June 15, 1937. B. A. STERLING 2,084,166

HAIR WAVER

Filed May 8, 1929 2 Sheets-Sheet 1

Fig. 1.

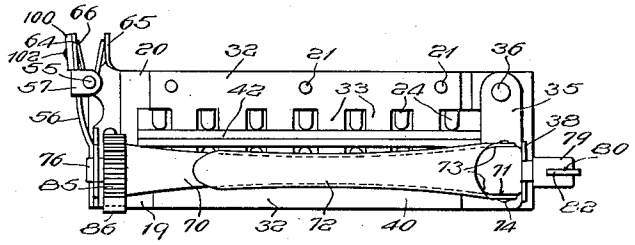


Fig. 2.

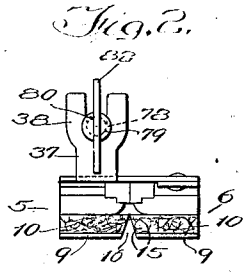


Fig. 3.

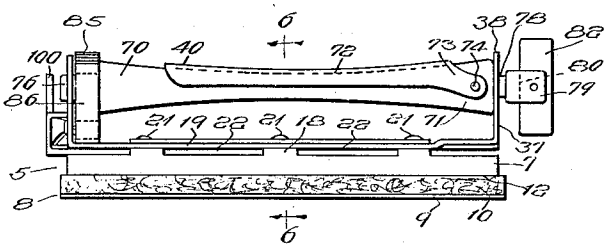


Fig. 4.

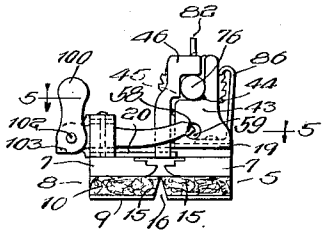


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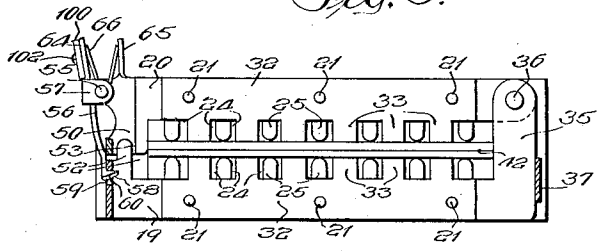
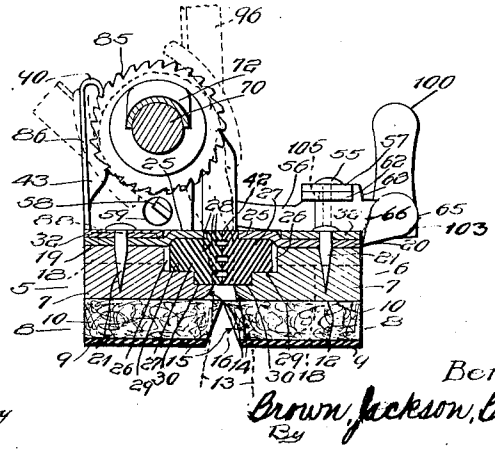


Fig. 6.



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HAIR WAVER

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Fig. 7.

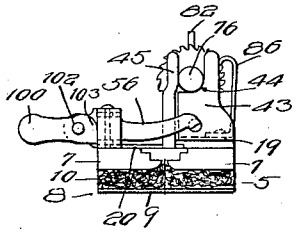


Fig. 8.

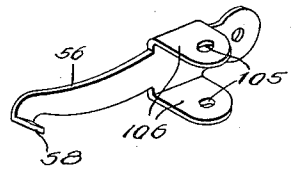


Fig. 9.

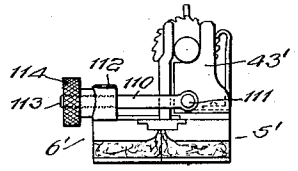


Fig. 10.

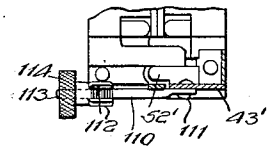


Fig. 11.

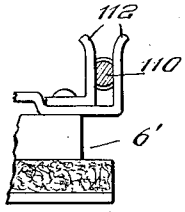


Fig. 12.

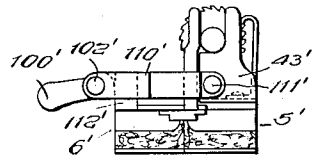
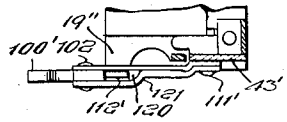


Fig. 13.



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UNITED STATES PATENT OFFICE

2,084,166

HAIR WAVER

Bernard A. Sterling, Chicago, Ill.

Application May 8, 1929, Serial No. 361,285

7 Claims. (Cl. 132—36.1)

This invention relates to hair wavers and may be characterized as an improvement in hair wavers of the type illustrated and described in my copending application, Serial No. 332,831, filed January 16, 1929.

It is the object of the present invention to eliminate kinking of the hair along the region where the strands of hair enter between the jaws of the waving device.

Another object is to improve the protection of the scalp from the steam and heat of the waving device.

Another object is to improve the means for holding and releasing the waving spool and particularly to provide a mounting for this spool, which is released by the separation of the jaw members of the device and without a separate deliberate operation.

Another object is to remove sharp corners from the jaw members of the device along the region of entry of the strands of hair therebetween.

Another object is the provision of improved facings for the jaw members of the device.

Further objects and advantages of the present invention will appear from the following detailed description, taken in connection with the accompanying drawings, in which:

Figure 1 is a top plan view of a device embodying the present invention;

Figure 2 is an end view, looking from the right hand end in Figure 1;

Figure 3 is a side elevational view;

Figure 4 is an end view, looking from the left hand end of the device, as viewed in Figure 1;

Figure 5 is a horizontal sectional view, taken on the line 5—5 of Figure 4, with the detent arm for holding the jaws together in elevation;

Figure 6 is a transverse vertical section, taken on the line 6—6 of Figure 3;

Figure 7 is an end view similar to Figure 4, with the jaws of the device fully clamped together;

Figure 8 is a perspective view of the detent arm employed in the embodiment of Figures 1 to 7;

Figure 9 is an end view similar to Figure 4, showing another form of device for clamping the jaw members together;

Figure 10 is a fragmentary plan view, showing the clamping means of Figure 9;

Figure 11 is a detail section, taken on the line 11—11 of Figure 10;

Figure 12 is an end view, similar to Figure 9, showing another form of device for clamping the jaw members together; and

Figure 13 is a fragmentary plan view, showing the clamping means of Figure 12.

Referring to the drawings, the device shown comprises a pair of jaw members 5 and 6, each of which preferably consists of a flat, generally rectangular block 7, preferably of wood, although these blocks may be of fiber or any other suitable or preferred heat insulating material.

The surfaces of the blocks 7, which are presented to the scalp are, preferably, provided with facings 8. Each of the facings 8 preferably comprises a thin sheet rubber facing strip 9, which is presented to the scalp in the operation of the device and a felt or other equivalent pad 10 interposed between these strips 9 and the adjacent surfaces of the blocks 7. The rubber strips 9 are preferably vulcanized directly to pads 10, which I find provides a permanent union therebetween, which will well withstand the heat which is applied in the operation of the device. The opposite surfaces of the pads 10 are attached directly to the adjacent surfaces of the blocks 7 at 12, preferably by means of a fish or water glass glue, which I find provides a union between these pads and the blocks, which will likewise well withstand the heat which is applied and the steam which is formed in the operation of the device.

To avoid sharp corners along the region of entry of the strands of hair indicated in dotted lines at 13 in Figure 6 between the jaws of the device, the blocks 7 preferably have their lower inner longitudinal corners rounded or removed as indicated at 14 in Figure 6. Then, in order to prevent binding of the facings 8 along this region, the adjacent longitudinal edges of these facings are preferably cut on a bias, as indicated at 15 in Figure 6. This provides relief 16 for permitting closing of the jaws without possible binding of the facings 8 and, by this formation, these facings may even conform up to the rounded or removed corners 14 of the blocks 7.

The outer surfaces of the blocks 7 are preferably provided with cross-ribs 18 and superposed upon these cross-ribs 18 are relatively thin metallic plates, the plate on the jaw 5 being designated at 19 and the plate on the jaw 6 being designated at 20. The plates 19 and 20 are secured to the respective blocks 7 by suitable fastening means 21 and the ribs 18 provide air spaces 22 (Figure 3) between each plate and its associated block.

The adjacent longitudinal edges of the plates 19 and 20 are provided with cuts 24 forming a plurality of freed and separate lugs along the inner edge of each plate. Alternate lugs 25 are offset upwardly and turned in and the alternate lugs 26 therebetween are turned down to receive the yieldable facing pieces 27 along the clamping

faces of the jaws 5 and 6. The facing strips 27, preferably, comprise strips of relatively live yielding rubber, or other equivalent material, and are shown of generally T-shape cross-section, with the adjacent surfaces of the enlarged meeting heads preferably grooved longitudinally at 28 (Figure 6). The meeting surfaces of the facing strips 27 preferably project from the plates 19 and 20 and blocks 7 to provide yielding jaws for gripping the strands of hair 13 and the blocks 7 may be grooved at 29 for the inner legs of these strips and at 30 for the enlarged yielding heads of the strip.

Surmounting the plates 19 and 20, there are preferably metallic plates 32 forming stiffeners and which may be secured to the blocks 7 by the securing means 21.

These plates 32 have inwardly extending separated lugs 33 extending between the lugs 25 and supplementing the retention for the facing strips 27. The mounting of the facing strips 27 provides spaced gaps along the strip and the strips are freed and open to the atmosphere or aerated along these gaps. This maintains the strips live and in good resilient condition, augmenting the action and increasing the life of these facings. At the same time, the facings 27 are conveniently removed and inserted, which facilitates renewal.

At one end, the strip 19 is provided with a lateral tab 35 pivoted at 36 to the adjacent end of the strip 20, preferably with the pivot 36 offset laterally from the strip 19 and in line with the end of the strip 20. The pivot 36 forms a pivotal or hinge connection between the jaws 5 and 6. The lateral tab 35 has an integral tongue 37, which is struck up normal thereto and provided with an open fork 38 (Figures 1, 2 and 3), for rotatably supporting the adjacent end of the curler 40. The fork 38 is, preferably, offset laterally to one side of the meeting surfaces 42 of the jaws being in substantial alignment with one end of the plate 19 in the embodiment shown. At its opposite end, the plate 19 is provided with an integral tongue 43, which is turned up normal to the plate 19 and provided with a journal portion 44 for the opposite end of the curler 40. The tongue 43 forms only one-half of the journal for this end of the curler 40 and the opposite half of this journal is formed by a tongue 45 integral with the adjacent end of the opposite plate 20 and struck up normal thereto.

The journal tongue 45 may be provided with an overhanging portion 46 for holding the roller against outward displacement from the journal, but this overhanging portion may be omitted, if desired. The journal formed by the tongues 43 and 45 is disposed in longitudinal alignment with the fork 38 at the opposite end of the device and is, therefore, offset laterally from the meeting surfaces 42 of the jaws and in substantial alignment with one end of the plate 19.

This offsetting laterally of the journals 38 and 44, 45 of the meeting surfaces 42, with the accompanying lateral offsetting of the axis of the curler 40 as shown in Figures 1, 2, 4 and 6 removes the heater, which is applied to the curler 40, as well understood in the art and more fully disclosed in my copending application above referred to, from the joint or meeting surfaces 42, which protects the scalp from possible access of the heat which is applied, or the steam which is formed through this joint 42. In other words, the heat instead of being applied directly over the joint 42 is now applied over the solid body portion of one of the jaws and the scalp is thereby better protected against heat or steam. At the same time, the lateral offsetting of the journalling means for the curler 40 from the joint 42 disposes the periphery of this curler means substantially tangent this joint 42, so that the strands of hair, upon being led between the jaws of the device, are wrapped upon the curler without bending or kinking these strands over the upper edges of the jaws and to a curler periphery, which is offset laterally from these upper edges. This removes any objectionable kinking at the base of the wave.

Adjacent the tongues 43 and 45, the plate 20 is preferably provided with a lateral tongue 50 (Figure 5) which, as the jaws are closed, moves between a pair of tongues 52 formed integral with the tongue 52 to the right, as viewed in Figure 5, offset downwardly, so that the tongue 50 may move therebetween, the tongue 50 being shown as offset transversely at 53. These cooperating tongues guide the jaws together and maintain the proper relative positions thereof.

Pivoted upon the outer end of the plate 20, as for example, upon a pin 55, disposed with its axle normal to the plane of the plate 20 is a detent arm 56. The pin 55 may be mounted by means of a tongue 57 formed integral with the adjacent end of the plate 20 and turned up therefrom with its upper end turned inwardly substantially parallel with the plate 20 and with the opposite ends of the pin 55 suitably secured in the plate 20 and in the inturned upper portion of the tongue 57. One end of the detent arm 56 is adapted to overlap the upstanding tongue 43 and is provided with an integral catch 58, which, as the jaws are closed, snaps automatically into an aperture 59 into the tongue 43. The edge 60 of the catch 58 is, preferably, inclined or formed in an equivalent manner so that, as the jaws are closed, its inner edge will cam the detent arm 56 outwardly, whereupon the jaws will close past the catch until the aperture 59 comes into register with the catch 58, whereupon the catch 58 will automatically spring into this aperture and firmly and securely hold the jaws of the protector closed.

The detent arm 56 has the generally U-shaped portion with the integral tongues 62 pivotally mounting the same upon the pivot 55 and disposed within the generally U-shaped formation of the lug 57.

The detent arm 56 extends in the opposite direction from the pivot 55 and forms a finger piece 64 between which and a cooperating finger piece 65 struck out from the plate 20 a suitable spring 66 is interposed. The spring 66 is shown as comprising a flat spring strip turned around the pivot 55 and bearing at its free ends against the fixed finger piece 65 and the finger piece 64 of the detent arm and tends to urge the arm 56 into the position shown in Figure 5. The spring 66 normally holds the arm 56 in the position shown in Figure 5 and the catch 58 is conveniently released from the aperture 59 to permit opening the jaws by grasping the finger pieces 64 and 65 and exerting a slight pressure, which will swing the arm 56 about the pivot 55 in a clockwise direction, as viewed in Figure 5, sufficiently to free the catch 58 from the aperture 59. One side of the spring 66 is, preferably, provided with integral tongues 68 (Figure 6), which abut the adjacent portions of the tongue 57 and tend to hold the spring properly positioned. Obviously, the separation of the jaws, by the simple expedient of releasing the detent 56 and swinging them apart about the pivot 36, also separates the jour-

nalling portions 44 and 45 for the curler 40, which releases the curler for removal from the device, without any separate or additional releasing operations.

The curler, per se, is preferably of the construction more fully illustrated in my copending application above referred to and a detailed description of this device will, therefore, not be repeated here. Suffice it to say that this curler 40 comprises a metal spool or reel 70, preferably solid and preferably of circular section and diminishing in diameter from its opposite ends toward the center. The spool 70 is preferably of aluminum and is splayed on diametrically opposite sides at one end at 71 and a saddle-like retainer 72 is provided at one end with projecting tongues 73, which are pivoted upon the splayed sides 71, as by means of a cross-pin 74. The retainer 72 is preferably curved to conform with the periphery of the spool 70 and is adapted to be swung open or away from the spool so that the strands of hair may be wound around the spool and closed upon the spool with the strands of hair held between the spool and the retainer. One end of the spool 70 is provided with an integral axial pin 76, which is adapted to be held rotatably between the journalling tongues 43 and 45 and the opposite end of the spool 70 is provided with an integral reduced stem 78, which, when the curler is mounted upon the protecting jaws, is rotatably held in the open fork 38. The stem 78 is enlarged outwardly of the fork 38 at 79 and grooved or slotted transversely at 80 to receive a wing-like finger piece 82, which may be secured therein by a pin 83. The finger piece 82 forms the key for turning the spool 70 and this key thereby constitutes a unitary part of the spool.

At its opposite end, the spool 70 has teeth or splines 85, which may be milled therein and these splines 85 form a holding ratchet, which cooperates with a spring pawl 86, mounted upon the adjacent end of the plate 19.

The pawl 86 is preferably formed of a thin strip of spring metal and is secured at 88 to the plate 19. From its angularly mounted end (Figure 6), the pawl strip 86 extends up and is turned in and downwardly at 90 for cooperation with the ratchet teeth 85. The cooperation of the upper turned end 90 of the pawl 86 with the ratchet teeth 85 is as viewed in Figure 6 such that the pawl will ride yieldingly over the teeth 85 and permit turning of the spool in a counterclockwise direction, but will engage the teeth as shown and prevent unwinding or turning of the spool in the opposite direction. The journal portion 45 being separated from the journal portion 44 in the opening of the jaws, the pawl 86 is released from the ratchet automatically by this opening movement of the jaws.

In use, the desired number of strands or lock of hair is separated out. The jaws of the device are swung to open position about the pivot 36 and the lock of hair is then arranged between the jaws of the device and these jaws are closed upon the hair, as shown more or less diagrammatically in Figure 6. The curler being detached, the retainer is swung away from the spool portion and the hair is wound or laid upon the spool and the retainer is closed upon the hair all above the clamping jaws. Upon winding the hair upon the spool in this manner, the retainer is closed and the curler is rotatably mounted, as shown in Figure 6, and with the hair upon the curler, this curler may be turned or rotated by means of the finger piece 82 to tension the wave. The cooperating ratchet 85 and pawl 86 hold the curler against unwinding and the spool 70 in any wound position in which it is released.

Upon thus tensioning the hair, the heater shown more or less diagrammatically in dotted lines at 96 in Figure 6 may be applied to the curler. This heater is shown of the spreadable jaw type well understood in the art and the scalp is protected therefrom by the lateral disposition of the heater with reference to the opening and closing joint 42 between the jaws. Upon completion of the wave, the heater 95 is removed and, by the simple expedient of grasping the finger pieces 64 and 65, the detent 56 is released and the jaws may be swung to open position. The curler spool 70 is automatically released by the opening of the jaws, as is the ratchet and pawl means 85 and 86.

For the purpose of clamping the jaws 5 and 6 more tightly together in closed position, an arm 100 is pivoted at 102 upon the finger piece 64. This arm 100 has an eccentric cam head 103, which cooperates with the edge of the base 104 of the channel or generally U-shaped portion of the tongue 57 and draws the detent arm 56 outwardly and the jaw 5 hooked thereto at 58 tightly against the jaw 6, when the arm 100 is swung from the position shown in Figures 4 and 6 to the position shown in Figure 7. In Figures 1, 2, 4, 5 and 6, the jaws 5 and 6 are closed and the catch 58 is engaged, but these illustrations are with the arm 100 in upright or released position and without the full clamping effect imposed by the arm 100. The end view in Figure 7 shows the arm 100 swung to jaw clamping position and shows how these jaws 5 and 6 are clamped more tightly together and how the facings 8 are forced together and up into the longitudinal recess between the rounded edges 14 of the jaws.

To permit the movement of the detent arm 56 outwardly relative the jaw 6, under the action of the cam or eccentric head 103 of the arm 100, the openings 105 in the generally horizontal legs 106 of the detent arm 56 for the pivot 55 are preferably elongated slightly in a transverse direction relative the jaws 5 and 6.

In the embodiment of Figures 9, 10 and 11, instead of the detent arm 56, with the catch 58 of the previous embodiment, an arm 110 is pivoted at 111 to the tongue 43', which corresponds with the tongue 43 of the previous embodiment. When the jaws 5' and 6' are closed, as illustrated in Figure 9, the arm 110 is swingable down between a pair of upstanding lugs 112, one integral and up-turned from the plate 19' and the other formed separately and secured to the plate 19' as by means of a rivet 116. The inner end of the piece 116 may be rounded inwardly or concave to form a stop for cooperation with the complementary rounded end of the lug 52' on the other jaw member. The outer end of the arm 110 is threaded at 113 to receive a thumb nut 114, which upon swinging the arm 110 down between the lugs 112, as shown in Figure 9, may be screwed or tightened up against the lugs 112, to bind or clamp the jaws tightly together in the manner illustrated in Figure 7. By swinging the arm 110 upwardly to release same from the lugs 112, the jaws may be opened or closed, as desired. In this embodiment, the overhanging portion 46 on the tongue 45 of the embodiment of the invention illustrated in Figures 1 to 7 is omitted and it may be, in any of the previous embodiments.

In the embodiment of Figures 12 and 13, the arm 110' is pivoted to the tongue 43'' at 111', as

in the embodiment of Figures 9, 10 and 11, but in this case, the arm 110' comprises a pair of relatively thin straps spaced at their outer ends at 120, as by offsetting one of these straps at 121 and these spaced outer ends 120 are adapted to be swung over a single lug 112' turned up from the plate 19''. The arm 100' is substantially like the arm 100 in Figure 7, but is pivoted at 102' between the outer spaced ends of the strap members forming the arm 110'. The eccentric or cam head 103' of the arm 100' cooperates in this case with the edge of the lug 112' to clamp and bind the jaws of the device tightly together.

I do not intend to be limited to the precise details shown or described.

I claim:

1. A hair waver, comprising a pair of jaw members, facings secured to the bottom surfaces of said jaw members, said facings each comprising a felt pad glued to the bottom surfaces of said jaw members, and rubber facing strips vulcanized to the bottom surfaces of said pads.

2. A hair waver, comprising a pair of jaw members, facings secured to the bottom surfaces of said jaw members, said facings each comprising a felt pad secured with a fish glue to the bottom surfaces of said jaw members, and rubber facing strips vulcanized to the bottom surfaces of said pads.

3. A hair waver comprising a protecting clamp and a curler having journals at its opposite ends, said clamp comprising jaws having pivotal connection at one end of the clamp and adapted for swinging movement together and apart, means entirely on one of said jaws and cooperable with the journal at one end of the curler for rotatably supporting the curler at the end of the clamp where the jaws are pivotally connected, and means comprising a pair of parts cooperating with the journal at the opposite end of the clamp and rotatably supporting the adjacent end of the curler, there being one of said parts carried on each of said jaws and one part having a portion overhanging the adjacent journal of the curler to hold the same against separation from the clamp, the parts of said last curler supporting means being automatically released by swinging movement of said jaws apart about said pivotal connection.

4. A hair waver comprising a protecting clamp and a curler, said clamp comprising a pair of flat generally rectangular jaw members pivotally connected to be swung to open and closed positions, a pair of journals one on each of said jaw members and cooperable when said jaw members are closed to rotatably support the curler upon the clamp, said journals being separated automatically by the swinging movement of the jaw members to open position about the pivotal connection therebetween whereby the curler is released from the clamp, the curler having a trunnion, ratchet means on said curler adjacent said trunnion, a rigid tongue on one of said journals and overhanging the trunnion when said jaws are in closed position, and a spring pawl engaging said ratchet means for limiting rotation of said curler.

5. A hair waver comprising a protecting clamp and a curler, said clamp comprising a pair of flat generally rectangular jaw members pivotally connected to be swung to open and closed positions, a pair of journals one on each of said jaw members and cooperable when said jaw members are closed to rotatably support the curler upon the clamp, said journals being separated automatically by the swinging movement of the jaw members to open position about the pivotal connection therebetween whereby the curler is released from the clamp, and a detent pivoted on one jaw member and engageable with the journal upon the other jaw member for holding the jaw members closed and against opening movement.

6. A hair waver comprising a pair of jaw members pivotally connected to be swung to open and closed positions and having meeting edges movable into and out of cooperation by the opening and closing of said jaws, a curler, means struck up from one of said jaw members adjacent the pivotal connection thereof for journaling one end of said curler, and means at the free ends of each of said jaw members cooperable when said jaws are closed for journaling the other end of said curler in position directly exposed to said jaws, said journaling means being so disposed as to offset said curler laterally with respect to the meeting edges of said jaws.

7. A hair waver comprising a pair of jaw members pivotally connected to be swung into open and closed positions, a curler, means disposed on one of said jaw members and confined within the width thereof for journaling one end of said curler above said one jaw member, and means disposed at the opposite end of said jaw member for journaling the other end of said curler and for alining said curler with reference to said first journaling means above said jaw member, and offset laterally from the meeting edges of said jaw members.

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