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Talge et al.

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[54] APPARATUS FOR HEATING AND CONDITIONING HAIR CURLING ROLLERS

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[73] Assignee: **The Songrand Corporation**

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[21] Appl. No.: **40,219**

[52] **U.S. Cl.**.....**219/288**, 21/95, 99/347, 126/369, 126/381, 132/33 R, 219/222, 219/401

[51] **Int. Cl.**.....**H05b 3/60**, A45d 4/06

[58] **Field of Search**.....219/271–276, 284–295, 219/401, 222–226; 21/93–99; 126/20, 20.1, 20.2, 369, 369.1, 369.2, 369.3, 381–386; 132/33, 36; 99/347, 440

[56] **References Cited**

UNITED STATES PATENTS

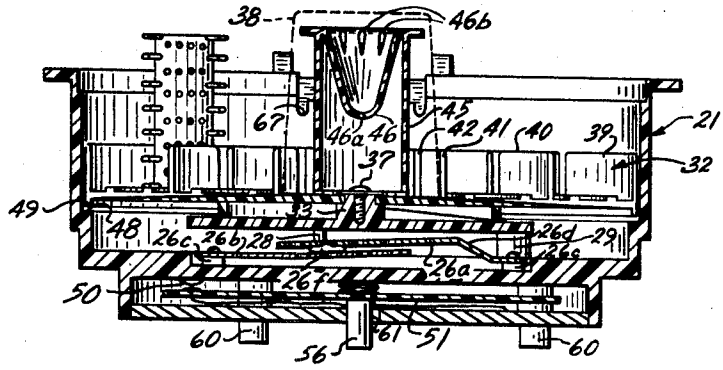
1,344,326	6/1920	Williams	126/20
2,300,891	11/1942	Hanks	219/288
679,679	7/1901	Kopisch	126/369 UX
1,762,448	6/1930	MacDuffee et al.	219/295
2,843,719	7/1958	Smith et al.	219/288
3,119,925	1/1964	Shomock	219/288
3,493,722	2/1970	Popeil	219/401 X
3,493,723	2/1970	Popeil	219/401 X
2,363,365	11/1944	Schmitt	219/288
1,913,442	6/1933	Hanks	219/288
2,049,899	8/1936	Edelman	219/285 UX

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[57] **ABSTRACT**

A circular pan-like base is fitted with a rotatable imperforate support tray on which hair curling rollers can be deposited in upended position. Electric heat means at the bottom of the base operates to boil water causing steam to arise around the tray. The top of the base is covered by a hinged cover having an inside pattern of radial striations for collecting and guiding condensate back toward the periphery of the unit where it can drain by gravity back into the water below the tray. A dispensing chamber for hair conditioning composition is located on the tray and the tray is provided with drain passages for carrying condensate and conditioning medium deposited on the tray to the rim for discharge into the water below. Steam venting means and liquid level control means both designed to inhibit collection of condensate on the exterior of the unit are provided.

12 Claims, 10 Drawing Figures



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SHEET 1 OF 2

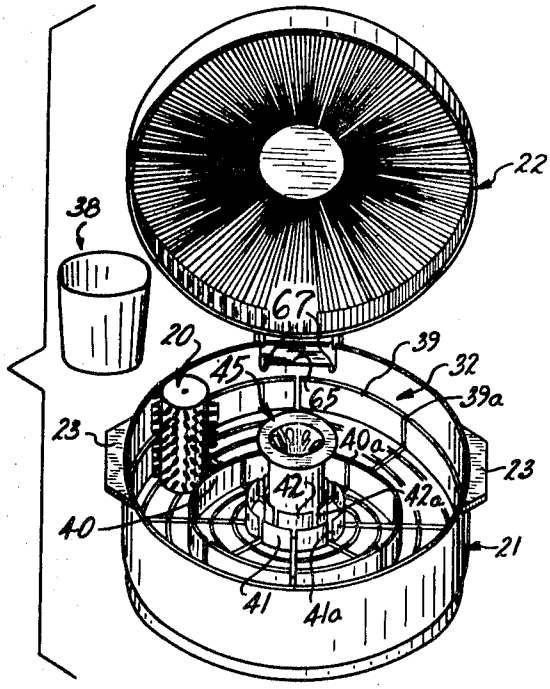


Fig. 1.

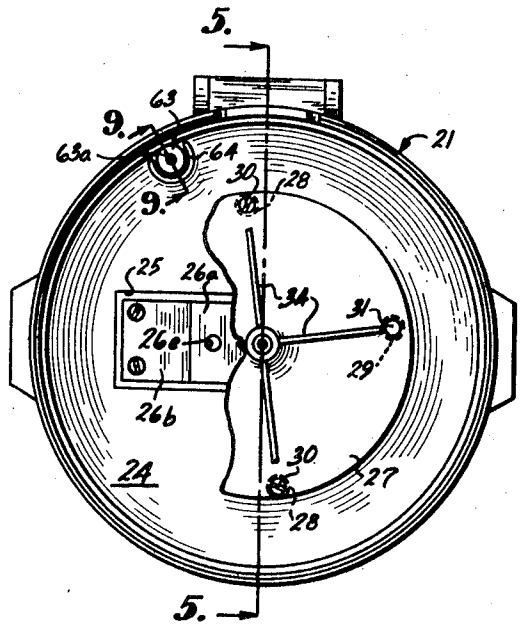


Fig. 3.

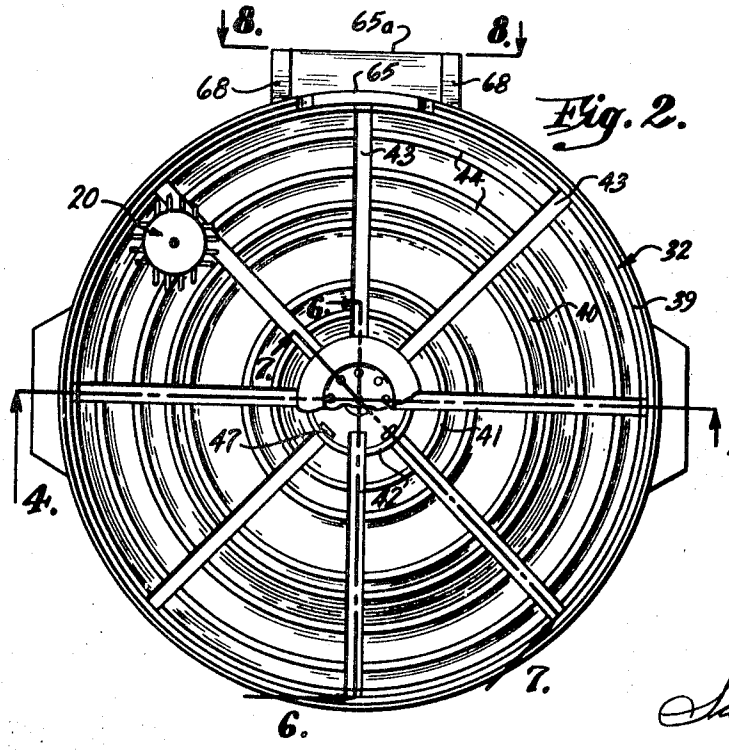


Fig. 2.

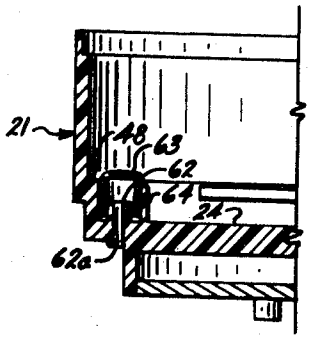


Fig. 9.

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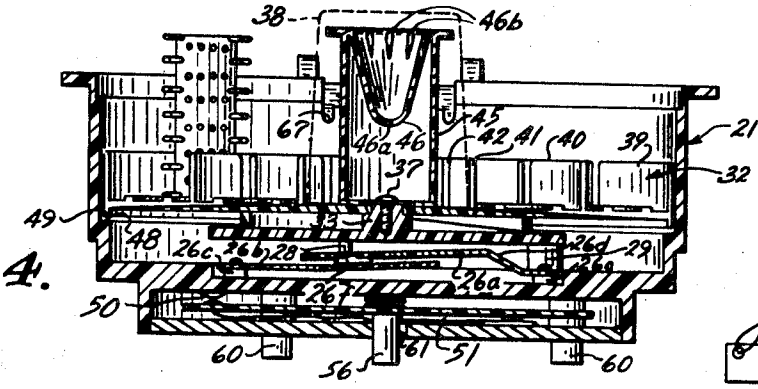


Fig. 4.

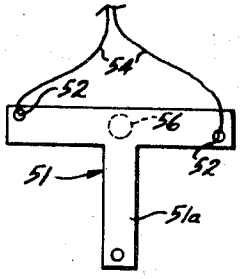


Fig. 10.

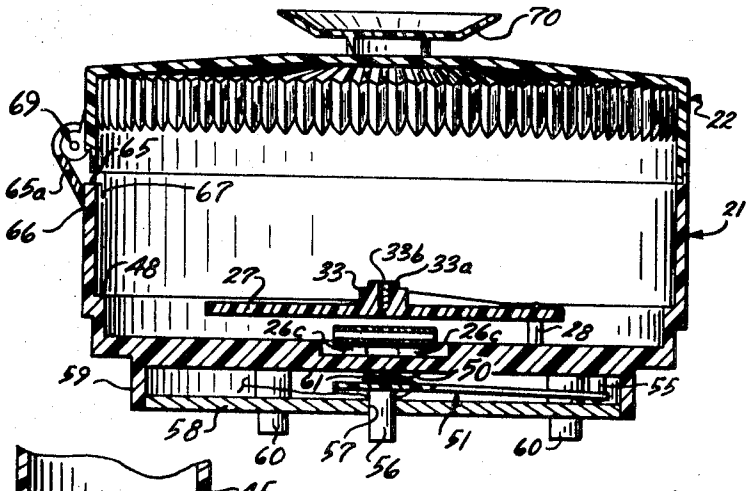


Fig. 5.

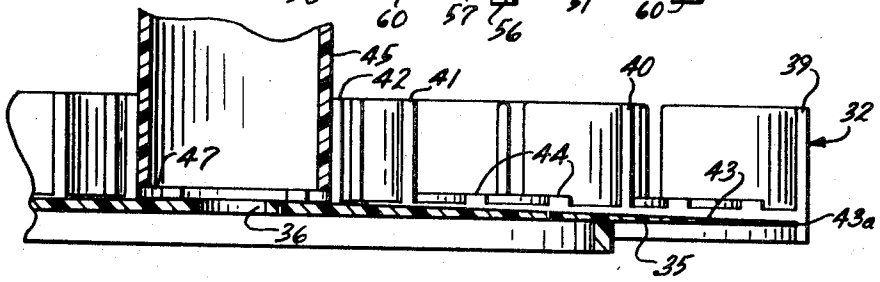


Fig. 6.

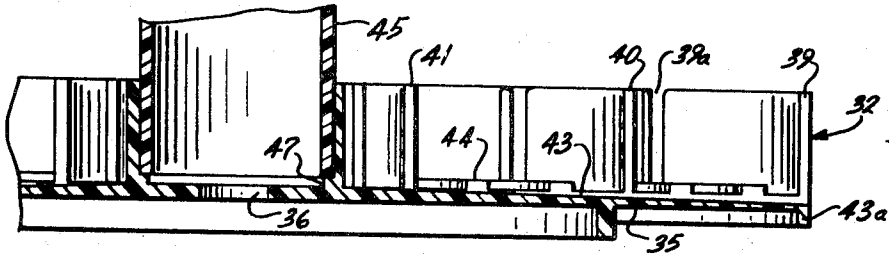


Fig. 7.

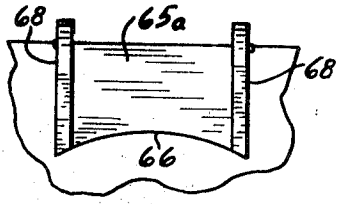


Fig. 8.

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APPARATUS FOR HEATING AND CONDITIONING HAIR CURLING ROLLERS

SUMMARY OF THE INVENTION

One of the principal objects of the present invention is to provide a hair curling roller heating unit which utilizes electric energy for generation of steam in a vessel containing such rollers and in which the construction of the vessel and roller support tray is such that the danger of accidental electric shock to the user is substantially nil. It is special feature of the invention that the complete safety of the unit is achieved in a manner which still permits free and full circulation of steam around the rollers while they are in the vessel and the ready and rapid return of condensate deposited within the vessel back to the body of water being subjected to heating.

A common complaint with respect to steaming vessels currently available on the market is that there is danger of accidental electric shock. Such vessels are provided with perforate roller support trays which have a multitude of openings through which electrically conductive objects such as bobby pins, metal knitting needles and the like could be passed. Since the heating means comprises spaced electrodes beneath the water, the water is charged with a positive potential and in the event a holder of an immersed object such as a bobby pin is well grounded a serious shock can occur. In our invention, the tray for the rollers is imperforate and there is substantially no direct passage from above the tray into the body of water stored below.

Another important object of our invention is to provide a vessel for heating curling rollers which is so constructed as to collect and guide excess condensate formed on the upper interior surfaces of the vessel and on the tray back into the main body of water. Both the interior of the cover and upper surface of the tray include "flow-ways" for such condensate designed to, with the assistance of gravity, drain condensate back into the main water body.

A further object of the invention is to provide a steam generating means having special qualities of efficiency, effectiveness and long life. We have through our arrangement been able to increase greatly the total current field area while still avoiding buildups of deposits which might otherwise provide a short circuit across and between the electrodes.

Still another object of the invention is to provide a vessel of the character described which includes means for introducing a hair conditioning medium, for example, a lanolin preparation, or the like, into the vapor contacting the rollers whereby to cause deposit of such material on the rollers for subsequent transfer to the hair.

A further object of the invention is to provide a heating unit for hair curling rollers which is so constructed as to minimize to the fullest extent possible the collection on or discharge of condensate to the outside of the unit where it might otherwise drip on the table or other surface on which the unit is supported. A feature of the invention in this respect resides in the provision of a liquid level control in the form of an overflow pipe having control means for inhibiting steam discharge therethrough.

Still another object of the invention is to provide a heating unit for hair curling rollers which includes a roller support tray which can be rotated to position individual rollers at any selected location with reference to a point on the rim of the unit so as to facilitate their insertion and removal with minimal exposure of the hand to the steam escaping and rising from the vessel. A related feature of the invention lies in providing the unit with a circular configuration and a hinged cover having handle means centrally of the cover, both of which contribute to reduced steam exposure during raising and lowering of the cover and the withdrawal and reinsertion of rollers from and to the unit.

Other and further objects of the invention are to provide a unit which includes as a part of its assembly a water measuring cup which is storable within the vessel yet readily available for use during filling, which is rugged in construction and capable of withstanding years of use and which is completely safe to operate.

Other and further objects of the invention together with the features of novelty appertenant thereto will appear during the course of the following description.

DETAILED DESCRIPTION

In the accompanying drawings which form a part of the specification and are to be read in conjunction therewith, and in which like reference numerals indicate like parts in the various views;

FIG. **1** is a generally front perspective view of a heating and conditioning unit for hair curlers constructed according to the preferred form of the invention, the cover being shown in the open position;

FIG. **2** is a top plan view, on an enlarged scale, of the base of the unit, the cover eliminated for purposes of illustration;

FIG. **3** is a top plan view, on a somewhat smaller scale, the interior of the base of the unit with both the cover and curler support tray eliminated;

FIG. **4** is a sectional view taken along the line **4—4** of FIG. **2** in the direction of the arrows;

FIG. **5** is a sectional view, on the scale of FIG. **4**, taken along line **5—5** of FIG. **3** in the direction of the arrows; the cover in this instance being shown in its proper closed relationship with the base;

FIG. **6** is a fragmentary sectional view, on a greatly enlarged scale, of the curler support tray separate and apart from the unit, the view being taken generally along line **6—6** of FIG. **2** in the direction of the arrows;

FIG. **7** is a fragmentary sectional view, on a greatly enlarged scale, similar to FIG. **6** but taken generally along line **7—7** of FIG. **2** in the direction of the arrows;

FIG. **8** is a fragmentary side elevation showing the condensing baffle and hinge lugs on the outer side wall of the base of the unit, being taken along line **8—8** of FIG. **2** in the direction of the arrows;

FIG. **9** is a fragmentary sectional view, on an enlarged scale, showing the details of the overflow outlet and steam discharge control therefore, the view being taken generally along line **5—5** of FIG. **3** in the direction of the arrows; and

FIG. **10** is a plan view of the safety switch operating member shown separate and apart from the unit.

Referring now to the drawings, and initially to FIG. **1**, the basic purpose of the invention is to provide a uniquely safe and effective means for heating and conditioning hair curling rollers prior to their placement in the hair of the user. As is well known, such curler rollers are in widespread use. A conventional roller is shown at **20**. Typically they are cylindrical in configuration and include projecting or radiating pegs or pins on the periphery which facilitate both handling and the incorporation of the curling rollers with the hair. The rollers are made of a material which has good heat retention. The construction and composition of the curling roller itself is not a part of the present invention, other than in the context that the heating and conditioning unit is principally designed for curling rollers of the general type shown.

The main body of the preferred unit illustrated in the drawings comprises a closed-bottom pan-like base **21** which is fitted with a hinged cover **22**. As can best be seen in FIG. **5** the upper edge of the base and lower edge of the cover are oppositely rabbeted so as to provide a telescopic coupling of the base and cover at the joint between them when closed. The base is provided with side handles in the form of wings **23** projecting on opposite sides from the base near the upper edge thereof. Both the base and cover can be constructed from any material having the strength to stand up under the temperatures involved (the temperature of boiling water). We prefer to mold both the base and cover from "Lexan" which is a polycarbonate resin offered and sold by General Electric, "Lexan" being the trademark applied to the material by General Electric.

Referring now in more detail to FIGS. 3, 4 and 5, the flat inside bottom wall 24 of the base is provided centrally with a rectangular recess 25. Disposed generally within the borders of the recess are a pair of cooperating electrode plates 26*a* and 26*b*. The plates are arranged in vertically overlapping arrangement each plate having an end secured by screws or rivets to a pair of upstanding posts 26*c* rising from the base of recess 25 near the ends thereof. The posts 26*c* are preferably molded integral with the base unit. The lower plate 26*b* extends outwardly in cantilever fashion from its support posts and is provided with a break so that the outer portion is inclined upwardly at a low angle, for example 3° to 5°. The upper plate 26*a* is provided with a relatively sharp upward offset 26*d* and the outer portion overlies and essentially parallels the upwardly inclined portion of the lower plate 26*b*. The outer or free portions of the respective electrode plates terminate well short of the fixed ends of their counterparts.

The spacing between the electrodes is enough to prevent arcing. With stainless steel plates approximately 0.050 inches in thickness we prefer a spacing of approximately one-eighth inch.

Each of the electrode plates 26*a* and 26*b* are provided with a plurality of small openings 26*e* which in the present case are arranged in a row along the major axis of the plates. One of the openings is blocked by a space or disk 26*f* which is in the form of a disk having a flat bottom resting on the upper surface of plate 26*b* and with a small dog or protuberance on the top surface which is received in one of the holes in the upper plate 26*a*. The protuberance permanently locate the disk and prevent it from slipping out from between the plates. The thickness of the disk is substantially equal to the desired spacing between the electrode plates. The disk is made of material having good dielectric properties as well as resistance to corrosion in a hot water environment and may be any one of the conventional polymerized resins such as the polycarbonate utilized for the base.

The electrode plates 26*a* and 26*b* are preferably rounded at the corners of the free ends to promote free drainage of water. The openings in the plates enhance the ready circulation of the thermally agitated water and therefore quick and efficient heating of the water to the boiling point. Moreover, sustained boiling is also promoted through the combination of relatively wide area electrodes with the openings therethrough and the angling of the overlapping portions with respect to the horizontal.

The electrodes are secured to the posts 26*c* by screws or rivets tapped into the upper ends of the posts and passing through appropriate apertures in the electrodes. More will be said of these later.

The electrodes are shielded from above by a circular plate-like element 27. The element 27 is also molded from the polycarbonate material referred to earlier. It is supported at four equal spaced locations adjacent the periphery, two of the supports being in the form of posts 28 extending above the bottom wall 24, and the other two being tubular spacers 29 formed integral with and projecting downwardly from the bottom of the plate 27 in alignment with one or the other of the connection points for the electrodes 26*a* and 26*b*. The connection is made by screws 30 to secure the plate to the opposed posts 28 while screws 31 extend down into the spacers 29 through the bottom wall thereof through the electrodes and into the respective electrode support post 26*c*.

In addition to providing a shield from above for the electrodes 26, the plate 27 provides a central bearing support for a hair curling roller storage and dispensing tray 32, further details as to the construction of which will be provided at a later point herein. As best seen in FIG. 5, the bearing support for the tray consists of an upperly projecting boss 33 on the plate 27, the boss having reduced diameter portion 33*a* at its upper end. The boss is axially tapped from above to provide a threaded bore 33*b*. In order to strengthen the plate against flexure, radially oriented ribs 34 extend outwardly from the boss on the upper surface of the plate.

The tray 32 has an imperforate bottom wall 35 having a center opening 36 (see FIGS. 6 and 7) of substantially the same but slightly greater inside diameter than the outside diameter of the reduced portion 33*a* at the upper end of the boss 33. The opening 36 is sleeved over the reduced portion 33*a* and the tray thus has bearing support on the horizontal shoulder formed between reduced portion 33*a* and the main part of boss 33. The tray is secured to the boss by a screw 37 (see FIG. 4) which is received in the threaded bore 33*b* and the boss.

The upper surface of the tray 32 is provided with a plurality of arcuate baffles which serve to define a plurality of annular channels, two channels for receiving curlers 20 and an inner channel adapted to receive the edge of an inverted water cup 38 which when the unit is not in use is stored therein (see FIG. 4).

The outermost baffle ring 39 forms the outer rim of the tray. The dimensions are such that the outside all of the baffle ring 39 preferably is spaced slightly away from the inside wall of the vessel so as to provide a passage through which steam can move from below the tray to the upper portion of the vessel. The spacing should not however be greater than necessary as it is highly important that as few as possible access openings from above the tray to the space below the tray be provided.

Spaced inwardly from baffle ring 39 is baffle ring 40 which defines with ring 39 an annular channel adapted to receive upended curling rollers 20 as illustrated. The widthwise dimension of the channel need only be slightly greater than the maximum outside diameter of the curler. Preferably it will be held within fairly close tolerances in order to provide support in at least one direction against tipping of the rollers.

A third baffle ring 41 defines with ring 40 another channel similar to the outer channel and for the same purpose. Spaced inwardly of ring 41 is the final baffle ring 42 which forms the rather narrow annular channel earlier described for receiving the inverted cup 38 during storage of the latter when the unit is not in use. This is illustrated in FIG. 4.

It will be noted that each of the baffle rings is interrupted at equally spaced points around the ring by vertical slots 39*a*, 40*a*, 41*a* and 42*a* respectively. The slots are included to promote free circulation of steam into and through the channels so that all areas of the curler roller will be immediately contacted and exposed to steam. Another purpose served by the slots is to permit outward flow of condensate through the baffle rings toward the edges of the tray for return to the space below the tray.

The flow of condensate is promoted by the provision on the upper surface of the tray of a plurality of radial grooves 43 which are coincident with the vertical slots in the baffle rings. The grooves 43 increase in depth proceeding from the inner ends toward the outer ends and thus present surfaces inclined from the horizontal which promote gravity flow of condensate outwardly toward the rim of the tray. As can best been seen in FIGS. 6 and 7, the ends of grooves 43 terminate as at 43*a* flush with the inside wall of baffle 39.

Not only do the grooves 43 proceed through the baffles 41, 40 and 39, they also serve to interrupt a group of ring-like raised ribs 44 which are interposed in and project upwardly from the floor of the annular channels in which the rollers are stored. There is thus no resistance to outward flow of water or condensate in the channels and a clear path is therefore provided for initial introduction of water to the unit or return of condensate as it develops during operation.

Located centrally of the support tray and removably carried thereby is a circular tube-like element 45 which forms a part of a dispensing chamber for hair conditioning material. The lower end of tube 45 is received within the innermost baffle ring 42, which serves to support it against tipping. The upper end supports the tapered cup-like chamber 46 into which the hair conditioning material can be placed.

The conditioner receiving cup or chamber 46 is provided at its base with a small opening 46*a* and near its upper edge with a plurality of openings 46*b* which communicate between the

interior of the cup **46** and the annular space between the outer wall of cup **46** and the inner wall of element **45**. The openings **46***b* are arranged uniformly around the upper end portion of the cup.

Access of steam to the open lower end of the tubular element **45** is provided by supporting the lower end above the upper surface level of the tray **32**. To this end a plurality of small raised bosses **47** are spaced around the base of the central baffle ring **42**. In the preferred embodiment, there are four such lugs or bosses **47**. As indicated in FIG. **2**, they are wall spaced from one another so that there are openings between the top surface of the tray and the bottom edge of tube **45** through which steam can enter and circulate upwardly through the interior of tube **45**. Also, and as will be subsequently described, the openings between lugs **47** provide a discharge path for both condensate and conditioning material from inside the tube **45** toward the edge of the tray.

We have previously referred to our desire to minimize direct access to the space below the tray from above the tray. This desire is prompted principally by the wish to minimize, if not prevent entirely, any possibility of elongate electrically conductive objects such as a needle or hair pin being inadvertently pushed downwardly through or past the tray and into contact with the water contained in the lower part of the vessel. To this end we have provided below the outer rim of the tray an inturned horizontal ledge or shelf **48** which is of greater width than the distance between the outer surface of the outermost baffle ring **39** and the interior wall of the base **21**. In addition, we have provided a short depending ring **49** on the underside of the tray so as to provide as sharp a turn as possible into the main part of the water receiving area from above the tray so that it is no easy matter, if possible at all, to insert any electrically conductive materials downwardly around the rim of the tray. Of course the tray itself is imperforate and there is no way at all that any thing can pass through it.

The electrical energy for the electrodes **26** is supplied from a conventional 110 volt A/C source. A lead for each electrode **26***a* and **26***b* is run downwardly through one of the support posts **26***c* therefore and terminates in an exposed contact **50** on the underside of the base **21**. There are two such contacts and they are located at opposite ends from the electrode assembly. Electric connections with contacts **50** is made through a generally T-shaped switch member **51** which is illustrated in plan in FIG. **10**. This member is formed of a resilient plastic and carries contacts **52** at the opposite ends. The head of the T underlies and is generally parallel with the long direction of the electrode. Contacts **52** are wired to the two conductors **54** which go outside the unit and form part of a conventional appliance electric cord terminating in the usual plug (not shown). The end of the stem **51***a* of the T-member **51** is secured to a mounting post **55** which is preferably made integral with and extends downwardly from the bottom of the base. The lower side of the T carries a plunger **56** which passes loosely through an opening **57** in a bottom closure plate **58**. Closure plate **58** defines with a ring-like projection **59** on the bottom of the base a chamber within which the T is located.

The base includes four downwardly projecting and equally spaced legs **60** which are adapted to rest on a table or other horizontal support surface. With the unit raised off the surface, i.e., not supported on the legs, the plunger **56** and T will assume a lowermost position in which the contacts **52** are disengaged from and spaced sufficiently far from contacts **50** as to prevent any current from flowing to the electrodes. At this time the lower end of plunger **56** is below the plane of the lower ends of legs **60**. When the unit is placed on the surface, the plunger **56** is thus forced upwardly and contacts **52** are automatically engaged with the electrode contacts **50** thereby completing the circuit. Of course, this does not necessarily mean that the power will go on since a conventional switch could be included in the power cord if desired. However, with the switch on, and with the unit resting on the support surface, current will flow to the electrodes. However, should the unit be tipped in any direction it will only take a small amount of tipping to free up plunger **56** sufficiently to cause the T-member to break the contact.

While resilient stiffness of the stem **51**a alone may be relied upon to provide the biasing of the contacts **52** away from contacts **50**, this can be supplemented if desired by a coil spring **61** interposed between the T-member **51** and lower surface of the base.

Referring now back to the interior of the base **21** of the unit, and with particular reference to FIGS. **3** and **9**, an overflow type liquid level control is included on the inside bottom of the base. This comprises an open standpipe **62** which registers with and forms a continuation of a vertical passageway **62***a* through the bottom wall of the base. The distance the top edge of the standpipe is spaced above the bottom wall determines the maximum stabilized depth the liquid can assume in the base. To inhibit excess discharge of steam through the overflow pipe, a light weight buoyant cap **63** has its lower end loosely fitted around the pipe with the dome of the cap over the open upper end of the pipe. An arcuate guide baffle **64** extends upwardly around and is spaced from the pipe and the cap is loosely retained therein for limited up and down movement. The baffle **64** has its ends spaced on the inside wall of the base so that water can flow freely past the baffle around the pipe.

The cap **63** is preferably made of polyurethane foam or any other suitable highly buoyant material. The inside diameter at the bottom end is as close to the outside diameter of the pipe as can be achieved while still permitting it to float freely upward in the event the water level rises above the top of the overflow pipe. The dimensions of the cap are such that with the water at the normal level (just at or slightly below the upper edge of the overflow pipe) the cap substantially covers the pipe. A small pin hole **63***a* is provided in the dome of the cap so any sustained steam pressure buildup will be promptly relieved. The pin hole **63***a* will not permit steam to discharge as rapidly through the overflow pipe as would be the case if the cap **63** where not present, and so while there still is a steam path through the overflow pipe when the cap is closed it is an extremely restricted one which results in no appreciable steam loss upon brief surges of pressure, as might be occasioned upon closing of the cover nor any resulting condensation on the outside of the unit which might otherwise drip on the support surface.

Steam is freely vented from the upper portion of the base when the cover is closed through an opening **65** cut in the upper edge of the upright wall of the base. The opening **65** is screened from the outside by an inclined baffle **65***a* which intersects and is secured to the outside wall of the base and forms an arcuate intersection line **66** on the outside wall. The baffle **65** and the short upstanding portion of the outside base wall below the edge of the opening **64** form a chamber of generally V-shaped cross section in which condensate forming on the inside of baffle **65** will be trapped. Notches **67** are formed at the opposite ends of this chamber to permit the condensate to drain back into the interior of the unit, the drainage being promoted by the curvature of the intersection line **66**.

The end walls of the condensate trapping chamber heretofore described are formed by the cover mounting lugs **68** which are secured to and project outwardly from the outside wall of the base. These lugs are provided with openings which register with similar openings formed in comparable lugs **69** on the cover and rivets or other suitable connecting pins are used to join the respective lugs together for pivotal mounting of the cover.

The inside top all **22***a* of the cover is preferably frusto-conical in configuration with the highest point toward the center. Also the cover is provided with a radial pattern of striations forming alternating ridges and grooves of V-section, as shown in FIG. **1**. The pattern of ridges and grooves is to promote condensation and gravity flow of condensate back toward the rim of the cover in a generally radial path so that the condensate will then proceed downwardly adjacent the rim of the base

and down past the tray **32** into the lower portion of the vessel. On the outer surface of the cover at the center is located a circular handle **70** by which the cover may be opened and closed as desired.

In the operation of the unit, it is first prepared for operation by depositing water in the base. This preferably is accomplished through the use of the filling cup **38** which is so dimensioned as to contain the exact amount of water which will bring the level in the base up to just short of the top of the overflow pipe **61**. If desired, hair conditioning material, such as is readily available on the market, is placed in the chamber **46** of the central member **45**. The tray **32** is filled, if they are not already present, with curler rollers **20**, the rollers being carried into annular rows in the channels heretofore described. The cover is closed, the electric appliance cord plugged into an accessible outlet, and the switch turned on in order to energize the electrodes.

The electrodes will in due time cause sufficient heating of the water in the vicinity of the electrodes to bring it to a boil thereby releasing steam to the interior of the unit. The steam proceeds upwardly rising around the outside rim of the tray **32** into the upper portion of the vessel, and contacts the rollers **20**. Any condensate forming on the inside dome **22***a* of the cover **22** or on the tray parts will in due course be guided by ridges and grooves in the cover or by the grooves **43** in the base back to the outside rim of the cover where it will flow downwardly back into the lower portion of the base. The steam also will flow in the manner earlier described into and around the receptacle **46** carrying the hair conditioning material thereby entraining it in part and in part causing it to flow downwardly through the opening **46***a* in the bottom of the receptacle to merge with condensate flowing into the base. The hair conditioning material is thus introduced into the condensate and into the liquid reservoir in the vessel and at the same time has a portion of it vaporized to be carried into contact with the hair curling rollers.

When the curlers have been sufficiently heated and conditioned, which normally will take from 2 to 5 minutes, the cover is raised and the roller removed.

It should perhaps be noted at this juncture that for best operation the unit should be placed directly in front of the user with the unit turned sidewise so that the hinge is at either the right (for right-handed persons) or at the left (for left-handed persons). In this manner, the user can by grasping the top located handle on the cover open the cover without any danger of being exposed to escaping steam rising around the rim of the cover. A curler roller can then be taken from the nearest point. As curlers are removed, the tray can be rotated so that rollers can always be taken from a point closest to the user.

In the event the unit is accidentally tipped while the electric cord is still connected and the switch is on, the contact will be broken through release of the safety switch plunger **56** from its contact with the supporting surface.

When curling has been completed, the curler rollers can be returned to the unit for storage as can be water measuring cup **38**. The cup **38** is simply inverted and slipped over the top of the center **45** as shown in FIG. **4**.

From the foregoing, it will be seen that this invention is one well adapted to attain all of the ends and objects hereinabove set forth together with other advantages which are obvious and which are inherent to the structure.

It will be understood that certain features and subcombinations are of utility and may be employed without reference to other features and subcombinations.

As many possible embodiments may be made of the invention without departing from the scope thereof, it is to be understood that all matter herein set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

Having thus described our invention we claim:

1. Apparatus for heating and conditioning hair curling rollers comprising

a closed vessel having a pan-like base and a cover for the base,

an imperforate roller support tray disposed within said base and spaced above the inside bottom thereof, said tray having an outline in plan similar to the inside horizontal cross sectional outline of the base with the periphery of the tray close to but spaced slightly from said inside wall,

electrical means located beneath said tray adjacent the inside bottom of said base for heating water in the base by applying potential to the water between a pair of immersed electrodes,

the upper surface of said tray provided with drainage channels radiating outwardly from the central portion thereof for returning condensate to the periphery of said tray,

said tray including a plurality of upstanding rings forming annular channels on said tray, said rings interrupted at said drainage channels to permit flow of condensate past the rings.

2. Apparatus as in claim **1**,

said cover including on its inside surface a plurality of alternating radial ridges and grooves inclined downwardly from the center toward the rim thereof.

3. Apparatus as in claim **1**, including

a standpipe projecting upwardly from the inside bottom of said base and having a vertical passageway therethrough continuing through the bottom of the base and providing a water level control means, and

buoyant cap means normally covering said pipe but floatable to an uncovering position in the event of increase in the level of water to a level above the upper end of said standpipe.

4. Apparatus as in claim **3**,

said cap having a small perforation therethrough permitting limited steam flow through said cap into and out of said passageway.

5. Apparatus as in claim **1**,

said base having an opening through the side wall thereof near the upper edge, and

a baffle plate on the exterior of said base partially screening said opening and forming a water trap on the exterior of said base,

said base further including drain channels communicating between said trap and the interior of said base for drainage of water from said trap back into the base.

6. Apparatus as in claim **1**, including a member supported on said tray having a cup-like chamber therein for receiving and storing a hair conditioning composition,

said member comprising an upstanding tube having its lower end adjacent the central portion of the tray and having the receptacle recessed in the upper end thereof,

said receptacle having a perforation in its bottom and

means between the lower end of the member and the tray providing passageways between the inside and outside of the member.

7. Apparatus for heating and conditioning hair curling rollers comprising

a closed vessel having a pan-like base and a cover for the base,

a roller support tray disposed within said base and spaced above the inside bottom thereof,

electrical means located beneath said tray adjacent the inside bottom thereof for heating water in the base by applying potential to the water between a pair of immersed electrodes,

said cover including on its inside surface a plurality of alternating radial ridges and grooves inclined downwardly from the center toward the rim thereof.

8. Apparatus as in claim **7**, including

a standpipe extending upwardly from the inside bottom of said base and having a vertical passageway therethrough continuing through the bottom of the base and providing a water level control, and

buoyant cap means normally covering said pipe but floatable to an uncovering position in the event of increase in the level of water to a level above the upper end of said standpipe.

9. Apparatus as in claim 8,

said cap having a small perforation therein permitting limited steam flow therethrough into and through said passageway.

10. Apparatus as in claim 7,

said base having an opening through the side wall thereof near the upper edge, and

a baffle plate on the exterior of said base partially screening said opening and forming a water trap on the exterior of said base,

said base further including drain channels from said trap back into the interior of said base for drainage of water

from said trap to the interior of the base.

11. Apparatus as in claim 7, including

a member supported on said tray having a cup-like chamber therein for receiving and storing a hair conditioning composition.

12. Apparatus as in claim 11,

said member comprising an upstanding tube having its lower end adjacent the center portion of the tray and having the receptacle recessed in the upper end,

said receptacle having a perforation in its bottom, and

means between the lower end of the member and the tray providing passageways between the inside and outside of the member for flow of liquid descending to the member from said receptacle from the interior of said member onto the surface of the tray outside said member.

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