

[54] **ELECTRIC SKIN HYGIENE BRUSH**
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[22] Filed: **May 27, 1971**
[21] Appl. No.: **147,414**

[52] U.S. Cl. 15/28, 310/50
[51] Int. Cl. A46b 13/02
[58] Field of Search.....15/23, 24, 28, 29,
15/97, 3.53; 200/159 A; 310/50; 132/73.6

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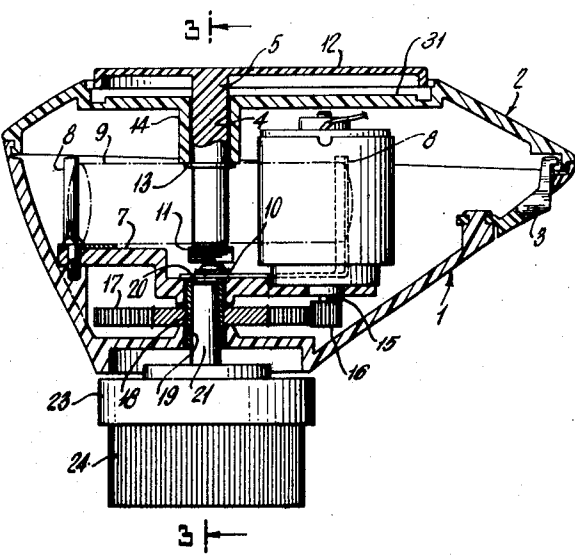
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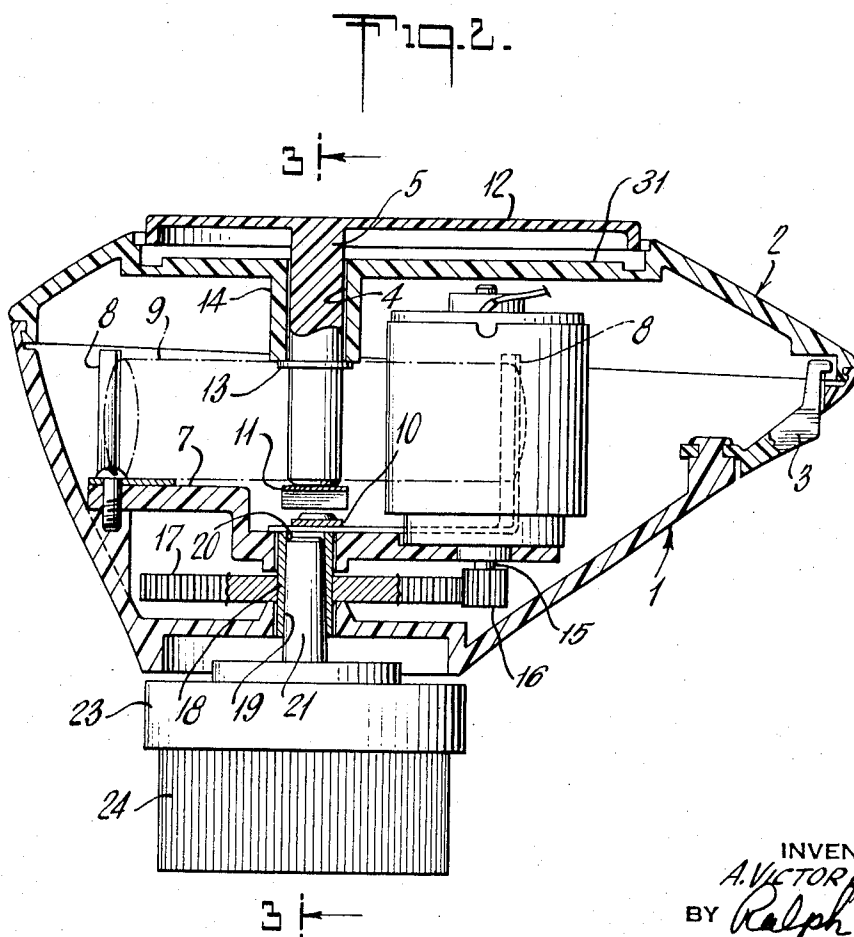
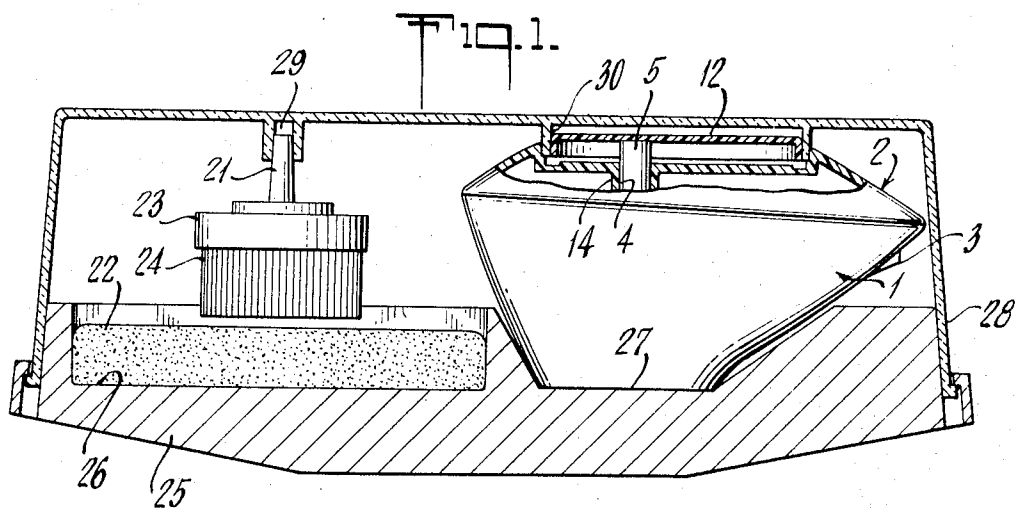
[57] **ABSTRACT**

A skin cleansing brush including a housing with a battery powered motor mounted therein rotating a tubular drive shaft which removably receives the stem of a brush having soft bristles for engaging the skin of a user. The housing has a configuration to be gripped by a single hand of a user, and an actuator button is disposed on a broad end of the housing to facilitate actuation of the brush.

5 Claims, 5 Drawing Figures



SHEET 1 OF 2



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Fig. 3.

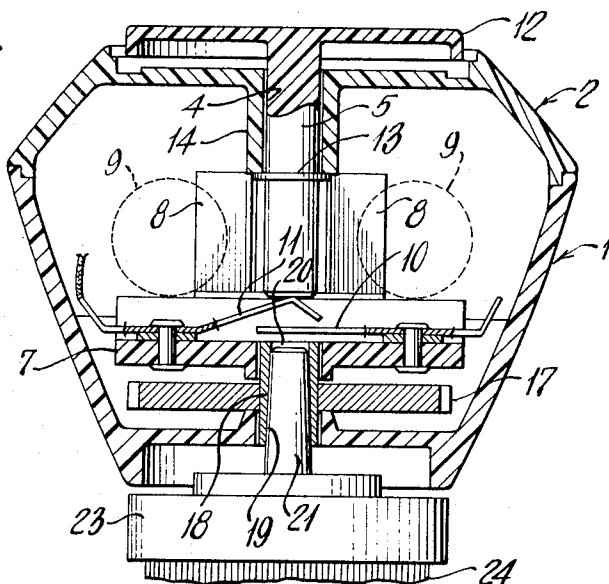


Fig. 4.

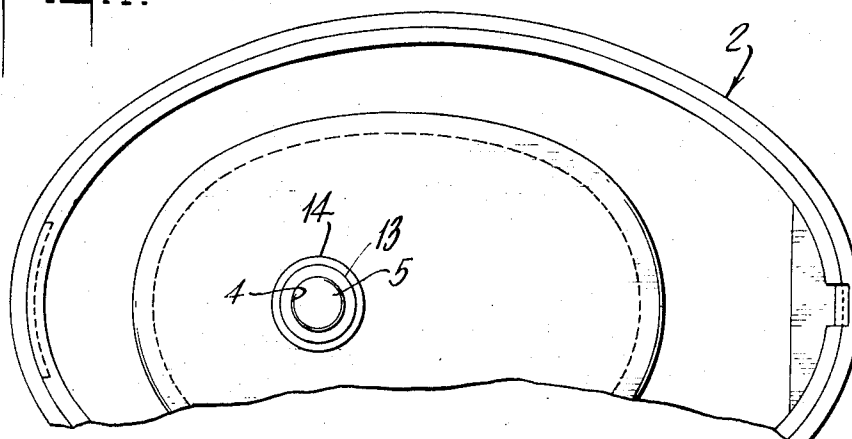
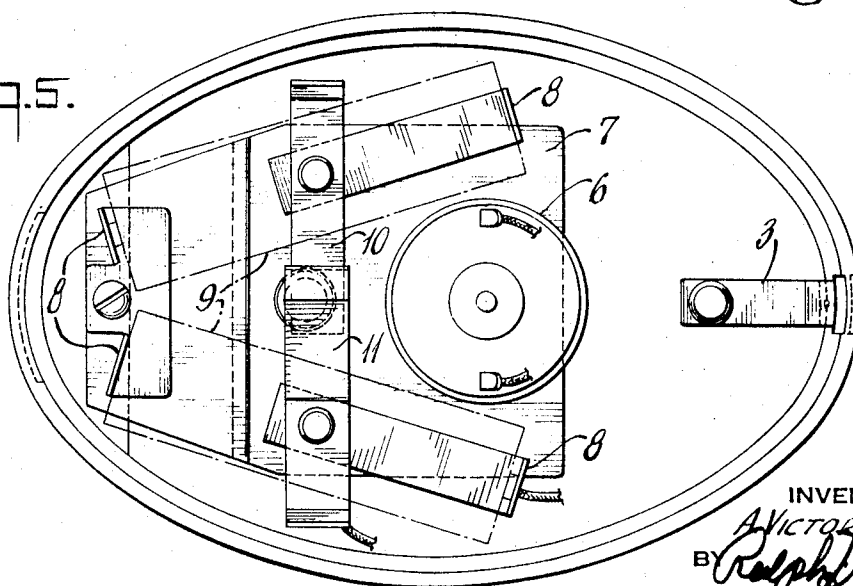


Fig. 5.



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ELECTRIC SKIN HYGIENE BRUSH

The purpose of this invention is to provide a hand-held electrical appliance for applying soaps, creams, cleansers or other skin hygiene preparations to the skin in an efficient and convenient manner.

Another object is to provide a battery powered rotary brush which can be used for massaging and other functions which are necessary to good skin hygiene.

The present invention is generally characterized in a skin cleansing brush, including a housing having side walls diverging from a narrow driving end to a broad actuating end, the housing having a configuration to be gripped by a hand of a user; an electric motor mounted in the housing; a tubular drive shaft rotatably mounted in the housing in alignment with a passage in the driving end; a reduction gearing system coupled with a rotor of the motor and the drive shaft to drive the drive shaft at a rotational speed less than the rotational speed of the rotor; a brush having a stem removably received in the drive shaft and carrying soft bristles for engaging the skin of a user; a switch disposed in the housing and adapted to connect the motor with a source of electricity; and actuator means including an elongate post having an end controlling the switch and terminating at an opposite end at a button extending transversely of the post external of the housing, the actuating end of the housing having a recess therein extending over a substantial portion thereof and having a configuration mating with the configuration of the button, the button being depressible into the recess to actuate the switch and energize the motor to rotate the brush.

The details of this invention are illustrated in the following drawings:

FIG. 1 is a side view of the appliance mounted in its case showing the cover and base of the case in section.

FIG. 2 is a side view of the interior of the appliance showing the housing in section.

FIG. 3 is a front sectional view of the interior of the appliance along section lines 3.

FIG. 4 is a bottom plan view of the housing cover.

FIG. 5 is a top plan view of the appliance with the cover removed.

The preferred embodiment of this invention consists of a housing 1 having a cover 2 which engages a body of the housing in a snap fit. The housing has a configuration to be gripped in a single hand of a user with side walls diverging from a narrow driving end to a broad actuating end defined by cover 2. The cover is made readily removable by a latch mechanism 3. The cover 2 is constructed having a passage 4 which receives a switch actuating post 5 in slidable engagement at the broad actuating end of the housing.

An electric motor 6 is mounted in housing 1 on a bracket 7 which is screwed to the housing. Bracket 7 also supports battery contacts 8 which are made of a resilient electrically conductive metal. The contacts 8 are constructed to allow batteries 9 to be forced between them and to be maintained in electrical contact by the resiliency of the contacts 8.

The motor may be energized by a simple series circuit comprising two 1.5 volt batteries 8 connected in series with the motor 6 and normally open switch contacts 10 and 11. When the contacts 10 and 11 are engaged, current flows in the circuit causing the motor 6 to rotate.

Switch contact 10 is stationery while switch contact 11 is movable. Contact 11 is a simple leaf spring which is normally biased in the upward position as shown in FIG. 3. The switch contacts are therefore normally open. position where

Contact 11 engages the switch actuating post 5 which extends upward through cover 2 at the actuating end of the housing and carries an actuating button 12 external of the housing, the actuating button extending transversely of post 5 and received in a recess 31 in cover 2 having a configuration mating with the configuration of button 12. The recess 31 extends over a substantial portion of the broad actuating end of the housing 1, and button 12 similarly extends over a substantial portion of the actuating end of the housing to facilitate actuation of the switch contacts while the housing is gripped in the hand of a user. The spring action of contact 11 maintains the post 5 in its uppermost position where a stop 13 carried by the post abuts the 14 end of a sleeve defining passage 4. Pressure on actuating button 12 depresses contact 11 against the spring bias into engagement with contact 10 thereby closing the circuit and energizing motor 6.

Attached to a rotor 15 of motor 6 is a drive gear 16 which engages a gear 17 having a relatively large diameter so that a speed reduction is accomplished. Gear 17 is mounted on an axial shaft 18 which in turn is journaled for rotation between bracket 7 and housing 1. As best shown in FIG. 2, shaft 18 is tubular and extends through a passage 19 in the narrow driving end of housing 1 to the exterior thereby providing a socket 20 for a brush stem 21 of a brush 23 is provided with soft bristles 24.

In operation pressure on button 12 closes switch contacts 10 and 11 to energize motor 6 rotate rotor 15 and gear 16 thereby turning gear 17 to which is attached the brush. The brush is run under water and then applied to the cleanser bar 22 shown in FIG. 1 until a lather is formed. The lathered brush may be applied to the skin to remove dirt.

The appliance may be provided with a case as shown in FIG. 1 which consists of a base 25 having a well 26 to receive a bar of soap 22 and a well 27 to receive the appliance. The case is also provided with a cover 28 having a socket 29 to receive brush stem 21 for storage. To prevent rattling, the cover is also provided with cylindrical ridge 30 which engages a depression at the top of cover 2 and holds the appliance securely during storage.

I claim:

1. A skin cleansing brush comprising
 - a housing having side walls diverging from a narrow driving end with a passage therein to a broad actuating end, said housing having a configuration to be gripped by a hand of a user;
 - an electric motor mounted in said housing having a rotor;
 - a tubular drive shaft rotatably mounted in said housing in alignment with said passage in said driving end of said housing;
 - reduction gear means disposed in said housing and coupled with said rotor and said drive shaft to drive said drive shaft at a rotational speed less than the rotational speed of said rotor;
 - brush means having a stem removably received in said drive shaft and carrying soft bristles for engaging the skin of a user;

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switch means disposed in said housing connected with said motor and adapted to be connected with a source of electricity; and

actuator means including an elongate post having one end controlling said switch means and terminating at an opposite end at a button extending transversely of said post external of said housing; said actuating end of said housing having a recess therein extending over a substantial portion thereof and having a configuration mating with the configuration of said button means, said button being depressible into said recess to actuate said switch means and energize said motor to rotate said brush means.

2. A skin cleansing brush as recited in claim 1 wherein said switch means includes a spring biased contact abutting said one end of said elongate post to bias said button away from said recess.

3. A skin cleansing brush as recited in claim 2

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wherein said housing has a sleeve carried at said actuating end, said elongate post being slidably received in said sleeve and carrying a stop adapted to abut an end of said sleeve to limit movement of said elongate post.

4. A skin cleansing brush as recited in claim 3 and further comprising means disposed within said housing for supporting batteries, said switch means connecting said battery support means with said motor.

5. A skin cleansing brush as recited in claim 4 wherein said reduction gear means includes a small diameter drive gear secured to said rotor and a large diameter gear peripherally meshing with said drive gear and secured to said drive shaft and said brush means includes a cylindrical base with said soft bristles extending transversely therefrom, said stem of said brush means being centrally secured to said base and received in said drive shaft in a forced fit.

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