May 2, 1961 R. G. KELLER 2,982,040

COMBINED LABEL AND RUST INHIBITOR

Filed April 21, 1959

Fig. 1.

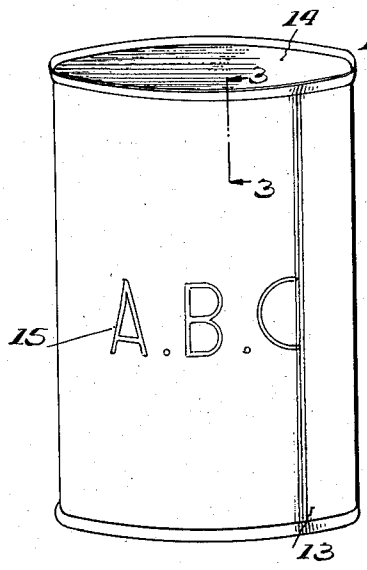


Fig. 2.

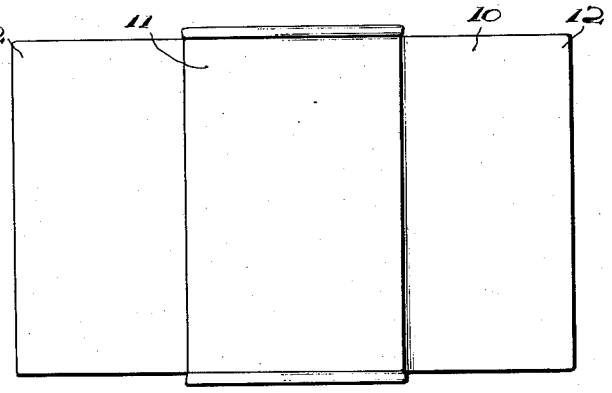
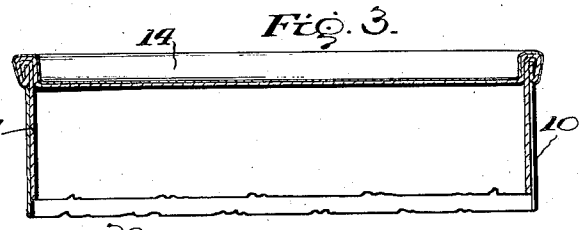


Fig. 3.



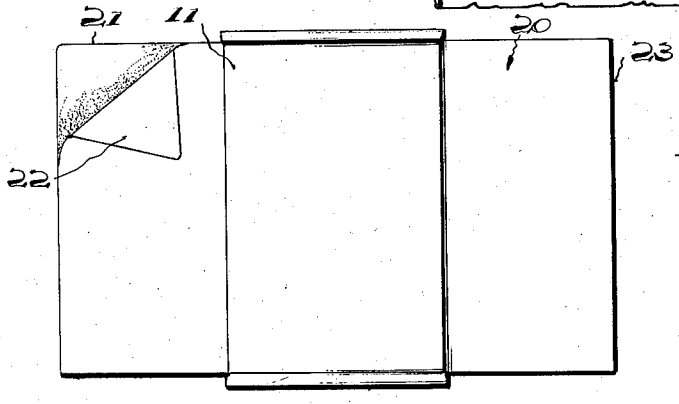


Fig. 4.

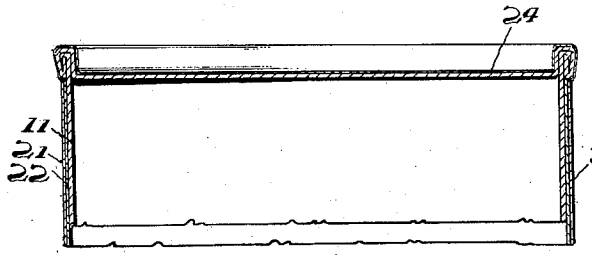


Fig. 5.

INVENTOR

Robert G. Keller.

BY W. J. Eccleston,

ATTORNEY

United States Patent Office 2,982,040
Patented May 2, 1961

2,982,040

COMBINED LABEL AND RUST INHIBITOR

Robert G. Keller, 2038 N. Charleston, Chicago 47, Ill.

Filed Apr. 21, 1959, Ser. No. 807,966

3 Claims. (Cl. 40—306)

(Granted under Title 35, U.S. Code (1952), sec. 266)

The invention described herein, if patented, may be manufactured and used by or for the Government for governmental purposes, without the payment to me of any royalty thereon.

This invention relates to labels for conventional cans such as those formed of conventional tin plate, or other tinned ferrous metal, or can-making-quality black plate, and has for one of its objects to provide a novel type of label which will prevent the can from rusting when in use.

It is well known that conventional tin cans frequently become rusted if immersed in water or if exposed to humid ambient conditions, or when subjected to conditions which produce moisture condensation on the exterior of the can, such as removal from refrgerated storage or when the ambient temperature falls below the dew point. It is also known that conventional paper labels accelerate rusting. Paper labels retain moisture longer than the unlabeled can surfaces and also provide electrolyte in the presence of moisture. Labeled and unlabeled cans thus affected not only present an unsightly appearance but indicate, or at least suggest, that the goods have been on hand for a considerable period of time and may therefore not be of prime quality. It is also possible for corrosion of the can exterior under extreme conditions to become serious enough to produce perforation of the can wall, rendering the contents unusable.

A primary object of the present invention consists in the provision of a simple and inexpensive means for cooperating with the material of which the can is formed to prevent rusting of the can under conditions which would ordinarily cause such a reaction.

A further object of the invention resides in the provision of a label comprising a coating of aluminum or a sheet of aluminum foil bearing the customary label data, such as a description of the goods, trade mark, etc.

A still further object of the invention is to provide a paper label combined with a rust inhibitor, namely, an inner coating or deposit of aluminum or a sheet of metal foil, to contact the outer surface of the side wall of a conventional can, the metal sheet being higher in the electromotive series than the metal of the can, so as to provide anodic protection for the exterior of the can when in the presence of an electrolyte such as water vapor and the like.

Other objects and advantages of the invention will be apparent from the following description taken in connection with the accompanying drawings, in which,

Fig. 1 is a perspective view of a conventional tin can provided with one type of the novel combined label and rust inhibitor.

Fig. 2 is a plan view of the inner face of the label in Fig. 1 with the tin can resting thereon;

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 1, but somewhat enlarged;

Fig. 4 is a plan view of a modified form of the novel label with a conventional can resting thereon and a portion of a metallic foil rolled back upon itself; and

Fig. 5 is an enlarged fragmentary sectional view of the can and label of Fig. 4.

In the form of the invention shown in Figs. 1, 2, and 3, the label consists of a single sheet of aluminum foil indicated by the numeral 10 and of a shape and size to completely envelop the conventional tin can 11, which is composed of tinned ferrous metal, or the like. The ends 12 of the foil are brought together as indicated by the numeral 13 of Fig. 1, and attached to each other with the label snugly engaging the can with the metallic surface of the aluminum sheet in intimate contact with the tin of the can. The ends of the can may be dipped or sprayed with any preferred coating material as indicated by the numeral 14. The outer face of this aluminum foil label may bear ordinary label indicia such as represented by the letters *a, b, c,* and designated by the reference numeral 15 of Fig. 1.

In the modified form of the invention illustrated in Figs. 4 and 5, the can 11, which as stated above, is intended to represent a conventional tin can, has a label indicated by the numeral 20, and is composed of an outer paper label 21 and an inner sheet of aluminum foil 22 which may be connected to each other in any desired manner. This laminated label of paper and aluminum is snugly engaged about the can 11 and the ends 23 secured together in any preferred manner with the inner face of the aluminum foil in intimate contact with the tin coating of the can 11. In this instance also the ends of the can may be covered with any preferred coating material by spraying, or otherwise, as indicated by the numeral 24.

In both forms of the invention, as indicated above, any air between the label and can is practically eliminated by reason of the snug fit of the label about the can and the intimate contact between the metal foil and the outer surface of the can. This physical structure of the can tends to reduce the possibility of rust, but the fact that the aluminum foil is higher in the electromotive series than either ferrous metal or tin provides anodic protection for the can in the event that an electrolyte is present. For instance, if the can is exposed to humid ambient air, or is subjected to any conditions which produce condensation on the can, an electrolytic action will be set up. In this action, the aluminum will act to protect the metal of the container electrolytically since the aluminum of the galvanic couple is higher in the electromotive series and will become the anode, so that any action will take place there rather than at the cathode constituted by the iron and/or tin of the can body; both iron and tin being less electropositive than aluminum.

From the foregoing description taken in connection with the attached drawings, it will be apparent to those skilled in the art that I have devised an exceedingly simple and inexpensive construction of a label which not only serves the ordinary and conventional purposes of a label, but also eliminates or reduces to a minimum any possibility of rust developing on the can due to the various types of exposure refered to above, and that the labeling of the can, etc., may be accomplished by the ordinary machinery now in use for that purpose.

In accordance with the patent statutes, I have described what I now consider to be the preferred form of the invention, but since various minor changes may be made in structural details without departing from the spirit of the invention, it is intended that all such changes be included within the scope of the appended claims.

I claim:

1. In combination, a conventional tin can, a label encircling and snugly engaging the outside of said can throughout the length thereof and having its ends attached to each other, said label comprising a sheet of paper bearing the usual printed matter and a co-extensive

sheet of aluminum foil, the aluminum foil being disposed between the paper sheet and the can in intimate contact with the latter, whereby electrolysis will be set up in the presence of an electrolyte and anodic protection will be provided for the exterior of the can and oxidation thereof avoided.

2. In combination, a conventional can of ferrous sheet material coated with a metal which is less electropositive than aluminum, a label entirely encircling and snugly engaging the outside of said can throughout the length thereof and attached thereto, said label comprising a sheet of paper and a sheet of aluminum foil, said sheet of paper bearing the usual indicia, the aluminum foil being disposed between the paper sheet and the can and in intimate contact with the latter, whereby electrolysis will be set up in the presence of an electrolyte and anodic protection will be provided for the exterior of the can and oxidation thereof avoided.

3. The combination of claim 2, wherein said ferrous sheet material has a tin coating.

References Cited in the file of this patent

UNITED STATES PATENTS

Re. 14,000	Cole	Oct. 26, 1915
380,515	Pennington	Apr. 3, 1888
1,947,549	Fuchs	Feb. 20, 1934
1,958,765	Perkins	May 15, 1934
2,069,609	Hanson	Feb. 2, 1937
2,076,387	Stuppel	Apr. 6, 1937
2,566,138	Osterheld	Aug. 28, 1951
2,768,460	Northrup	Oct. 30, 1956