawn from the orifice *r′*, with which it was engaged, when the plate *p* will be free to turn on the handle B′.

The shorter arm, 2, of the handle B is also provided with a series of orifices, *r′*, and the longer arm with an orifice, *o*, and spring-bolt *r*, said parts operating to make the parts 1 2 of the handle B rigid at any desired angle, as will be readily seen.

By enabling the head H to be turned on the handle the cutter is enabled to be advantageously operated in various positions.

As shown in Fig. 7, the handle B′ is provided with a spring-bolt, *r′*, having a handle, *t′*, said bolt passing through the orifice *o′* in the handle B′, and projecting into the orifices of the plate *p*, in the same manner and for the same purpose as the bolt of the handle B.

I claim—

1. The combination of the inclined or curved plate *c*, having front comb-teeth and a solid rear portion, and the rear post, *d*, with the cutter-head composed of vibrating plates having cutting-teeth, and the stock having the set-screw *f*, all constructed and relatively arranged as herein set forth, for the purpose specified.

2. The combination, with the handles B B′, of the cutter-head H, pivoted to said handles,

and locking devices whereby the head may be held in different positions with relation to the handles, as set forth.

3. The combination of the cutter-head H, constructed as described, the handle B′, pivoted to said head and adapted to be fixed at different angles therewith, and the two-part handle B, also adapted to assume different positions in relation to the head, as set forth.

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

WILLIAM MILLER.

Witnesses:
GEO. W. PIERCE,
C. F. BROWN.