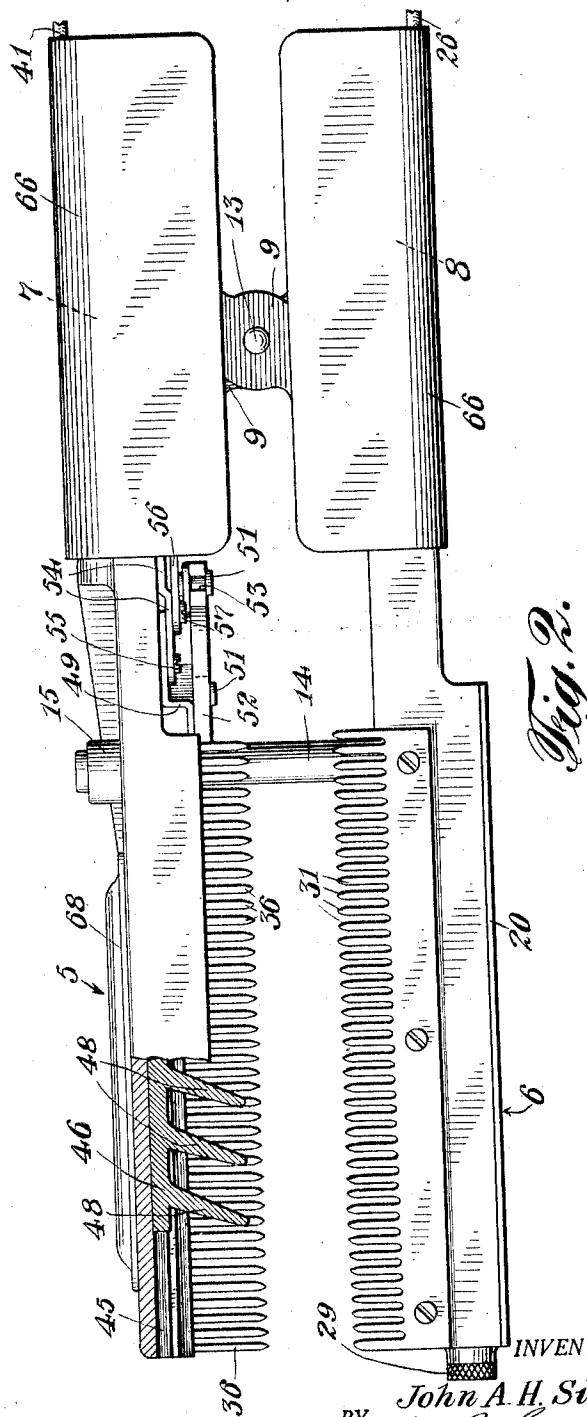
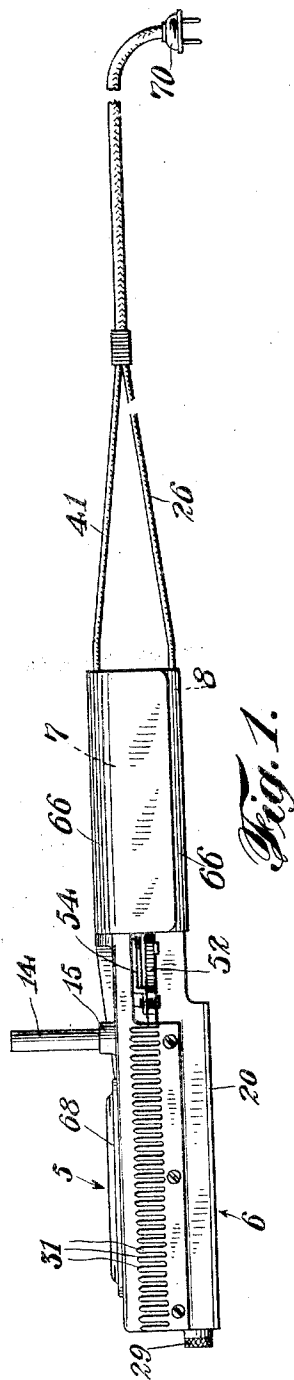


April 5, 1932.

J. A. H. SIERS
HAIR WAVING DEVICE
Filed June 29, 1931

1,852,269

3 Sheets-Sheet 1



INVENTOR.
John A. H. Siers
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April 5, 1932.

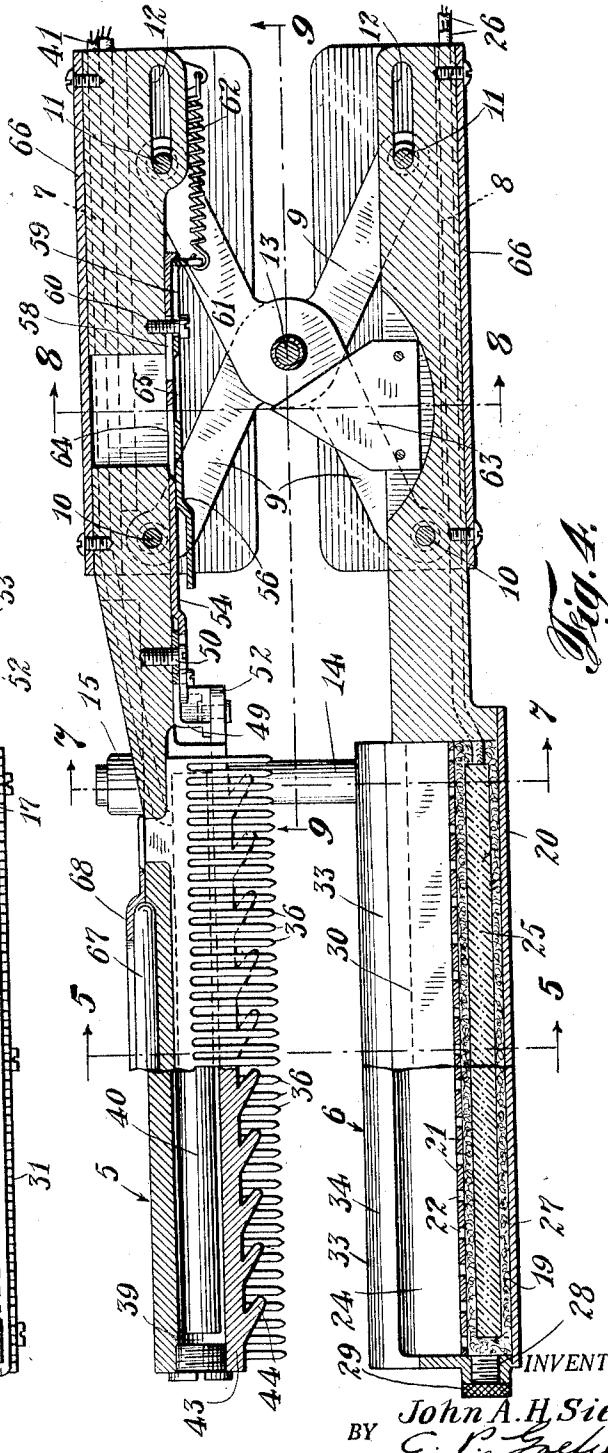
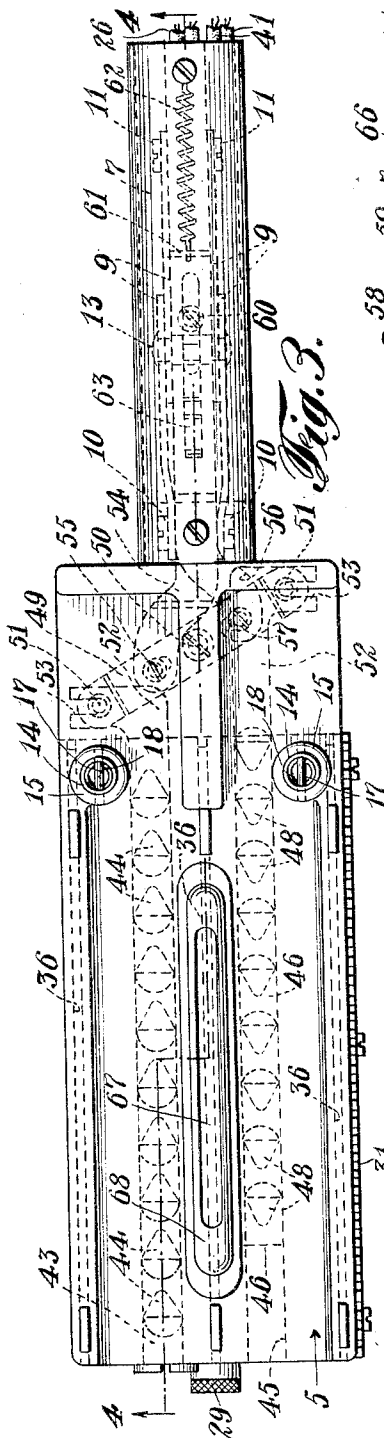
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HAIR WAVING DEVICE

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3 Sheets-Sheet 2



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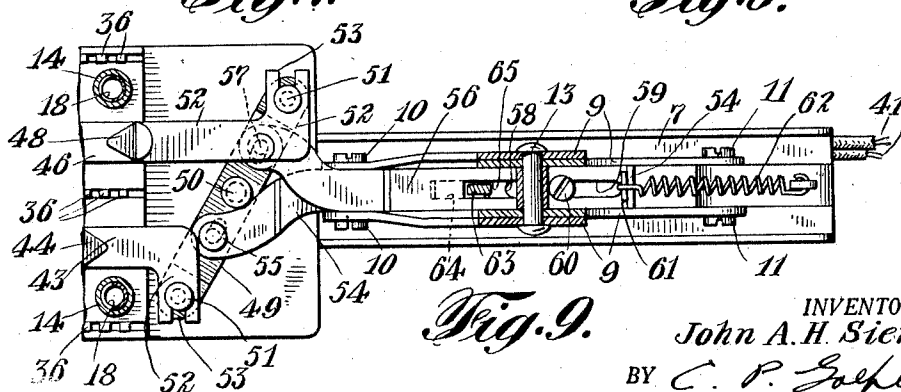
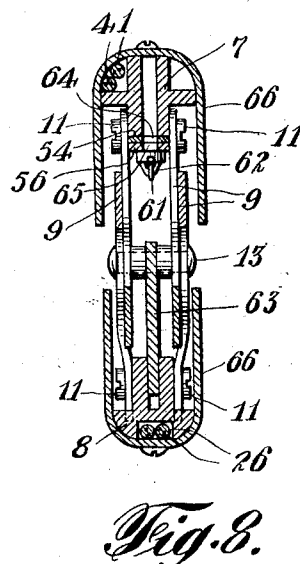
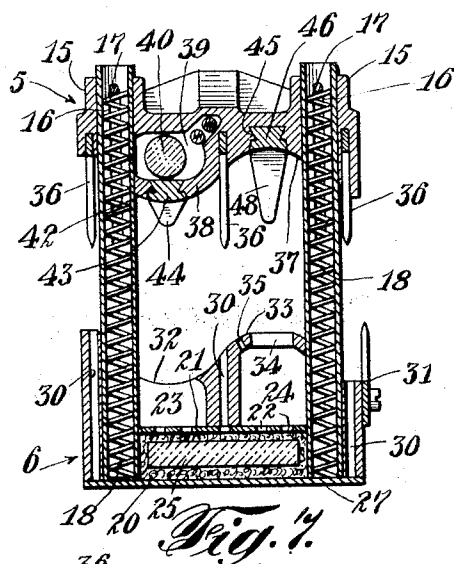
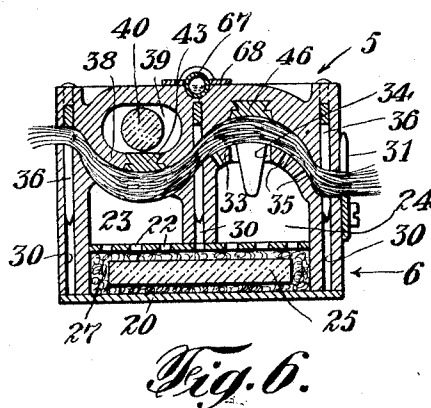
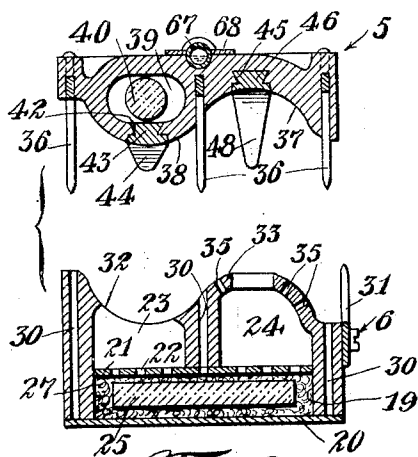
J. A. H. SIERS

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HAIR WAVING DEVICE

Filed June 29, 1931

3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

JOHN A. H. SIERS, OF JERSEY CITY, NEW JERSEY

HAIR WAVING DEVICE

Application filed June 29, 1931. Serial No. 547,591.

This invention relates to hair waving devices, and has for its general object and purpose to provide certain novel and important improvements in a device of this kind as disclosed in my pending application for patent Serial No. 507,769, filed June 10, 1930.

In my pending application, I have disclosed a hair waving device embodying relatively movable presser sections or members and relatively movable wave forming combs carried by one of these sections. It is an important object of my present improvements to provide an improved construction and arrangement of the movable combs so that in the separation of the presser members and the return of the combs to their normal positions, the waved strands of hair will not be disturbed.

It is also an additional feature of my present invention to improve the construction of the presser members so that the main waves extending longitudinally of the hair strands will be accurately formed. The invention further has for one of its objects to provide in addition to the movable combs, relatively stationary combs for engaging and holding the hair at spaced points prior to the effective engagement of the teeth of the movable combs therewith.

Additional objects of my present invention reside in the provision of a simplified construction and arrangement of the means for actuating the movable combs, improved means for effecting separation of the presser members and yieldably supporting the same in normal separated relation, and in the general form and construction of said presser members and the operating means therefor, whereby the manufacturing cost of the device may be materially reduced, and the weight thereof also greatly lessened so that the device can be handled or manipulated with ease and facility.

With the above and other objects in view, the invention consists in the improved hair waving device, and in the form, construction and relative arrangement of the several parts as will be hereinafter more fully described, illustrated in the accompanying drawings,

and subsequently incorporated in the subjoined claims.

In the drawings, wherein I have illustrated one simple and practical embodiment of my present improvements, and in which similar reference characters designate corresponding parts throughout the several views,—

Figure 1 is a side elevation of the device, the presser members being shown in closed position;

Fig. 2 is a similar view on an enlarged scale partly in section, and the presser members being shown in open or separated relation;

Fig. 3 is a top plan view;

Fig. 4 is a longitudinal sectional view taken on the line 4—4 of Fig. 3;

Fig. 5 is a transverse sectional view taken on the line 5—5 of Fig. 4;

Fig. 6 is a similar section showing the presser members closed upon the hair;

Fig. 7 is a transverse sectional view taken on the line 7—7 of Fig. 4;

Fig. 8 is a similar section taken on the line 8—8 of Fig. 4; and

Fig. 9 is a fragmentary bottom plan view of the upper presser member as indicated by the line 9—9 of Fig. 4.

Referring in detail to the drawings, 5 and 6 generally designate the upper and lower hair pressing members respectively. These members are of rectangular elongated form and are each provided at one end thereof with a longitudinal handle extension 7 and 8 respectively. These extensions may be either integrally formed with the presser members as shown or constructed as separate parts and suitably secured to said members. The handle extensions 7 and 8 are preferably of cross sectional form indicated in Fig. 8 of the drawings and are connected by pairs of crossed links as indicated in Fig. 4 of the drawings. One of the links 9 in each pair is pivoted at one of its ends as at 10 to one of the handle extensions 7 or 8 and has its other end slidably connected by means of the pin 11 to the other of said handle extensions, said pin moving longitudinally in the slot 12. The links 9 in each pair at their points of intersection are connected by a common pivot member 13.

The lower presser member 6 at its rear end has the lower ends of upstanding tubular posts 14 suitably fixed therein, said posts extending through the guide bosses 15 formed on the upper presser member 5. It will thus be understood that these posts guide and restrict the movement of the presser members 5 and 6 in a rectilinear path towards and from each other. The upper end portions of the posts 14 in opposite side walls thereof are provided with slots indicated at 16 which receive the pins 17 fixed in the guide bosses 15. These pins engage the upper ends of the coil expansion springs 18 housed within the tubular guide posts. Thus, it will be understood that these springs are placed under compression in the relative movement of the presser members to their closed positions and yieldingly act to urge the presser members to their normal open or separated positions as shown in Figs. 2 and 4 of the drawings.

The lower portion of the presser member 6 has a chamber 19 extending substantially the full length of said member closed by the bottom plate 20 and having a perforated top plate 21, the perforations 22 in said plate connecting the chamber 19 with the two parallel vapor receiving chambers 23 and 24 respectively, formed in the upper portion of said presser member. The chamber 19 contains a suitable resistance indicated at 25 supplied with current through the wires shown at 26, said resistance being encased in a suitable liquid absorbent material indicated at 27. The presser member 6 at the end thereof opposite the handle extension 8 has an opening 28 communicating with the chamber 19 normally closed by the plug 29. Through this opening, the solution such as that commonly employed in the operation of producing permanent hair waves is supplied so that the absorbent material 27 will become thoroughly saturated there-with.

The presser member 6 adjacent each of its longitudinal sides and at its center is provided with longitudinally extending channels as shown at 30 for a purpose which will later become apparent, and I also preferably secure or rigidly fix in any suitable manner to one of the side faces of this presser member a comb 31 having upwardly projecting teeth. The upper surface of the presser member 6 between the outer side channels 30 therein is reversely curved transversely of said member to provide a longitudinally extending groove as shown at 32 and an adjacent parallel rib 33, the surfaces of said rib and groove immediately merging with each other. The chamber 23 opens upwardly through the groove 32 while the top wall of the chamber 24 forming the rib 33 is centrally provided with a longitudinally extending slot or opening 34 therein. If desired, this

wall may also be provided with one or more longitudinally extending series of spaced apertures as indicated at 35. It will thereby be understood that the vapor produced by the heating of the saturated material 27 entering the chambers 23 and 24 through the perforations 22 may freely rise or pass upwardly from said chambers for engagement with the hair extending over the groove 32 and rib 33.

The upper presser member 5 is provided adjacent each of its longitudinal side faces and at its center with a fixed longitudinally extending comb. These combs, indicated at 36 have straight downwardly extending teeth which are adapted to be received within the channels 30 in the lower presser member 6. The bottom face of this upper presser member is also reversely curved transversely thereof to provide the longitudinally extending groove 37 and the adjacent rib 38 in opposed mating relation to the rib 33 and groove 32 respectively of the lower presser member 6. The rib 38 has a longitudinally extending chamber 39 which receives the resistance 40 supplied with current through the wires 41 and whereby said upper presser member may be heated to the desired temperature in the operation of the device. The lower wall of this chamber 39 has a central longitudinally extending slot, the opposite sides of which are formed as at 42 to provide guide means for a movable comb 43. The teeth 44 of this comb extending below the convex surface of the rib 38 are obliquely inclined towards the handle section 7.

The member 5, centrally of the groove 37 is provided with the longitudinally extending guide channel 45 for a second movable comb 46. This comb is provided with spaced inclined teeth 48 which extend in a reverse direction to the teeth 44 of the comb 43. These teeth 48 are of greater length than the teeth 43 and terminate at their lower ends substantially in the same plane with the ends of the latter teeth. The inclination of the teeth 48 however, differ from the teeth 43 as will be seen upon a comparison of Figs. 2 and 4 of the drawings. Thus, while the same kind of wave is formed by both sets of comb teeth which engage the hair at the same time as the presser members are closed, there will be no disturbance of the wave by the longer teeth 48 as they are withdrawn from the hair.

While various means might be provided for actuating the movable comb members 43 and 46, I have shown in the drawings, one simple and efficiently operating means for this purpose consisting of the link member 49 pivoted intermediate of its ends as at 50 upon the under side of the presser member 5 adjacent the connection of the handle extension 7 therewith. The opposite ends of this link 49 are angularly offset and carry suitable pins or studs 51 slidably engaged in slots

53 provided in the angularly disposed end portions 52 of the respective comb members.

A slide bar 54 is longitudinally movable along the lower face of the handle extension 7 and has one of its ends curved or offset and connected at one side of the pivot 50 by a suitable slot and pin connection indicated at 55 with the link 49. A second slide bar 56 has one end thereof offset to the opposite side of the pivot 50 and similarly connected by the slot and pin connection indicated at 57 to said link 49. The other ends of the slide bars 54 and 56 are provided with the slots 58 and 59 respectively, to receive the guide pin or screw 60 fixed in the handle 7. This end of the slide bar 56 is provided with an attaching ear 61 for one end of the coil spring 62, the other end of which is suitably secured to the handle 7, said spring yieldingly acting to retain the relatively movable slide bars and the combs 43 and 46 in the positions shown in Fig. 7 of the drawings.

Upon the handle extension 8 of the lower presser member 6 an upwardly extending cam plate 63 is suitably fixed at one side of the pivot rod 13. The slide bars 54 and 56 on the upper handle 7 are provided with registering slots 64 and 65 respectively, only the relatively opposite ends of said slots being in registration in the normal position of said slide bars to receive the point of this triangular shaped cam plate 63. The end edges of these slots are preferably beveled or inclined so that the edges of the cam plate will have smooth riding contact thereon to move the slide bars in relatively opposite directions when the handle members are pressed towards each other.

To each of the handles 7 and 8, I preferably secure a U-shaped guard sheath 66 which may be formed from fiber or other suitable insulating material. These sheaths embrace the handles and have their side walls extended inwardly therefrom, said walls of the two sheaths being relatively positioned so that when the handles are pressed towards each other, they may overlap and have free sliding contact at their opposed faces as indicated in Fig. 1 of the drawings. These sheaths protect the hands of the user and also prevent the fingers from contacting with the link connections between said handles and obviate possible damage or injury to the mechanical operating means for the movable comb members.

For convenience in maintaining the upper presser member 5 at the required temperature, I mount within a suitable longitudinally extending channel in the upper surface of said presser member a thermometer 67, said thermometer being confined in the channel by a slotted cap or cover plate 68 suitably secured to the surface of the presser member 5.

In the use of my improved hair waving device, the current supply wires 26 and 41 for

the resistance units 25 and 40 respectively, are connected by means of a suitable attachment plug shown at 70 with the house current circuit. The heat from the unit 25 vaporizes the solution in the saturated material 27, such vapors filling the chambers 23 and 24 of the presser member 6. The strands of hair are first positioned across the groove 32 and rib 33 of said presser member and engaged with the teeth of the fixed comb 31 on said member. Pressure is now applied in opposite directions against the handles so that the members 5 and 6 are moved in opposite directions towards each other. In this operation, the teeth of the fixed combs 36 on the upper presser member 5 first engage the hair, and thus hold the same at the opposite sides of the device and at its center against shifting movement longitudinally of the presser members. In the further movement of said presser members towards each other and after the oppositely inclined teeth of the combs 43 and 46 engage the hair, the point of the triangular shaped cam plate 63 enters the registering ends of the slots 64 and 65 and cooperates with the two slide bars 54 and 56 to move the same in relatively opposite directions, thus swinging the link member 49 upon its pivot and thereby shifting the comb members connected with the opposite ends of this link in relatively opposite directions, and in the direction of the inclination of the teeth of the respective comb members. Thus before maximum pressure is placed upon the hair engaged with the grooves and ribs of the respective presser members, these parts of the hair strands are shifted in relatively opposite directions longitudinally between the presser members so as to produce waves therein in a direction at right angles to the waves formed by said ribs and grooves, which latter waves extend longitudinally of the hair strands. The chemical vapor from the chambers 23 and 24, thoroughly permeates the hair waves which are thus formed by the presser members so that they will remain in a more or less permanent or set condition after the release of the hair. After a suitable length of time, pressure on the handle members is released so that the springs 18 which were compressed when the device was closed, by their expansive action, immediately separates said presser members. As the cam plate is withdrawn from the slots 64 and 65, spring 62 contracts to reverse the relative movement of the combs 43 and 46. However, owing to the oblique inclination of the comb teeth, the waved formation of the hair will not be seriously disturbed in the withdrawal of the comb teeth therefrom as the comb members are returned to their normal positions. In this manner, it will be evident that by means of my device, a permanent wave may be imparted to the hair over the entire head without danger of harm thereto or great inconvenience to the user.

It will of course, be understood that if it is not desired to provide the hair with a permanent wave, but only with what is usually referred to as a Marcel wave, the oil or chemical vapor is not used, but the hair is merely subjected to heat and pressure between the presser members. Of course, the same waved formation of the hair will be produced in the operation of the device as above described.

From the foregoing description considered in connection with the accompanying drawings, it will be seen that I have materially improved the construction and operation of my former device. The two presser members with their individual handle extensions may be readily produced in the form of light aluminum castings. The several other parts, including the comb members and operating means for the movable combs are also of very simple form and do not add much weight to the device as a whole so that it may be operated and manipulated with great ease and facility.

I have herein illustrated and described a very simple and practical form of my present improvements, nevertheless it will be understood that the essential features thereof might also be incorporated in various other alternative structural forms, and I therefore, reserve the privilege of resorting to all such legitimate changes in the form, construction and relative arrangement of the various detail parts as may be fairly incorporated within the spirit and scope of the invention as claimed.

I claim:

1. In a hair waving device, complementary presser members movable towards and from each other and having means for forming adjoining reverse waves in one direction in the hair, means to engage the hair at spaced points as said members are moved towards each other to hold the hair at such points against shifting movement relative to said members, and relatively movable means to engage the hair at the crest of each of said waves as the presser members are closed thereon and form adjoining reverse waves in the hair in a direction at right angles to the direction of said first named waves.

2. In a hair waving device, complementary presser members movable towards and from each other, means to engage the hair at spaced points as said members are moved towards each other to hold the hair at such points against shifting movement relative to said members, spaced longitudinally shiftable combs movable at right angles to the length of the hair and having obliquely inclined teeth projecting in relatively opposite directions to engage and form reverse adjoining waves in the hair as the presser members are brought to closed position thereon, and means for automatically shifting said combs in re-

verse directions in the closing movement of the presser members.

3. In a hair waving device, complementary presser members movable towards and from each other, spaced longitudinally shiftable combs movable at right angles to the length of the hair and having obliquely inclined teeth projecting in relatively opposite directions to engage and form reverse adjoining waves in the hair as the presser members are brought to closed position thereon, and means for automatically shifting said combs in reverse directions in the closing movement of the presser members.

4. In a hair waving device, complementary presser members movable towards and from each other provided upon their opposed faces with complementary ribs and grooves to form adjoining reverse waves in one direction in the hair as said members are brought to closed position thereon, means to engage and hold the hair at each side of said ribs and grooves prior to the application of pressure thereto and comb members mounted for longitudinal sliding movement along the walls of the rib and groove on one presser member to engage the hair at the crest of each of said waves and form adjoining reverse waves in the hair in a direction at right angles to the direction of said first named waves.

5. In a hair waving device, complementary presser members movable towards and from each other provided upon their opposed faces with complementary ribs and grooves to form adjoining reverse waves in one direction in the hair as said members are brought to closed position thereon, comb members mounted for longitudinal sliding movement along the walls of the rib and groove on one presser member to engage the hair at the crest of each of said waves and form adjoining reverse waves in the hair in a direction at right angles to the direction of said first named waves, and means for automatically shifting said comb members in reverse directions as the presser members are brought to closed position on the hair.

6. In a hair waving device, complementary presser members movable towards and from each other provided upon their opposed faces with complementary ribs and grooves to form adjoining reverse waves in one direction in the hair as said members are brought to closed position thereon, comb members mounted for longitudinal sliding movement along the walls of the rib and groove on one presser member to engage the hair at the crest of each of said waves and form adjoining reverse waves in the hair in a direction at right angles to the direction of said first named waves, means for automatically shifting said comb members in reverse directions as the presser members are brought to closed position on the hair, and each of said comb members having spaced teeth

obliquely inclined in the direction of their wave forming movement.

7. In a hair waving device, complementary presser members movable towards and from each other and provided on their opposed faces with complementary ribs and grooves to form adjoining reverse waves in one direction in the hair, relatively fixed combs engaging the hair as said presser members are moved towards each other to prevent shifting movement of the hair longitudinally of said ribs and grooves, additional relatively shiftable comb members engaging the hair at the crest of each of said waves, and means for automatically actuating said latter comb members in reverse directions as the presser members are brought to closed position to form adjoining reverse waves in the hair in a direction at right angles to the direction of said first named waves.

8. In a hair waving device, complementary presser members movable towards and from each other and provided on their opposed faces with complementary ribs and grooves to form adjoining reverse waves in one direction in the hair, relatively fixed combs engaging the hair as said presser members are moved towards each other to prevent shifting movement of the hair longitudinally of said ribs and grooves, additional relatively shiftable comb members engaging the hair at the crest of each of said waves, and means for automatically actuating said latter comb members in reverse directions as the presser members are brought to closed position to form adjoining reverse waves in the hair in a direction at right angles to the direction of said first named waves, and each of said shiftable combs having hair engaging teeth obliquely inclined in the direction of the wave forming movement of said combs.

9. In a hair waving device, complementary presser members movable towards and from each other, a comb fixed to one of said members to engage and hold the hair prior to the application of pressure thereto against shifting movement longitudinally of the presser members, a comb mounted on one of said presser members for longitudinal movement relative thereto in a plane transversely spaced from the plane of the fixed comb, and means for automatically actuating said movable comb as the presser members are brought to closed position to form a wave in the hair.

10. In a hair waving device, complementary presser members movable towards and from each other, spaced combs fixed to one of said members to engage and hold the hair prior to the application of pressure thereto against shifting movement longitudinally of said members, a comb movably mounted on one of said members and disposed in a plane intermediate of the planes of said fixed combs, and means for automatically actu-

ating said movable comb as the presser members are brought to closed position to form a wave in the hair.

11. In a hair waving device, complementary presser members movable toward and from each other, spaced combs fixed to one of said members to engage and hold the hair prior to the application of pressure thereto against shifting movement longitudinally of said members, a comb movably mounted on said member between the fixed combs, and means for automatically actuating said movable comb as the presser members are brought to closed position to form a wave in the hair.

12. In a hair waving device, complementary presser members movable towards and from each other, a comb fixed to one of the presser members to engage and hold the hair prior to application of pressure thereto against shifting movement longitudinally of said members, a longitudinally shiftable comb mounted on said member at each side of the fixed comb, and means for longitudinally shifting the movable combs in reverse directions as the presser members are brought to closed position to form waves in the hair.

13. In a hair waving device, complementary presser members movable towards and from each other, alternating fixed and movable combs mounted on one of said members, and means for automatically shifting the movable combs in reverse directions as the presser members are brought to closed positions to form waves in the hair.

14. In a hair waving device, complementary presser members movable towards and from each other, spaced hair waving combs longitudinally slidable on one of said pressure members, means mounted on said presser member and operatively connected to said combs at one of their ends to shift the same in reverse directions, and means co-operating with said last named means to actuate the same as the presser members are brought to closed position on the hair.

15. In a hair waving device, complementary pressure members movable towards and from each other, a comb longitudinally slidable on one of said presser members movable in one direction to form a wave in the hair, and said comb having spaced teeth obliquely inclined in the direction of its wave forming movement whereby the formed hair wave will be undisturbed in the reverse movement of the comb.

In testimony that I claim the foregoing as my invention, I have signed my name hereto.

JOHN A. H. SIERS.