Aug. 26, 1941. J. FLUEGEL 2,253,973

PERMANENT WAVING DEVICE

Filed Sept. 7, 1939

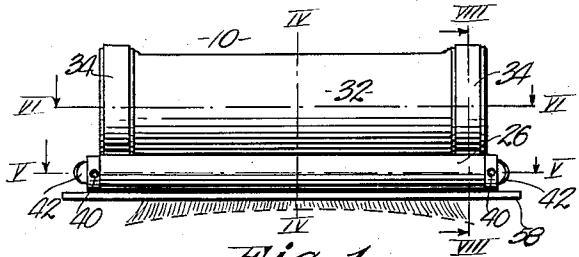


Fig. 1.

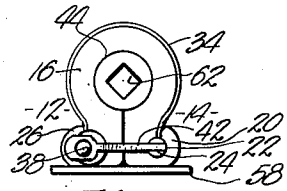


Fig. 2.

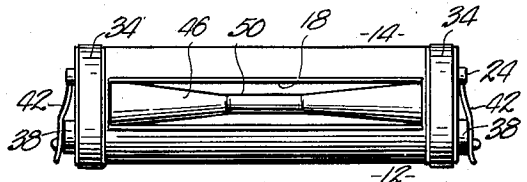


Fig. 3.

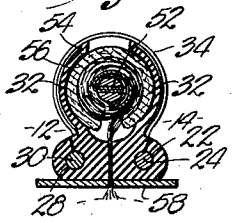


Fig. 4.

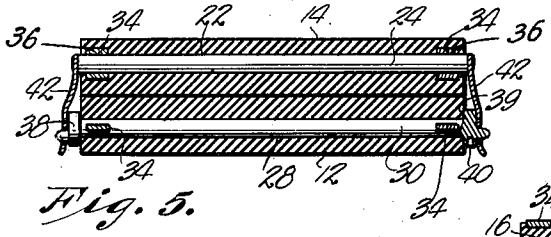


Fig. 5.

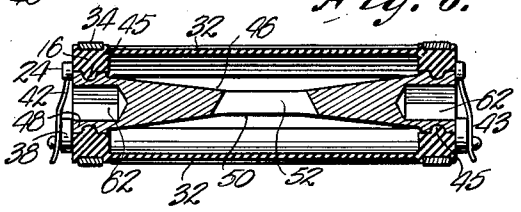
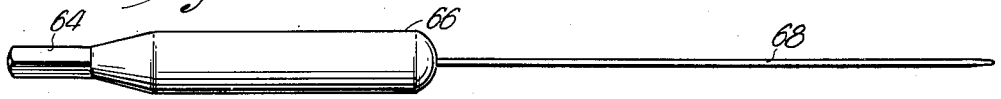


Fig. 6.

Fig. 7.



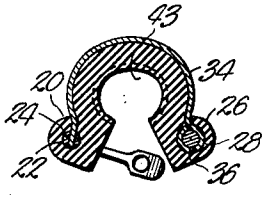


Fig. 8.

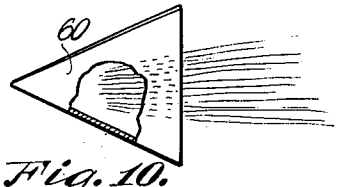


Fig. 10.

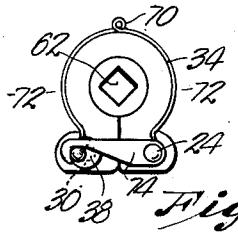


Fig. 9.

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UNITED STATES PATENT OFFICE

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PERMANENT WAVING DEVICE

John Fluegel, Kansas City, Mo.

Application September 7, 1939. Serial No. 293,676

4 Claims. (Cl. 132—36)

This invention relates to improvements in hair waving apparatus and particularly to an apparatus wherein the wound hair is permanently waved by exothermic means.

The primary object of the present invention is the provision of a hair waving apparatus designed to so confine and direct the heat necessarily incident to the treatment, as to protect the customer's head.

Another object of this invention is the provision of a hair waving apparatus wherein means is provided to simultaneously secure the apparatus in position on the head of the customer and to secure the curling spool against accidental rotation.

A further object of the invention is the provision of a hair curling apparatus whereby the curling spool may be rotated in either direction to enable the operator to produce curls of reverse directions.

Further objects of this invention are simplicity and economy of construction; efficient and rapid operation, and adaptability to produce the various types of curls and waves now in vogue.

Reference will now be had to the drawing wherein,

Figure 1 is a side elevation of a hair waving apparatus in operative position embodying this invention.

Fig. 2 is an end elevation of the same.

Fig. 3 is a plan view.

Fig. 4 is a cross sectional view taken on line IV—IV of Fig. 1.

Fig. 5 is a longitudinal, sectional view taken on line V—V of Fig. 1.

Fig. 6 is a longitudinal, sectional view taken on line VI—VI of Fig. 1.

Fig. 7 is an elevational view of the tool.

Fig. 8 is a sectional view taken on line VIII—VIII of Fig. 1 with the apparatus shown in the normally open position.

Fig. 9 is an end elevation of a modified form of the apparatus, and

Fig. 10 is a view showing the position of the tress of hair in the folded paper for insertion in the spool.

Throughout the several views like reference characters refer to similar parts and the numeral **10** designated a protector body member made of a pliable material such as rubber, and having separable clamp members **12** and **14** between which a tress of hair is adapted to be secured when the apparatus is in operation. These clamp members comprise relatively thick edge portions of the pliable body member **10** and are integral with end walls **16** by means of which they are secured together. The central portion of body **10** is cut away to form an opening **18** through which the generated steam escapes as hereinafter set forth.

A lip **20** extending upwardly from clamp member **14** forms a longitudinal recess **22** into which is fitted and secured against rotation a rigid rod **24**. The other clamp member **12** is provided with a lip **26** forming a longitudinal recess **28** into which is positioned a rotatably mounted rod **30**. While these rods are positioned in recesses from which they may be transversely removed, it is apparent that longitudinal holes might be substituted for these recesses without materially altering the general structure or operation of the apparatus.

For convenience of operation and reduction of weight, the side walls **32** of body member **10** are made relatively thin.

A resilient, arcuate metallic band **34** is provided at each end of the body member and is adapted to engage the outer periphery of end walls **16**. Corresponding ends of each of said bands are formed to present a bearing **36** in which is rotatably mounted rod **30** while the other free ends of the bands **34** are securely affixed to rod **24** to prevent its rotation.

Securely affixed to each of the outer extremities of the rod **30** is an eccentric **38**, with their flanged faces **39** resting against the respective end walls **16**. A transversely disposed hole **40** formed in flange **39** serves as a means whereby the eccentrics may be simultaneously rotated. The outer end of each of the eccentrics is conical in shape to facilitate latching as hereinafter described.

A flexible latch member **42** is securely attached to each end of said stationary rod **24** respectively in alignment with the eccentrics. These parts are so related that when the clamp portions are forced together against the action of resilient bands **34**, the latch members will snap to position over the conical ends of the eccentrics to secure the clamps together. For further tightening of the clamp members the eccentrics may be rotated a partial revolution to obtain any desired degree of compression of the parts.

Each of end walls **16** are recessed at **43** in such a manner as to present a circular opening **44** when the body member is closed. A substantially annular rib **45** formed adjacent the center portion of the periphery of said recesses **43** serve to present a continuous internal ring when the body parts are in the operative position.

A spool or curler 46 having cylindrical end portions 48 and a restricted central portion 50 is slotted at 52. Each of the cylindrical end portions 48 is provided with an annular groove into which the ribs 45 are adapted to respectively fit when the parts are in the operative relation. The cylindrical portions of spool 48 fit snugly in the recesses 43 whereby the spool will be held against accidental rotation when the parts are first latched together during the positioning of the hair.

Axially disposed square recesses 62 formed in each end of the spool serve to receive the squared end 64 of the adjusting tool 66 which is also provided with a reduced end 68 for insertion in hole 40 of the eccentric when it is desired to force the body sections together.

The recess 54 formed within the body member 10 when closed as shown is securely sealed at its ends and along the clamping members 12 and 14 so that no heat generated by the exothermic pad 56 can have free passage way to the customer's scalp, but excess heat will be directed upwardly through opening 18 away from the scalp. Due to the pliability of the material of the body member, the sealing operation is very effective; furthermore the heat conductivity of said material, such as rubber, is very low so that no excessive heat will be transmitted to the scalp by conduction.

The modified form shown in Fig. 9 provides for the hinging at 70 of the two frame members 72 which join with rods 24 and 30 as does the band 34 of the preferred form. The latching hook member 74 is raised and lowered in a path perpendicular to the axis of the spool to engage the eccentric 33. With this construction the halves of the body member may be opened wider and they will remain in any desired position; however, the general features and mode of operation is the same as in the form just described.

In the operation of this apparatus a liquid chemical softening agent is applied to the hair to be waved. The exothermic pad is then moistened and placed in position in the open body member 10. Tresses of hair suitable for one curl are spaced off and segregated by means of slotted pliable sheets 58. The end portion of one of said stresses is now positioned between the folds of a sheet of paper 60 in such a manner that the end portion of the paper, into which the hair does not extend is inserted into the slot of the spool and wound onto the spool in such a manner that the hair will not have any abrupt or sharp turns to mar the even curl of the hair. When the tress is completely wound on the spool, the spool is positioned in the body member. The body member is now forced to the closed position and the spool is rotated sufficiently to produce the desired tension of the hair. The operator now sets the eccentrics so as to definitely secure the parts in closed relation and to prevent accidental relative movement thereof. After the predetermined heating period has elapsed, the operator reverses the operations just recited and the hair is removed from the apparatus.

It is apparent that this apparatus due to the even distribution of heat and the proper positioning of the hair a more lasting and even curl of the hair is obtained. Also due to the simplicity of operation and the efficiency of heating much time may be saved and the customer will experience no discomfort due to overheating the scalp. Furthermore strands of hair may be wound in opposite directions to obtain any desired effects by simply turning the spool in either direction, since no ratchet is used and only the pressure of the body rubber on the spool holds the spool against accidental moving.

Since many minor changes might be made in the construction of this apparatus without departing from the spirit of the invention, it is desired to be limited only by the scope of the appended claims.

What I claim as new and desire to secure by Letters Patent is:

1. A hair waving apparatus comprising a spool on which the strand of hair is adapted to be wound; a pliable body member adapted to house said spool and an exothermic heating pad and having parallel clamp members adapted to be moved together to clampingly engage said strand of hair; rigid rods reinforcing said body member at its clamping edges; and means carried by said rods at their opposite ends whereby said clamp members are forced toward each other to maintain said clamp members in parallel relation.

2. A hair waving apparatus comprising a spool on which the strand of hair is adapted to be wound; a pliable body member adapted to house said spool and an exothermic heating pad and having parallel clamp members adapted to be moved toward each other to clampingly engage said strand of hair; rigid rods reinforcing said body member adjacent its clamping edges; means whereby said clamp members are forced toward each other throughout their length, and including eccentrics whereby said clamp members are adjustably secured together.

3. A hair waving apparatus comprising a spool on which the strand of hair is adapted to be wound; a pliable body member adapted to house said spool and a heating element and having parallel clamp members adapted to be moved toward each other to clampingly engage said strand of hair; rigid rods reinforcing said body member adjacent its clamping edges; and resilient bands associated with said pliable body to normally maintain said clamp members in extended spaced apart relation to receive the spool therebetween.

4. A hair waving apparatus comprising a spool on which a strand of hair is adapted to be wound and having annular grooves adjacent its outer ends; an elongated hollow body member, made of a pliable material, having spaced apart clamp members adapted to be moved to clampingly engage said strand of hair and having recessed end walls with ribs adapted to engage in the annular grooves of said spool, to maintain the spool in position in said body member; reinforcing rods mounted in said body member adjacent the clamping walls of said clamp members, resilient members joining said reinforcing rods whereby said clamp members are normally secured in open spaced apart relation; and means associated with said reinforcing rods whereby the clamp members are urged to the closed position.

JOHN FLUEGEL.