

Dec. 23, 1941.

C. E. ZIMMERMAN

2,267,547

FACIAL MACHINE

Filed March 18, 1940

2 Sheets-Sheet 1

Fig. 1

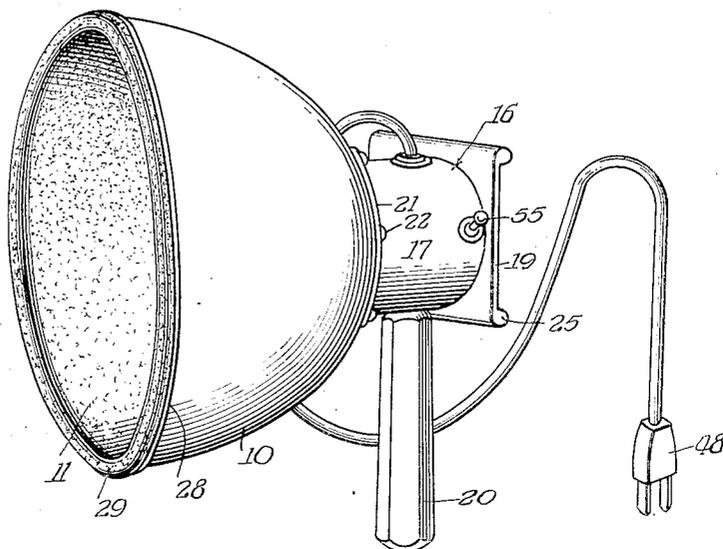


Fig. 2

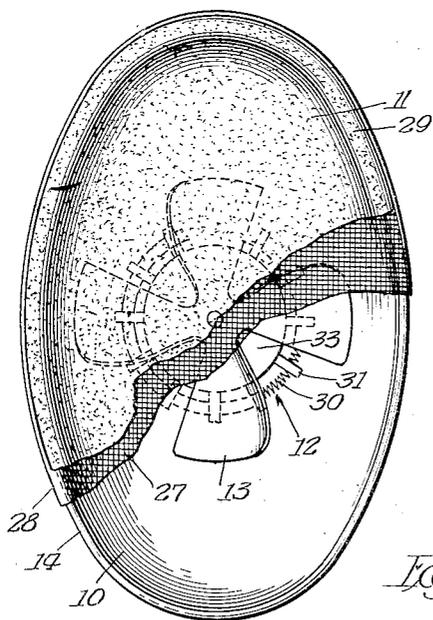


Fig. 3

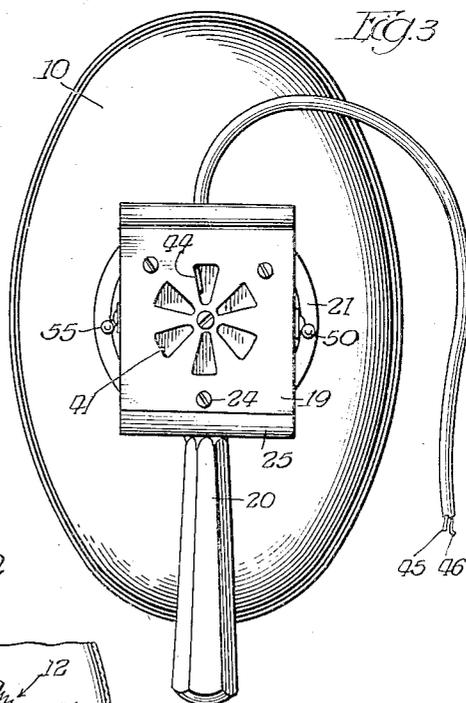
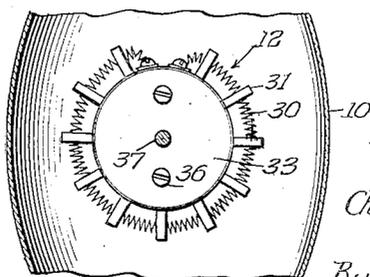


Fig. 4



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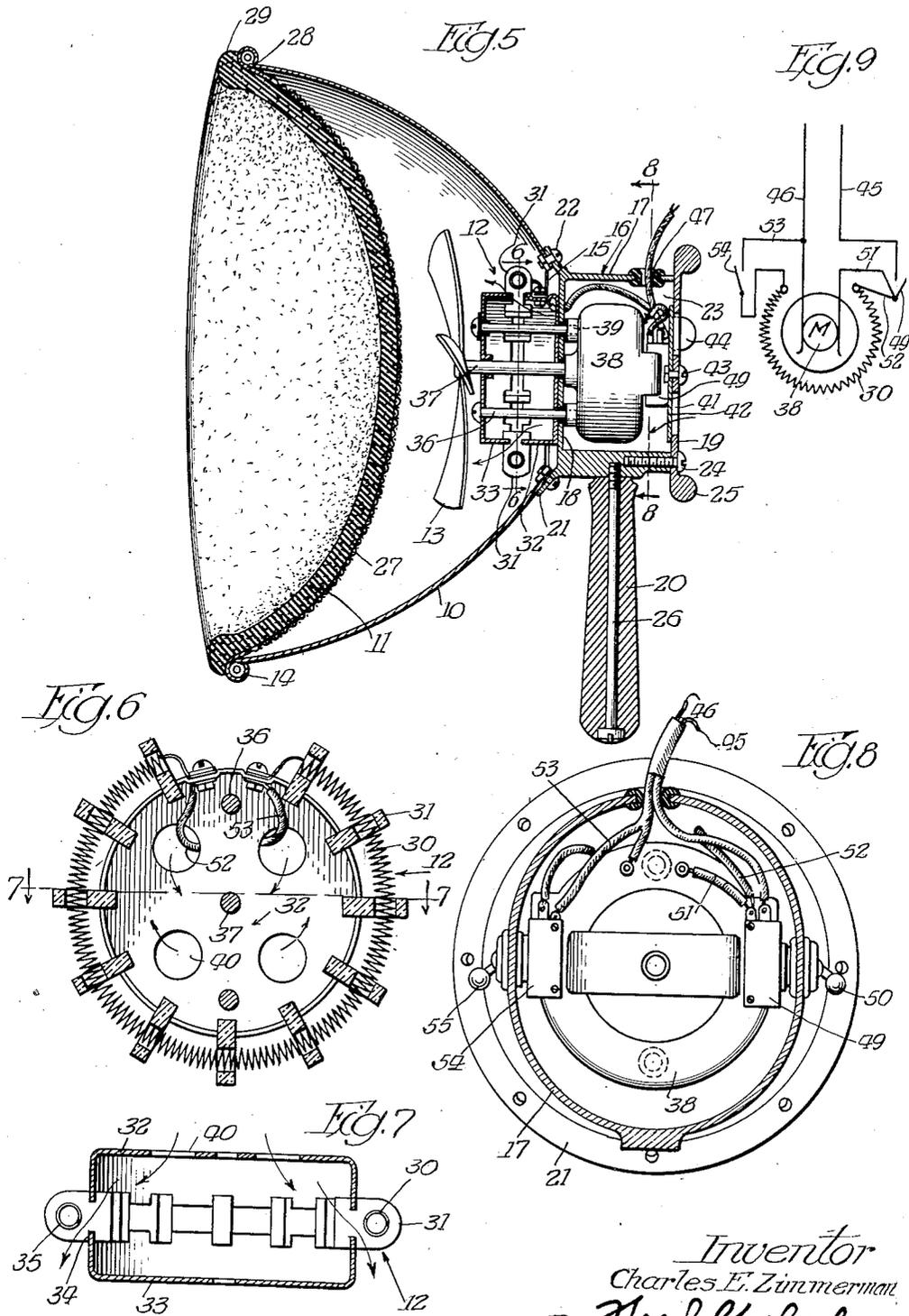
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FACIAL MACHINE

Filed March 18, 1940

2 Sheets-Sheet 2



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# UNITED STATES PATENT OFFICE

2,267,547

## FACIAL MACHINE

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Application March 18, 1940, Serial No. 324,647

4 Claims. (Cl. 128—256)

The present invention relates generally to machines for treating human faces. More particularly the invention relates to that type of facial machine which is designed for use in barber shops, beauty parlors, homes, hospitals and like places and as its main parts comprises: (1) a concavo-convex shell of metal or other stiff or rigid material, (2) a dishd absorbent pad which is removably retained or held within the shell and is adapted in connection with the use of the machine to be saturated with water or other liquid and then to receive the face of the user of the machine, and (3) an electric heater which is fixed within the shell and operates to heat the saturated pad so that the water or other liquid is converted into hot vapor or steam around the user's face.

One object of the invention is to provide a facial machine of this type which is an improvement upon, and has certain advantages over, previously designed machines for the same purpose.

Another object of the invention is to provide a facial machine of the aforementioned type in which the pad is formed of porous latex rubber and is held in spaced relation with respect to the inner face of the shell by way of a concavo-convex screen, the margin of which is secured to the margin of the shell.

Another object of the invention is to provide a facial machine of the type and character under consideration which includes within the shell a fan for circulating air past the electric heater and thence through the screen and pad.

Another object of the invention is to provide a facial machine of the last mentioned character in which the shell has air inlet openings adjacent the central portion thereof for permitting air to be drawn into it by the fan when the latter is operated in connection with use of the machine.

Another object of the invention is to provide a machine of the type and character heretofore mentioned which includes an electric motor for driving the fan and also a register-valve for controlling the flow of air into the shell via the inlet openings adjacent the central portion of the shell.

A further object of the invention is to provide a facial machine of the last mentioned character which includes a novel form or type of mounting for the electric heater, the fan, the fan driving motor and the register-valve.

A still further object of the invention is to provide a facial machine which may be manufactured at a comparatively low and reasonable cost and in which the various component parts

are arranged in a compact manner so that the machine as a whole occupies but a comparatively small amount of space.

Other objects of the invention and the various advantages and characteristics of the present facial machine will be apparent from a consideration of the following detailed description.

The invention consists in the several novel features which are hereinafter set forth and are more particularly defined by claims at the conclusion hereof.

In the drawings which accompany and form a part of this specification or disclosure and in which like numerals of reference denote corresponding parts throughout the several views:

Figure 1 is a perspective view of a facial machine embodying the invention;

Figure 2 is a front view, portions of the porous latex rubber pad and the concavo-convex retaining screen being broken away for illustrative purposes;

Figure 3 is a rear view of the machine;

Figure 4 is a fragmentary vertical transverse section showing in detail the design and arrangement of the electric heater;

Figure 5 is a vertical longitudinal section illustrating the arrangement and design of the parts;

Figure 6 is an enlarged vertical transverse section on the line 6—6 of Figure 5;

Figure 7 is an enlarged horizontal section on the line 7—7 of Figure 6;

Figure 8 is an enlarged vertical transverse section on the line 8—8 of Figure 5; and

Figure 9 is a diagrammatic view of the electrical circuit for supplying current to the heater and fan motor.

The machine which is illustrated in the drawings constitutes the preferred form of the invention. It is primarily designed for facial work and comprises as its main parts a shell 10, an absorbent pad 11, and electric heater 12 and a fan 13.

The shell 10 is concavo-convex, as illustrated in the drawings, and is preferably formed of stiff light metal so that it is rigid. During use of the machine the shell 10 is preferably held or maintained in a position wherein the axis thereof is horizontal. In such position the user of the machine may insert her or his face into the rim or marginal portion of the shell as hereinafter described. The shell is elliptical in vertical cross section in order that it conforms generally to the face. The margin of the shell is bent outwardly and then inwardly to form an out-rolled bead 14 for reinforcing purposes. At its central portion

the shell 10 is provided with a circular hole 15. A housing 16 is connected to the central portion of the shell 10 and serves as a closure for the hole 15. This housing constitutes a mounting or mount for the heater 12, the fan 13 and other operating parts of the machine and comprises a tubular side wall 17, a front wall 18 and a rear wall 19. The side wall 17 is substantially elliptical in cross section and carries at the bottom portion thereof a vertically extending handle 20. The front wall 18 of the housing is formed integrally with the front margin of the side wall 17 and embodies at the margin thereof an integral outwardly and forwardly extending annular flange 21. The latter fits against the portion of the shell 10 which defines the circular hole 15 and is removably connected to such portion by way of bolts 22. The side wall 17 of the housing together with the front and rear walls 18 and 19 defines a chamber 23. The rear wall 19 serves as a closure for this chamber and is removably secured in place by means of screws 24. The latter extend through holes in the rear wall and fit within internally threaded sockets in the housing side wall 17. The rear wall 19 is rectangular and embodies at the ends thereof rearwardly enlarged flanges 25. The latter constitute legs for supporting the machine when the latter is not in use. The handle 20 is fixedly secured to the side wall 17 of the housing by way of a screw 26 and is adapted to be gripped by the user of the machine in connection with use or manipulation of the machine. If desired the handle may be replaced by a standard (not shown).

The pad 11 is dished as shown in Figure 5, and fits within, and is removably carried by, a concavo-convex screen 27 in the front end of the shell 10. It is adapted to receive the face of the user of the machine and is formed of porous latex rubber. The rubber of which the pad 11 is formed is preferably of the "foam" variety having small communicating pores therein of various sizes up to a maximum of the order of magnitude of 0.075 inch, and a density between 0.0018 and 0.0060 pound per cubic inch. Such rubber is liquid absorptive. The pad 11 is of such thickness that the user's face may be embedded in it. The screen 27 is approximately half as deep as the shell and has around the margin thereof a continuous flange 28. This flange, as shown in Figure 5, extends around and is interlocked with the bead 14. The pad 11 is shaped conformably to the screen and is normally held by the latter within the open front end of the shell. The pad may be readily withdrawn from the screen for washing or other purposes and has an enlarged flange-like margin 29 which when the pad is in place, i. e., in abutment with the screen, fits against the flange 28 and prevents the face of the user of the machine from contacting the flange 28 or the shell 10. The screen 27 is of the wire variety and serves to space the central portion of the pad 11 from the front wall 18 of the housing 16. The pad 11 is preferably molded so that it is of one piece design.

The heater 12 is located in the central portion of the shell 10 directly in front of the front wall 18 of the housing 16 and is adapted in connection with use of the machine and when the pad 11 is saturated with water or other liquid to convert the water or other liquid into hot vapor or steam for face softening purposes. It is supplied with current and controlled as hereinafter

described and comprises a circular coil-type cylindrical resistance element 30, an annular series of radially extending supporting brackets 31 for the element and a pair of opposed cup shaped members 32 and 33. The cup shaped member 32 fits against the front face of the front wall 18 of the housing 16 and is arranged in opposed and spaced relation with the cup shaped member 33. The supporting brackets 31 fit between, and radiate from, the rims of the two cup shaped members. They have notches 34 in their inner ends in which the edges of the rims of the cup shaped members are seated, and embody holes 35 at their outer ends. The resistance element 30 extends through, and is mounted in, the holes 35 as shown in Figure 6. Because of its specific mounting it is exteriorly positioned with respect to the cup shaped members 32 and 33 and operates when energized to heat the air within the inner central portion of the shell 10. Screws 36 extend through the cup shaped member 33 and operate to hold the two members and the supporting brackets 31 in clamped and rigid relation. The supporting brackets 31 are spaced apart so that air is permitted to flow from the interior of the cup shaped members 32 and 33 around the resistance element into the interior of the shell, as described hereafter.

The fan 13 comprises a plurality of radially extending blades and is connected by a shaft 37 for drive by an electric motor 38. It is disposed in front of the cup shaped member 33 and operates when driven to force the air in the shell 10 through the screen 27 and the pad 11. The motor 38 is disposed in the compartment 23 and has on the front wall of the casing thereof internally threaded sockets 39. The rear ends of the screws 36 fit within these sockets and as a result the motor 37 is clamped against the rear face of the front wall 18 of the housing 16. The shaft 37 extends through the central portions of the cup shaped members 32 and 33 and is connected to the armature shaft of the motor. The compartment 23 in which the electric motor 38 is disposed communicates with the space within the cup shaped members 32 and 33 by way of aligned or registering holes 40 in the front wall 18 of the housing and the main wall of the cup shaped member 32 (see Figures 6 and 7). It is adapted to receive air from the exterior of the housing 16 by way of an annular series of wedge shaped openings 41 in the central portion of the rear wall 19 of the housing 16. A rotary register-valve 42 fits against the inner face of the rear wall 19 and serves to control the flow of air into the compartment 23 via openings 41. This valve is supported by a pivot screw 43 and has a finger piece 44 whereby it may be rotated into different adjusted positions with respect to the openings 41. The finger piece 44 extends through one of the openings 41 so that the valve may be controlled or manipulated from the outside of the housing. When the valve 42 is in its open position and the fan 13 is in operation air from outside the housing is drawn into the shell 10 by the fan. Such air flows first through the openings 41 in the rear wall of the housing 16, then through the compartment 23, then through the registering holes 40 and finally through the arcuate spaces between the cup shaped members 32 and 33 and the supporting brackets 31. When the register-valve 42 is closed no air is drawn into the shell 10 from outside the housing and the fan operates only to circulate the air which is within the shell 10.

Current is supplied to the electric motor 38 and the heating element 30 of the heater 12 by means of a pair of conductors 45 and 46. These two conductors lead into the compartment 23 through a hole 47 in the upper portion of the side wall 17 of the housing 16 and are connected at the outer ends thereof to a prong-type plug 48. The latter is adapted to be inserted into a socket (not shown) having an electrical connection with a suitable source of current supply. The inner end of the conductor 45 is connected to one contact of a switch 49. The latter is mounted on the side wall 17 of the housing and is controlled by a lever 50 which, as shown in Figure 8, is exteriorly positioned with respect to the housing 16. The other contact of the switch 48 is connected by a conductor 51 to the electric motor 38 and is connected by a conductor 52 to one end of the resistance element 30 of the heater 12. The inner end of the conductor 46 is connected to the motor 38 and is also connected to the other end of the resistance element 30 by way of a conductor 53. The latter includes a switch 54 and this is mounted on the side wall 17 of the housing 16 in opposed relation with the switch 49 and has an operating lever 55. When the switches 49 and 54 are closed current is supplied to the electric motor 38 and the resistance element 30 and results in operation of the fan and the heater. During such operation the heater serves to heat the air in the interior of the shell 10 and the fan circulates the heated air and forces it through the screen 27 and the pad 11. When it is desired to stop operation of the heater it is only necessary to open the switch 54. When such switch is open and the switch 49 is closed current is supplied to the motor 38 only with the result that only the fan is in operation. When the switch 49 is open no current flows to the motor or the heating element of the heater. As the result of the arrangement of the two switches the fan driven motor may be operated independently of, or conjointly with, the heater although it is impossible to operate the heater independently of the fan. In certain instances, as hereinafter described, it is desirable in connection with face treatment to produce a cooling action within the shell 10 by operating the fan 13 independently of the heater.

In connection with use of the machine the pad 11 is removed from the screen 27 and is saturated with water or other liquid. It is then reinserted into the front or open end of the shell and placed in abutment with the screen 27. After this operation the user of the machine inserts her or his face into the pad and closes the switches 49 and 54. Closing of these two switches, as heretofore described, results in drive of the fan 13 and operation of the heater 12. As soon as the heating element 30 of the heater is energized as the result of flow of current therethrough the air in the shell becomes heated. During operation of the fan the heated air is projected through the screen 27 and the pad 11 and operates to convert the water or other liquid in the pad into hot vapor. The vapor, because of the action of the fan, is forced against the user's face and effects the desired treatment of the latter. When the machine is first set in operation the register-valve 42 is preferably closed in order to obtain quick heating of the heater 13. After the heater is heated to its fullest extent the valve may be partially opened in order to permit the fan to draw a small amount of air into the shell. When the user's face is heated or steamed for the de-

sired length of time it is removed from the pad 11. Thereafter it is contemplated that the user open the switch 54 and fully open the register-valve 42. It is also contemplated that the pad 11 be removed from the screen 27, rinsed in cold water and then reinserted into the open end of the shell. After such steps the user reinserts her or his face into the pad and obtains a cooling action due to circulation of cool air within the shell and through the screen and pad.

The herein described facial machine, due to the compact arrangement of its various parts, occupies but a comparatively small amount of space. It may be produced at an extremely low cost and permits the user to heat by hot vapor her or his face and subsequently to cool or chill the face. If desired the machine may be used without the pad 11 as a hair drier. By adjusting the register-valve 42 any desired quantity of air may be introduced into the shell for circulation by the fan 13. Because of the arrangement of the switches 48 and 54 the heater 13 cannot be operated independently of the fan 13.

The invention is not to be understood as restricted to the details set forth since these may be modified within the scope of the appended claims without departing from the spirit and scope of the invention.

Having thus described the invention what I claim as new and desire to secure by Letters Patent is:

1. In a machine of the character described, the combination of a concavo-convex shell, a comparatively thick dished liquid absorbent pad of soft rubber with minute communicating pores therein, mounted removably within the marginal part of the shell and adapted to have the face of the user of the machine pressed into embedded relation with it, a heater associated with the shell and operative to heat the air therein, and means for circulating the heated air in the shell and projecting it against and through the pad.

2. In a machine of the character described, the combination of a concavo-convex shell, a concavo-convex screen of less depth than the shell mounted within the marginal portion of said shell, a comparatively thick dished liquid absorbent pad of soft latex rubber with minute communicating pores throughout it, fitting removably within the screen and adapted to have the face of the user of the machine pressed into embedded relation with it, a heater associated with the shell and operative to heat the air therein, and means for circulating the heated air in the shell and projecting it through the screen and pad.

3. In a machine of the character described, the combination of a concavo-convex shell, a concavo-convex wire screen of less depth than the shell fixedly mounted within the marginal portion of said shell, a comparatively thick dished liquid absorbent pad formed of porous latex rubber with communicating pores of varying sizes up to a maximum of the order of magnitude of 0.075 inch, and a density between 0.0018 and 0.0050 pound per cubic inch, said pad fitting removably within the screen and adapted to have the face of the user of the machine embedded in it, a heater associated with the shell and operative to heat the air therein, and means for circulating the heated air in the shell and projecting it through the screen and pad.

4. In a machine of the character described, the combination of a concavo-convex shell having valve controlled means for introducing exterior

air into the apex portion thereof, a concavo-convex screen of less depth than the shell mounted fixedly within the marginal portion of the shell, a comparatively thick dished liquid absorbent pad of soft rubber with minute communicating pores therein, removably mounted within the screen and adapted to have the face

of the user of the machine embedded in it, and a motor driven fan in said apex portion for drawing air via the introducing means into said portion and thence projecting it against and through the pad.

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