June 21, 1949. J. E. HILL ET AL 2,474,147

WAVE HEATER

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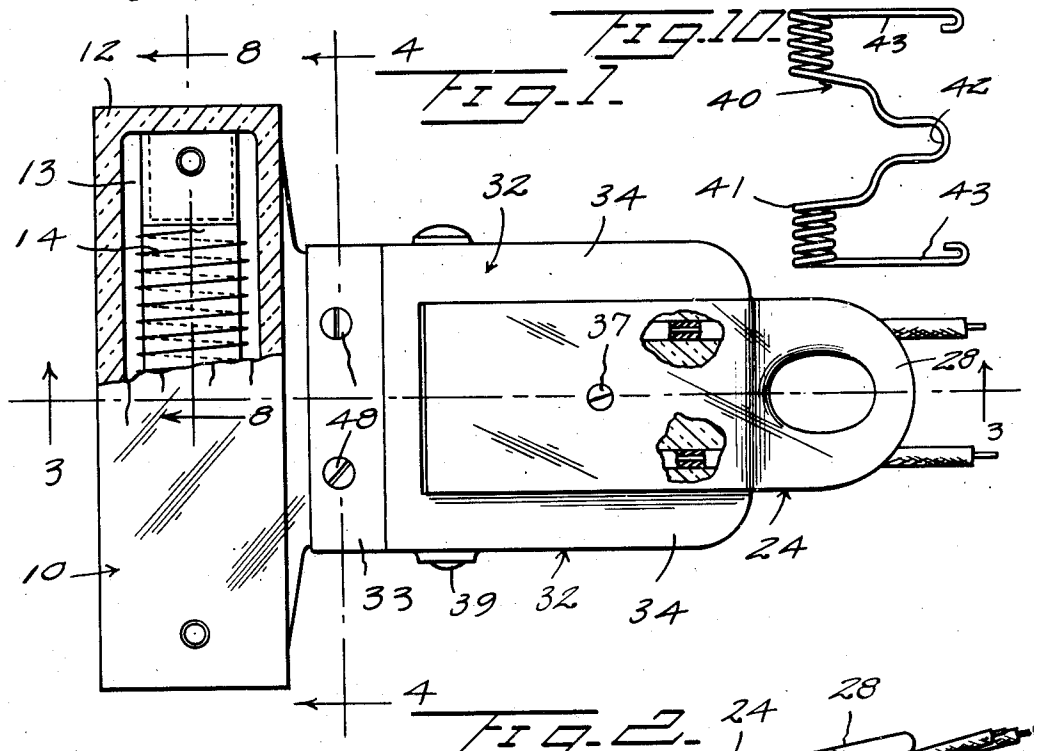


Fig. 1.

Fig. 10.

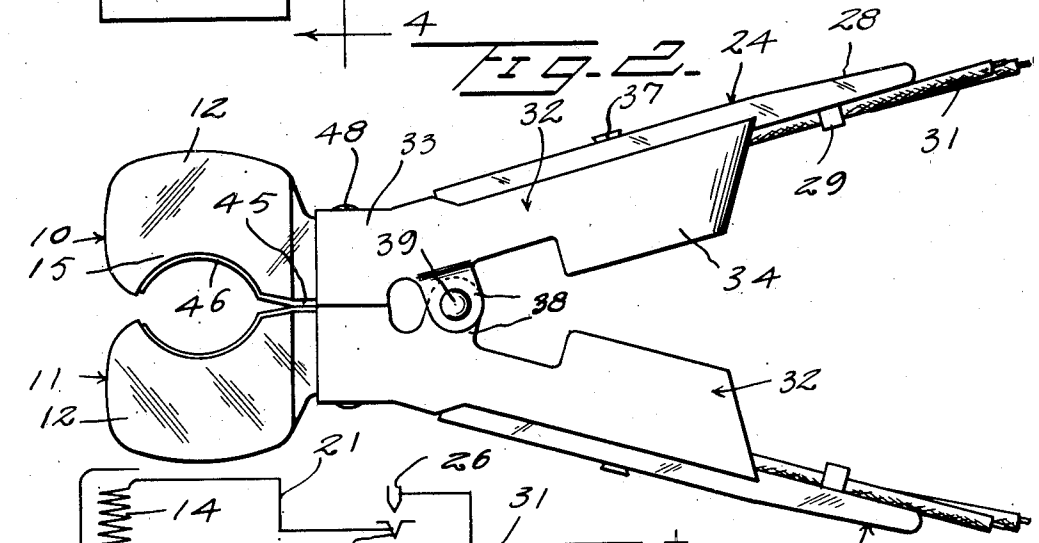


Fig. 2.

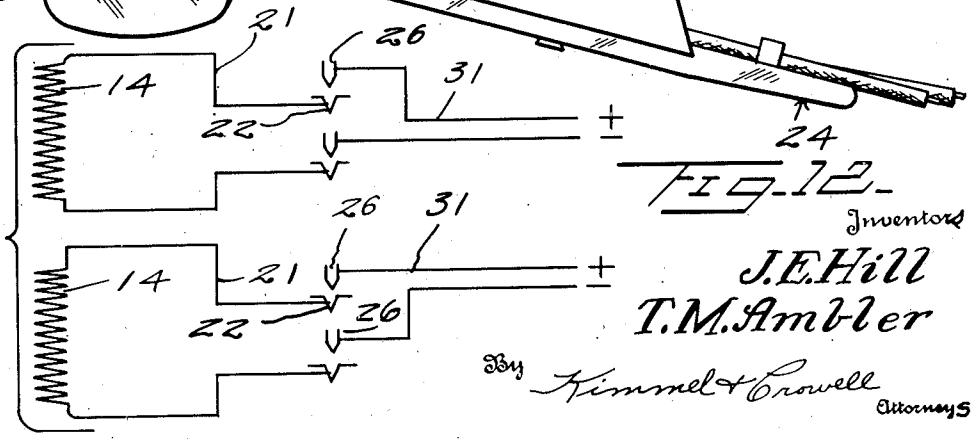


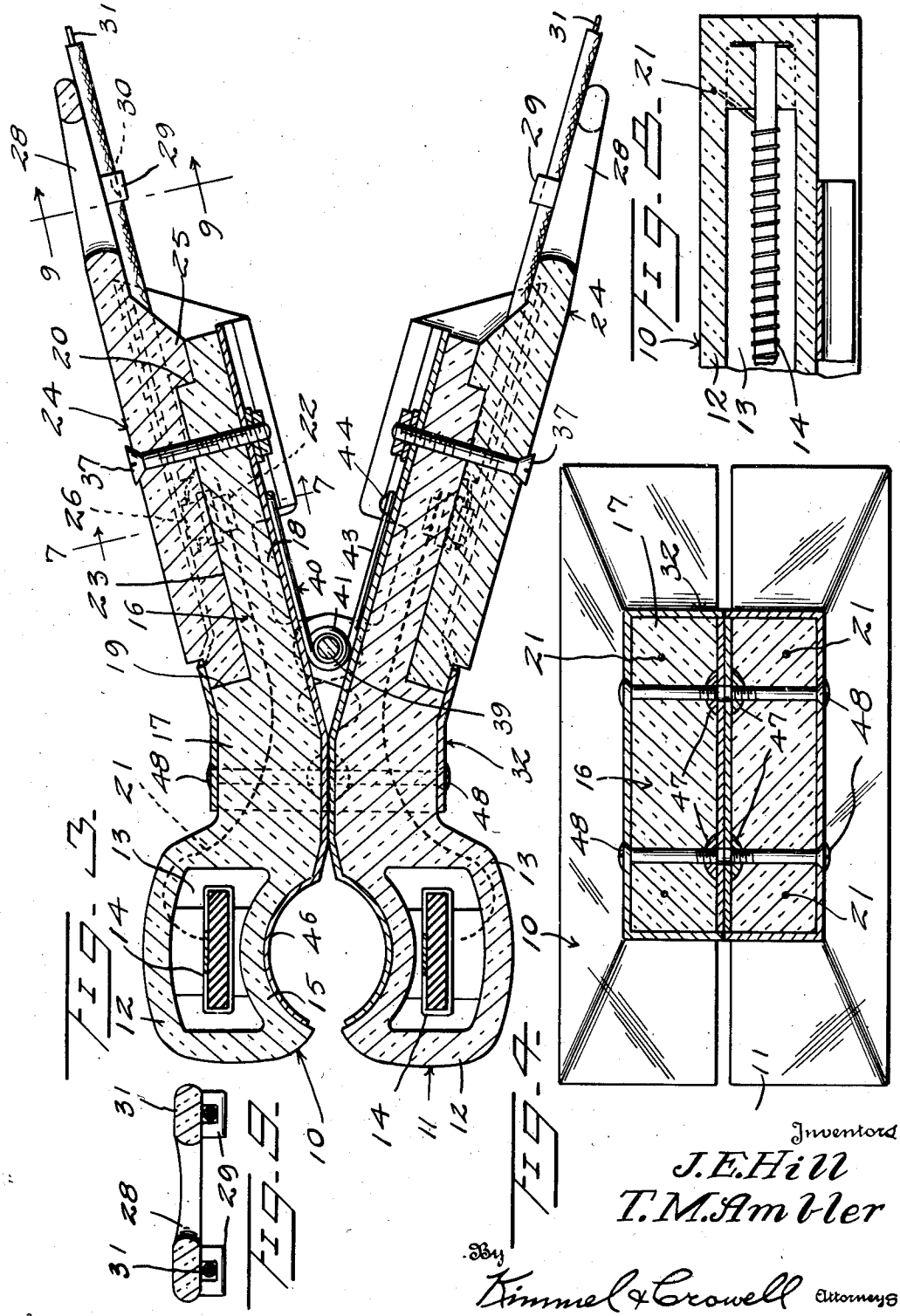
Fig. 12.

Inventors
J. E. Hill
T. M. Ambler
By Kimmel & Crowell
Attorneys

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WAVE HEATER

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Inventors
J. E. Hill
T. M. Ambler
By Kimmel & Crowell Attorneys

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WAVE HEATER

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Fig. 5.

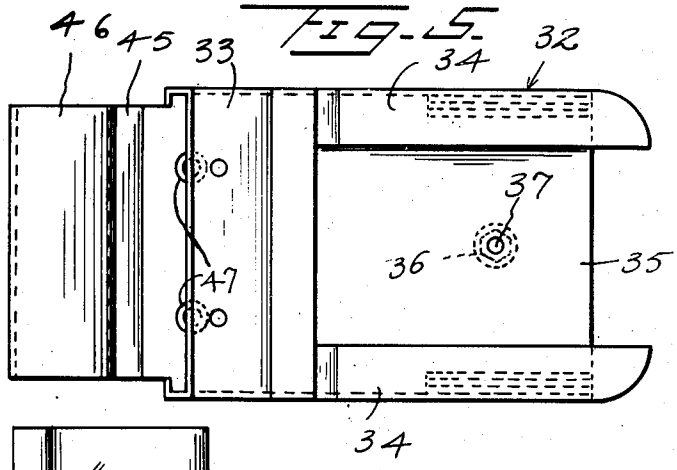


Fig. 6.

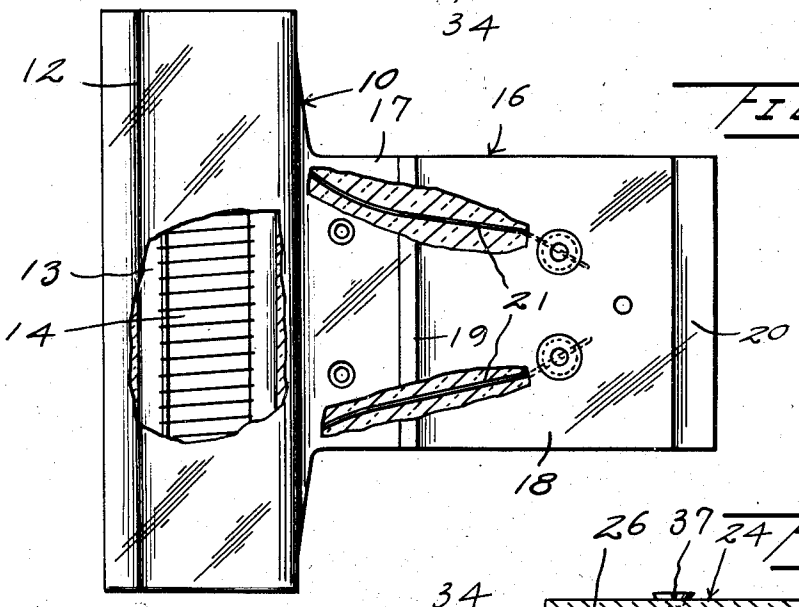
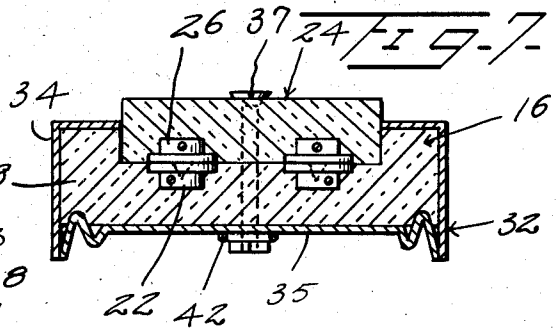


Fig. 7.



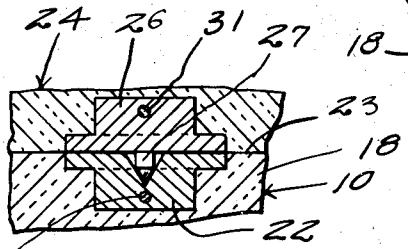


Fig. 11.

Inventors
J. E. Hill
T. M. Ambler
By Kimmel & Crowell
Attorneys

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WAVE HEATER

James E. Hill and Thomas M. Ambler,
San Antonio, Tex.

Application August 19, 1947, Serial No. 769,548

4 Claims. (Cl. 219—24)

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This invention relates to hair waving devices.

An object of this invention is to provide an electrically operated hair waving device which is so constructed that the heating elements are sealed against moisture so that the jaws can be cleaned in water or other liquid without damage to the heating elements.

Another object of this invention is to provide a hair waving device of this kind wherein the complementary clamping jaws are formed of glass or vitreous material and each jaw includes an evacuated chamber within which a heating element is disposed and the lead wires are embedded in the shanks of the jaws and connected to terminals which are also embedded in the shanks.

A further object of this invention is to provide a hair waving device of this kind which can be readily taken apart for cleaning or repair and each jaw includes a metal shell for holding the jaw parts together and for protecting the jaw parts.

With the above and other objects in view, our invention consists in the arrangement, combination and details of construction disclosed in the drawings and specification, and then more particularly pointed out in the appended claims.

In the drawings

Figure 1 is a top plan view of a wave heater constructed according to an embodiment of our invention, partly broken away and partly in section,

Figure 2 is a side elevation,

Figure 3 is a longitudinal section taken on the line 3—3 of Figure 1,

Figure 4 is a transverse section taken on the line 4—4 of Figure 1,

Figure 5 is a top plan view of the shell removed from the assembly,

Figure 6 is a top plan view, partly broken away and partly in section, of a jaw member removed from the assembly,

Figure 7 is a transverse section taken on the line 7—7 of Figure 3,

Figure 8 is a fragmentary transverse section taken on the line 8—8 of Figure 1,

Figure 9 is a transverse section taken on the line 9—9 of Figure 3,

Figure 10 is a top plan view of the spring removed from the assembly,

Figure 11 is an enlarged detailed section, partly broken away of the contact plugs, and

Figure 12 is a schematic wiring diagram of the circuit to the heating elements.

Referring to the drawings, the numerals 10 and 11 designate generally a pair of clamping

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jaws disposed with their inner faces in confronting position for clamping therebetween a hair curler rod.

The two jaws 10 and 11 are of like construction and each includes a hollow body 12 of heat resisting material, preferably with a relatively thick wall formed with an inner chamber 13. The chamber 13 is entirely closed, a vacuum, air or gas sealed from outside or atmospheric air or filled with a suitable gas and has positioned therein a heating element 14. The heating element may include resistance wires as shown in the drawings.

The heating element 14 is secured within the chamber 13 at the time the body is molded or die cast so that the heating element 14 will be firmly held within the chamber 13 extending longitudinally of the chamber.

The jaw 10 is formed on its inner face with a concave face 15 adapted to confront a complementary concave face in the jaw 11.

The jaw 10 is shown elongated and has extending rearwardly therefrom a lateral shank 16 between or intermediate its ends forming a substantially T-shaped integral or single piece body which includes an outer shank portion 17 and a rear inner shank portion 18 disposed on an obtuse angle with respect to the outer shank portion 17. The rear shank portion 18 is substantially thinner than the outer shank portion 17 thereby forming a shoulder or stop 19 facing rearwardly and the rear portion of the shank portion 18 is also formed with a transversely extending rabbet 20.

The lead wires 21 extending from the heating element 14 are embedded in the shank 16 and are connected at their rear ends to a pair of female contact members 22 which are embedded within the rear shank portion 18 and have their upper ends or outer faces disposed substantially flush with the surface 23 of the shank portion 18.

A handle generally designated as 24 is adapted to engage on the outer flat surface 23 of the shank portion 18 and a handle 24 is formed with a transversely extending rib 25 engaging on the rabbet 20. The handle 24 has embedded therein a male contact member 26 formed with a projecting contact point 27 engageable with the femal contact member 22. The handle 24 is formed at its rear end with a loop 28 and also with a pair of transversely extending ribs 29, each having an opening 30 through which a lead wire 31 connected to the contact 26 is adapted to extend.

A metallic or other shell generally designated

as 32 engages about the shank 16 and includes a substantially rectangular tubular housing 33 having extending therefrom parallel arms 34 shown as angular flanges or sides connected together at one side by means of a connecting plate 35.

The plate 35 has fixed thereto a nut 36 with which a bolt 37 engages, the bolt 37 engaging through the handle 24 the rear shank portion 18 and then threaded into the nut 36 so as to hold the handle and shank tight with shell 32. The opposite sides of each shell 32 includes a pair of ears 38 through which a pivot member 39 engages so as to pivotally secure the complementary handles, jaws and shells together.

A coil spring generally designated as 40 is formed of a pair of coils 41 engaging about the pivot member 39 and formed with an intermediate loop 42 which engages the connecting wall 35 of one of the shells and the opposite ends of the spring 40 are extended rearwardly as indicated at 43 and then secured at 44 to the inner side of the connecting wall 35.

The connecting wall 35 is extended forwardly as indicated at 45 and formed with an arcuate jaw lining 46 which is adapted to engage within the concave face 15 of the jaw 10.

The wall 35 in the forward portion 33 of the shell has fixed thereto a pair of nuts 47 with which screws or bolts 48 are threadably engaged so as to hold the shell 32 tight to the forward portion 17 of the shank 16.

In the use and operation of this device, the two jaws 10 and 11 are constantly urged toward each other by means of the spring 40. The lead wires 31 are connected to a source of electric current supply so as to energize the heating elements 14.

A curler rod having hair wrapped thereabout is inserted between the two metal jaw linings 46 and the handles 24 are then released so that the spring 40 will resiliently hold the jaw members 10 and 11 about the curler rod.

With a heater as hereinbefore described, with the heating elements in a sealed heat resisting material chamber of glass, dielectric, vitreous or other non-conducting material impervious to water, moisture, liquids, acids, etc., used in hair setting and waving, including permanent waving, there is no chance of any water or other liquid coming into contact with the heater or the lead wires thereto, and by disposing the heater in such an evacuated or gas filled chamber the heater will operate more efficiently.

The jaws 10 and 11 with the shanks 16 and the handles 24 may be made out of molded or cast glass or other heat resisting, dielectric vitreous or non-conducting material impervious to water, moisture, liquids, etc., and if desired the handles 24 may be formed of material different from the jaws and the shanks.

We do not mean to confine ourselves to the exact details of construction herein disclosed but claim all variations falling within the purview of the appended claims.

Having thus described our invention, what we claim is:

1. A hair waving device comprising a pair of jaw members formed of a vitreous, non-conducting material and having confronting arcuate jaw faces, each member being formed with an inner sealed, air, gas and moisture tight chamber, a heating element in said chamber, a shank extending rearwardly from said member, a pair of contacts fixed in said shank, lead wires embedded in said shank and connecting said contacts with said element, a handle, a pair of contacts carried by said handle engageable with said first pair of contacts, a shell engaging about said shank and having a rearwardly extending portion, means securing said handle to said shank and to said extending portion, means pivotally securing said shells together, and a spring constantly urging said jaw members together.

2. A hair waving device comprising a pair of jaw members having confronting arcuate jaw faces, each member being formed with an inner chamber, a heating element in said chamber, a flat shank extending rearwardly from said member, a pair of contacts fixed in said shank, lead wires embedded in said shank and connecting said contacts with said element, a handle, a pair of contacts carried by said handle engageable with said first pair of contacts, a shell engaging about the forward portion of said shank, a U-shaped extension extending rearwardly of said shell, securing means extending through said handle and shank and engaging said extension for securing said handle, shank and extension together, and means pivotally securing said shells together.

3. A hair waving device comprising a pair of jaw members having confronting arcuate jaw faces, each member being formed with an inner chamber, a heating element in said chamber, a flat shank extending rearwardly from said member, a pair of contacts fixed in said shank, lead wires embedded in said shank, and connecting said contacts with said elements, a handle, a pair of contacts carried by said handle engageable with said first pair of contacts, a shell engaging about the forward portion of said shank, a U-shaped extension extending rearwardly of said shell, means securing said handle, shank and shell together, and an arcuate jaw lining carried by each shell engaging within the arcuate face of each jaw member.

4. A hair waving device comprising a pair of jaw members having confronting arcuate faces, each jaw member including an evacuated heater chamber, a heater in said chamber, a shank extending rearwardly from each jaw, a handle overlapping said shank, complementary electrical connector contacts carried by said shank and said handle, conductors connecting the shank contacts with said heater, a pair of shell members substantially encompassing said shanks and said handles, means securing said shanks and handles to said shells, means pivotally securing said shells together, means constantly urging said jaw members toward each other, and an arcuate jaw lining carried by each shell engaging in the concave side of a jaw member.

JAMES E. HILL.
THOMAS M. AMBLER.

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