

May 12, 1970

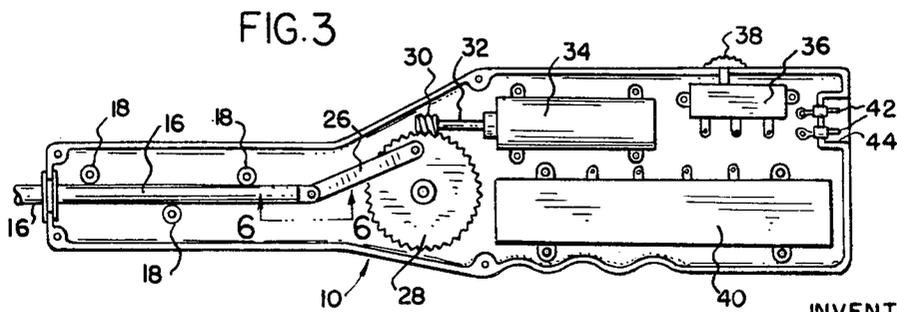
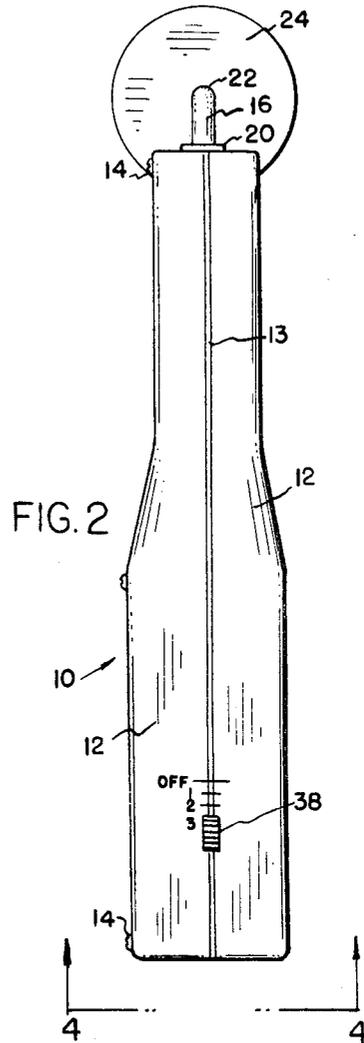
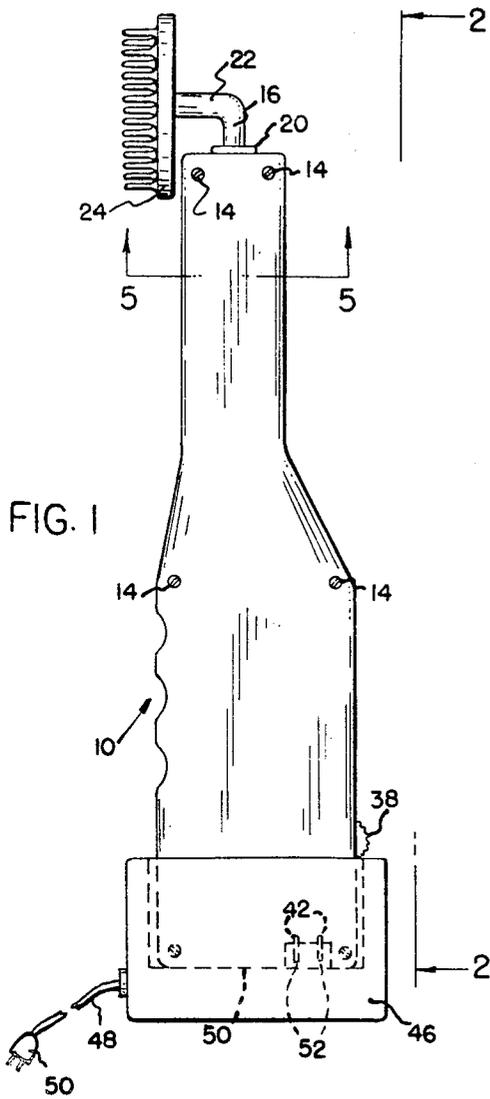
E. H. ROMO

3,511,229

PORTABLE BATTERY OPERATED HAIR SHAMPOOER

Filed Aug. 10, 1967

2 Sheets-Sheet 1



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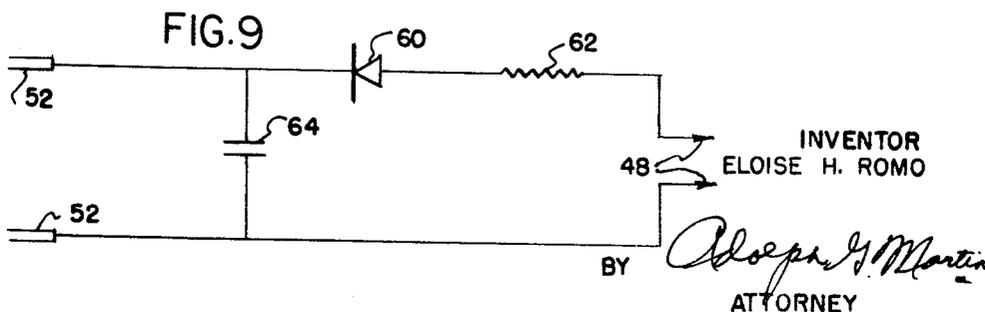
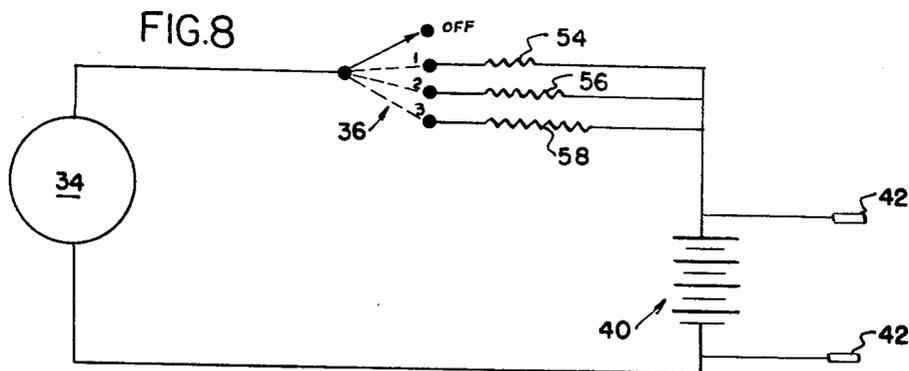
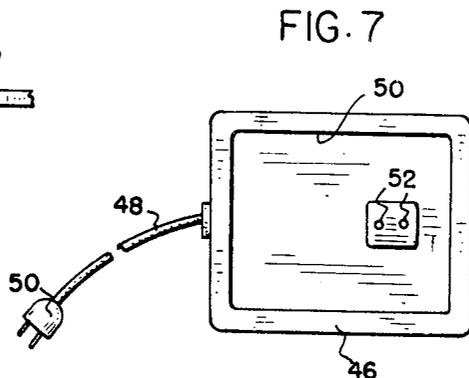
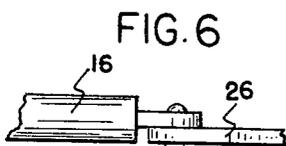
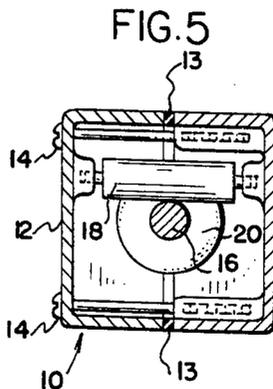
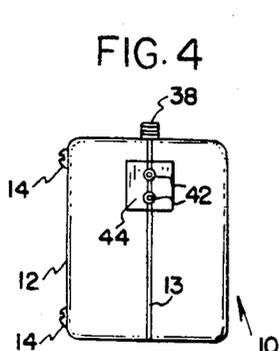
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PORTABLE BATTERY OPERATED HAIR SHAMPOOER

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2 Sheets-Sheet 2



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3,511,229

PORTABLE BATTERY OPERATED HAIR SHAMPOOER

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U.S. Cl. 128—52

3 Claims

ABSTRACT OF THE DISCLOSURE

A multi-speed portable hair shampooer operated by a self-contained rechargeable battery, and having a detachable scrubber head. The scrubber head is mounted on the end of a reciprocating shaft. The reciprocating shaft is supported by a plurality of rollers. A casing is provided for housing the various elements and in use, the casing is held in the hand while applying the scrubber head to the scalp.

BACKGROUND OF THE INVENTION

This invention relates to shampooers generally, and more particularly to a portable battery operated hair shampooer suitable for either home or professional use. Scrubbing the scalp and hair during a shampoo has remained a manual operation, because of the danger inherent in using a shampooer operated on the customary 110 volt electrical supply available in most homes and beauty salons. However, with the introduction of high capacity, low voltage rechargeable batteries, electrical appliances may now be designed for use in and around water without fear of severe shock or electrocution.

SUMMARY OF THE INVENTION

This invention comprises a portable hair shampooer having a scrubber head detachably mounted on a reciprocable shaft extending from a waterproof case. The reciprocable shaft is driven through a worm and spur gear assembly by an electric motor receiving power from a self-contained rechargeable battery. The shampooer is stored on a charger stand which is connectable to a source of electrical potential by means of an extension cord.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a side elevation view showing the applicant's shampooer supported on the charger stand 46.

FIG. 2 is a side elevation view, taken substantially on plane 2—2 in FIG. 1, showing the applicant's shampooer detached from the charger stand.

FIG. 3 is an elevation view of the shampooer, with the cover 12 removed from the case 10, showing structural details of the invention.

FIG. 4 is an end view, taken substantially on plane 4—4 in FIG. 2, showing the battery terminals 42 in the recess 44 of the case 10.

FIG. 5 is an enlarged section view, taken substantially on plane 5—5 in FIG. 1, showing the spaced rollers 18 in the case 10.

FIG. 6 is a bottom view, taken substantially on plane 6—6 in FIG. 3, showing the pivotal connection between the reciprocable shaft 16 and the connecting rod 26.

FIG. 7 is a top plan view of the charger stand 46 showing the openings of the electrical outlet 52.

FIG. 8 is a schematic diagram showing connections between the various electrical components in the case 10.

FIG. 9 is a schematic diagram showing connections between the various electrical components in the charger base 46.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Construction

For structural details of the invention, reference is made to the drawing in which numeral 10 designates a waterproof case having a removable cover 12, with a gasket 13 therearound and attached by screws 14. A shaft 16 is supported in the case 10 for reciprocal movement between spaced rollers 18. The shaft 16 extends from one end of the case 10 through a sealing grommet 20, and is provided with a terminal section 22 disposed at approximately 90 degrees to the longitudinal axis of the shaft 16.

A scrubber head 24 is removably threaded on the end of the terminal section 22 of the shaft 16. The inner end of the shaft 16 is operatively attached by a connecting rod 26 to a rotatable spur gear 28. A worm drive gear 30, engaged with the spur gear 28, is mounted on the shaft 32 of a multi-speed direct motor 34. A control switch 36 for the direct current motor 28, has a selector button 38 slidably seated on the case 10.

A rechargeable battery 40, preferably of the nickel cadmium type, for operating the direct current motor 34, is mounted in the case 10. A pair of spaced insulated terminals 42, for connection to the battery 40 are provided in a protective recess 44 at one end of the case 10. A charger stand 46, for the case 10, has an electrical cord 48 with a plug 50 thereon for connection into an electrical outlet not here shown. The charger stand 46 provides a pocket 50 for holdably receiving the case 10 and supporting it in an upright position as shown in FIG. 1.

A two pole electrical outlet 52 in the pocket 50 of the charger stand 46 is adapted to receive the two spaced insulated terminals 42 in the protective recess 44 when the case 10 is resting on the charger stand 46. In practice, a variety of scrubber heads 24 may be provided for use with the applicant's shampooer so that it may be readily adapted to meet the individual requirements of each user.

ELECTRICAL CIRCUITRY

As shown by the schematic diagram of FIG. 8, the multi-speed direct current electrical motor 34 is connected to the rechargeable battery 40 through the control switch 36. The control switch 36 has three current limiting resistors 54, 56 and 58, each providing a different operating speed for the electrical motor 34. The spaced insulated terminals 42 in the case 10 are connected one to each pole of the battery 40.

As shown by the schematic diagram of FIG. 9, the two pole electrical outlet 52 in the pocket 50 of the charger base 46 is connected through a silicon diode rectifier 60 and a current limiting resistor 62 to the electrical cord 48. A filter capacitor 64 is connected across the terminals of the two pole electrical outlet 52.

Based upon the foregoing discussion, the applicant is of the opinion that his invention has fulfilled a long-felt need in the field of shampooers, and that he has accordingly made a valuable contribution to the related art. However, while the invention was described with reference to the structural details of a single embodiment, it will be appreciated by those familiar with the art that the principles involved are susceptible of numerous other practical adaptations.

I therefore claim as new and desire to secure by Letters Patent:

1. A hair shampooer comprising a case, an electric motor in the case, a battery in the case for operating the electric motor, a spur gear mounted for rotation in the case, means for driving the spur gear operatively connected to the electric motor, longitudinally spaced rollers transversely mounted in the case, a shaft supported on

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the spaced rollers having one end projecting from the case, a rod pivotally connected to the other end of the shaft, pivoted means connecting the rod eccentrically to the spur gear so as to impart a reciprocating movement to the shaft when the electric motor is in operation, and a scrubber head on the projecting end of the shaft.

2. The hair shampooer of claim 1 having in addition a terminal section on the projecting end of the shaft disposed thereto at substantially right angles.

3. The hair shampooer of claim 2 having in addition thereto, a charger stand for holdably receiving the case and charging the battery.

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U. S. Cl. X.R.

4—159; 15—22