Dec. 13, 1938. G. DECKER 2,140,184

PERMANENT WAVING DEVICE

Filed Dec. 3, 1936

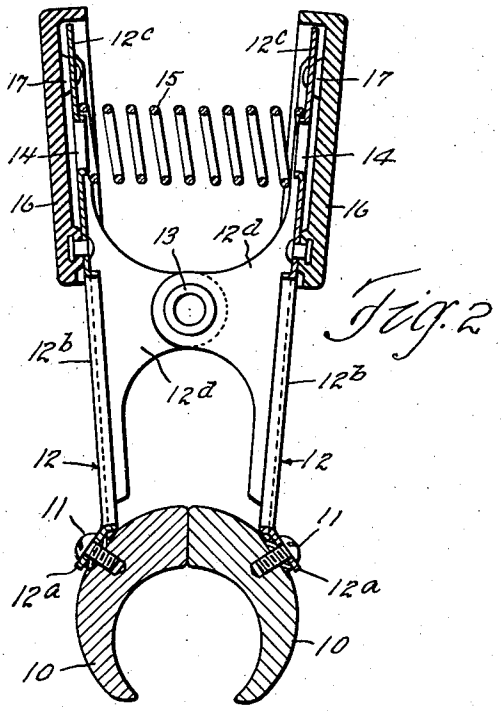


Fig. 2

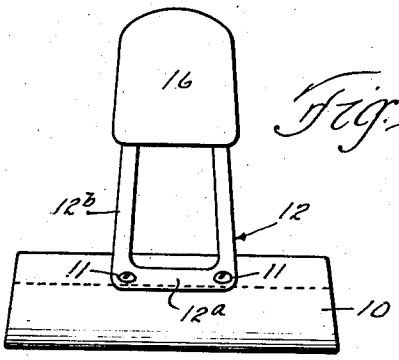


Fig. 1

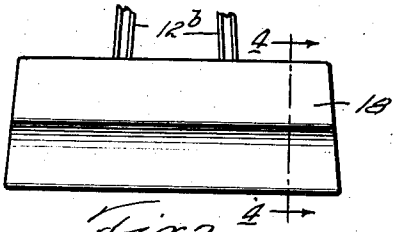


Fig. 3

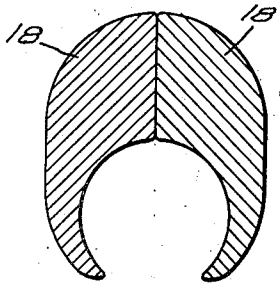


Fig. 4

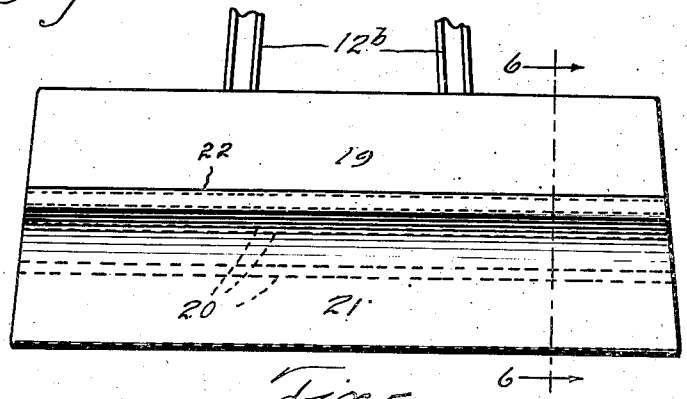


Fig. 5

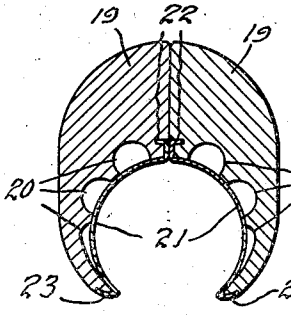


Fig. 6

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PERMANENT WAVING DEVICE

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Application December 3, 1936, Serial No. 114,029

6 Claims. (Cl. 132—36)

The invention relates to a heater designed for use in permanent waving and particularly in permanent waving of the croquignole type.

An object of the invention is to provide a superior heater of the heat storage type which is adapted to be applied transversely of the wound curl and to partially surround the same. A further object is to provide for storing the heat in the jaws which embrace the curl and to provide jaws of such configuration that they may be readily applied in connection with conventional croquignole apparatus and in which more heat is stored in one portion of the jaw than in the remainder whereby such portion becomes in effect a reservoir which will supply heat to those portions which have less heat holding capacity. A further object is to provide jaws having a large heat storage capacity in one portion thereof whereby another portion may be relatively thin so that it will not be necessary to employ very high initial temperatures in order to provide a sufficient total heat to produce a satisfactory wave. A further object is to provide jaws which while much heavier in one portion than another, will nevertheless supply heat substantially uniformly to all portions of the curl contacted by the heater. A still further object is to provide in connection with jaws of constructions indicated above, carrying means which may be attached directly thereto without being damaged and which will not excessively conduct heat away from the jaws and to provide grips of heat insulating construction whereby the device may be manipulated without discomfort to the operator.

Other and more limited objects will be in part apparent and in part pointed out hereinafter in connection with the accompanying drawing wherein Fig. 1 is a side elevation of a device embodying the invention; Fig. 2 is a transverse section drawn to double size and taken centrally of Fig. 1; Fig. 3 is a fragmentary section of a modified form wherein greater heat storage capacity is provided in the upper part than in the form of Fig. 1; Fig. 4 is a section on the line 4—4 of Fig. 3; Fig. 5 is a fragmentary section of a further modified form wherein means are provided for substantially equalizing the heat supply to the curl contacting surface and Fig. 6 is a section corresponding to the line 6—6 of Fig. 5.

In the drawing the numeral 10 indicates substantially semi-crescent shaped, elongated jaws adapted to partially surround a curl wound croquignole fashion with conventional croquignole apparatus. Attached to the jaws 10 by suitable screws 11 are arms 12 which are composed of sheet metal of thin gauge and formed in rectangular shape. These arms comprises a flat portion 12^a which extends longitudinally of the jaw and from the ends of which channel shaped elements 12^b extend away from the jaws. The elements 12^b merge with a flat portion 12^c and are provided with ears 12^d which are pivoted together as indicated at 13. The portions 12^c are provided with struck up flanges 14 which are received in and hold a spring 15 which constantly urges the jaws toward each other. Attached to the portions 12^c of the arms 12 are heat insulating grips 16 which are provided on their inner surfaces with bosses 17 whereby the grips are spaced from the arms thus providing additional heat insulation. By reason of the fact that the arms 12 are composed of metal, they may be safely attached to the jaws 10. They are channel shaped to afford adequate strength and are composed of thin gauge stock whereby they will not excessively conduct heat away from the jaws. The crescent shaped jaws render it easy to place the device on a curl wound on conventional croquignole apparatus and afford at the portions adjacent the arms a heat holding capacity which would be unobtainable if the jaws were of equal thickness throughout. This storage feature makes unnecessary the high initial heat which would be required if the jaws were of equal thickness throughout and of a thickness not to interfere with the use of conventional croquignole apparatus.

In Figs. 3 and 4 I have shown a modified form which differs substantially only in that the jaws 18 thereof have a considerably greater quantity of material at the top whereby sufficient heating may be secured by the use of a lower initial temperature.

In Figs. 5 and 6 I have shown a further modified form wherein the jaws 19 are of substantially the same cross section as those 18 of the previous form but in which means are provided for maintaining a substantially equal temperature in all portions which contact the curl. This latter means comprises a series of longitudinal grooves 20 formed in the inner surfaces of the jaws and defining therebetween relatively narrow portions in contact with the liners 21 which contact the curl or its covering. The liners 21 may be made of relatively thin sheet metal and attached to the heavier portions of the jaws by terminal flanges 22 and 23 received in grooves

formed in the jaws. The size and shape of the grooves **20** will vary according to the material of which the jaws are constructed and the cross sectional shape thereof. It is relatively easy, however, either by theoretical or practical methods to ascertain the approximate shape which the grooves should take in order to secure a substantially even temperature in all portions of the curl contacting surface.

While I have shown and described the present preferred embodiments of the invention, I do not wish to be limited to the details of the disclosure but only in accordance with the appended claims and the prior art.

Having thus described my invention, what I claim is:

1. A heat storage type of heater adapted to be applied transversely to a curl to be heated and comprising a pair of elongated, heat retaining and heat conducting jaws, each being substantially semi-crescent shaped in cross section, each of said jaws being carried by one of a pair of arms, said arms being attached to the thick edges of said jaws, pivoted together and spring pressed to urge said jaws toward each other and heat insulating grips carried by said arms and adapted to be grasped by an operator for separating said jaws when the device is to be applied to a curl.

2. A heat storage type of heater adapted to be applied transversely to a curl to be heated and comprising a pair of elongated, heat retaining and heat conducting jaws, each being substantially semi-crescent shaped in cross section, each of said jaws being carried by one of a pair of arms, said arms being attached to the thick edges of said jaws, pivoted together and spring pressed to urge said jaws toward each other and heat insulating grips carried by said arms and adapted to be grasped by an operator for separating said jaws when the device is to be applied to a curl, said arms being formed of thin sheet metal bent to channel form whereby to provide a construction which can be directly connected to the jaws without being damaged, which has adequate strength and which conducts only a small amount of heat away from the jaws.

3. A heat storage type of heater adapted to be applied transversely to a curl to be heated and comprising a pair of elongated, heat retaining and heat conducting jaws, each being curved to conform to the curl and in cross-section, tapering toward a terminal edge, said jaws being thickened at the other edge whereby to provide heat storage capacity in that region, an arm secured to each of said jaws and carrying a heat insulating grip, said arms being pivoted together and spring means urging said jaws toward each other, each of said arms comprising a plurality of spaced portions, each being channel shaped and composed of thin sheet metal whereby to afford strength and desirable heat resisting and transmitting properties.

4. A heat storage type of heater adapted to be applied transversely to a curl to be heated and comprising a pair of elongated, heat retaining and heat conducting jaws, each being curved to conform to the curl and in cross-section, tapering toward a terminal edge, said jaws being thickened at the other edge whereby to provide heat storage capacity in that region, an arm secured to each of said jaws and carrying a heat insulating grip, said arms being pivoted together and spring means urging said jaws toward each other, the principal part of the heat storage capacity of said jaws being concentrated at one side of a plane tangent to a curl enclosed thereby.

5. A heat storage type of heater adapted to be applied transversely to a curl to be heated and comprising a pair of elongated, heat retaining and heat conducting jaws, each being curved to conform to the curl and in cross-section, tapering toward a terminal edge, said jaws being thickened at the other edge whereby to provide heat storage capacity in that region, an arm secured to each of said jaws and carrying a heat insulating grip, said arms being pivoted together and spring means urging said jaws toward each other, and said jaws being provided at their curl engaging faces each with a continuous portion of heat conductive material, and such portions being connected with the main heat storage portions of said jaws by relatively narrow heat conducting portions.

6. A heat storage type of heater adapted to be applied transversely to a curl to be heated and comprising a pair of elongated, heat retaining and heat conducting jaws, each being curved to conform to the curl and in cross-section, tapering toward a terminal edge, said jaws being thickened at the other edge whereby to provide heat storage capacity in that region, an arm secured to each of said jaws and carrying a heat insulating grip, said arms being pivoted together and spring means urging said jaws toward each other, the principal part of the heat storage capacity of said jaws being concentrated at one side of a plane tangent to a curl enclosed thereby, and said jaws being provided at their curl engaging faces each with a continuous portion of heat conductive material, and such portions being connected with the main heat storage portions of said jaws by relatively narrow heat conducting portions.

GEORGE DECKER.