

March 4, 1947.

A. M. ANDREWS

2,416,788

HAIR DRYING HELMET WITH FLEXIBLE INNER WALL

Filed July 23, 1943

2 Sheets-Sheet 2

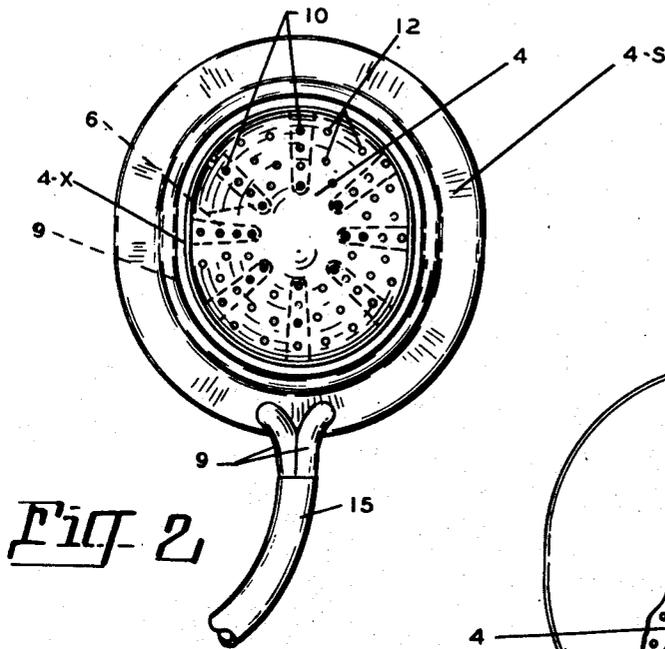


Fig. 2

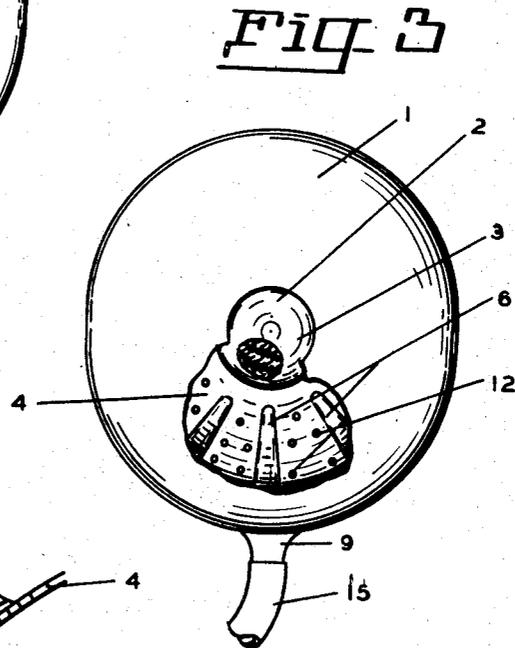


Fig. 3

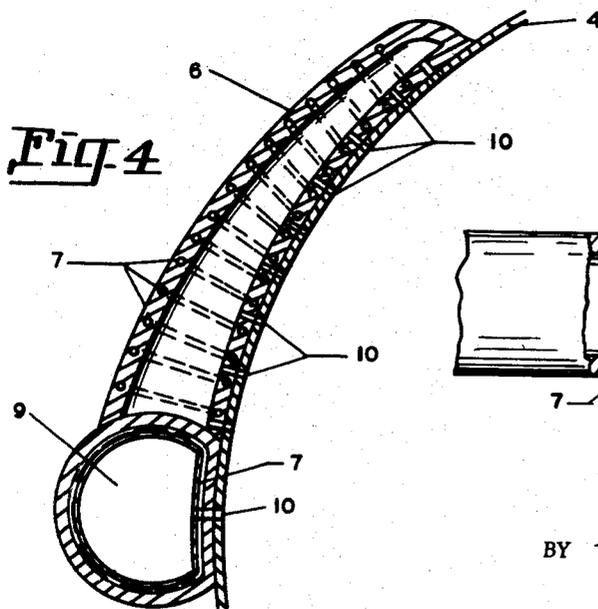


Fig. 4

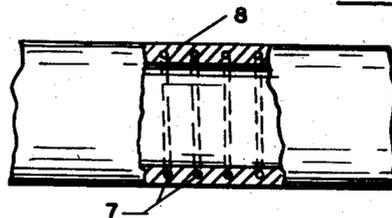


Fig. 5

ALVADORE M. ANDREWS
INVENTOR.

BY *G. F. Mc Dougall.*
Attorney

UNITED STATES PATENT OFFICE

2,416,788

HAIR DRYING HELMET WITH FLEXIBLE INNER WALL

Alvadore M. Andrews, Camp White, Oreg.

Application July 23, 1943, Serial No. 495,814

9 Claims. (Cl. 34-99)

1

This invention relates to a hair drier. More specifically it relates to an improved form of hair drying helmet, which, owing to the assembly of auxiliary structure with it, performs its allotted work in a greatly improved manner.

It is an object of the present invention to construct a double walled helmet, the inner wall of which is very flexible and under the influence of vacuumatic action collapses and hugs the wearer's head closely, withdrawing moisture charged air directly from the hair, while concurrently supplying a large number of jets of warm air at points spaced from where it will leave the helmet after its avidity for moisture has been in all cases satisfied to some extent. A rigid outer shell is preferred.

It is a further object to dry hair in a much shorter time than it can be done by other helmets of the contemporary art and at the same time to modify the greatest handicap that helmets have heretofore presented to the hair dressing art, that is uncomfortably warm temperatures that must be endured for a long time, say an hour or more.

These and other objects that will be apparent from the specification constitute the purpose of the present invention.

Drawings of a well tested example of the invention accompany and form a part hereof as the best example of practice that I am able to give at present and which example fulfills every object stated herein to an ample degree. The drawing is not intended, however, to define the limits of the invention.

In the drawings:

Fig. 1 is a cross-sectional view of the helmet, showing its application to the head of a wearer. It may be suspended from a support as is sometimes done, if required, but it is much lighter than ordinary helmets of this art and ordinarily needs no support;

Fig. 2 is an inside view, looking inside from the bottom of a helmet not in use, with some parts broken away for clarity;

Fig. 3 is a top view of the helmet with parts broken away to show the inner relationship of the parts;

Fig. 4 is a fragmentary view of an arch-tube showing its relation to the ring-tube, both to be later described; and

Fig. 5 is a fragment of flexible tube, used in the example, but to which I do not desire to limit myself and for the construction of which I do not claim any inventive novelty.

Describing the structure drawn, in detail, nu-

2

meral 1 represents a helmet made of relatively stiff material such as light metal or one of the suitable plastics, the latter being thought superior to metal. It is provided with an opening 2, to atmosphere, and a heater operated by electric current is placed in the path of air that may enter through the opening 2. This representation is diagrammatic and not intended as limiting since warm relatively dry air can be supplied in other satisfactory ways. The helmet member 1 constitutes an outer wall of a double walled helmet structure as will appear.

The inner wall 4 is fashioned like a loosely fitting bather's cap and is best made of one of the tough, yet thin flexible plastics which may be transparent or translucent and has the property of vulcanizing together at temperatures around 250° F. This inner flexible wall is tough, leather-like, easily washed and may be sterilized by heat of fifty or more degrees below the vulcanizing or partial melting point. For best results there should be a considerable slack in this inner flexible wall of the helmet. The inner wall 4 is shown spaced from the outer wall 1, to define a space between the walls represented by the numeral 5, but the dimensions of this space are uncritical. Disposed within this space are a plurality of arcuate flexible tubes 6, that is they are arcuate as placed, due to their flexibility, but need not necessarily be formed that way. They are non-collapsible as will be seen and the preferred construction of these and other tubular elements is shown in Fig. 5 wherein a spirally wound light wire or plastic material 7 is covered with a material similar to that employed for the inner flexible wall, vulcanized to form a skin 8 over the spiral 7, and we have a very lightly constructed and very flexible suction-hose-like tube.

The flexible tubes 6 are attached by vulcanizing their skins over openings in a ring tube 9 as shown in Fig. 4 so that a plurality of these arcuate tubes form vacuum communication means to the inside of the inner flexible wall 4 by way of registering holes in the tubes 6 and the inner wall 4 as shown at 10 in Fig. 1, the skin of the flexible tubes 6 being vulcanized or otherwise made secure in hermetically sealing relationship.

It is of course possible to make the device without the tubes 6 being flexible, but at a considerable sacrifice in effectiveness, particularly unless there is an abundance of slack material of the inner wall 5 between the points where it is made secure to the tubes.

The ring-tube 9 is preferably of the same construction as described for the arcuate tubes 6, but

3

should have considerably greater effective cross-sectional area, or a cross-sectional area equal to the combined area of the holes 10. It is sealed to the rim of the outer wall 1 and to the inner wall, both points being marked 4s, Fig. 1.

Distributed between the points such as 10, where the inner flexible wall 3 is attached to the tubes 6, there are a considerable number of holes 12 that are in open communication with the space 5 between the inner and outer wall and here is an important point, if the device is to perform at its best; the combined area of the holes 12 should be less than the combined area of the holes such as 10 as will be explained.

The ring-tube 9 is made practically continuous with the tail-pipe 15 which will be connected to a source of vacuumatic action, such as a vacuum pump or suitable suction fan. Other vacuum producing apparatuses may be substituted.

The mode of operation of the drier will be at once apparent. The helmet is placed upon the wearer's head and connected to the suction apparatus, which produces a decided vacuumatic effect inside of the inner flexible wall 4. By pressing the extension of 4, represented at 4x, against the wearer's skin below the line of the hair, it immediately seals off the inside of the inner wall because the holes 12 will not completely satisfy the vacuumatic effect induced by the holes such as represented at 10. Since there is a very considerable area over the skull-cap like inner wall 4, an atmospheric tension difference of a very small amount between the inside and outside of the inner wall 4 and the outside thereof will cause it to collapse inwardly and into close contact with the head and hair contained within it, the tubes 6 going with it.

The vacuumatic effect on the inside of the inner wall 4 will induce low velocity jets of air to enter the hair with which the holes 12 are in close contact, which air will find its way by path of least resistance to the holes 10. The air to satisfy this vacuumatic effect as limited by the difference in area of the holes 10 and 12, must enter through the opening 2 and pass over or through the heater 3; or as stated may be warm air from an independent source, but wherever the air comes from, provision should be made for supplying warmer air at the beginning of a drying period than near the end of it because when the period is started, the evaporation is extremely rapid and the jets of incoming air reaching the scalp are likely to make the person's scalp uncomfortably cold.

Several modifications have been hereinbefore suggested, and obviously the field of modification is much larger without departing from the principle of the invention; so while I deem the present exemplar the preferred form, I do not purpose to be limited to a copy of it, but only to structures falling within the scope of the claims hereto attached.

What I claim is:

1. In a hair drier of the helmet type, an outer rigid wall member, a spaced inner flexible wall member secured inside said outer wall member, said inner wall member being provided with openings therethrough at a plurality of points generally distributed over its inner area, arcuate suction tube means sealed to a portion of said openings effective to exhaust air from beneath said inner flexible wall member, the remainder of the said openings remaining as ingress channels for air at atmosphere pressure, the said last named openings having a total area less than the first named openings and the space between the

4

wall members being provided with an air heater and an opening to atmosphere.

2. In a hair drier of the helmet type, an outer rigid wall member, a spaced inner flexible wall member secured inside said outer wall member, said inner wall member being provided with openings therethrough at a plurality of points generally distributed over the inner area, suction tube means sealed to a portion of said openings effective to exhaust air from beneath said flexible wall member when it is sealed to a wearer's head, a sealing means secured to the helmet below said flexible wall member, the remaining portion of the said openings in the flexible wall being unobstructed save as collapsing of said wall brings them against a wearer's hair, means for supplying warmed air at substantially atmosphere pressure to said last named openings under influence of suction indirectly applied by said suction tube means.

3. A hair drier helmet comprising a rigid outer wall member, a collapsible inner wall member in spaced position inside said outer wall member, said inner wall member being sealed to the outer wall member around the head opening of the helmet, a dependent extension for sealingly connecting the helmet to a wearer's head, said inner wall member being provided with two sets of openings therethrough generally distributed over its inner surface, suction tubes sealed to one set of said openings and arranged to exhaust air from beneath said inner wall member when it is sealed to a wearer's head, the remaining openings serving to admit air therethrough from the space between the walls when the inner wall collapses, said space being in communication with atmosphere.

4. A hair drier helmet comprising a rigid outer wall member, a collapsible inner wall member in spaced position inside said outer wall member, said inner wall member being sealed to the outer wall member around the head opening of the helmet and formed with a dependent extension for sealingly connecting it to a wearer's head, said inner wall member being provided with suction openings therethrough generally distributed over its inner surface, suction tube means for inducing suction effects through all of said openings concurrently, said suction tube means effective to exhaust air from between said collapsible inner wall and a wearer's head to which the helmet is sealed, said inner wall member provided with another series of openings therethrough and spaced from the first named series forming communications between the inside of said inner wall and the space between the walls, and means for supplying warm air at atmosphere pressure to said last named openings.

5. A hair drier of the helmet type comprising a rigid helmet wall member, a collapsible inner wall of air impervious material disposed in spaced position inside thereof and sealed thereto at the rim, means for sealing the inner wall member to a wearer's head, means for forcibly exhausting the air between the inner wall and a wearer's head to create suction and cause the inner wall to collapse onto the head, means comprising a plurality of openings provided through said inner wall to partially satisfy the suction and means for supplying warm outside air to the inlet ends of said openings.

6. A hair drier comprising a rigid helmet-like outer shell, means for supplying drying air to the inside of said shell, a flexible collapsible inner lining therefor spaced from the shell but attached thereto at the rim of the shell, a plurality of

5

suction tubes between the shell and lining, each tube securely attached to said lining and in communication with the inside of the lining by mutual passageways therethrough, means for inducing suction inside the lining by way of the tubes, 5 means for supplying warm air at a plurality of other points through said lining and means for sealing the lining to a person's head below the hairline of such person.

7. The combination as claimed in claim 6 and 10 in which the inner flexible wall is slack between the points of attachment to the suction tubes.

8. The combination as claimed in claim 6 and 15 in which the flexible inner wall is attached to the suction tubes, said inner wall being slack between points of attachment to different tubes and provided with a plurality of inlet warm air openings in such slack areas, the total cross-sectional area of which is less than the area of the outlet holes into the tubes under suction influence. 20

9. A hair drier helmet comprising a rigid helmet-like shell member, a flexible lining member within the shell and secured thereto at the rim of the shell, a plurality of arcuate tubes extending from points around the rim of the shell towards the crown thereof, a manifold connecting 25 said tubes to a common source of suction effect,

6

said tubes attached to said lining and in communication with its inside surface by mutual passageways at points of attachment, said lining being provided with a plurality of other passageways therethrough in communication with the space between the lining and the shell, means for supplying conditioned atmosphere to the space between the shell and lining, and means for sealing the open head space of said lining to a head to be dried.

ALVADORE M. ANDREWS.

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