The object of the present invention is an apparatus for the permanent waving of the hair in which heating is effected by steam and which is so disposed as to permit of the operator working with great rapidity in effecting the various operations, this being due more particularly to the characteristics of the device the combination of which makes up each of the heating chambers, these devices and their combination making it possible to reduce the necessary movements of the operator to a minimum as well as the period of non-utilization of each one of the chambers while the automatic functioning and the handiness of the various controls make it easier to execute the maneuvers necessary to carry out the logical sequence of the various phases of the operation.

The apparatus which forms the subject matter of the invention comprises the heating chamber proper, a hand-grip for manipulating same and the steam, air and condensed-water drainage pipes connecting the chamber to the steam and air generators and to the condensed-water receiver.

In the attached drawings:
Figure 1 is a longitudinal section of a drier or heating box made according to the invention;
Figure 2 is a section of the same chamber through II—II of Figure 1;
Figure 3 is a section of the same chamber through III—III of Figure 1;
Figure 4 is a section of the same chamber through IV—IV of Figure 1;
Figure 5 is an elevation of a special curling pin for coiling the hairs from the roots;
Figure 6 is an elevation of the heating box on the comb side partially cut away in order to show the two metallic bands holding the rubber lips;
Figure 7 is an elevation of the assembly composed of the heating chamber and its hand-grip on the side of the spindle of the closing eccentrics;
Figure 8 shows the cut-off shutter which supplies steam or cold air at will inside the chamber;
Figure 9 is a partial view of a longitudinal section of the cut-off shutter;
Figure 10 is likewise a partial view of a longitudinal section of the leak-proof device of the cut-off;
Figure 11 is a section of the connecting cap and of the distributor tablet onto which it is coupled.

Apparatuses for the permanent waving of the hair by steam heat are already known; the one which forms the subject matter of the invention is essentially characterized by the combination of a heating chamber, which constitutes one of the elements of the apparatus, and of a manipulating hand-grip and flexible piping for the various circulating fluids, these various pipes being permanently connected to the heating chamber on one hand, and on the other hand permanently connected also to the generators of the heating and cooling fluids and to the condensed-water collector during the whole time the apparatus is functioning.

The number of the heating chambers may of course vary for the waving of one single head of hair but it will be noticed that, precisely owing to the facility of manipulation which this combination provides, the number of heating chambers may be comparatively small as it is possible for the placing of one of the said heating boxes to be followed immediately by the removal of another one.

According to the invention each one of these heating chambers is essentially constituted by two semi-tubular or semi-cylindrical elements capable of rotating one within the other and suitably hollowed out so that in one of their relative positions they may form a completely closed box and in another of their relative positions they may, when superimposed, take the form of a channel through the opening of which a curling pin can be introduced.

In the heating chambers constructed according to the invention, inner tube 1 is fixed to a socket 2 which is held by an insulating grip 3. Outer tube 4 forms the movable outer portion of the box.

The box is made leakproof and the holding of the hair is ensured by rubber lips 5 and 6 (Figure 3) which are compressed against one another by two eccentrics 7 acting on stops 8 of movable tube 4.

A wall 9 constructed of insulating material and provided with a square shaft 10 permits driving the curling pin 11 or 12 as shown in Figure 5 before the box is closed, and also during the heating of the hair. The curling pin has upon one of its ends a square hole for receiving the square shaft 10 and the other end is supported upon the perforated washer 18.

It suffices to draw hand-wheel 9 outwards to disengage the square from its socket in the curling pin and thus enabling the latter to be removed or placed in position.

Hand-wheel 9 has a flat spring 13, positioned in an inside cavity, which acts on a pawl 14 which...
engages with a ratchet wheel 15, solid with tube 4, when hand-wheel 9 is pushed in.

When in this position, if it is caused to rotate clockwise, ratchet wheel 9 winds on and tightens the hairs onto the curling pin; by rotating the hand-wheel in the opposite direction, movable tube 4 which closes the box is actuated. The spring 13 does not prevent rotation of the wheel 9 in both directions. The spring serves solely for placing the pawl 14 in contact with the teeth of the wheel 15 which, strictly speaking, is not a ratchet wheel, but rather a toothed wheel.

The opening of box 4 is actuated automatically by a coil spring 16 fixed by one of its extremities to a lower collar 17 of tube 1 and by its other extremity 10 to part 15 which serves as a ratchet.

Within socket 2 a shutter 19 (Figures 1, 8, 9 and 10) is positioned and controls the alternating distribution of the steam for the baking of the hair and of the cold air intended for the purpose of cooling the lock of hair and the curling pin.

These tubes are fixed in socket 2 and protrude beyond grip 3 and are connected to the flexible steam, cold air and condensate-water drainage pipes.

The heating chamber may be suspended by means of a ring 20 to the cope of a coiling drum balancing the weight of the apparatus.

An insulating grip 3 permits control of the boxes; it is provided with a knob 21 which on being depressed squeezes flexible tube 24 above which it is positioned thus stopping the steam feed.

The insulation from the scalp is ensured by a comb 22 fixed to tube 23 which is perforated with small holes and which is constantly fed with cold air which blows upward, through the perforations between the teeth of the comb and the heating chamber (Figure 3).

Flexible tubes 24 (steam), 25 (air) and 26 (return of the condensate water) are fixed at one end to the socket and at the other end to a connecting piece 27 (Figure 11) which can fit into a distributing tablet 28 fed by the steam and air generators and which also serves as a connection for the return of the water resulting from condensation.

The steam and cold air generator as well as the collector intended to receive the water resulting from condensation together with the heating boxes may be arranged as a whole so as to form complete apparatuses of different shapes; they may also be remote from the heating chambers and positioned in any desired part of the hair-dressing saloon.

As is shown in Figure 2 the fixed ring 47 which supports spindle 29 of eccentrics 7 also supports the end of comb 22 while holding movable tube 4 in position laterally by means of a small band shown at 30.

Figure 2 shows how, according to the invention, insulation of the scalp has been obtained in the boxes while bringing said boxes very close to the head; whereas in all other apparatuses known as one or two insulating guards are provided to keep the box away from the head, according to the invention insulation is obtained by a comb 22 positioned at a small distance from rubber lips 5 and 6 which makes it possible to obtain a curl very close to the scalp. Bands 31 and 32 fix the plate to rubber lips 5 and 6; said metal bands are clamped by screws 33 and 34 (Figure 6).

A metallic band 35 bearing small teeth positioned within the fixed tube prevents the rubber substance from losing its shape under the action of the winding on the hair; Figure 3 also shows how eccentrics 7 are mounted on spindle 29 and the manner in which, by suitable rotation, said eccentrics bear at point 8 against the closed outer tube or permit the rotation of said tube round the fixed tube.

Eccentric shaft 29 is controlled by a lever 36 within which a pawl 36' is housed, said pawl being constantly loaded by a spring, and said pawl being capable of acting on ratchet 37 integral with shaft 29 to cause it to rotate but only in one direction.

Figure 4 shows perforated washer 18 against which the curling pin bears and which permits of the admission of steam and air into the interior as well as the exhausting of the water resulting from condensation, the drainage of same occurring owing to the fact that, throughout the operation the heating chambers should always be inclined downwards in the direction of the hand-grip.

In Figure 1 which illustrates the device assembled and a curling pin fitted in position, hand-wheel 9 and its locking and closing systems is shown as well as socket 2 provided with cut off shutter 19 and insulating hand-grip 3 carrying compressing knob 21 which squeezes flexible tube 24.

In Figure 6 in which the hand-grip is partly removed, the two metallic bands 31 and 32 which fix the rubber lips are shown; this figure also shows at 23 the air feed tube of the comb.

Figure 7 which is an elevation on the side of spindle 29 bearing eccentric 7 shows how lever 37 acting on shutter 29 is mounted and a partial removal discovers ratchet wheel device 15 which permits of the gripping of the hairs and the closing of the box.

Cut-off shutter 19 is shown in Figure 8; this shutter, which oscillates about an axis 19' can be operated with one finger so as to cut off the steam or the cold air, as desired, before they reach the box; the steam inlet is at point 37 and the air inlet at 38; port 39 is the one through which the water resulting from condensation drains off; the position of the shutter in this figure corresponds to the admission of steam.

Figure 9 shows the position of the cut-off shutter on the air line which is shut off; as to Figure 10 which, in longitudinal section, corresponds to Figure 8, admission of the steam it also shows the leak-proof arrangement of the cut-off shutter obtained by means of a rubber gasket 49 fixed on a shoulder on steam inlet tube 42 clamped by threaded nut 41 against the cut-off shutter.

Figure 11 which is a section of the union cap shows how the flexible tubes are connected to metallic sockets 43 and 44 with which this cap is provided, said sockets registering with the corresponding ports of steam and air inlet and drainage of the water resulting from condensation which open out into distributing box 28 when it is desired to use the heating chambers.

With this apparatus it will be possible to arrange central stations for permanent waving in a hair dressing saloon having several seats each operator will be provided with a distribution tablet comprising a certain number of connections; the whole of these distributing tablets will, in such a case, be fed by a single boiler and by a central blower.

It should be noted that the form of embodiment hereinabove described as well as the attached drawings have only been given as an example and that modifications may be made to them without such modifications causing a departure from the.
characteristics of the invention. The chambers may also be of a shape differing from those shown on the attached drawings.

What I claim is:

1. In a permanent waving apparatus, a heating chamber, a handle connected to said chamber, and three conduits traversing said handle, one of said conduits being adapted to receive steam, another to receive air under pressure, and the third to drain off condensed water.

2. A structure as defined in claim 1 in combination with a valve mounted on said handle and operative to control the flow of steam into one of said conduits.

3. In a permanent waving apparatus, a heating chamber having a moveable wall, a hand grip connected to said heating chamber, a pair of conduits traversing said hand grip, one of said conduits being adapted to receive steam and the other air under pressure, valve means mounted on said hand grip and operative to control said conduits, means including a cam operative to lock said moveable wall in closed position, a curling pin mounted inside said heating chamber, a locking pin engaging with one end of said curling pin, means for longitudinally displacing said locking pin, and a comb having an opening formed therein and mounted to receive air from one of the aforesaid conduits.

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