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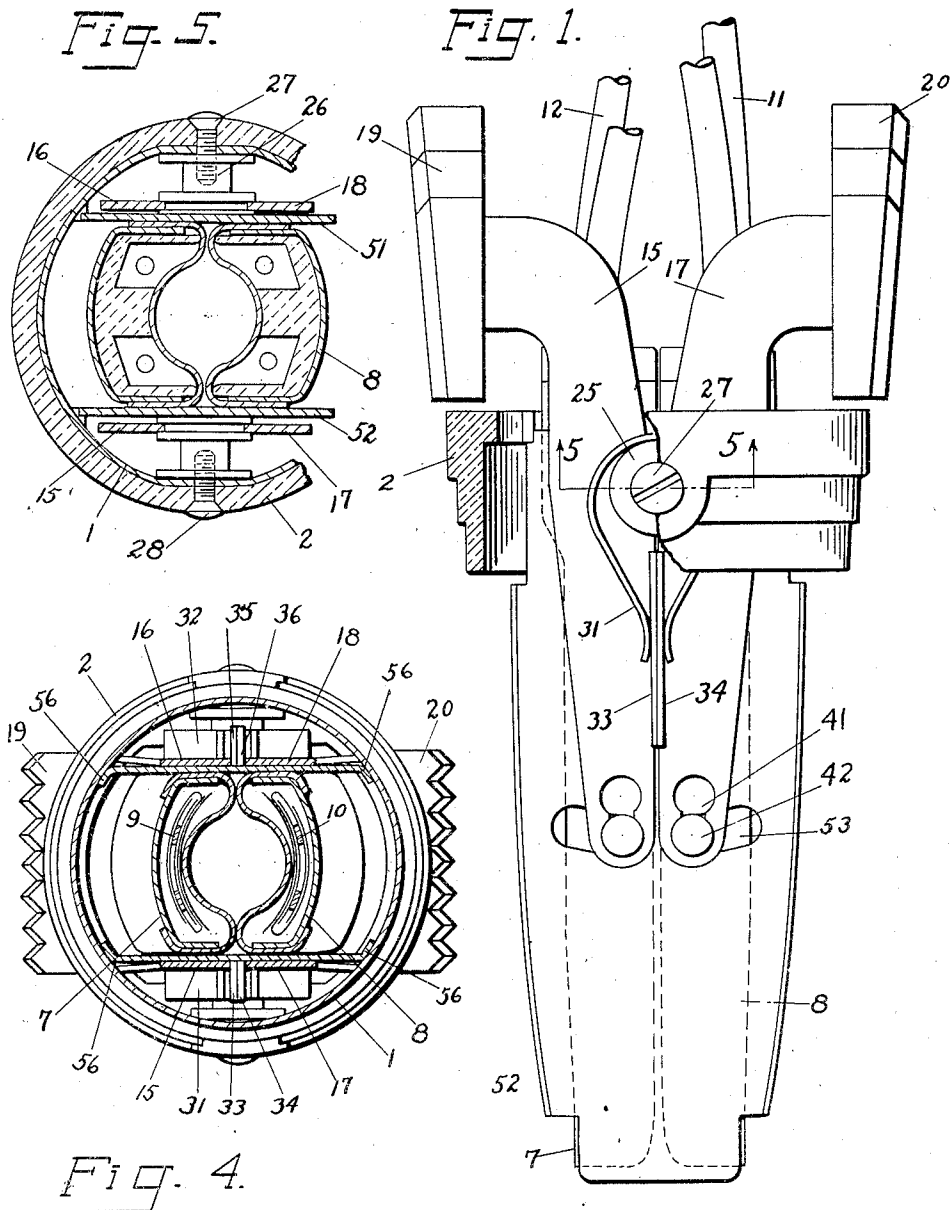
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2,108,240

SPIRAL CURL HEATER

Filed Dec. 17, 1935

3 Sheets-Sheet 1



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Fig. 3.

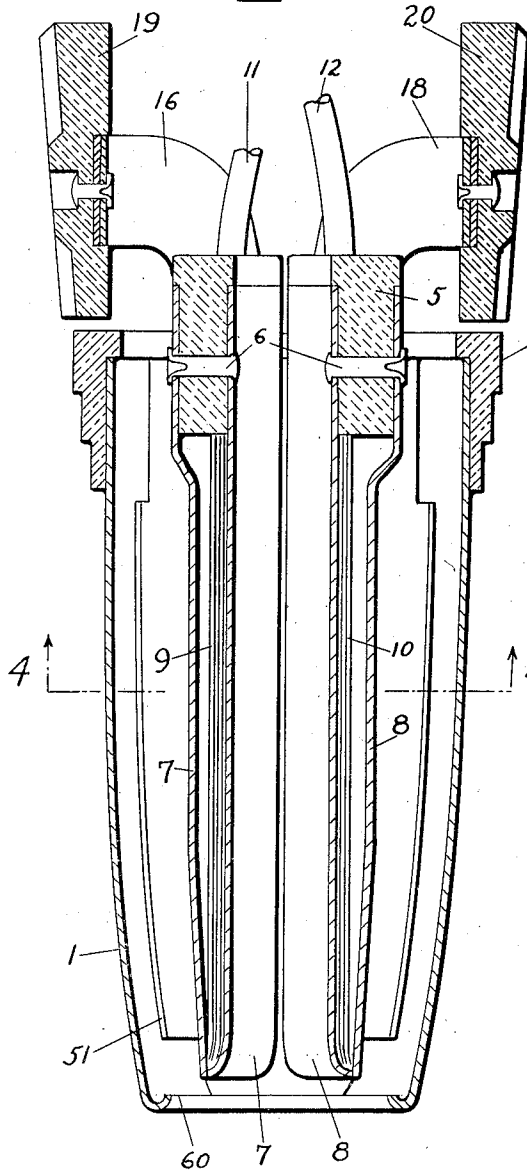
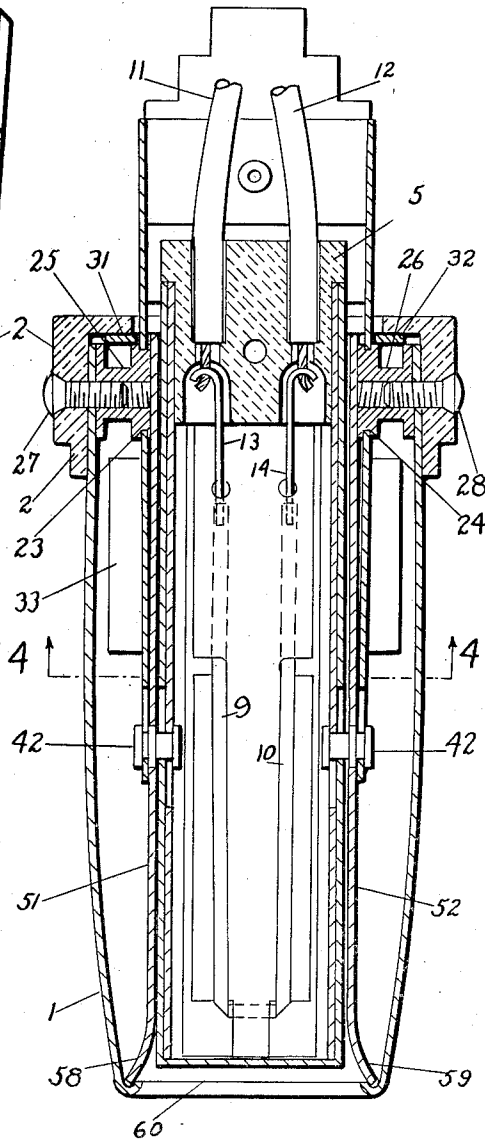


Fig. 2.



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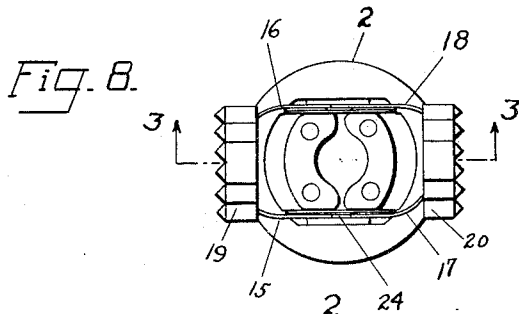


Fig. 6.

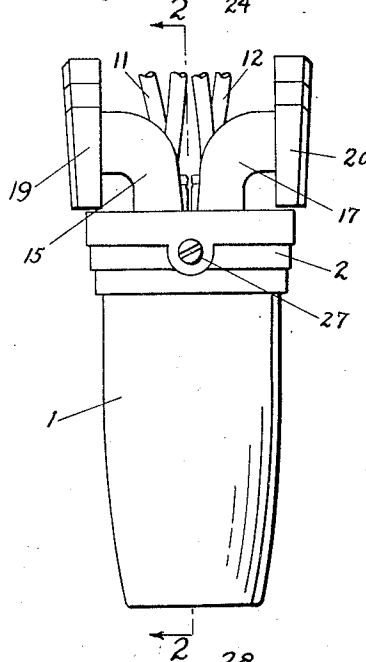
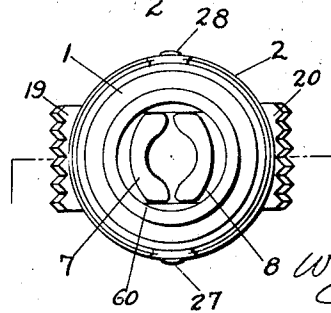


Fig. 7.



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SPIRAL CURL HEATER

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Application December 17, 1935, Serial No. 54,856

3 Claims. (Cl. 219—24)

The invention relates to new and useful improvements in curl heaters used in permanent waving, and more particularly to such improvements in curl heaters adapted in at least some features for use in both Croquignole and spiral curl heating.

Objects and advantages of the invention will be set forth in part hereinafter and in part will be obvious herefrom, or may be learned by practice with the invention, the same being realized and attained by means of the instrumentalities and combinations pointed out in the appended claims.

The invention consists in the novel parts, constructions, arrangements, combinations and improvements herein shown and described.

The accompanying drawings, referred to herein and constituting a part hereof, illustrate one embodiment of the invention, and together with the description, serve to explain the principles of the invention.

Of the drawings:—

Fig. 1 is an elevation of a heater embodying the invention with the casing removed;

Fig. 2 is a longitudinal section of line 2—2 of Fig. 6;

Fig. 3 is a longitudinal section at right angles to Fig. 2,—and on lines 3—3 of Figs. 7 and 8;

Fig. 4 is a full transverse section on line 4—4 of Fig. 2;

Fig. 5 is a detail section on line 5—5 of Fig. 1;

Fig. 6 is an elevation of the heater shown in the preceding figures;

Fig. 7 is a bottom plan of Fig. 6; and

Fig. 8 is a top plan of Fig. 6.

Objects of the invention are to provide a curl heater of very high efficiency, and to provide such a heater wherein heat losses due to air circulation are avoided or reduced to a negligible minimum. With these and other objects in view a heater is provided having heating elements adapted to closely engage the curl, thereby eliminating open air spaces, and air currents passing between the curl and the heating elements, and to this end said elements are yieldingly mounted to move toward and away from the curl and also angularly along the curl so as to bring the heating elements into nearly complete contact or close proximity with curls of widely different shapes and sizes.

Referring now in detail to the embodiment of the invention illustrated by way of example in the accompanying drawings, a curl heater is shown especially adapted to heat spiral curls, although in its chief features the invention is

likewise adaptable to embodiment in croquignole curl heaters. In this illustrated embodiment there is shown an outer casing or shell 1, of general cylindrical form, which serves both as a support and as a closure and protection for the curl-heating elements, their actuating and other cooperating parts, and the casing is also a relatively cool exterior member which by its lower temperature minimizes the danger of burning the hands or head. Around the exterior of the outer or top end of the casing 1 is fixed a ring 2 of insulating material into which the outer end of the casing 1 is nested and to which it is attached by the screws 27 and 28, later described.

The curl-heating means are located within and are separate from the outer casing 1 with air spaces or passages therebetween. As embodied, said means comprise a plurality of heating elements of elongated form, that is, extending lengthwise of the curl and shaped to enclose the curl, these elements having relative resilient movement with respect to each other, and having also resilient or yielding angular movement along the curl, and thereby the heating elements are brought into contact or close contiguity with curls of different shapes and sizes, and there are no air channels or appreciable air spaces between the curl and the heating elements. This avoids the common and relatively large heat losses between the heating element and the curl which losses are caused largely by the air spaces and the currents of hot air issuing from the usual heaters between the curl and the heating element. In the embodied form, there are provided two elongated, hollow heating members 7 and 8, each of approximate semi-cylindrical form at least on their interiors, so that together they substantially enclose the curl to be heated. Enclosed within the hollow heating members are electrical heating elements 9 and 10 connecting to circuit wires 11 and 12 through terminals 13 and 14. The ends of the wires and the terminals are mounted in recessed cylindrical blocks 5 of insulating material, the parts of which are enclosed within the enlarged outer ends of the heating members 7 and 8 and are fastened thereto by rivets 6.

In this preferred embodiment the resilient movements precedingly described are effected by having both of the heating members actually bodily movable, and while this increases the number of parts, it conduces to greater efficiency in the general applications of the machine. As so embodied, said means comprises two double levers, having spaced-apart lever arms 15, 16

and 17, 18, the arms of each double lever being connected at their outer ends to finger pieces 19 and 20, respectively. Each of these four levers is subjected to resilient spring action. At their pivot points, the levers are provided with semi-circular recesses which fit at opposite sides into annular grooves 23 and 24, formed in studs 25 and 26, located at opposite sides of the heater, and are held in place by screws 27 and 28, which pass through the collar 2 and the studs. In the embodied form of resilient spring means, a single bent flat spring acts to hold each of the levers against its pivot point on studs 25 and 26 and resiliently impels the heating members toward closed position. In said embodiment, flat springs 31 and 32 in the form of elongated loops, encircle the pivot mountings of the levers on the studs 25 and 26, but are spaced away therefrom. The elongated outer ends of the spring 31 press on the outside of lateral extensions 33 and 34 upon the levers 16 and 17, and on the other side in like manner the elongated ends of spring 32 press on the outside of lateral extensions 35 and 36 formed on the levers 16 and 18, thereby resiliently pressing the heating elements toward each other and against the interposed curl.

In accordance with one feature of the invention, a floating connection is provided between the actuating levers and the heating members, and as embodied, in the forward end of each of the four levers is a slot 41, preferably of keyhole shape, within which is a pivot 42, each pivot 42 being fixed to and projecting from one of the curl-heating members. Thus when the double levers rock about their pivot mountings on the studs 25 and 26 the heating members move bodily toward or from each other, and at all times each of the heating members has angular movement along the curl about its pair of pivots 42. A supporting frame structure is preferably provided about the curl-heating members and within the casing 1, and as shown there are plates 51 and 52 arranged at either side of the curl-heating members 7 and 8, these members being interposed between the actuating levers and the heating members, the pivots 42 working in slots 53 in said members 51 and 52, and these plate members being located within the studs 25 and 26, the inner faces of the studs pressing against the outer sides of the plates 51 and 52. The plates 51 and 52 are further held in position by their bent flanges 56 which bear against the inner surface of the shell or casing 1, and by means of curved tongues 58 and 59 extending from the lower ends of the plates and fitting within the flange 63 formed on the lower end of the casing.

In operation, after the curls are wound and the heaters are to be put on, the heater is taken by the thumb and fingers grasping the pieces 19 and 20, and under pressure the curl-heating members are moved outwardly against the casing, thereby presenting the maximum opening, sufficiently large to take the largest curls. When the heater is positioned about the curl, the finger pieces are released, the heating members come

together into engagement with the curl, due to the rocking of the levers about their pivots, and each heating member is then free to accommodate itself further to the shape of the curl by rocking about its pivot 42 to bring the heating member in contact with the curl throughout its entire length. The operating elements are protected by the casing, the heating elements are closely contiguous to the curl irrespective of the shape or size of particular curls, avoiding wasteful air currents between the curl and heating elements, and at the same time providing free space and air circulation between the heating elements and the outside casing, whereby the casing is maintained at a lower temperature thereby greatly lessening the danger of burns to the operator or customer.

The invention in its broader aspects is not limited to the specific mechanisms shown and described but departures may be made therefrom within the scope of the accompanying claims without departing from the principles of the invention and without sacrificing its chief advantages.

What we claim is:

1. A permanent waving curl heater including in combination a casing, two opposed double armed levers pivotally mounted within said casing, two elongated inwardly curved curl heating members, each heating member being pivotally mounted between the arms of each of said levers at a median point on the heating members and spring means acting on said levers to impel said heating members toward each other, said levers extending beyond the casing at an end thereof for simultaneous operation by a single hand.

2. In a permanent waving machine, the combination of a pair of curl enclosing heating elements having adjacent concave faces, levers attached to the mid portion of each heating element for pivotally supporting said elements, means for pivotally connecting said levers, resilient means for pressing said elements together and insulating handles at the ends of the levers, said levers extending beyond the upper end of the heating elements and being closely adjacent to each other whereby they may be operated by pressing one towards the other.

3. In a permanent waving machine, the combination of a pair of curl enclosing heating elements forming a tubular heater, a double armed lever pivotally connected to each element at its mid portion, a shell surrounding said elements, pivots supported by said shell and on which said levers are pivotally supported, insulating handles attached to the outer ends of said levers, and resilient means acting on said levers to press said elements together, said levers having their handles extending beyond the heating elements at one end thereof and being closely adjacent to each other whereby they may be operated by pressing one towards the other.

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