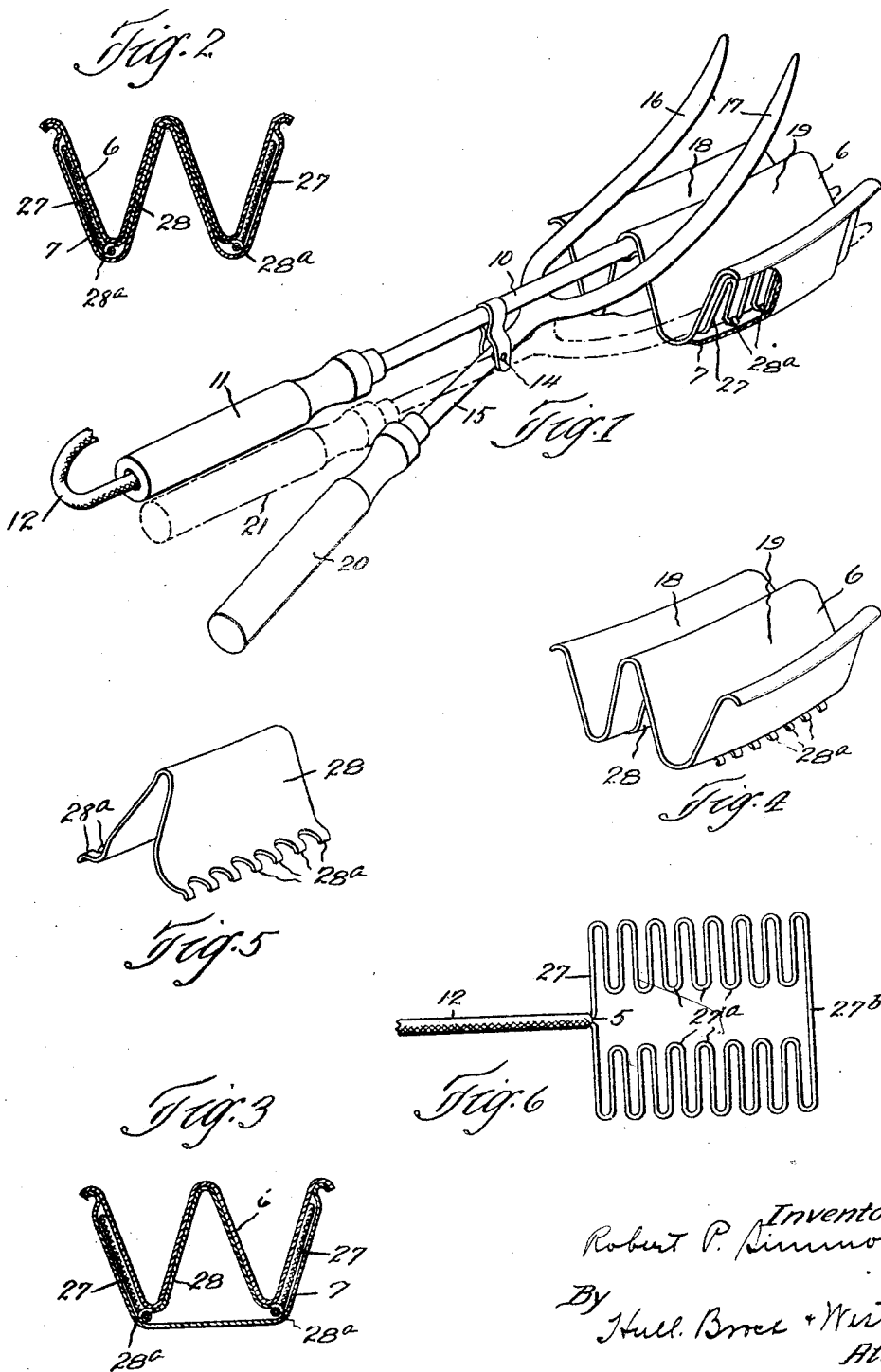


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R. P. SIMMONS
ELECTRIC HAIR WAYER
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UNITED STATES PATENT OFFICE.

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ELECTRIC HAIR WAVER.

Application filed July 31, 1924. Serial No. 729,213.

To all whom it may concern:

Be it known that I, ROBERT P. SIMMONS, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Electric Hair Wavers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention relates generally to an electrically heated air waving implement and more particularly to certain improvements on the electric hair waver disclosed in my patent of April 1, 1924 No. 1,488,621.

The object of the present invention is to materially simplify the construction of the apparatus and correspondingly reduce the cost of manufacture on quantity production basis.

Another object of the invention is to so construct the apparatus that the proper degree of heat is obtained with the employment of a minimum amount of resistance element for producing the heat.

Other and further objects will appear as the description proceeds.

The invention consists broadly in providing a sinuous shaped metallic casing with spaced heating elements arranged therein. The invention also consists in certain details of construction and in the manner of combining or arranging the same all of which will be fully described hereinafter and set forth in the appended claims.

In the drawings forming a part of this specification, Fig. 1 is a perspective view of a hair waver constructed in accordance with my invention, a portion of the outside plate being broken away in order to disclose the heating element between the wave forming heated plates; Fig. 2 is a transverse sectional view of the metallic casing with the heating elements arranged therein; Fig. 3 is a similar sectional view showing a slightly modified form of casing; Fig. 4 is a detail perspective view showing one of the sinuous plates with the spacer arranged thereon and the heating wire coiled upon said spacer; Fig. 5 is a detail perspective view of the spacer removed; and Fig. 6 is a plan view illustrating the manner of winding the resistance element.

In carrying out my invention I provide a sheet metal casing or envelope which is preferably made from two substantially similar wave-shaped metallic sheets 6 and 7 re-

spectively which are placed together and united in any suitable manner along their edges, said plates or at least one of them being sufficiently upset or deformed to provide sufficient space between the plates to receive the heating elements and the spacer plate for positioning the same properly within the metallic casing or envelope. The middle or crest portion of the wave-shaped plate 7 has a tubular stem 10 connected thereto which stem is provided with a handle 11 to facilitate the manipulation of the hair waver. It will be understood, however, that the tubular stem can be connected to the plate 6 if so preferred. The stem and handle are hollow to permit the connection to the heating element 5 to be extended through the device to the flexible exterior connection 12.

At a point 14 on the supporting stem 10 is a pivot 11 having prongs 16 and 17 which pull the hair down into the crevices or the extremity of the looped portions of the waver, pressing the hair against the crest or middle portion of the plates and against the portions 18 and 19 of the plates 6.

The lever 15 is manipulated by means of a handle 20 which is closed with reference to the handle 11 as indicated in dotted lines at 21 where the hair is forced down against the heated casing by means of the prongs 16 and 17.

As thus far described, the features of construction are substantially the same as those disclosed in my patent previously referred to. In that patent, however, the heating element comprised the core having a heating wire thereon which core and heating wire was covered with suitable insulation material and then the core, heating wire and insulating material were given a sinuous shape before insertion between the sinuous shaped metallic plates.

In my present invention, however, I propose to arrange the heating elements in the outer side portions only of the casing. In order to provide for the proper and expeditious arrangement of the heating wire in this spaced relation, I employ a spacer 28 which is arranged centrally of the plate 6 and has its oppositely curved edges extending over the spaced bends in the plate and these oppositely curved edges are provided with a plurality of tongues or hooks 28^a upon which the loops or coils 27^a of the insulating heated wire 27 are arranged. This heating wire 27

is of the proper resistance quality to produce the proper heating effect and is covered with suitable insulation. The insulated heating wire is thoroughly flexible and is
 5 looped or coiled back and forth as shown from one end of one side of the plate 6 to the opposite end thereof and it is then carried over to the opposite side and coiled or looped or folded upon the opposite side member of
 10 this plate and it will of course be understood that the spacer 28 occupying the central portion has the oppositely disposed hooks or tongues 28^a upon both sides or edges for the reception of the strands or loops thereon.

15 Where the insulated wire 27 passes from one side of the plate to the other, there is a dead portion 27^b which will carry the current but will not heat to any appreciable extent, this dead member 27^b being copper
 20 or other suitable conducting material. The heating wire 27 can be connected, as previously described, at the points 5 to the wires leading through the tubular handle 10 or if desired, portions of the insulating wire itself can be carried partially through the
 25 tubular handle but there is no necessity for extending the heating wire beyond the points 5. By arranging the heating elements at the sides of the wave-like plate I have obtained an even distribution of the
 30 heat, inasmuch as the sides becoming heated convey or conduct the heat inwardly, and by properly proportioning the amount of wire in the spaced heating elements, I am
 35 able to obtain a uniform heating of the wave-like plates.

It will of course be understood that instead of winding or coiling the wire 27 back and forth in vertical order as shown, it
 40 could, if so desired, be carried back and forth in horizontal order by the proper arrangement of the spacer, but in practice I have found the vertical arrangement particularly satisfactory and I am able to put
 45 into the minimum space the maximum amount of properly insulated heating wire.

After the insulated wire has been properly arranged upon the plate 6, the plate 7 is placed thereover and envelops the same.
 50 The edges of the plates 6 and 7 are united as previously described, and it will be understood that any other mode of connection could be employed and furthermore the plates 6 and 7 could be so stamped that they
 55 could be held together by frictional contact. Instead of making the plate 7 similar to plate 6 in wave formation, it could extend straight across the central portion, as most clearly shown in Fig. 3.

60 All of the other parts of the device, however, are constructed and arranged in exactly the same manner as previously described. The arrangement of my electric hair waver is such that the waver may be moved over
 65 the different parts of the hair and a wavy

appearance imparted to the strands of hair, as desired, moving the waver into close proximity to the head.

While I have described my invention in a certain limited embodiment, it will be understood that various modifications may be made without departing from the spirit of the invention as set forth in the appended claims.

Having thus described my invention, what I claim is:—

1. In a device of the kind described, a sinuous shaped metallic casing, and flexible heating elements contained in the outer members of said casing, and means for
 80 bringing the hair into contact with said casing.

2. In a device of the kind described, a metallic casing and spaced heating elements, each element being sinuous in form and held
 85 at spaced points within the casing.

3. In a device of the kind described, a wave-like plate, flexible heating elements arranged upon the outer members of said plate, said heating elements comprising an
 90 insulated wire wound back and forth, and a cover attached to said plate and covering said heating elements.

4. In a device of the kind described, a wave-like plate, a spacer attached to said
 95 plate and a heating element comprising an insulated wire coiled upon said spacer, and means connected to the wave-like plate covering the heating element and spacer.

5. In a device of the kind described, a metallic casing comprising a wave-like plate and a substantially similarly shaped cover and spaced heating elements contained within the casing at opposite sides, said heating
 100 element comprising coils of wire with an intermediate dead stretch.

6. In a device of the kind described, a sinuous metallic plate and spacers arranged upon said plate, and a heating wire arranged
 110 upon the outer portions of the plate and in engagement with said spacer, and a cover for said plate, spacer and wire.

7. In a device of the kind described, a metallic casing composed of similarly shaped sinuous plates united at their outer
 115 edges and providing a sinuous shaped casing and heating elements contained within the outer portions of said casing, said heating elements consisting of a heating wire coiled in sinuous form between the outer
 120 portions of the plates.

8. In a device of the kind described, a metallic casing composed of similar wave-like plates connected at their outer edges, coils of insulated heating wire arranged between the outer portions of the casing, and
 125 a spacer arranged within the casing and to which the coils are connected.

9. In a device of the kind described, a sinuous shaped metallic casing, a spacer con-
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tained within said casing and a flexible heating element disposed within the casing and in engagement with the spacer.

5 10. In a device of the kind described, a sinuous shaped casing, flexible heating elements disposed within the casing at spaced points, and means contained within the casing for maintaining the heating element properly disposed.

10 11. In a device of the kind described, a

metallic casing comprising a wave-like plate and a substantially similarly shaped cover, and spaced heating elements contained within the casing at opposite sides, said heating elements comprising coils of wire 15 with an intermediate stretch cooler than the outer elements.

In testimony whereof, I hereunto affix my signature.

ROBERT P. SIMMONS.