Aug. 1, 1939. D. LAKENBACH 2,168,219

PERMANENT WAVING DEVICE

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Fig. 1.

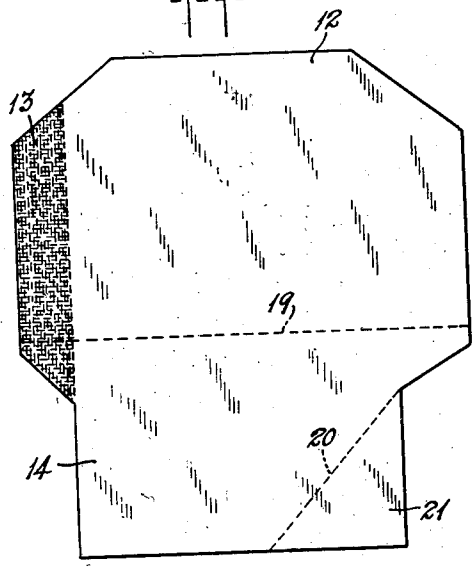


Fig. 2.

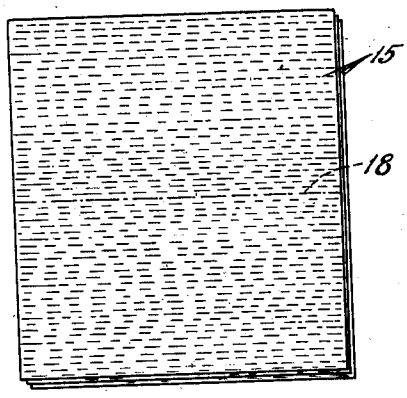


Fig. 3.

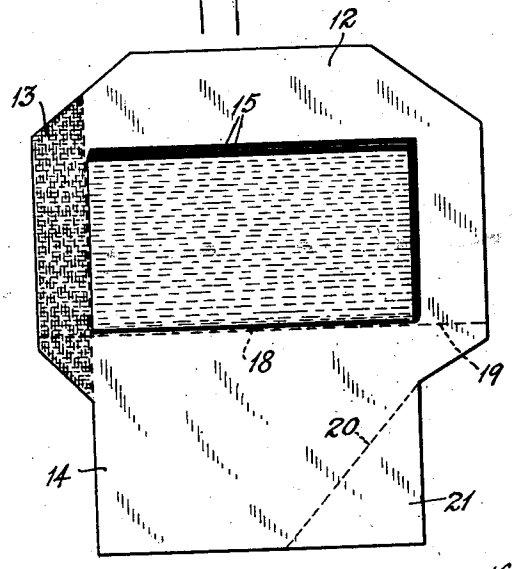


Fig. 4.

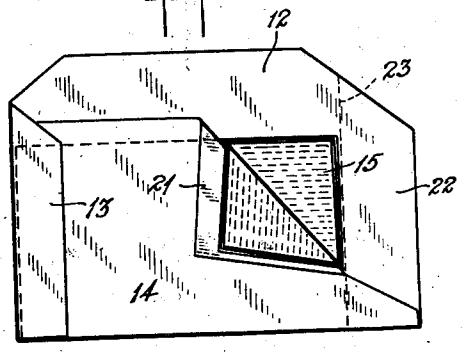
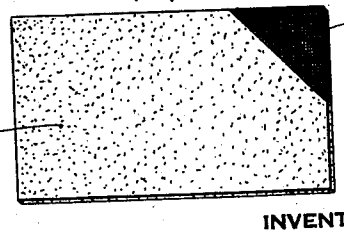


Fig. 5.



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FIG. 6.

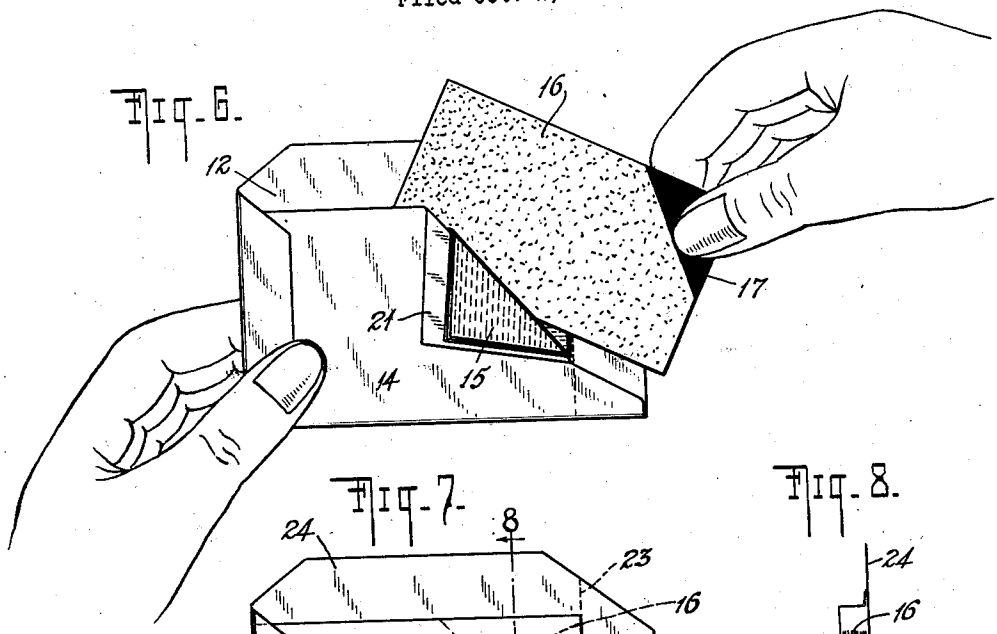


FIG. 7.

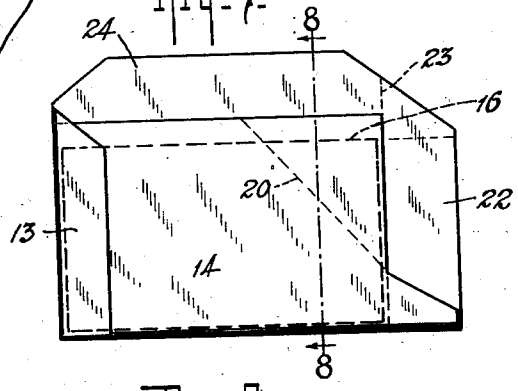


FIG. 8.

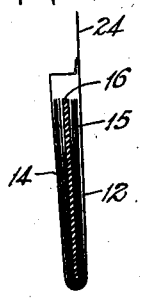


FIG. 9.

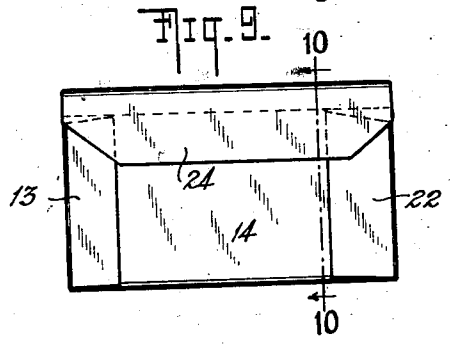


FIG. 10.

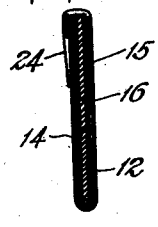
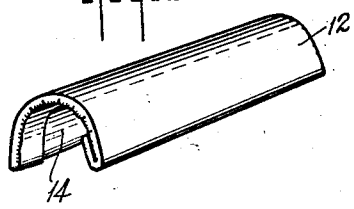


FIG. 11.



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Patented Aug. 1, 1939

2,168,219

UNITED STATES PATENT OFFICE

2,168,219

PERMANENT WAVING DEVICE

Daniel Lakenbach, Norwich, Conn.

Application October 2, 1937, Serial No. 166,932

19 Claims. (Cl. 132—36.2)

The invention relates to devices used in the art of imparting a wave or curl to human hair, which art is commonly referred to as permanent waving. More particularly, the invention relates to a sachet or similar device employed in that branch of the art of permanent waving in which the permanent waving is accomplished without the use of electricity, heating elements, and cumbersome associated apparatus.

In the art of permanent waving, without the use of electricity, the heat necessary for imparting the wave or curl to the human hair is obtained by a device, generally a pad, which comprises an envelope attached to a backing of aluminum foil, the envelope containing a mixture of certain chemicals and being provided with a plurality of perforations, a strip of flannel or felt being saturated with a solution and then placed over the surface of the envelope so that the moisture from the flannel or felt strip may seep through the perforations and come into contact with the chemical mixture, resulting in an exothermic reaction between the chemicals and solution and in the development of an amount of heat and a degree of temperature sufficient to impart a permanent wave to the hair which has been curled upon a rod and enveloped by the pad.

The present invention has for its object the elimination of the manifold disadvantages of a device such as just described, including the use of powdered chemicals and the deterioration thereof, and is designed to provide a permanent waving sachet the use of which insures a uniform heat being developed of the particular order necessary for the type of hair being waved.

In its broadest aspect, the present invention comprises a permanent waving sachet formed by an envelope of glassine or similar paper material into which is placed a plurality of sheets of soft pliable metal material, for instance, aluminum foil, in such position that an absorbent pad, previously impregnated with certain chemicals, may be conveniently inserted between plies of the metal foil within the envelope, after such pad has been dipped into a solution, and the sachet thus formed, appropriately folded to constitute a sealed, steamproof steaming chamber, and thereafter placed over the tress of hair to be waved wound upon a curler in the usual manner.

The object of the invention is to provide such a permanent waving sachet of simple and inexpensive construction, necessitating a minimum of effort on the part of the operator to make the same ready for application to the head, a minimum of effort and necessary experience in applying the same in position for its utilization, and which will perform its intended and desired hair waving function with speed, accuracy, and certainty.

A particular embodiment of my invention is illustrated in the accompanying drawings in which Fig. 1 is a plan view of a blank of material such as glassine paper, of which the envelope of the sachet is to be formed; Fig. 2 is a plan view of a plurality of sheets of aluminum foil to be used in conjunction with my sachet; Fig. 3 is a view similar to Fig. 1 of the blank with the plurality of sheets of aluminum foil folded and placed in position upon such blank; Fig. 4 is a plan view of the envelope with the blank folded and the aluminum foil in position to receive the chemically impregnated pad; Fig. 5 is a plan view of the chemically impregnated pad; Fig. 6 illustrates the manner in which the pad is to be inserted by the operator into the envelope; Fig. 7 shows the pad inserted into the envelope and the flap folded over the pad; Fig. 8 is a section on the line 8—8 of Fig. 7; Fig. 9 is a plan view of the completed permanent waving sachet after the side portion and the upper end portion have been folded into position; Fig. 10 is a section on the line 10—10 of Fig. 9; and Fig. 11 shows the permanent waving sachet curved to fit the curler upon which it is to be placed.

Referring more particularly to the drawings, in which similar reference characters identify similar parts in the several views, 12 is a blank of glassine paper or material of similar characteristics, one edge portion of which at 13 is provided with glue, the blank having a depending portion 14. In Fig. 2 is illustrated a plurality, in the particular embodiment illustrated three, of sheets of a soft pliable metal material, for instance, aluminum foil 15.

A pad of an absorbent material, having the characteristics of a blotting paper, 16 which has been impregnated with a mixture of chemicals as hereinafter more particularly described, is provided at one corner thereof, 17, with a wax coating which may be applied to such corner by dipping the pad into molten wax.

In assembling my novel permanent waving sachet, the plurality of aluminum folds 15 are folded over along their median line 18 and such folded-over sheets are then placed in position upon the blank 12 so as to occupy a position bounded on the bottom of the aluminum foil by the fold line 19 of the blank 12 and on one of its edges by the edge of the glued portion 13 of the blank. After the aluminum foil has been placed

in such position, the tab portion 14 of the blank 12 is folded over upon the fold line 19 as shown in Fig. 4, the flap 13 being adhesively secured by the glue to the surface of the tab 14. The upper right-hand end corner of the tab 14 is then folded upon the fold line 20 (see Fig. 3) so that such corner 21 extends from the plane of the sachet as illustrated in Fig. 4, with the corner portion of the aluminum foil likewise folded over.

The permanent waving sachet is delivered to the consumer in its condition illustrated in Fig. 4 and is to be used conjointly with the impregnated pad 16 as follows:

After the impregnated pad 16 has been immersed for a period of a few seconds, usually between 2 and 4, by grasping the same by the waxed corner 17 thereof, the permanent waving sachet is held in the left-hand as illustrated in Fig. 6 and the impregnated pad is inserted between the folded sections of the aluminum foil 15 until such pad assumes a position between the elements of the pad as illustrated in Fig. 7. Thereafter the corner 21 of the tab 14 is folded back upon the fold line 20 so as to lie flush against the pad 16.

The sachet is then prepared for application to the curler by folding the edge portion 22 along the line 23 which is defined by the edge of the pad 16 and by thereafter folding the upper edge portion 24 over the upper edge of the pad 16, so as to obtain a completely sealed permanent waving sachet as illustrated in Fig. 9. The sachet may then be curved to the configuration shown in Fig. 11 in which condition it may be placed on the tress of hair wound upon a curler in the usual manner.

When the sachet, thus formed, has been positioned thus upon the tress of hair, an exothermic chemical reaction takes place between the solution saturated pad, i. e., its impregnated chemicals, and the metallic foil, resulting in the development of sufficient heat, of the necessary degree of temperature required to impart, to the tress of hair, a permanent wave.

It has long been recognized by those skilled in the art of permanent waving that different types of human hair require different strengths of solution for saturation of the pad, and that the degree of heat to be imparted thereto, as well as the duration of the heating period, is governed by the texture and nature of the hair. Thus, a "fine" hair will require a greater degree of heat, and of more duration than a "medium" hair, and the latter less heat, both as to degree and duration of steaming, than a "coarse" hair. Also, in permanent waving a hair that has been bleached or dyed, particular care must be taken with respect to these factors.

In accordance with my invention, it is extremely simple to take care of these matters of the utmost concern to the operator, by supplying such operator with four different types of impregnated pads, denoted, for instance, by different colors of pad for each of the four types of hair usually encountered in practice. Thus, the pad giving the least degree of heat, for a duration of steaming suitable and proper for "fine" hair, may be of one color, another pad, effecting a slightly greater heating for a slightly longer period of steaming, suitable for use on "medium" hair, may be supplied in a second color, and so on. The task of the operator, therefore, is reduced to the barest one, in which every such operator is skilled, of determining what type of hair is to be waved, and then selecting the appropriate pad by its color.

For the purpose of guiding those skilled in the art in carrying out my invention, and for the purpose of illustrating a particular embodiment of my invention, but without defining its limits, I give hereinbelow specific data with respect to the qualitative and quantitative nature of the ingredients used by me in the manufacture of a permanent waving sachet which I have subjected to prolonged and conclusive tests both with respect to the chemical reactions involved, the amount and degrees of heat secured, and the ultimate results secured from the standpoint of the hairdresser, i. e., the nature of the permanent wave imparted to the hair.

For impregnating the pad 16, for instance by an ordinary dipping process, I have found the following mixture most suitable and effective, the proportions being by weight:

	Parts
Mercuric chloride	21.25
Sodium nitrate	1.25
Sodium chloride	2.50
Water	100.00

The pad is constituted of an absorbent paper such as blotting paper, of approximately 120 lb. stock, the pad being approximately 2½ by 1⅜ inches in dimensions.

The approximate amount of chemical mixture absorbed by each pad of such dimensions has been found, upon calculation or analysis, to be as follows:

	Grams
Mercuric chloride	0.4 –0.5
Sodium nitrate	0.06–0.07
Sodium chloride	0.12–0.14

While I have given, hereinabove, a specific example of suitable chemicals for use in the impregnation of the pad, in accordance with my invention, it will be obvious to those skilled in the art, that other chemicals, of the same or slightly different chemical properties, may be substituted therefor. The only requisite of the particular mixture of chemicals that may be used is that it shall be capable of entering into chemical reaction with the metal material with which, after moistening with the permanent waving solution, it is brought into contact and that such chemical reaction shall be an exothermic one. Thus, for the mercuric chloride, there may be substituted a copper salt, for instance, copper sulphate, in which case potassium nitrate may be used in place of the sodium nitrate, and potassium chlorate added. For excellent results I have found the following mixture most suitable:

	Parts
Copper sulphate	7
Potassium chlorate	7
Potassium nitrate	1
Sodium chloride	1

The reaction hereinabove referred to is an oxidation reduction reaction, in which the metal foil is the reducent and the mercuric chloride is the oxidizer. During the reaction, with the formula using the mercuric salt, the aluminum foil is converted to aluminum chloride (by the chloride of the mercuric salt), and then to the oxide. The mercuric chloride is converted into mercurous chloride and then to mercury which amalgamates with the free aluminum.

The metal foil is preferably constituted of aluminum in sheet form 0.0035 inch in thickness, three layers being used, folded in half to have the thickness of the plurality of plies the same

as that of the pad. Of course, only one or more sheets of foil may be used.

In order to give sufficient access to oxygen of the atmosphere to reach the situs of the chemical reaction, the sheets of metal foil may be provided with a multiplicity of perforations. The length of heating time produced by the exothermic reaction is regulated by the thickness of the sheets of metal foil, the concentration of the chemicals used in the mixture, and by insulation of the sachet, as with a porous material or asbestos.

The thickness of the paper constituting the blank for forming the envelope is approximately 0.026 inch.

All of the above data is given by way of illustration rather than by way of limitation of the particular embodiment of my invention which I have found gives excellent results. It is obvious that many changes therein may be made, in the several elements, without departing from my invention.

I claim:

1. A sachet for permanent waving without the use of electricity, comprising an envelope formed of a blank having a flap folded upon the blank body, a plurality of sheets of thin metallic foil folded along a median line of such sheets and inserted, in such folded condition, within the envelope between the blank body and the folded-over flap, and a pad of absorbent material impregnated with a chemical mixture and adapted to be moistened by a solution and to be positioned between the folded portions of the sheets of the metallic foil, whereby, upon reaction between the moistened, chemically impregnated, absorbent pad material and the metallic foil material, there will be produced an amount of heat sufficient to impart a permanent wave to human hair placed in juxtaposition with the sachet.

2. A sachet for permanent waving without the use of electricity, comprising an envelope of paper or similar material formed of a blank having a flap and having one of its edges provided with an adhesive, the flap being folded upon the blank body, a plurality of sheets of thin metallic foil folded along a median line of such sheets and inserted within the envelope between the blank body and the folded-over flap, and a pad of absorbent material impregnated with a chemical mixture and adapted to be moistened by a solution and to be positioned between the folded portions of the sheets of the metallic foil, whereby, upon reaction between the moistened, chemically impregnated, absorbent material and the metallic foil material, there will be produced an amount of heat sufficient to impart a permanent wave to human hair placed in juxtaposition with the sachet.

3. A sachet for permanent waving without the use of electricity comprising an envelope of paper, a plurality of sheets of thin metallic foil folded along a median line of such sheets and inserted within the envelope, and a pad of absorbent material impregnated with a chemical mixture and positioned between the folded portions of the sheets of the metallic foil, whereby, upon the reaction between the chemically impregnated absorbent material, when moistened, and the metallic foil material, there will be produced an amount of heat sufficient to impart a permanent wave to human hair placed in juxtaposition with the sachet.

4. A sachet for permanent waving without the use of electricity comprising an envelope of paper or similar material formed of a blank having a depending flap and having one of its edges provided with an adhesive, the flap being folded upon the blank body, a plurality of sheets of thin aluminum foil positioned within the envelope, and a pad of absorbent material impregnated with a chemical mixture and positioned between sheets of the aluminum foil, whereby, upon the reaction between the chemically impregnated absorbent material, when the pad is moistened with a solution, and the metallic foil material, there will be produced an amount of heat sufficient to impart a permanent wave to human hair placed in juxtaposition with the sachet.

5. A sachet for permanent waving as claimed in claim 1, in which the sheets of thin metallic foil are provided with a multiplicity of perforations.

6. A sachet for permanent waving as claimed in claim 3, in which the sheets of thin metallic foil have been perforated.

7. The combination, in a sachet for permanent waving without the use of electricity, of an envelope, a plurality of sheets of thin metallic material, and a pad of absorbent material impregnated with a chemical mixture, which pad of absorbent material, upon wetting and in contact with the sheets of metallic material, enters into an exothermic chemical reaction with said metallic material.

8. The combination, in a sachet for permanent waving without the use of electricity, of an envelope of paper, a plurality of sheets of thin metallic material, and a sheet of absorbent material impregnated with a chemical mixture, which pad of absorbent material, upon wetting with a solution and brought into contact with the sheets of metallic material within the envelope, produces an amount of heat sufficient to impart a permanent wave to hair encompassed by the envelope.

9. The combination, in a sachet for permanent waving without the use of electricity, of an envelope, a plurality of shets of thin aluminum foil, and a sheet of absorbent material impregnated with a chemical mixture, which pad of absorbent material, upon wetting and in contact with the sheets of aluminum foil, enters into an exothermic chemical reaction with the material constituting such foil.

10. A sachet for permanent waving as claimed in claim 1, in which the absorbent pad has been impregnated with a mixture of copper sulphate, potassium chlorate, potassium nitrate, and sodium chloride.

11. A sachet for permanent waving as claimed in claim 1, in which the absorbent pad has been impregnated with a mixture of mercuric chloride, sodium nitrate, and sodium chloride.

12. A sachet for permanent waving without the use of electricity comprising an envelope, a folded sheet of thin metallic foil within the envelope, and a pad of absorbent material impregnated with a chemical mixture and adapted to be moistened with water, said folded sheet of metallic foil constituting a sheath for said pad, whereby, upon reaction between the moistened, chemically impregnated absorbent pad and the metallic foil, there will be produced an amount of heat sufficient to impart a permanent wave to human hair to which such sachet is applied.

13. A sachet for permanent waving without the use of electricity comprising an envelope, a sheet of thin metallic foil, and a pad of absorbent material impregnated with a chemical mixture,

which, upon being moistened with water and brought into contact with the metallic foil, will cause an exothermic reaction between the chemicals and the metal with the production of an amount of heat sufficient to impart a permanent wave to a tress of human hair to which such sachet is applied.

14. The combination, in a sachet for permanent waving without the use of electricity, of an envelope, a sheet of metallic material, and a pad impregnated with a mixture of chemicals which chemical mixture, upon the pad being moistened with water and brought into contact with said metallic material, enters into an exothermic reaction with said metallic material.

15. A sachet for permanent waving without the use of electricity, comprising an envelope, a sheet of thin metallic foil folded along a median line and inserted, in such folded condition, within the envelope, and a pad impregnated with a chemical mixture and adapted to be moistened by water and to be positioned between the folded portions of the sheet of metallic foil, whereby, upon reaction between the moistened, chemically impregnated, absorbent pad and the metallic foil material, there will be produced an amount of heat sufficient to impart a permanent wave to human hair placed in juxtaposition with the sachet.

16. The combination, in a sachet for permanent waving without the use of electricity, of an envelope, at least one sheet of thin metallic material, and a pad of absorbent material impregnated with a chemical mixture, which pad of absorbent material, upon wetting with water and being brought into contact with the sheet of metallic material within the envelope, so as to have such sheet form a closure for said pad, produces an amount of heat sufficient to impart a permanent wave to hair encompassed by the envelope.

17. The combination, in a sachet for permanent waving without the use of electricity, of an envelope, at least one folded sheet of thin metal foil, and a sheet of absorbent material impregnated with a chemical mixture, and sheathed in said folded sheet of foil, which pad of absorbent material, upon wetting with water, enters into an exothermic chemical reaction with the material constituting such foil.

18. As a new article of manufacture, a sachet for permanent waving, utilizing heat engendered exclusively by an exothermic chemical reaction within said sachet; said sachet comprising an envelope in combination with a sheet of metallic material, and a pad of absorbent material interfolded and confined within said envelope, when ready for use; said absorbent pad being made of a sheet material adapted to be impregnated with a mixture of chemicals and to be moistened, whereby said exothermic reaction is propagated throughout the interfolded pad and metallic material, and said sachet is made effective for said permanent waving.

19. The combination, in a sachet for permanent waving, utilizing heat engendered exclusively by an exothermic chemical reaction within said sachet; of an envelope made of a material possessing a heat-retentive characteristic, a sheet of metallic material and a pad interfolded and confined within said envelope, when ready for use, said pad being made of absorbent material adapted to be impregnated with a mixture of chemicals and to be moistened, preparatory to diffusion of said chemicals in dissolved, reactive condition throughout an area of the interfolded pad and metallic material adequate to propagate said exothermic reaction and to apply the resultant heat for effecting said permanent waving.

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