Oct. 14, 1969 H. DEMNER 3,472,242

COSMETIC REMOVAL PAD

Filed Feb. 10, 1967

Fig. 1.

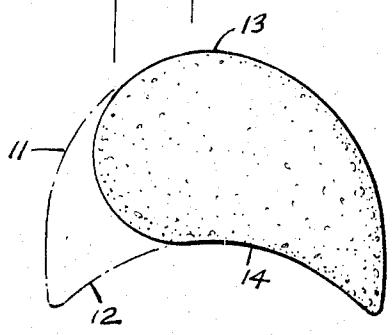


Fig. 2.

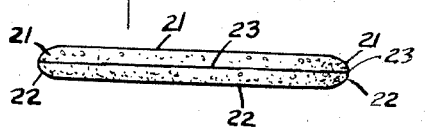
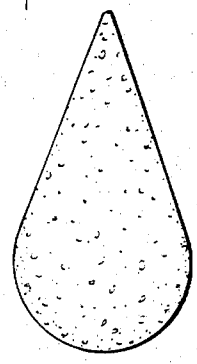


Fig. 4.



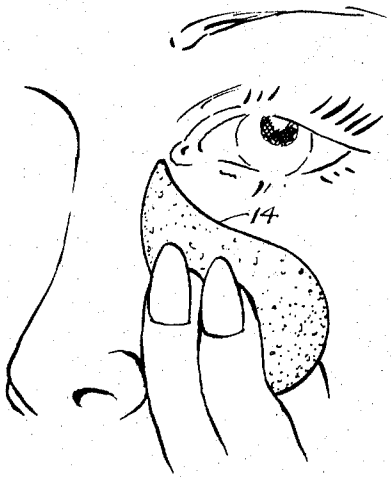
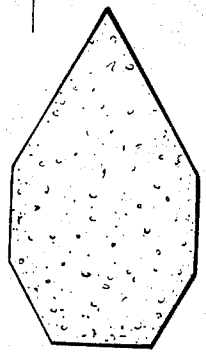


Fig. 3.

Fig. 6.



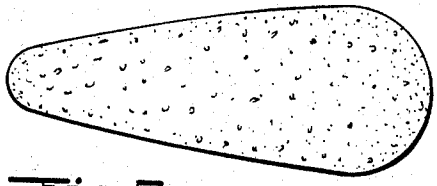


Fig. 5.

INVENTOR

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COSMETIC REMOVAL PAD

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U.S. Cl. 132—1 5 Claims

ABSTRACT OF THE DISCLOSURE

Cosmetic remover comprising a thin substantially flat pad of a soft solid flexible foam impregnated with a substantially non-irritating surfactant and having a thickness of about ⅛ to ¼ inch. The pad has a broad zone of about 1 to 2 inches across and a zone tapered at an angle of about 30 to 70°, to fit in the space between the corner of the eye and the side of the nose of the user.

This invention relates to removal of cosmetics.

Modern women, as is well known, employ a wide range of cosmetics around the eyes and on other portions of the face and neck. Among these are mascara, used on the eyelashes; artificial eyelashes which are held onto the eyelids by special glues; eyeliner in liquid or solid crayon form to outline the eyelids near the lashes; eye shadow; foundation creams; face powders; rouge; lipstick; eyebrow pencils, etc.

Most women find it desirable to remove the applied cosmetics effectively, leaving the face clean, on retiring or before applying the make-up to the face again, and there are many cosmetic removal preparations on the market today. These are generally liquids (which may have an oily base or a water base) and creams. Some of the liquids themselves irritate the eyes on contact and therefore have only limited utility. Even the so-called non-irritating liquids will, upon being used to remove eye cosmetic materials such as mascara or liquid liner, become mixed with the eye cosmetic material which is generally itself quite irritating to the eyes. The mixture, being much more fluid than the cosmetic preparation, tends to flow into contact with the conjunctival membrane and causes smartness or stinging. The use of cosmetic removal creams, on the other hand, is a messy pore-clogging procedure, and it is very difficult to use such creams around the eyes.

In accordance with one aspect of this invention, there is provided a soft solid flexible foam impregnated with a substantially non-irritating surfactant, the foam having a broad zone and a zone tapered to a point.

The invention is illustrated more particularly in the accompanying drawings, in which:

FIG. 1 is a plan view of the most preferred form of the cosmetic remover;

FIG. 2 is a side view of the article shown in FIG. 1;

FIG. 3 illustrates the use of the article for removing cosmetics around the eye; and

FIGS. 4, 5 and 6, are plan views of other forms of the novel cosmetic remover of this invention.

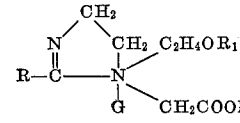
Preferably, the foam is in the form of a thin, substantially flat, pad (e.g. about ⅛–¼ inch in thickness) whose broad zone is about 1 to 2 inches across and whose length is about 2 to 3 inches. The edges of its tapered zone preferably meet at an angle greater than about 30° and less than about 80°, e.g. about 45° to 70°. More preferably, one edge of the tapered zone is concavely curved. The most preferred form of pad has the general shape of a broad crescent with one tip cut off and broadly rounded at the portion from which said tip has been removed, as can be seen in FIG. 1 where the "cut off" tip is indicated

by dotted lines **11** and **12** which are hypothetical extensions of the circular arcs forming the edges **13**, **14**.

The point at which the edges of the tapered zone meet may be relatively sharp as illustrated in FIG. 1 or more blunt as shown in FIG. 5.

To use the novel cosmetic remover of this invention, the solid foam carrying the surfactant is moistened slightly with water and wiped against the face manually. During this process, the solid foam material is pressed between the finger and the face and gives off a quantity of foamy aqueous surfactant which has a cleansing action on the skin but does not run or drip. The cosmetic material thus removed is taken up into the pores of the solid foam. The broad zone of the solid foam is used on the cheek, jaw and neck areas, while the tapered section can be easily used around the eye, e.g. at the corner of the eye near the nose (as illustrated in FIG. 3), the eyelids, etc. The preferred concavely curved edge **14** is particularly suitable for use at the eyelids and lashes, and its curvature preferably conforms generally to the curvature of the lower edge of the eye, as will be evident from FIG. 3. Any mascara, eyelash glue, or liquid liner is loosened and taken up in the surfactant foam and, by the same wiping action, the loosened cosmetic is absorbed into the solid foam material, leaving the skin clean. Cosmetics can thus be removed from the whole facial area without any eye irritation and without leaving a thick creamy residue.

The surfactant material employed is preferably a non-toxic type which is non-irritating to the skin and has an emollient action. The most preferred surfactants are of the amphoteric type and have a substantially neutral pH. Amphoteric surfactants which have a weak alkaline group (such as a cyloimidinium or imadozinium group or other group having a weakly basic quaternary ammonium unit) together with a weak acid group (such as a carboxyl group) are especially suitable, the most preferred compounds having the formula:

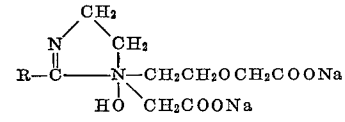


where R—C— is the residue of a higher fatty acid of the formula R—COOH, such as the fatty acid of coconut oil or decanoic acid and R_1 is H, Na or CH_2COOM, M being Na, H or an organic base and G being (preferably) OH, an acid salt, or the salt of an anionic surface active sulfate or sulfonate.

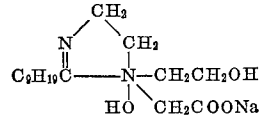
The solid foam material is preferably made of a rubbery polyurethane and is of relatively high density (e.g. having a density in the range of about 1½ to 2, preferably about 1.6 to 1.8 lbs./cu. ft. and having, for example, about 50–100 pores per square inch). Other materials which may be used for instance are foams of flexible, plasticized polyvinyl chloride or polyethylene or other polymers. Preferably, a colored foam is used (e.g. a foam permanently colored in a pastel shade of pink, blue or green).

In a preferred process for the manufacture of the product of this invention, there is employed a thin, soft flexible sheet (e.g. 3/16 inch in thickness) of the polyurethane foam. (One foam suitable as the starting material is the soft polyurethane product, made of a rubbery polyester polyurethane and having about 70 pores to the square inch and a substantially uniform closed cell structure, available commercially from the General Foam Corporation.) The flexible foam sheet is fed between driven calendering rolls set closely together so as to compress the material drastically and break its cells so that its pores are now open. In a preferred form, there is a lower roll and a pair of spaced upper rolls, side-by-side so that the

sheet passes through the nip between one upper roll and the lower roll and then through the nip between the second upper roll and the lower roll; at each nip, the spacing between an upper roll and the lower roll is about 1/200 inch or less (e.g. 0.003 inch). One or more of the calender rolls carries a film of the surfactant composition in a volatile diluent, such as water, so as to bring the composition into close contact with the compressed material in the nip between the rolls, whereby there is obtained a thoroughly impregnated sheeting having the diluted composition in its open pores when the material re-expands (to a thickness on the same order as its original thickness) on leaving the nip. To this end, the lower roll may be in contact with a fountain (similar to that of a printing press) containing the diluted composition. One specific preferred composition contains 11.6% "Miranol C2M Conc." whose active ingredient (present in 40% concentration) is the amphoteric detergent, non-irritating to skin and eyes, of the formula:



where R—C— is the residue of the fatty acid of coconut oil; 11.6% of "Miranol SM Conc." whose active ingredient (present in 35% concentration) is the non-irritating amphoteric surfactant of the formula:



which functions to impart improved foaming and spreading properties; 6.8% of a condensation product of diethanolamine and a higher fatty acid of, for example, 10–14 carbon atoms such as lauric acid (e.g. Monamid 150 LW) which acts as thickening agent, to increase the viscosity of the mixture; and 70% of water.

The impregnated sheet then passes through a dryer (e.g. of the usual temperature-controlled radiant type) where at least the major portion of the aqueous diluent is evaporated off, leaving the surface of the sheet dry to the touch.

When the aqueous mixture described above is placed on a non-porous surface and dried, a soft solid material remains. In the dried impregnated foam, this water-soluble deposit is not visible to the unaided eye, and the impregnated foam remains porous and resilient; its pores are still filled primarily (on a volumetric basis) with air. Typical impregnated sheets, after drying, may carry an amount of the dried emollient composition in the range of about 5 to 500% (e.g. about 300%) of the weight of the polyurethane prior to impregnation (e.g. the dried impregnating material constitutes in the range of about 5 to 85% of the total weight). The amount of impregnant may be such that when the dried impregnated resilient foam is squeezed tightly between one's thumb and forefinger (e.g. for 5 seconds) with the thumb on one face of the foam pad and the forefinger on the opposite face, the squeezed area remains in a flattened condition directly after the release of the pressure but returns to its original thickness (e.g. 3/16 inch) within a very short time (e.g. less than a minute and usually with about 20 seconds or less), as the resiliency of the walls of the solid foam material forces these walls to their original positions and the air, which had been squeezed out of the pores, fills the pores again. In the absence of the impregnant, the same resilient foam returned instantaneously to its original thickness on such squeezing and release, and no retention

of the flattened condition, as described above, was observed.

After impregnation (and preferably after the drying thereof) the sheet is die cut in the tapered pattern previously discussed. The polyurethane foam is of the type (i.e. "non-clickable") which, under the die-cutting conditions, becomes tightly compressed and fused at the line of cutting, so that the cut pad has a smooth tapered edge comprising mainly the uncut upper and lower surfaces (**21** and **22**, respectively, FIG. 2) of the sheet material joined by a very thin line **23** (e.g. 1/100 inch or less in thickness) of the fused cut foam. It is found that the presence of the dried impregnant in the sheet material does not interfere with this fusing action and that the known die-cutting conditions, using hot dies which fuse the foam, may be employed. The die temperature may be about 400° F., for example.

A suitable temperature for drying the impregnated foam is, for example, about 250° F.

All proportions herein are by weight unless otherwise specified.

Although the present invention has been described with reference to particular embodiments and examples, it will be apparent to those skilled in the art that variations and modifications can be substituted therefor without departing from the principles and true spirit of the invention. The "Abstract" given above is for the convenience of technical searchers and is not to be used for interpreting the scope of the invention or claims.

I claim:

1. A facial cosmetic remover comprising a thin substantially flat pad of soft flexible porous foam of substantially uniform thickness of about 1/8 to 1/4 inch, said pad being impregnated with a substantially non-irritating surfactant, and its pore volume being filled primarily with air, said pad having a tapered zone to fit in the space between the corner of the eye and the side of the nose of the user and to contact the skin in said space to remove the cosmetic therefrom, and a broad zone to be held by the fingers of the user and to contact the skin on the cheek below the eye to remove the cosmetic therefrom, the edges of said tapered zone meeting at an angle within the range of about 30 to 70°, said broad zone being about 1 to 2 inches across.

2. A cosmetic remover as in claim **1** in which said surfactant is an amphoteric surfactant having a weakly basic group and a weak acid group.

3. A cosmetic remover as in claim **1** in which the pad has the general shape of a broad crescent with one tip cut off and broadly rounded at the portion from which said tip has been removed.

4. A cosmetic remover as in claim **3**, the length of the pad being about 2 to 3 inches, the edges of the tapered zone meeting at an angle within the range of about 45 to 70°.

5. A cosmetic remover as in claim **4** in which said surfactant has a weakly basic imidazolinium group and a weakly acidic carboxyl group and the pad is of resilient polyurethane impregnated with about 5 to 500% of its weight of the surfactant.

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ROBERT PESHOCK, Primary Examiner