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COMPRESSED COSMETIC POWDER ARTICLE WITH FRAGILE PROTECTIVE FILM ADHERED ON EXPOSED SURFACE THEREOF

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FIG. 1

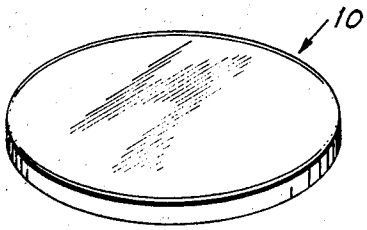
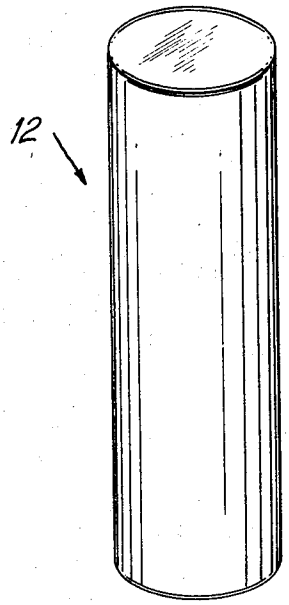


FIG. 2



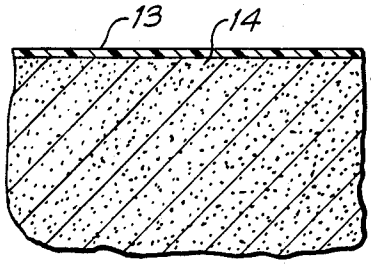
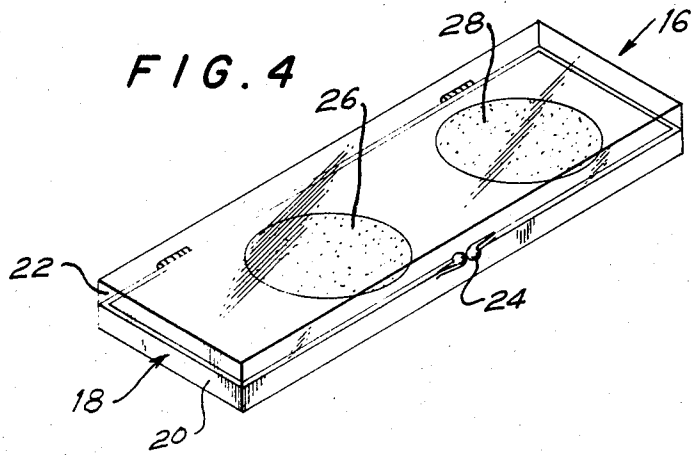


FIG. 3

FIG. 4



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COMPRESSED COSMETIC POWDER ARTICLE WITH FRAGILE PROTECTIVE FILM ADHERED ON EXPOSED SURFACE THEREOF

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U.S. Cl. 424—6 9 Claims

ABSTRACT OF THE DISCLOSURE

A cosmetic article such as a cake or stick formed by compressing cosmetic powder with a binder, said article having an exposed surface covered with a very thin dry adherent layer of a film forming material such as polyvinyl pyrrolidone, which layer is so thin that it breaks and permits removal of powder particles from said surface of the compressed cosmetic powder article upon conventional use of the article without having to perform any separate prior special step for breaking the film.

BACKGROUND OF THE INVENTION

Field of the invention

Compressed cosmetic powder articles such as a cake or stick which has an exposed surface that is covered with a very thin dry adherent film that is destroyed upon normal use of the article for the removal of cosmetic powder therefrom.

Description of the prior art

Compressed cosmetic powder articles such as compressed cosmetic powder cakes and compressed cosmetic powder sticks are well known. There is, however, a certain difficulty attendant upon their use. It is that if too much pressure is employed in compressing the cosmetic powder to form the cake or stick, the ensuing article has a poor cosmetic application characteristic. Specifically, it then is difficult, if the object is a cake, to rub off sufficient powder from it by passing the fingers over and in contact with the cake or by rubbing a brush or puff across the exposed surface of the cake. In both these instances the amount of powder picked up by the fingers, brush or puff is insufficient to satisfy the consumer. Likewise, where too much pressure is used in forming a cosmetic powder stick and the powder subsequently is applied by rubbing the tip of the stick across the skin of the user, the stick is so hard that powder does not ablate with sufficient ease for commercial acceptance.

It has been proposed heretofore to overcome this difficulty by using a lesser pressure for compressing the cosmetic powder article, but this creates another drawback, to wit, powder particles shed from the compressed cosmetic powder article after the article is made and is being handled in the factory, upon storage in the factory or warehouse, upon transportation and upon shelf storage in retail outlets. There is a tendency for the exposed surface of such article to shed due to raising of the particles on the exposed surface and there is a further tendency to shed engendered by shocks to which the article is subjected during handling.

Efforts to minimize shedding by increasing the amount of binder employed have been unsatisfactory because of undesirable changes in the characteristics of the powder for application purposes and because of an increased

tendency of the powder particles to cohere, so that, similarly to the case of too high a compacting pressure, the cake becomes too coherent for accepted modes of application.

The shedding of powder particles from compressed cosmetic powder objects such as cakes and sticks is undesirable for sundry reasons. For example, such shedding will dust the container in which the article is packed, so that when the container is opened, the interior surfaces thereof have powder particles thereon which are aesthetically undesirable and may lead the consumer to believe that the item is not fresh. Furthermore, if the container is transparent, the shedding powder will dust the interior surface of a container on display, making the container look cloudy and like the article is stale: this interferes with retail sales and attractive presentations. Another disadvantage of shedding occurs where a package contains unwrapped cosmetic articles of two different colors of which at least one is a compressed cosmetic powder article; here the shed powder will migrate from one article and speckle the surface of the other article. Quite apparently, this too will detract from the appearance and sales desirability of the package containing such plural articles.

It also has been proposed to overcome the problem of shedding powder particles by covering the exposed surface of the compressed cosmetic powder article with a wrapping where it is a stick, or with a strippable film, such, for instance, as a sheet of thin paper, where the article is a cake. This approach is, however, somewhat makeshift because powder particles still shed, so that when the protective film is pulled off or torn an unsightly accumulation of powder particles is exposed. It is further undesirable because it adds appreciably to the cost of packaging the articles and therefore entails a measurable increase in expense which is reflected in reduced profit or increased sales price.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide a compressed cosmetic powder article which is not subject to the foregoing drawbacks.

It is another object of the present invention to provide a compressed cosmetic powder article in which the exterior surface has an improved coating to prevent shedding.

More specifically, it is an object of the present invention to provide a compressed cosmetic powder article of the foregoing character in which the coating does not consist of a sheet of wrapping which must be removed before using the article, but rather is in the form of a very fragile, practically tenuous, dry layer of a film-forming material which adheres directly to the exposed surface of the article and protects the same, the layer being removable, i.e., disrupted, without leaving any noticeable trace, pieces or remnants of the layer, without conscious effort by the user, and without practicing any special steps, merely by using the article in a normal manner. That is to say, when such an article is employed by rubbing the fingers, a brush or a puff across it or by rubbing it across the skin of a user, powder will ablate without anyone first having to deliberately remove the fragile protective coating, the same being automatically destroyed by the very step of employing the article normally as one would to remove powder if no coating were present.

It is another object of the present invention to provide a compressed cosmetic powder cake wherein the cost of adding the protective coating is extremely low so as not

to necessitate an increase in the sales price of the finished article.

It is another object of the present invention to provide a compressed cosmetic powder cake which can be provided with a very fragile dry adherent protective coating rapidly by mass production methods and without requiring the use of highly skilled labor.

Other objects of the invention in part will be obvious and in part will be pointed out hereinafter.

The invention accordingly consists in the features of construction, combination of elements, and arrangement of parts which will be exemplified in the articles hereinafter described and of which the scope of application will be indicated in the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

In the accompanying drawings in which are shown various possible embodiments of the invention,

FIG. 1 is a perspective view of a compressed cosmetic powder cake embodying the present invention;

FIG. 2 is a perspective view of a compressed cosmetic powder stick embodying the present invention;

FIG. 3 is a highly enlarged view of a cross-section of the powder cake illustrating the very fragile protective adherent layer of dry film-forming material and the underlying portion of the powder cake, including the exposed surface thereof covered by said coating; and

FIG. 4 is a perspective view of a cosmetic package including two cosmetics of different colors one of which is a compressed powder cake having a protective coating in accordance with the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now in detail to the drawings, and more particularly to FIG. 1, the reference numeral **10** denotes a compressed cosmetic powder cake embodying the present invention. The powder cake itself is conventional. It includes a large amount of talc; some tinctorial material, if desired, to impart color—this may be a pigment, such, for instance, as iron oxide; some perfume, if desired; some non-alkali metal soap, if desired; some kaolin, if desired; and, in addition, a binder. The binder may be a small amount of mineral oil of the order of 1% to 4%, or some other oleagenous material. Optionally, in addition to the mineral oil a small amount of a waxy binder, such, for instance, as ethyl cellulose, may be included.

The constitution and manufacture of compressed cosmetic powder articles such as cakes and sticks is well known and the foregoing description has been given only for the sake of completeness and to assist in understanding the present invention.

By way of example, one suitable compressed cosmetic powder cake includes the following ingredients:

Talc, 96% by weight;

Pigment, as required, for example, iron oxide of cosmetic grade, 1% by weight;

Mineral oil (a binder and die lubricant), 1% by weight;

A solution of 1% ethyl cellulose in ethyl alcohol, anhydrous, 2% by weight, this, too, is a binder;

If desired, from ¼% to 1% of kaolin of cosmetic grade can replace an equal amount of the talc.

Also, if desired, a small amount of perfume oil can be added to impart a desired scent.

The foregoing constituents are mixed and the alcohol allowed to flash off, leaving a dry mass of compressible cosmetic powder. A sufficient amount of the mass is introduced into a compressing machine having compacting dies of the proper desired shape and configuration where the powder is squeezed under a high pressure, for example, one ton per square inch. It should be mentioned that the foregoing example can be employed as a face powder, rouge, aftershave talc, leg makeup, foot powder and underarm powder. By addition of other materials well known to the art, the foregoing example can be employed as an eye shadow, deodorant, eyebrow makeup, eye liner, dry hair coloring or antiperspirant. For example, to make the cake suitable for use as an antiperspirant, an antiperspirant metallic salt is added. Such a salt can include, by way of example, aluminum chloride complex in an amount of about 25% by weight, replacing an equal amount of talc. There also may be included with the antiperspirant a small amount of hexachlorophene or an equivalent bactericidal substance of about ⅛% to ¼% by weight, replacing an equal amount of talc.

The reference numeral **12** denotes a compressed cosmetic powder stick which is made from the same materials as the cake. An identical formulation can be employed. The only difference is in the configuration and dimensions of the compressed article.

It should be understood from the foregoing that the compressed cosmetic powder article is of conventional construction and composition. It is characterized by the tendency to flake powder particles from an exposed surface thereof, this being necessary for its proper functioning, although undesirable prior to its initial use by a consumer.

Pursuant to the present invention, such a conventional compressed cosmetic powder article, which has an exposed surface from which powder particles are to be removed in normal use by rubbing or brushing, has this exposed surface coated with a very thin, very fragile adherent dry layer of a film-forming material, such as a natural or synthetic film-forming material. The film-forming material must be topically and ingestibly non-toxic to humans and in the absence of a coloring material is colorless and substantially transparent in the thicknesses and amounts hereinafter to be described. Moreover, the material is cosmetically acceptable, which is to say, it can be applied to the skin without causing irritation or reddening thereof. The material should be chemically inert to the ingredients of the compressed cosmetic powder article.

Typical film-forming materials usable in accordance with the present invention are a natural film forming material such as shellac or starch and synthetic film-forming materials such as polyvinyl pyrrolidone, polyvinyl acetate, a copolymer of polyvinyl pyrrolidone and polyvinyl acetate, polyacrylimides, ethyl cellulose, methyl cellulose, nitro cellulose, cellulose acetate, cellulose acetate phthallate, methyl methacrylate, polyethylene and polyvinyl chloride.

The film-forming material used is dissolved in a volatile solvent and the resulting solution is applied to the exposed surface or surfaces of the compressed cosmetic powder article to be protected pursuant to the invention. The ratio of film former to solvent can vary widely. For example, the solid-to-solvent ratio can vary from about 1/10% by weight of solid to about 10% by weight of solid to a remainder of solvent, i.e., the solvent would then vary from about 99.9% to about 90% by weight. The film former solution, i.e., the solution of film former in a volatile solvent, can be applied to the exposed surface of the compressed cosmetic powder article in any fashion used for the application of coatings. For instance, it can be applied as an aerosol spray, as a pressure spray, by brushing, by roller coating, or by dipping. The solvent evaporates leaving a dry (essentially solvent free) layer.

Any volatile solvent can be used which will dissolve or disperse the film-forming material and which is inert to the film former and to the ingredients of the compressed cosmetic powder cake. Typical volatile solvents useful for the present invention are ethyl alcohol, a mixture of ethyl alohol and water, water, acetone, toluene, carbon tetrachloride, methyl alcohol, and isopropyl alcohol.

By way of example, a satisfactorily useful solution of a film former in a volatile solvent constitutes 5% by weight of polyvinyl pyrrolidone in 95% by weight of 200 proof ethyl alcohol. This soltuion can be applied in any

of the manners heretofore mentioned, to wit, aerosol spraying, pressure spraying, brushing, roller coating and dipping, to the exposed surface of the compressed cosmetic powder article to be protected. One particular way which has been found to be highly satisfactory is to apply the aforesaid 5% alcohol solution of polyvinyl pyrrolidone by aerosol spraying. For this purpose the 5% alcohol solution of polyvinyl pyrrolidone in alcohol is packed into an aerosol can in which there is 50% of said solution, the polyvinyl pyrrolidone-ethyl alcohol solution, and 50% of a liquified Freon gas propellant, e.g., Freon 112 a tetrachlorodifluoroethane.

The quantity of solution applied is such that the amount of film former left after evaporation of the solvent is so thin that the dry film is very fragile, is not readily visible to the naked eye, and is destroyed without noticeable traces on first application by normal use of the article, as by brushing fingers across it, brushing a puff across it, rubbing a brush across it, or rubbing the coated exposed surface of the article on the skin of a user. Thus, the amount of solid film former deposited as a dry adherent film is such that it does not influence the application properties of the compressed cosmetic powder article.

It has been found that a spray time with the foregoing aerosol spray of from about 7 to about 15 seconds with the nozzle about 8 inches away from the article yields highly satisfactory results. The invention is useful where the amount of film forming solid deposited as a dry (essentially solvent—liquid carrier—free) coating after evaporation of the solvent ranges from about ½ of a milligram per square inch of exposed surface of the compressed cosmetic powder article to about 50 milligrams per square inch, and has a thickness of from about 0.0001 of an inch to about 0.005 of an inch. Generally speaking, an excellent amount of film former to be applied, considered on a dry weight, i.e., after evaporation of the volatile solvent, is an amount not to exceed .001 of an inch if applied to a non-porous surface. It will be appreciated that measurement of the thickness of the adherent film deposited is inexact since a portion of the material penetrates into the exposed surface of the compressed cosmetic powder cake, where, however, although it forms a bond between the unabsorbed solid film former and the article, the bond is not so strong but that it can be easily destroyed along with the very thin film quite easily—simply upon touching the same.

A preferred amount of solid film former is approximately 10 milligrams per square inch of the dry material after evaporation of the volatile solvent; this is equal to about 0.001 of an inch thickness of film.

Although, as noted previously, the deposited very fragile protective film is quite difficult to see, the same has been illustrated in FIG. 3 where it is referenced with the numeral **13**. This film is extremely thin, as mentioned earlier, and therefore the section of FIG. 3 is only fragmentary in order to enable enlargement of the film while at the same time showing only a rather small portion of the underlying compressed powder article adjacent an exposed surface **14** thereof.

It is within the scope of the present invention to include a tinctorial material in the volatile solvent, such, for instance, as a dye or a pigment, for the purpose of imparting a shade or color to the exposed surface of the compressed cosmetic powder cake, optionally for the sake of having the public associate such color with the presence of the invention. It also is within the scope of the invention to apply a colorless coating of the film former and to apply a second deposit of such film former in the form of a colored coating in some design or printing to impart trademark information or product information or manufacturer identification.

A particularly satisfactory range of amount of solid film former deposited after evaporation of the volatile solvent is from about ½ milligram per square inch to about 10 milligrams per square inch with an ensuing film thickness of about 0.0001 of an inch film thickness to about 0.001 of an inch film thickness. Within this range the film is capable of preventing dusting of powder particles from the exposed surface of the compressed cosmetic powder cake and is particularly easy to break away merely upon touching the same with the fingers or an implement or touching the same to a user's skin.

In FIG. 4 there is shown a cosmetic package **16** making an especially desirable use of the present invention. Said package constitutes a container **18** of oblong configuration with a shallow opaque base **20** and a shallow transparent cover **22** mutually hinged together at their adjacent rear edges. A catch **24** removably holds the front edges together. The base has wells in which are situated two compressed cosmetic powder cakes **26**, **28** having upper exposed surfaces. The powder cake **26** is dark, e.g., dark brown, as for eyebrow coloring. The powder cake **28** is white, as for eye shadow. The powder cake **28** contains more emollient than the powder cake **26** and therefore may not shed powder particles quite easily. The exposed, i.e., top, surface of the powder cake **26** has a very thin dry adherent film on its upper surface, the film being composed of polyvinyl pyrrolidone in an amount of approximately one milligram per square inch, and a thickness of approximately 0.0002 of an inch, the film having been applied by aerosol spraying the 5% polyvinyl pyrrolidone alcohol solution heretofore mentioned. The film was applied by spraying from an aerosol can whose nozzle was held 8 inches away from said exposed surface, the spray time being approximately 10 seconds. In the example given, the exposed surface of the compressed cosmetic powder cake **28** has a similar film applied to it.

It thus will be seen that there have been provided articles which achieve the several objects of the invention and which are well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention and as various changes might be made in the embodiments above set forth, it is to be understood that all matter hereinabove described is to be interpreted as illustrative and not in a limiting sense.

Having thus descirbed the invention, there is claimed as new and desired to be secured by Letters Patent:

1. A compressed cosmetic talc and color-imparting pigment powder article, characterized by the tendency, in the absence of a protective coating, to shed flake or dust powder particles which migrate from the exposed surface thereof, on which article there is adhered on the exposed surface thereof a dry dusting-inhibiting film-coating of a cosmetically acceptable substantially transparent protective coating which is colorless in the absence of a coloring material and is thin enough to break easily upon, but not prior to, initial normal consumer use of the article, as by brushing fingers or an applicator thereover or rubbing the same on a user's skin, for removal of powder from the exposed surface.

2. A compressed cosmetic powder article as set forth in claim **1** wherein the coating is bonded by penetration into the exposed surface of the article, so weakly that any bond formed is destroyed along with the coating by touching the same during the initial consumer use.

3. A compressed cosmetic powder article as set forth in claim **1** wherein the coating is present in an amount of between about 0.5 milligram to about 50 milligrams per square inch of exposed surface of the article.

4. A compressed cosmetic powder article as set forth in claim **1** wherein the coating is present in an amount of between about 0.5 to about 10 milligrams per square inch of exposed surface.

5. A compressed cosmetic powder article as set forth in claim **1** wherein the thickness of the coating is from about 0.0001 of an inch to about 0.005 of an inch.

6. A compressed cosmetic powder article as set forth in claim **1** wherein the thickness of the coating is from about .0001 of an inch to about 0.001 of an inch.

7. A compressed cosmetic powder article as set forth in claim 1 wherein the substantially transparent protective coating is either colored or bears colored indicia or designs.

8. A compressed cosmetic powder article as set forth in claim 1 wherein the coating is polyvinyl pyrrolidone applied to the exposed surface in a volatile solvent as a wet film from which the solvent evaporates to leave a dry film of said film-forming material.

9. A method of suppressing shedding of powder particles from an exposed surface of a compressed cosmetic talc and color-imparting pigment powder cake, said method comprising preparing a dry film adhered to said exposed surface, said dry film being so thin that it breaks easily upon initial normal use of the article, as by brushing fingers or an applicator thereover or rubbing the same on a user's skin, for removal of powder from the exposed surface.

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106—19, 308; 132—82; 424—16, 33, 63