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C. H. REHBERG
HAIR BRUSH CLEANER

3,072,939

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2 Sheets-Sheet 1

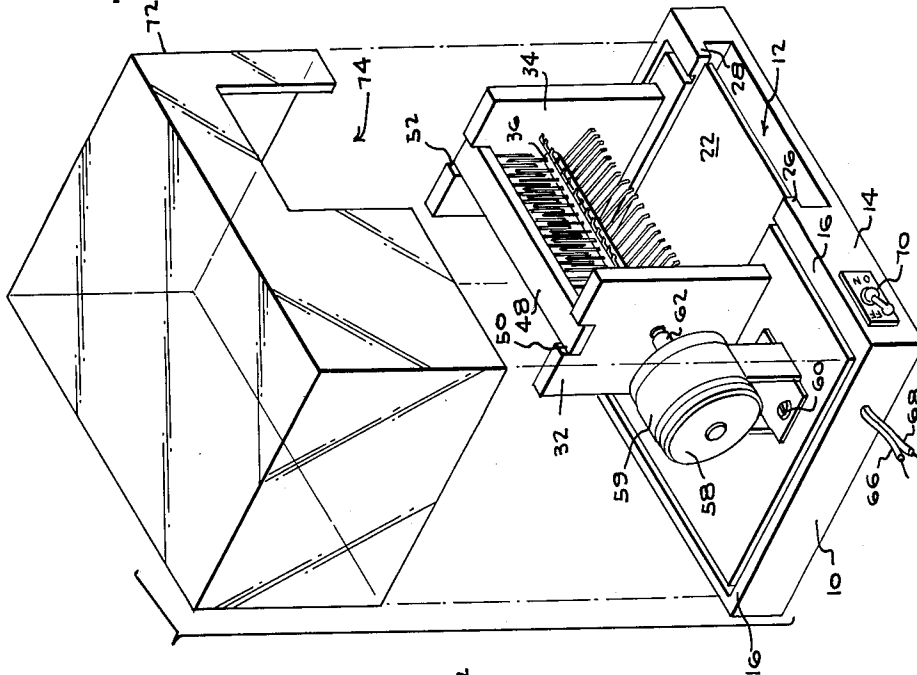
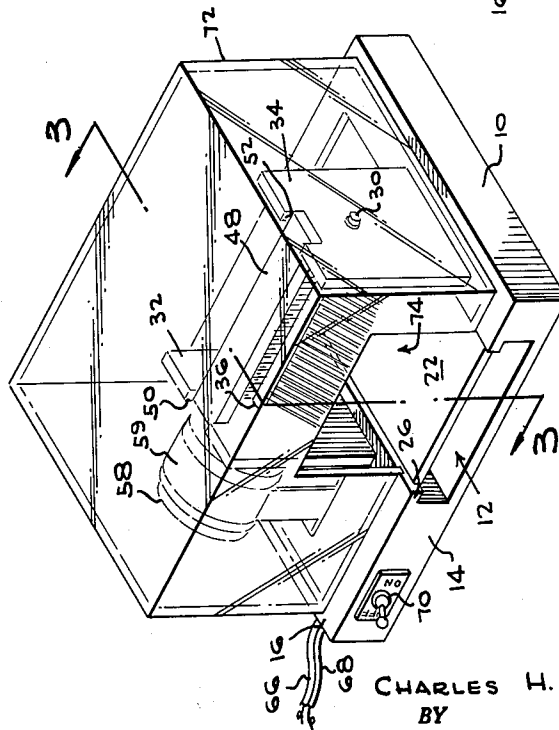


FIG. 2

FIG. 1



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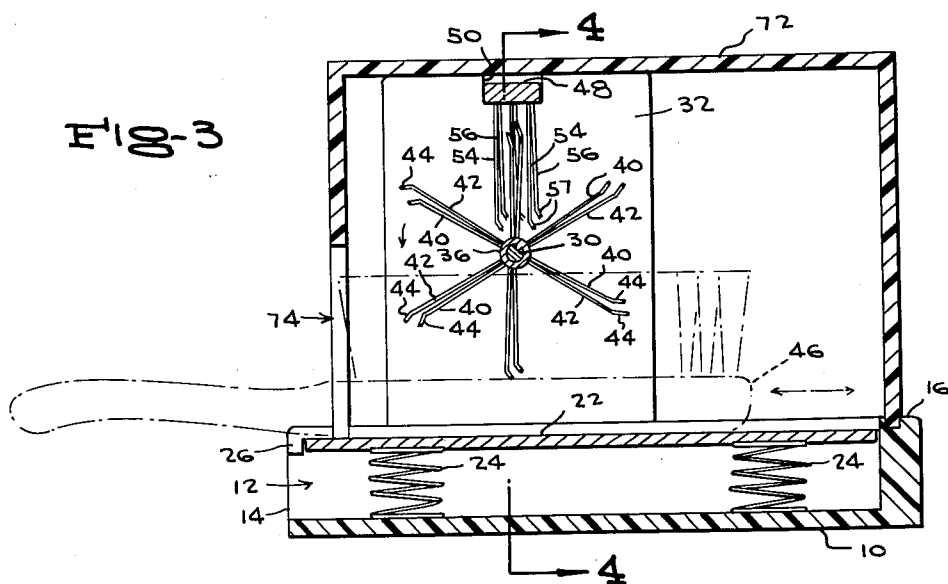
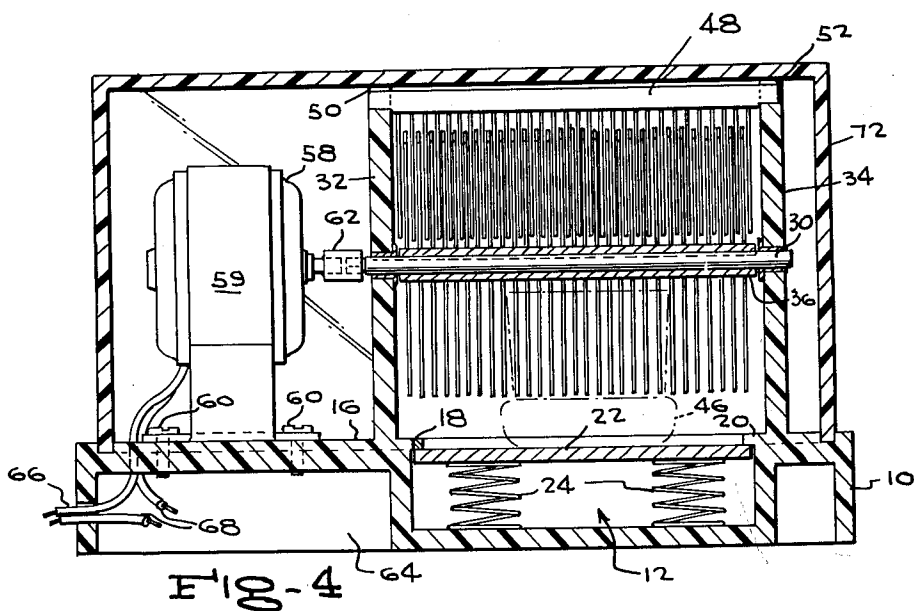
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HAIR BRUSH CLEANER

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6 Claims. (Cl. 15—38)

This invention relates to brush cleaners and the like, and particularly to a cleaner for hair brushes. In any environment of use, a hair brush is inherently subject to the objectionable feature of accumulating strands of hair, in matted condition, throughout the bristles, and these must be painstakingly removed, at frequent intervals, especially where cleaning and sterilization are required after each use, as in commercial establishments. Obviously, this is time-consuming when performed by hand, even with the aid of an implement, such as a comb, as well as being a distasteful task, and it is therefore an object of the present invention to provide a machine which will remove foreign matter from the bristles of a brush, without manual effort beyond that involved in inserting the brush in the machine.

More particularly, it is an object to provide a brush-cleaning machine which scavenges the bristles with a rotary element having radial fingers, in association with a stationary, pronged cleaner which sequentially cleans the fingers of the rotor. A further object is to provide a cleaning machine which has a yieldable feed means, so as to be adapted for various sizes of brushes. Other objects include the attainment of economy, in time and cost, and more efficient cleaning, by a device which is simple in structure, yet durable and reliable in performance.

These and other ends, which will be apparent to those skilled in the art, are attained by the present invention, a preferred form of which is described in the following specification, as illustrated in the drawings, in which:

FIGURE 1 is a perspective view of the machine as a whole, with its cover in place,

FIGURE 2 is a view similar to FIGURE 1, with the machine base rotated through 90°, and the cover shown in exploded position,

FIGURE 3 is a sectional view taken on the plane of the line 3—3 of FIGURE 1, and

FIGURE 4 is a sectional view taken on the plane of the line 4—4 of FIGURE 3.

Referring to the drawings by characters of reference, there is shown a rectangular, base slab 10, which mounts the essential parts of the machine. The base is provided with a rectangular recess 12 opening into the front face 14 and the upper face 16 of the base slab, the latter opening being of a width less than that of the recess, so as to provide soulders 18, 20, (FIGURE 4), the purpose of which is to retain a feeding platform 22, which is mounted for vertical movement across the depth of the recess 12, and which is biased in upward position by a set of four coil springs 24, carried by the underside of the platform, and reacting against the bottom of the recess. Downwardly depending flanges 26, 28 on the base, at the front of the recess, restrain the platform from outward movement.

The rotor element of the cleaner has a central shaft 30, journaled at its ends, centrally in a pair of upright bearing blocks, or standards, 32, 34, and keyed to the shaft is an elongate hub 36, of wood, plastic, or other suitable material, in which are mounted the radially extending, scavenger fingers, preferably of stiff wire. The number and arrangement of these fingers is susceptible of wide variation, depending on circumstances of use, and for illustrative purposes, there is shown an arrangement having two series of fingers, with short fingers 40, and slightly longer fingers 42, each type having a short, angularly bent, end section 44, which increases the ability of the

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fingers to seize the contaminating hair in the bristles, and withdraw it therefrom. In the situation shown in FIGURE 3, with a hair brush 46 indicated in phantom as positioned on the platform 22, and with its bristles engaged by the cleaning fingers, the size of the brush is such that the surface in which the bristles are embedded is just contacted by the longer fingers 42, while fingers 40 fall sort of reaching the solid part of the brush. Of course, this exact situation will not necessarily obtain in practice, and it is more likely that with the brush in its uppermost position, as urged by the springs 24, the ends of the long fingers will make early engagement with the brush, and have an appreciable period of contact, during which it will be constrained to bend, and this will result in a more thorough pick-up at the solid surface of the brush.

Having performed their function of removing hair from the bristles, the fingers on the rotor will themselves, be contaminated, due to entanglement among the hair mass, and would be ineffective to perform their function on the next swing through the bristles unless unburdened of the material. For this reason, a cleaner for the rotor fingers is provided in the form of a stationary mount having a series of depending prongs between which the rotor fingers pass after leaving the bristles. Thus, a mounting plate 48, lodged in notches 50, 52 in the top edges of the standards 32, 34, and spanning the space between the latter has a series of depending pairs of long and short prongs 54, 56, having bent end sections 57 which in the example shown are arranged in three rows, above the hub 36, and distributed between the standards 32, 34, generally coextensive with the array of rotor fingers 40, 42 axially of the shaft, and positioned and spaced to permit passage of the rotor fingers with only slight clearance, whereby to effect an efficient transfer action, which plucks the hair from the rotor fingers. For periodic removal of the accumulated hair or other debris, the prong holder 48 is merely lifted from its mounting, and the material removed with a simple motion of the fingers, with the aid of a tissue, for instance.

The rotor is powered by any suitable means, such as a motor 58, carried in a frame 59, secured by screws 60 to the base 10, the motor being coupled to the shaft 30 by a sleeve 62. As seen in FIGURE 4, the base 10, which may be molded from plastic material, may be largely hollow on its under side, and in one chamber 64 of this portion, the leads 66, 68 of the motor are contained, the latter being broken to provide leads to a motor switch 70 secured to the front of the base.

In order to avoid untidiness the system is confined during operation by means of a box-like cover 72, preferably of transparent plastic to enable viewing of the cleaning operation, the cover having an opening 74 in one face, of a size permitting the passage of a brush of any size up to a contemplated maximum, or passage of more than one brush at a time, if desired.

In operation, the motor is started, and the brush inserted through the opening, and caused to slowly progress backward into the box. As shown by the arrow in FIGURE 3, the direction of rotation, and the direction of the bent ends of the fingers is such as to produce the most effective cleaning action upon withdrawal. However, in a slow movement of the brush, this difference assumes less importance, and effective cleaning is obtained both in the stage of insertion and the stage of withdrawal. If desired, most of the cleaning action may be assigned to the withdrawal movement, by the expedient of bearing down on the platform 22, against the spring pressure, during inward movement of the brush. In general, the system provides a flexibility of operation which permits various modes of handling the cleaning problem,

the application of which to any particular job will be apparent to the user after a short period of practice.

While a certain preferred embodiment has been shown and described, various modifications will be apparent to those skilled in the art, in the light of this disclosure, and the invention should not therefore, be deemed as limited, except insofar as shall appear from the spirit and scope of the appended claims.

I claim:

1. A brush cleaning device comprising a rectangular base having a recess opening through its upper surface, and one side face, a platform coextensive with said recess and movable depthwise thereof, spring means urging said platform in a direction away from the bottom of said recess, stop means limiting movement of said platform, as urged by said spring means, a pair of bearing blocks carried by said base, on opposite sides of said recess, a rotor comprising a shaft journaled in said bearing blocks, means to rotate said shaft, a sleeve carried by said shaft, between said bearing blocks, a series of radially extending fingers each with one end secured in said sleeve, and the outer, free end having a section angularly disposed with the radial direction from the sleeve, in the direction of rotation of said fingers, said fingers comprising two series of unequal lengths, a cross member with its ends supported on the respective, said bearing blocks, in overlying relation to said sleeve, and a series of prongs secured to, and depending from said cross member, arranged in a series of rows and columns, and having angularly disposed end sections, oriented in a direction opposite to the direction of rotation of said fingers, and positioned to clear the intervals between adjacent fingers of said rotor.

2. A brush cleaning device comprising a base, a platform arranged for movement to and from said base in an attitude parallel thereto, spring means urging said platform away from said base, stop means limiting movement of said platform by said spring means, a pair of bearing blocks carried by said base on opposite sides of said platform, a rotor comprising a shaft journaled in said bearing blocks, means to rotate said shaft, a sleeve carried by said shaft between said bearing blocks, a series of radially extending fingers, each with one end secured in said sleeve, and the outer, free end having a section angularly disposed with the radial direction from said sleeve, in the direction of rotation of said fingers, said fingers comprising two series of unequal lengths, a cross beam with its ends supported on the respective, said bearing blocks, in overlying relation to said sleeve, and a series of prongs secured to, and depending from said cross beam, arranged in a series of rows and columns, and having angularly disposed end sections, oriented in a direction opposite to the direction of rotation of said fingers and positioned to clear the intervals between adjacent fingers of said rotor.

3. A brush cleaning device comprising a base, a platform arranged for movement to and from said base, in an attitude parallel thereto, spring means urging said platform away from said base, stop means limiting movement of said platform, by said spring means, a pair of bearing blocks carried by said base on opposite sides of said platform, a rotor comprising a shaft journaled in said bearing blocks, means to rotate said shaft, a sleeve carried by said shaft, between said bearing blocks, a series of radially extending fingers, each with one end secured in said sleeve, and the outer, free end having a section angularly disposed with the radial direction from said sleeve, in the

direction of rotation of said fingers, said fingers comprising two series of unequal lengths, a cross beam with its ends supported on the respective, said bearing blocks, in overlying relation to said sleeve, and a series of prongs secured to, and depending from said cross beam, arranged in a series of rows and columns, and having angularly disposed end sections, oriented in a direction opposite to the direction of rotation of said fingers, and positioned to clear the intervals between adjacent fingers of said rotor.

4. A brush cleaning device comprising a base, a platform arranged for spring-urged, limited movement to and from said base, in an attitude parallel thereto, a pair of bearing blocks carried by said base on opposite sides of said platform, a rotor comprising a shaft journaled in said bearing blocks, means to rotate said shaft, a sleeve carried by said shaft, between said bearing blocks, a series of radially extending fingers, each with one end secured in said sleeve, and the outer, free end having a section angularly disposed with the radial direction from said sleeve, in the direction of rotation of said fingers, said fingers comprising at least two series, of unequal lengths, a cross beam with its ends supported on the respective, said bearing blocks, in radially disposed relation to said sleeve, and a series of prongs secured to, and depending from said cross beam, arranged in a series of rows and columns, and having angularly disposed end sections, oriented in a direction opposite to the direction of rotation of said fingers, and positioned to clear the intervals between adjacent fingers of said rotor.

5. A brush cleaning device comprising a base, a platform arranged for spring-urged, limited movement to and from said base, in an attitude parallel thereto, a pair of bearing blocks carried by said base on opposite sides of said platform, a rotor comprising a hub journaled in said bearing blocks and having radially extending fingers with hooked, outer ends, means to rotate said rotor, a mounting means carried by said bearing blocks, and a series of prongs, with hooked outer ends, carried by and depending from said mounting means, disposed generally radially of said hub, and located to clear the spaces between pairs of said fingers.

6. A brush cleaning device comprising a base, a platform arranged for spring-urged, limited movement to and from said base, in an attitude parallel thereto, a pair of bearing blocks carried by said base on opposite sides of said platform, a rotor comprising a hub journaled in said bearing blocks and having radially extending fingers with hooked, outer ends, slanted in the direction of rotation of said fingers, means to rotate said rotor, a mounting means carried by said bearing blocks, and a series of prongs, with hooked outer ends, oriented in a direction opposite to the direction of rotation of said fingers, carried by and depending from said mounting means, disposed generally radially of said hub, and located to clear the spaces between pairs of said fingers.

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