

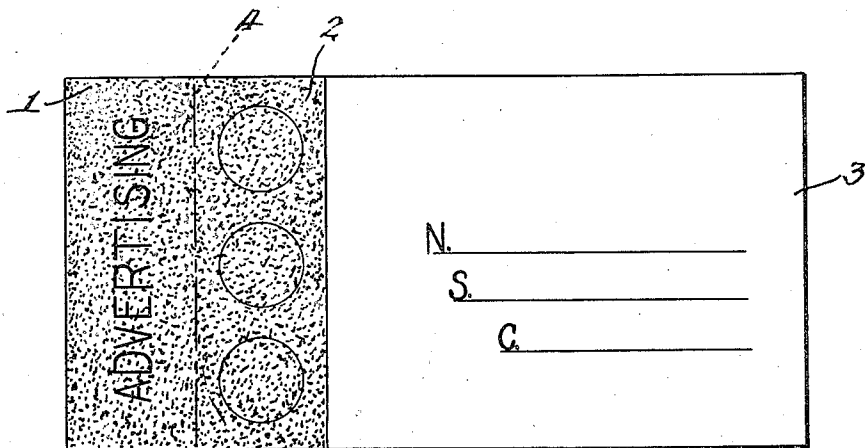
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DRY-SEALING CONTAINER

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DRY-SEALING CONTAINER

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2 Claims. (Cl. 229—92.9)

The present invention relates to a dry-sealing container and more particularly to a container for small articles such as coins and the like.

The object of the present invention is to provide a container for small objects such as coins and the like which includes a card having adjacent portions arranged to enclose the articles when the portions are opposed to each other, these portions being coated with a composition which has the capability of causing the same to adhere to each other upon contact, but not to the articles placed therebetween.

Other objects will be apparent as the description proceeds with reference to the single figure of the drawing, which is a back view of a post-card or folder constructed to transmit coins or small articles.

The figure illustrates a card which may be a return post card or may be merely a folder for mailing in an envelope. The card illustrated is adapted to be used as a post card to be placed in an advertising letter for reply purposes and is suitable for transmittal of coins or small objects of merchandise. The card is provided with areas 1 and 2, which areas may be coated with a suitable dry-sealing composition. In the present instance, the area 1 is intended to receive printed instructions and the area 2 is provided with indicia indicating where coins are to be placed. The composition coating is preferably placed over the printing. The card is also provided with an uncoated space 3 to receive advertising matter and the name and address of the sender.

In using the card, the coins or other articles are placed on the area 2 in the positions indicated, and the portion 1 is folded over on a line 4 and sealed by pressure on the area 2. The coins are thereby completely enclosed in the composition coating and card, and, due to the resistance of the composition to abrasion and the flexibility and toughness of the coating, the coins will not work through the retaining walls. When the card is torn open, the coins may be easily removed, as the coatings will not adhere to metal as would be the case had a wet-sealing adhesive been used. The coins do not shake about or come in contact with each other but are held firmly in place by the surrounding adhesive.

The coatings 1 and 2 may be adapted to seal so securely that they cannot be separated without distorting the card, and in this instance the article may also embody devices for detecting tampering; or the coatings may be such as to allow ready separation and resealing to permit

inspection by the postal authorities. In the latter construction, it is preferable that the coated area 1 be larger than its complementary area 2 in order that, in the sealed position, a portion of the area 1 may extend beyond the coated region 2 and serve as a tab that may be grasped to facilitate opening of the container.

The embodiment herein illustrated and described, may be coated with a single composition, or the complementary areas may be coated with compositions having different characteristics, said compositions being hereinafter described in detail.

To be suitable for the uses described herein, the compositions should in general have a rubber content exceeding 20% of the total weight of the coating as applied to the containers, and said rubber content should also exceed 50% of the total solids content of the composition. When the water content of the composition is large, freely flowing liquids are obtained; when it is small, gells or butter-like pastes which can be conveniently applied by spreading are obtained. The gells and pastes may be rendered more fluid by warming or by dilution with water. In the tested formulas described in detail hereinafter, all the proportions indicated are on a weight basis.

Formula I

For coating all complementary areas with the same composition to form coatings which adhere firmly to each other but do not vulcanize:

	Preferred composition	Permissible variation
Rubber solids from latex.....	100.....	100.
Age-retarder.....	1.....	0.2 to 5.
Glue (water soluble adhesive).....	8.....	3 to 40.
Water.....	As required.....	As required.

Dextrine may be substituted for the glue. Suitable age-retarders (or anti-oxidants) for the above and all the formulas enumerated herein are:

- (1) Aldol-alpha-naphthylamine,
- (2) Phenyl-beta-naphthylamine,
- (3) Symmetrical di-beta-naphthyl-para-phenylenediamine.

The preferred composition may be prepared in the following manner:

- (1) A 30% dispersion of the age-retarder is made by grinding in a pebble mill 3 parts by weight of the powdered age-retarder with 7

parts of water containing a small amount, say 0.1% to 10%, of a dispersing agent, such as triethanolamine oleate;

(2) Two parts of this 30% dispersion are gradually mixed into 100 parts of a concentrated latex containing 60% solids and 0.5% ammonia, a natural latex that has been concentrated by removal of a part of its water content preferably being employed;

(3) A 12% solution of glue is prepared. If the reaction is acid, enough ammonia water is added to make the glue alkaline. The glue may contain preservatives or antiseptics such as cresol, eucalyptol, or phenylmercuric nitrate in the necessary proportions;

(4) If the glue solution solidifies, it is gently warmed, and 40 parts of the 12% glue solution are slowly mixed with stirring into the mixture of latex and age-retarder.

This gives a gel that is easily spread. If a more fluid composition is desired, water is added, or the formula is made up from an unconcentrated natural latex containing 33% solids, 180 parts of this normal latex replacing 100 parts of the concentrated latex. If a gel or mass of heavier consistency is desired, the formula is made up from a 75% solids content concentrated latex, 80 parts of the latter replacing 100 parts of the 60% solids content latex, and a more concentrated glue solution is used.

On coagulation, and evaporation of most of the water by exposure of the coating to the air, preferably in conjunction with the application of heat, a clear transparent film is obtained tenaciously attached to the fabric and possessing excellent adhesive properties to coatings containing uncured rubber, combined with nonadherence to other materials, said properties being retained for long periods of time.

Formula II—A

For the production of coatings to coat with coatings obtained from Formula II—B:

	Preferred composition	Permissible variation
Rubber solids from latex.....	100.....	100.
Age-retarder.....	1.....	0.2 to 5.
Ultra-accelerators.....	5.....	1 to 10.
Activator (zinc oxide).....	3.....	1 to 20.
Water soluble adhesive (glue).....	8.....	0 to 30.
Water.....	As required.....	As required.

The term "accelerator" is used in this specification to designate substances which hasten the action of vulcanizing agents on rubber, and the term "ultra-accelerator" designates substances particularly active in this respect.

The term "activator" is used in this specification to designate substances which enable accelerators to function efficiently, such activators including zinc oxide, litharge, stearic acid, stearates, etc. In these formulas zinc oxide is the preferred activator.

The accelerators utilized should be capable of inducing reaction between vulcanizing agents and rubber at room temperature, should not decompose in the unvulcanized film during storage of the dry-sealing containers, and should not vulcanize the coatings under the conditions of storage and in the absence of ingredients omitted from Formula II—A and designated in this specification as "vulcanizing agents," such vulcanizing agents including sulphur as the preferred agent, and also selenium, tellurium, and certain compounds of sulphur, selenium or tellurium,

It is preferable that more than one ultra-accelerator be used, and it is feasible to incorporate two, three, or even more different accelerators. Generally, vulcanization is most rapid when the total weight of the accelerators indicated in Formula II—A is made up of smaller weights of a variety of ultra-accelerators.

The following ultra-accelerators may be used:

- (1) Zinc dimethyldithiocarbamate,
- (2) Piperidine pentamethylenedithiocarbamate,
- (3) Zinc dimethylethylenediphenyldithiocarbamate.
- (4) Zinc butyl xanthate,
- (5) Zinc ethyl xanthate,
- (6) Mercaptobenzothiazole, when used in conjunction with at least one of the foregoing,
- (7) The substances enumerated in U. S. Patent No. 1,440,964.

The preferred composition may be prepared by gradually adding the glue or other adhesive, in the form of a slightly alkaline solution, to the required amount of latex and then slowly mixing in slightly alkaline aqueous dispersions of the age-retarder, activator, and ultra-accelerators.

Formula II—B

For the production of coatings complementary to the coatings obtained from Formula II—A:

	Preferred composition	Permissible variation
Rubber solids from latex.....	100.....	100.
Age-retarder.....	1.....	0.2 to 5.
Activator (zinc oxide).....	3.....	0 to 20.
Vulcanizing agent (sulphur).....	8.....	1 to 15.
Water soluble adhesive (glue).....	8.....	0 to 30.
Water.....	As required.....	As required.

Formula II—B is prepared in the same manner as Formula II—A, the adhesive in aqueous solution being mixed into the latex and serving as a stabilizing ingredient, and the remaining ingredients being subsequently worked into the mix in the form of slightly alkaline aqueous dispersions.

Formula II—B should not contain any ingredient capable of causing the rubber and the vulcanizing agent to react at ordinary temperatures.

Formula II—A is employed in conjunction with Formula II—B, the container flap being coated with one of these compositions and the receiving portion on the body of the container being coated with the other. On being brought into contact, some of the sulphur "blooms" or penetrates into the film containing the accelerators, and some of the accelerators similarly penetrate into the film containing the sulphur. A similar migration of the zinc oxide may occur. Thus, all the ingredients necessary for vulcanization at ordinary temperatures are present in the united film, which vulcanizes and thereby greatly increases its strength and cohesion.

It should be noted that films from either Formula II—A or Formula II—B possess considerable capacity to adhere to themselves, so that the complementary areas should be coated accordingly.

Formulas III, IV, and V below are particularly adapted for coatings capable of being repeatedly sealed and separated. Because such coatings may be separated from each other rather easily, it is not necessary to restrict the

coated areas on the container and the coating may extend completely across the flap.

Formula III

	Preferred composition	Permissible variation
Rubber solids from latex.....	100.....	100.
Age-retarder.....	1.....	0.2 to 5.
Gelatin.....	10.....	7 to 20.
Water.....	As required.....	As required.

The gelatin may be introduced into the latex in the form of a 10% aqueous solution, warmed until liquid.

Formula IV

Rubber solids from latex.....	100
Age-retarder.....	1
Zinc oxide.....	70
Glue.....	10
Water.....	As required

The solids, in the form of aqueous dispersions, are gradually worked into the latex, as described before in detail.

Formula V

Rubber solids from latex.....	100
Age-retarder.....	1
Casein.....	40
Water.....	As required

The casein is dissolved in a saturated aqueous solution of borax, which may contain about 4% of triethanolamine or triethanolamine stearate

if desired, and is then mixed into the latex with stirring.

The properties of the films derived from any of the formulas described herein may be modified somewhat by substituting vulcanized latex or artificial aqueous dispersions of crude rubber or of reclaim, or mixtures of the foregoing, for a part of the latex specified in each of the formulas disclosed herein. In a general way, the vulcanized latex tends to diminish somewhat the readiness with which the coatings adhere, and the synthetic dispersions, especially of crude rubber, increase the tendency toward easy adhesion but also lessen the strength of the coatings.

I claim:

1. A container for small articles such as coins and the like, including a card having adjacent portions arranged to enclose said article when opposed to each other, each of said portions being coated with a composition having the capability of causing said portions to adhere to each other upon contact, but not to articles placed therebetween.

2. A container for coins and the like including a card having adjacent portions arranged to enclose a coin when said adjacent portions are folded together, said surfaces being coated with a dry sealing composition comprising rubber solids from latex and water-soluble adhesive, said composition having the capability of causing said portions to adhere to each other on contact, but not to coins placed therebetween.

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