Aug. 14, 1923. 1,465,130

L. HERNON

AUTOMATIC SCISSORS

Filed June 20, 1923

Fig. 1.

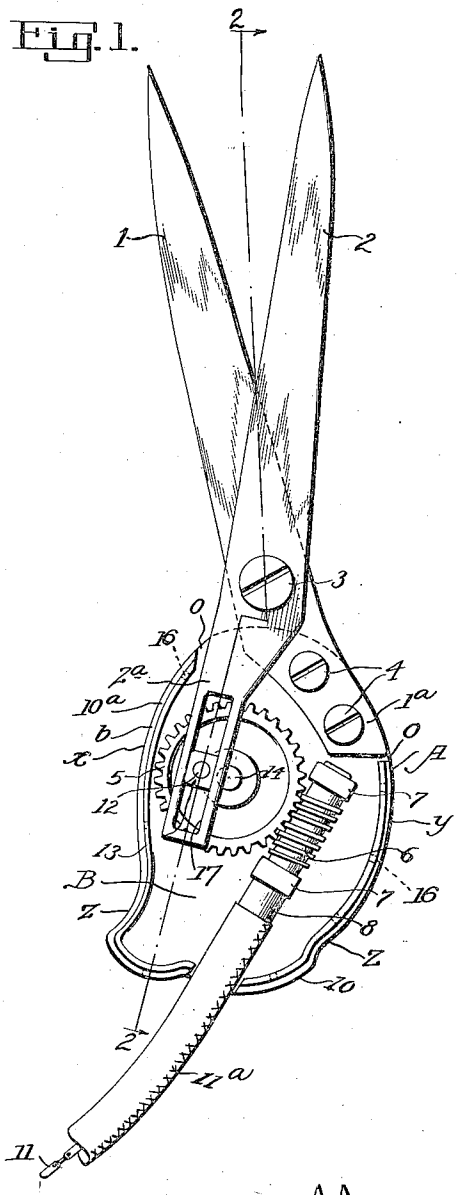


Fig. 2

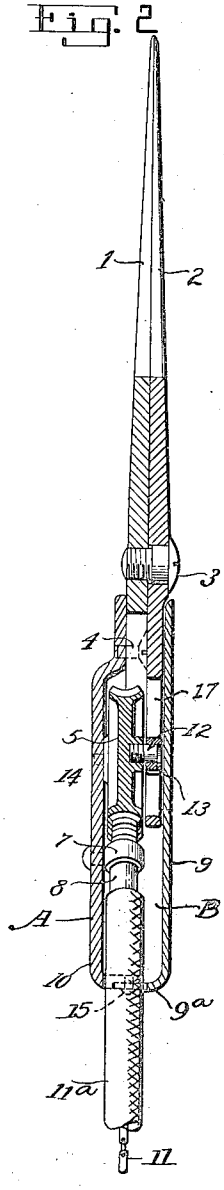
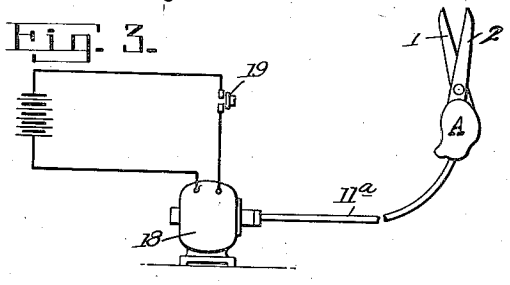


Fig. 3.



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UNITED STATES PATENT OFFICE.

LON HERNON, OF HONOLULU, TERRITORY OF HAWAII.

AUTOMATIC SCISSORS.

Application filed June 20, 1923. Serial No. 646,669.

To all whom it may concern:

Be it known that I, LON HERNON, a citizen of the United States, residing at Honolulu, in the county of Honolulu and Territory of Hawaii, have invented a new and useful Automatic Scissors, of which the following is a specification.

The present invention is improvements in mechanically operated scissors of a type particularly adapted for use by barbers, the cutting of cloth and the like.

It is well known that broadly mechanically scissors and shears are old, but none of the previous proposals possess the construction which adapt them for use by barbers or for ordinary home use, they usually being larger and bulky in construction.

The present invention aims to overcome the above drawbacks and to produce mechanically operated scissors of the kind above described having a very simple construction and which are economic to manufacture, having but few parts readily accessible for repair and replacement when necessary.

The invention further resides in the sundry detail of construction, combination and arrangement of parts which shall appear as the specification proceeds.

In this specification and the annexed drawings, the invention is disclosed in the form in which it is considered to be the best, but the invention is not limited to such form because it is capable of being embodied in other forms; and it is to be understood that in and by the claims following the description herein it is intended to cover the invention in whatever form it may embody within the scope thereof.

In the drawings which show the preferred embodiment of the invention as at present devised,

Figure 1 is a side elevation of the scissors with the cover plate of the actuating mechanism removed to show the details of construction,

Fig. 2 is a longitudinal sectional view taken substantially on line 2—2 of Fig. 1, looking in the direction of the arrows, and showing a cover plate in position, and

Figure 3 is a diagrammatic view illustrating the invention including the motor and motor control.

Like numerals refer to like and corrresponding parts throughout the specification and drawings.

Referring particularly to the drawings in detail, A designates a housing or casing of bronze, aluminum or other suitable metal or alloy constructed in two parts, namely a supporting plate 10 and a cover plate 9. These plates 9 and 10 are complementary in construction, and in assembled position lie parallel and slightly spaced one from the other to provide a chamber B, in which the operating mechanism is mounted. The outer edges of the plates are provided with laterally and inwardly extending flanges which overlap, the flange 10^a of the plate 10 being provided with a rabbet b in which rests the edge of the flange 9^a of the plate 9. These flanges are fastened together by screws 15 which extend through openings in the flange 9^a, and have threaded engagement in suitable openings 16 in the flange 10^a.

The housing A is of a shallow construction having flat side walls of greater area than the other surfaces thereof and of such size as will readily and conveniently fit into the palm of the hand, when the hand is in grasping position, the opposite edges of the housing being of a contour to accommodate the fingers and thumb in grasping position, thus providing a comfortable handle which can be grasped in a manner similar to ordinary scissors in order that the present device can be handled and manipulated with the same ease and facility as ordinary manually operated scissors.

It will be observed that the perimetric contour of the housing A is of oblong or elliptical formation. The convex edge portion y corresponding to the curvature of the first three fingers, and the convex portion x conforming to the curvature of the portion of the palm adjacent the thumb, when the hand grasps the housing. The convex edge y is struck on a shorter radius than the edge x, and immediately to the rear of these convex portions x and y the edges concave, as at z, to accommodate the little finger which may extend around one side of the casing and grip in said concave portions.

The flanges 9^a and 10^a of the plates 9 and 10 are discontinued for a distance at the front end of the housing providing the opening o to permit the scissors blades 1 and 2 to extend into the housing. These blades 1 and 2 are of the ordinary scissors construction pivotally secured together at a point adjacent the inner terminus of their cutting edges by a suitable screw or machine

blot 3, in the usual manner. The blade 1 has its rear extension 1^a secured to the inner face of the plate 10, adjacent the edge of the opening *o*, by a suitable screw or other suitable means 4, preferably of the type to permit the blade to be removed from the housing.

The blade 2 has its rear extension 2^a extending into the opening *o* and of slightly greater length than the extension 1^a of the blade 1, the extension 2^a being formed with a longitudinal slot 17, preferably closed at its ends. In the assemblage of the device, as can be seen from the drawings, the extension 2^a lies adjacent the plate 9 of the housing.

A worm wheel 5 is journaled within the housing A on a stud shaft 14 secured to the plate 10 at a point substantially central thereof. The worm wheel 5 has a crank pin 12 threaded therein at a point eccentric to the stud 14, said pin having a bushing 13 rotatably mounted thereon and slidably mounted in the slot 17 of the extension 2^a of the blade 2.

The worm wheel 5 is actuated from a worm 6 journaled at its ends in bearings 7. Rotary motion is imparted to the worm by a flexible shaft 11 contained in the flexible tube 11^a, the shaft 11^a having a flexible coupling connection 8 to the worm which will allow the shaft 11 to swing in the arc to approximately 30°.

From the drawings, it will be observed that the plates 10 and 11 are spaced apart only sufficiently to allow for the thicknesses of the worm wheel 5 and the blade 2, thus providing a very shallow compact casing containing the operating parts and forming a handle of such shape and size for the scissors blades as can be conveniently grasped in the hand in the manner after the ordinary manually operated scissors, and thereby rendering the device convenient to barbers without necessity of becoming familiar with the manipulation and holding of scissors of a different mechanical construction than those which they are accustomed to use in their art. The present scissors are not limited, however, to use by barbers, because their design will admit of convenient and advantageous use in other numerous connections, as in tailoring, light factory work, in stores for cutting cloth, and general household purposes.

The shaft 1 can be operated in any suitable manner, such as by electric motor 18 controlled and regulated by an electric make and break device 19 which may be operated by the foot of the user. Any other suitable control may be employed.

It will be observed that the blade 1 extends at a slight inclined angle relative to the longitudinal axis of the casing A to give the blades the same pitch or position which they would assume with ordinary manually operated scissors.

From the foregoing it will be observed that this invention provides a portable scissors light in weight and of compact construction which can be readily used by barbers or for domestic purposes with considerable ease and without tiring the operator's hand, the handle being of a shape to fit the user's hand and providing the casing containing the operating parts. By the operating parts being contained in the handle A the greatest weight of the device is directly supported by the hand of the user thus eliminating weighty extensions which tend to unbalance the device and to make its use tiresome and cumbersome.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent, is:

1. A portable mechanically operated scissors comprising a pair of pivotally connected cutting blades having an oscillatory cutting movement relative to each other, a handle for said blades consisting of a shallow casing of a size and shape to fit the contour of the palm of the hand when in grasping position and having reduced end portions and a wide central portion having multiple curves on both side edges of the main axis of said central portion, whereby the casing will not slip from the hand when grasped by the latter, and will lie flat and fully within the hand, the rear ends of said blades beyond their pivoted connection being supported from the casing, and actuating means within the casing for effecting said cutting movement of the blades.

2. A portable mechanically operated scissors, comprising a relatively flat substantially elliptical casing of a size and perimetric contour to fit the hand when grasped by the latter, a pair of scissors blades supported and extending from one end of the casing in substantial alignment therewith and pivoted together beyond the casing, and actuating means within said casing for operating said blades to produce a cutting action.

3. A portable mechanically operated scissors, comprising a shallow substantially elliptical casing having flat side walls of greater area than the other surfaces thereof and forming the handle of the scissors to be readily grasped by the hand, a pair of pivoted blades supported by said casing and mounted to have a relatively scissors-like movement, and the plane defined by the cutting movement of the blades passing through the major portion of the casing, an actuating mechanism mounted within said casing and having operable connection with said blades to cause a scissors-like cutting movement of the latter.

4. A mechanically operated portable scis-

sors, comprising a casing forming a substantially elliptical handle of the scissors, a pair of pivoted blades to have a relatively scissors-like movement, said casing being substantially flat and having the major portion thereof lying in the plane of the cutting movement of said blades and consisting of two slightly spaced oppositely disposed flat plates having their peripheral edges contacting, means for maintaining said plates together, each blade having a rearward extension projecting beyond their pivot, the extension of one of said blades being stationarily mounted on one of said plates and the other extension freely projecting in the casing, a worm wheel mounted within the casing and on the same plate with the blade, a worm shaft journaled on the same plate in the casing and in engagement with said wheel, a flexible shaft extending into the casing and connected to said worm shaft, a crank pin on said wheel and connected to said free extension whereby the blade thereof is oscillated relative to the other blade.

In testimony whereof I have hereunto set my hand.

LON HERNON.