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D. G. LOOSEN
VIBRATING APPLICATOR

2,512,499

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Fig. 1

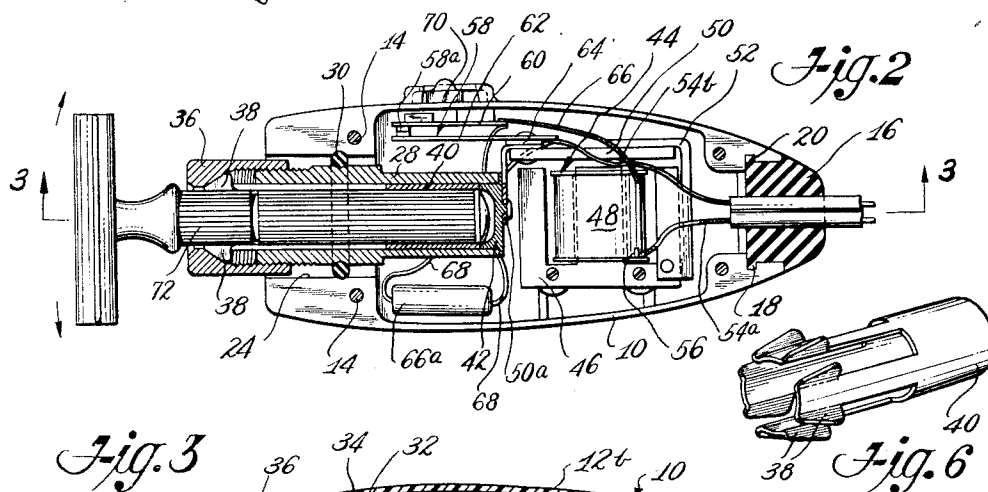
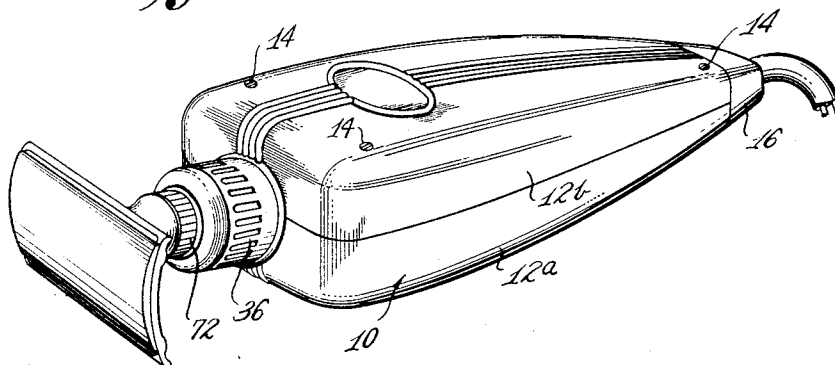


Fig. 3

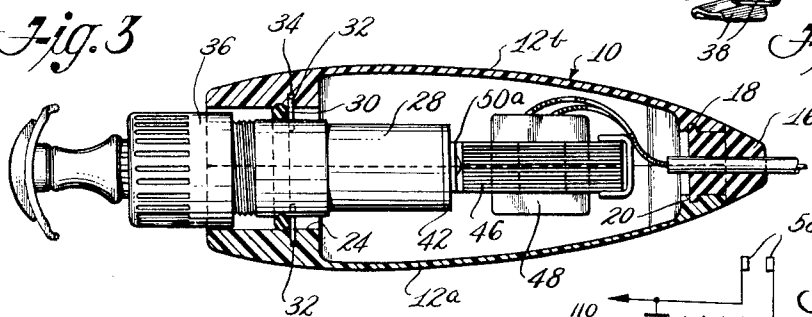


Fig. 5

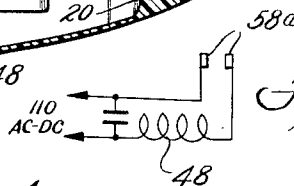
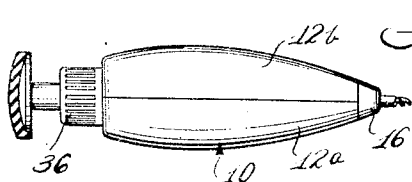


Fig. 4



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VIBRATING APPLICATOR

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2 Claims. (Cl. 172-126)

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My invention relates to a hand held device provided with means for receiving and clamping a variety of instruments such as massaging tools or an ordinary safety razor, and provided with electrical operating means imparting an oscillatory movement to the head of the tool such as a safety razor clamped in the device.

A wide variety of facial and other massage tools are in use which require the tool to be rapidly moved over the surface of the skin, as for instance rubber pads with projecting fingers which are used to stimulate blood circulation in the scalp, or small pads used to work facial cream into the skin of the face and to tone up the skin, or safety razors. The manipulation of such applicators involves considerable effort if properly carried out and it is the general object of my invention to provide a device to which a variety of tools of the kind referred to may be attached and which merely requires to be pressed against and guided over the skin, the tool being activated by the electrical mechanism arranged in the device.

An object of my invention is to provide an applicator device adaptable to a wide variety of purposes by the use of tools usually used manually as well as those designed for machine operation, yet of simple and sturdy construction.

Another object of my invention is to provide an applicator device providing a greater amplitude of the applicator tool than has previously been attained.

A preferred embodiment of my invention is shown in the accompanying drawings but it is to be understood that various changes in and modification of parts may be made by those skilled in the art without departing from the scope of the invention as intended to be defined by the appended claims.

In the drawings:

Fig. 1 is a perspective view of the device of my invention showing a widely used form of safety razor mounted therein;

Fig. 2 is a vertical longitudinal section through the device shown in Fig. 1;

Fig. 3 is a cross section taken on the line 3-3 of Fig. 2;

Fig. 4 is a side elevation with a part in section showing a facial massage tool mounted in the handle;

Fig. 5 is a schematic wiring diagram showing the arrangement of electrical elements adapting the device to either A. C. or D. C. current; and

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Fig. 6 is a perspective view of a clutch jaw member.

In the drawings, the numeral 10 indicates the main section of the body of the device which may be molded from plastic material, and is preferably formed by two sections 12a and 12b secured together by screws 14 to form a case considerably wider in one direction than the other and of a length such that it may be comfortably held in the hand.

Preferably but not necessarily one end of the body is closed by a plug 16 of resilient and insulating material secured in place by a flange 18 fitting in an annular groove 20 formed in the two halves of the body. The opposite end of the body is provided with a relatively large bore 24.

A tubular tool mounting 28 is arranged in the forward end of the handle and is supported therein by a heavy ring 30 of resilient material fitting tightly on the tubular mount 28. A pair of pins 32 are set in the tubular mount 28 and extend into bores 34 drilled at diametrically opposite points into the wall of the bore perpendicular to the plane of oscillation of the tubular member. The pins 32 serve to hold the tubular member in position in the body 10 and also act as trunnion bearings therefor.

The forward end of tubular mount 28 is threaded and a knurled round nut 36 is screwed onto the threaded portion and acts to tighten jaws 38 arranged within the tubular mount and retained therein in any suitable manner. In the form of the invention illustrated the jaws are formed by slotting one end of a tube 40 fitting easily in tubular member 28, and providing tapered shoulders at the forward ends of the jaws by bending up the edges. The end of the tube is closed by an end plug 42 fitting in the inner end of the tubular mount. The tapered forward ends of the jaws are engaged by a tapered inner surface on nut 36 in the usual manner.

The tubular mount is oscillated about its trunnion bearing pins 32 by an electromagnetic operating element 44 of any suitable kind. As shown in the drawings the operating element comprises pole pieces 46 and winding 48 with an armature 50 free to vibrate on a flat spring mount 52 acting to normally hold the armature spaced from the poles. A bracket 50a is riveted at one end to armature 50 and at the other end to plug 42. Electric leads 54a, 54b are led through plug 16, which forms a watertight seal around them and one lead 55a is connected to a terminal 55 56 of the winding 48. In order to adapt the

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device to use with either A. C. or D. C. current, I provide a make and break or vibrator contact 53 operated by movement of the armature 50. The contact comprises a fixed element 60 mounted on the body 10 and a movable element 62 mounted on the armature 50 but insulated therefrom by a block of material 64. A lead 66 connects fixed contact element 60 to the other end of winding 48. Lead 54b is connected to the movable contact element 62. It will be evident that as armature is attracted toward the pole pieces of the electromagnet the circuit of the electromagnet is broken and the armature will spring away from the pole pieces thus again completing the electric circuit through winding 48 again attracting the armature and again breaking the circuit. The vibrating movement of the armature 50 is transmitted to the tool mount 28 by the bracket 50a. In order to prevent radio interference caused by sparking at the contact points 58a, a small capacitor 66a is connected across the contact points in parallel with leads 54a, 54b by leads 68. Preferably a switch 70 is provided on the body 10 by which the device may be switched on and off. A suitable form is shown in Fig. 2 consisting of a small permanent magnet mounted to slide on the outer surface of the body and co-operating with a piece of soft iron 70a fastened to the upper arm of the contact. When the magnet 70 is slid into position over 70a the latter will be attracted and the contacts 58a held open but when magnet 70 is slid out of this position the contacts are free to function normally. No opening in the body is required by the described switch construction.

Operation

When it is desired to use the device a tool having a stem or handle 72 such as a razor or applicator for facial cream is inserted in the tool mount 28 and clamped therein by screwing up nut 36 to tighten the jaws against the handle 72. The device may then be brought into operation by switching on the electric current whereupon the head of the tool will be oscillated with great rapidity about the axis of the pins 32. If a safety razor of the usual elongated head type is to be used the razor is clamped with its head extending in line with the wide face of the device resulting in a rapid oscillation of the cutting edge in the direction of its length which when the razor is moved across the skin in a line perpendicular to the cutting edge results in the oblique cutting

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action which is most effective. It is pointed out that since oscillation takes place freely about the pins 32 acting as trunnion bearings the usual vibration of the body in devices of this kind due to the impact of moving parts against the case, is absent. It will further be noted that the body is sealed against the entry of dust, water, or foreign particles by the resilient ring 30 at one end of the body and resilient plug 16 at the opposite end of the body.

I claim:

1. An oscillator comprising: a hollow body portion adapted to be held in the hand, and having an opening extending through one end thereof; an elongated tool holder adapted to securely hold a variety of tools and extending through said opening; trunnion bearing pins extending from said elongated tool holder into bores in the wall of the opening; and electrical means mounted in said hollow body portion and effective to oscillate the inward end of the tool holder.

2. An oscillator comprising: a hollow body portion adapted to be held in the hand, and having an opening extending through one end thereof; an elongated tool holder extending through said opening; a chuck mounted on said tool holder whereby a variety of tools may be interchangeably fitted to the outer end thereof; a pair of projections extending from opposite sides of said tool holder and fitting in bores formed in the wall of the opening to form trunnion bearings for the tool holder; a ring of resilient material under compression between the outer surface of the tool holder and the wall of the opening and effective to seal said opening while permitting oscillatory motion of the tool holder about its bearings; and electrical means mounted within the hollow body and effective to oscillate the inward end of said tool holder.

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