This invention is directed to an improvement in hair treating machines, and particularly permanent hair waving, wherein the treating element is steam.

In the use of a machine of this type, the strand of hair held on a curling pin within a treating box is subjected at the will of the operator to a treatment by steam admitted to the box, and it is of the utmost primary importance that this steam be delivered to the box in as dry a condition as possible to avoid and tendency of condensation reaching the head of the patient, with consequent liability to serious discomfort and liability to scalds or burns.

An essential characteristic of the present invention resides in the means to render the steam as dry as possible before delivery to the boxes, and to take care that any intermediate condensation will not reach the boxes in such form but is led off and trapped at an intermediate point.

A further object of the invention is the provision of a cabinet which, in addition to being attractive, and concealing the necessary operative parts from the eye of the patient, is further so constructed as to insure a considerable length of travel of the steam following its generation and prior to its use to assist in a drying effect of the steam and the return of any initial condensation to the generator.

A further object of the invention is the provision of a steam container, from which the flexible conduits lead to the hair treating boxes, the relation of the container and conduits being such that the inlets to the conduits from the container are materially above the lower interior surface of the container, with such lower portion of the container in open communication with a trap connection, whereby the water of condensation is collected below possible delivery to the conduits and continuously drained off through the trap.

A further object of the invention is the utilization of air under pressure for mingling with and assisting in the delivery of the steam to the hair treating boxes, the air pipe being provided with a series of selected outlets, any one or more of which may be used by the operator for directly delivering a stream of cool air on the head of the patient at any desired point.

The invention is illustrated in the accompanying drawings, wherein:

Figure 1 is a perspective view of the improved apparatus, the door of the casing proper being shown open.

Figure 2 is a section on the line 2—2 of Fig. 1.

Figure 3 is a broken perspective of the steam container illustrating more particularly the means for supporting the flexible conduits when not in use.

Figure 4 is a perspective view of a detail showing one of the conduits supported in inoperative position.

Figure 5 is a vertical sectional view partly in elevation of the improved apparatus.

Figure 6 is an enlarged section on the line 6—6 of Figure 5.

Figure 7 is a broken longitudinal section through the air container.

The improved apparatus includes a casing designed more particularly to house the operating parts and conceal them from the view of the customer. As the casing effectively conceals all operating parts, and by reason of the arrangement of the parts may conveniently be of relatively small diameter, though necessarily of considerable length, it follows that the casing may be made highly ornamental and attractive, and thus of itself furnish a desirable, rather than an undesirable, piece of furniture in an establishment devoted to hair treating.

The casing is made up of a section 2 of hollow form, and preferably, though not necessarily, provided with supporting legs 3. The body section 4 of considerable length is formed at its lower end to fit over the upper end of the base section 2, a hollow elongated upper or dome section 5 being connected to the upper end of the body section 4 by an annular band connector 6. The various sections of the casing are designed for removable interfitting connection one with the other, to thereby provide for their convenient separation when desirable, and the body sec-

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A steam pipe 10 extends longitudinally of the dome 5 and body section 4 of the casing, there being removably secured to the lower end of the steam pipe a steam generator in the form of a vessel 11 having a diameter somewhat less than that of the body section. The generator is designed to contain water to be heated for the generation of steam, a gauge 12 being connected with the generator proper to permit convenient determination of the water level therein.

A two-stage electric heater 13 having independent heating elements 14 and 15 of respectively different heating effects is supported within the generator near the bottom thereof, there being supported on the upper end or cover 16 of the generator a coil 17 with conventional connections to the heating elements 14 and 15 so that selectively either or both said elements may be energized. The primary of the coil is controlled through leads 18 and the secondary circuits to the respective heating elements are also wrapped in the same lead and selectively governed through a switch 19, whereby the heating of either or both of the heating elements may be carried out at will, for the heating of the water in the generator and the subsequent generation of steam which is to be freely delivered through the pipe 10. A lead 20 is connected through the same switch 19 and serves to energize motor 9. A service conductor 21 is connected with any socket or otherwise with the source of electricity leading through the coupling section of the casing to the switch 19.

Thus at will the motor may be energized and the fan or other blower operated, while water in the steam generator is subjected to a selected degree of heat for the generation of steam, the variation in the heat degree provided being utilized to produce steam in larger volume and more quickly under the maximum heat than under the minimum heat in order that a requisite quantity of steam for the particular hair treating operation being carried out may be conveniently provided.

An air pipe 22 leads through the top of the dome 5 and extends vertically of the casing 1, terminating immediately above the steam generator 11, where, through the medium of a flexible pipe 23, such pipe 22 is placed in open communication with the fan or other pressure generator 8.

Steam pipe 10 immediately beyond the upper end of the dome is extended laterally at 24, the air pipe 22 being also extended laterally in the section 25 which is preferably arranged in spaced parallel relation with the steam pipe 24. A manually operable valve 26 is arranged to control at all times the admission of air, both in quantity and pressure, to the section 25, it being understood, however, that the steam pipe 24 is at all times fully and completely open to the steam pipe 10, though obviously a suitable valve control may be provided, if desired.

The steam pipe section 24 and the air pipe section 25 are terminally connected by a coupling 27 of T-form, in the lower end of which the steam pipe section leads and into the upper or head end of which the air pipe section leads. The coupling is connected at the head end, that is, in substantial alignment with the air pipe section 25 with what may be termed a steam container 28, the end of which remote from the coupling is closed by a removable cap 29. Preferably, the air pipe section 25 is of somewhat less diameter than that of the steam pipe section 24 and the head of the coupling 27 is of a diameter corresponding to that of the air pipe section, to thereby facilitate a free delivery of steam and the mingling therewith of air under pressure, with the latter augmented by the reduction in bore of the parts to which it is delivered.

The steam container 28, however, is of increased bore as compared with either the steam pipe section or air pipe section, and an important detail in connection with this steam container is the fact that it is so connected to the coupling 27 as to incline downwardly from its free end toward the coupling to a degree sufficient to at least compel a pronounced gravitational flow of any water, and particularly water of condensation, that may from time to time be present in such steam container. The extreme lower end of the coupling 27 is provided with a restricted pipe 30 in open communication with the coupling and formed to provide a trap 31 and to be terminally arranged beyond the trap for connection, if desired, with any conduit for carrying away the water of condensation, as will later appear.

The steam container 28 is provided with a plurality of nipples 32 and 33 in alternate longitudinal series, with such nipples depending from the steam container in downwardly divergent rows, and terminally formed beyond the container for the reception of the ends of flexible conduits 34 which lead, in a well understood manner, to the boxes in which the hair being treated is confined. The conduits 34 are designed, of course, for removable connection with nipples projecting from the boxes, though as the boxes and their connections from no part of the present in-
vention, illustration or detailed description of such are unnecessary.

An important feature of the nipples 32 and 33 is that they are designed to be threaded into the steam container to a degree to permit their inner or inlet ends to be arranged substantially in the axial line of the container, that is, well above the lower surface, to thereby provide a considerable area in such container which is open to the collection of water of condensation, while disposing the inlet ends of the nipples well above the level of such water of condensation.

The steam container is preferably provided with laterally extending plates 35 having edge notches 36 in which the nipples 37 on the box-engaging ends of the conduits 34 may be conveniently held so as to support the series of conduits in a conveniently accessible position, and yet entirely out of the way when not in use.

The air pipe 29 preferably immediately above its juncture with the flexible air pipe 23 is in open communication with a series of laterally extending tubes, which lead in opposite directions through the walls of the body 4 of the casing, and are connected beyond such body to flexible conduits 39 terminating preferably in nipples 40 corresponding in all respects to the nipples 37 on the ends of the conduits 34.

In use, after the hair strands have been properly placed in the boxes, or during such operation, the switch 19 is operated to generate steam in the quantity and to the extent desired by the selected energization of the heaters 14 and 15, and following the generation of steam the motor is energized to create a volume of air under pressure for delivery, to the extent permitted, past the valve 26. The air under pressure mingling with the steam delivered through the steam pipe 24 will force the steam into the steam container 28, and through the nipples 32 and 33, selected by the connection of their conduits 34 with the boxes.

The use of the steam under pressure of the air as thus described serves to warm the conduits and the boxes to a predetermined heat condition in order to avoid undue condensation of the steam when used for treating the hair. After the conduits and boxes have reached the desired degree of heat, the air is cut off, and steam alone is thereafter admitted through the various conduits to the boxes for the direct hair treatment. When the hair has been subjected to the steam treatment for the desired length of time, the steam generating means is cut off, preventing the further generation of steam, and the valve 26 is gradually opened to admit air under pressure to the conduits and to the boxes to blow off the excess steam and at the same time cool the conduits and particularly the boxes. This operation tends to a comparatively rapid cooling of the boxes in order to shorten the period for the removal of the boxes following proper hair treatment.

It is to be noted that the dome section 5 of the casing is comparatively long and that as a result the steam pipe 10 within this dome is also comparatively long. This provides an extended length in which any excessive moisture in the steam may be permitted to condense and fall directly back into the steam generator. In the steam container, any water of condensation which may result from any cause will collect in the bottom of the steam container, wholly below the entrance end to the nipples 32 and 33, and flow by gravity through the outlet 30 for discharge, the trap 31 preventing steam discharge through this outlet.

The auxiliary air pipes 39 may be used by the operator for blowing away from the head of the customer any steam which may leak beyond the boxes, or such auxiliary air pipes may be directly connected to the boxes for the admission of cool air wholly free of steam directly to the interior of the boxes for the cooling effect and the dissipation of the contained steam therein.

It is to be particularly noted that when the door 7 is open, all parts are accessible for inspection, and that by reason of their arrangement any vital part, such as the steam generator, motor or blower, may be readily and conveniently removed for repair or replacement.

The construction as a whole provides a highly ornamental and therefore desirable accessory of a beauty parlor wherein the hair treatment is usually carried out, it being well understood that the attractive furnishings of such an establishment are ordinarily necessary to a success. Furthermore, the provision of means whereby the water of condensation is positively prevented from reaching the head of the customer is of the utmost importance because such water of condensation, being naturally highly heated, if permitted, through any possible leakage in the boxes, to reach the head of the customer, would, it is evident, prove highly objectionable through its discomfort and liability to a scald or burn. The auxiliary air conduits 39 facilitate the use of cool air alone for selective use to impart a cooling sensation to the head of the customer during the steam treatment of the hair.

1. A hair treating apparatus including an elongated casing, means for generating steam, a pipe leading to the steam generator and to and through the upper end of the casing, the steam generator being arranged in relation to the top of the casing as to provide a steam pipe of material length within the casing to permit initial drying of the steam from the generator.
2. A hair treating apparatus including a casing, a steam generator arranged therein, means for controlling the generation of steam in such generator, a steam pipe leading to and through the upper end of the casing, means arranged in the casing for creating a source of air under pressure, an air pipe leading from such source, and extending to and through the upper end of the casing, that length of the casing above the steam generator being sufficient to induce a drying action on the steam in the pipe between the steam generator and top of the casing, and means beyond the casing for mingling the dry steam and air under pressure.

3. A hair treating apparatus including a casing, a steam generator therein, means for creating a body of air under pressure arranged in the casing, a steam container supported beyond the casing and open to the steam generator and to the source of air under pressure, means for leading the combined steam and air from the steam container to a point of use, and means for delivering the water of condensation collecting in said container for discharge.

4. A hair treating apparatus including a casing, steam generating means therein, air pressure generating means therein, means for selectively mingling the steam and air under pressure beyond the casing, a steam container for receiving the mingled air and steam, nipples leading from said container for delivering the air and steam to a point of use, the inlet end of the nipples being arranged materially above the lower surface of the container, and a water discharge pipe communicating with the lowest point of the container.

5. A hair treating apparatus including a casing, steam generating means therein, air pressure generating means therein, a steam container open to the air under pressure and steam beyond the casing, delivery means from the container, the inlet end of the delivery means being arranged above the bottom of the container, a water discharge pipe leading from the container, said container being inclined to compel gravitational delivery of the water of condensation in said container to said discharge pipe.

6. A hair treating apparatus including a casing, steam generating means therein, air pressure means therein, a steam pipe section supported by and arranged beyond the casing and communicating with the steam generating means, an air pipe section carried by and arranged beyond the casing and communicating with the air pressure means, a coupling uniting the ends of said pipe sections to commingle the steam and air, a steam container having a diameter exceeding that of either pipe section, said steam container being connected to the coupling beyond the connection of the pipe sections thereto, and delivery means from the container opening into the latter above the lower surface thereof, said container inclining upwardly from the coupling in substantial alignment with the steam pipe.

7. A hair treating apparatus including a casing, steam generating means therein, a pipe leading from the steam generating means and extending to the upper end of the casing, air pressure creating means in the casing, a pipe leading from the air pressure creating means to and through the upper end of the casing, a steam generator supported beyond the casing, and open to the steam pipe and to the air pipe, and conduits extending through the wall of the casing and in open communication with the air pipe therein.

8. A hair treating apparatus including a casing, steam generating means therein, a pipe leading from the steam generating means and extending to the upper end of the casing, air pressure creating means in the casing, a pipe leading from the air pressure creating means to and through the upper end of the casing, a steam generator supported beyond the casing, and open to the steam pipe and to the air pipe, and conduits extending through the wall of the casing and in open communication with the air pipe therein, said conduits being wholly flexible.

In testimony whereof I affix my signature.

PAUL EDMUND GAIRE. [L. s.]