Oct. 14, 1947. C. E. WARING ET AL 2,428,861

MACHINE GUN PACKAGE

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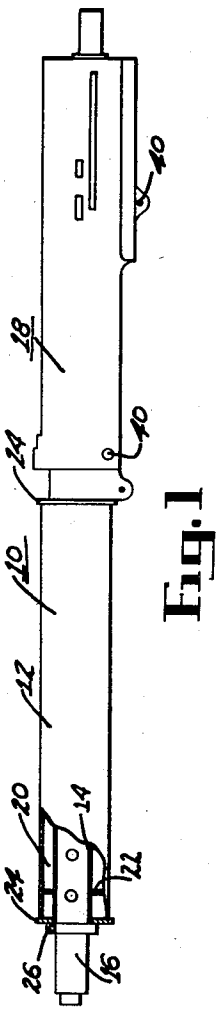


Fig. 1

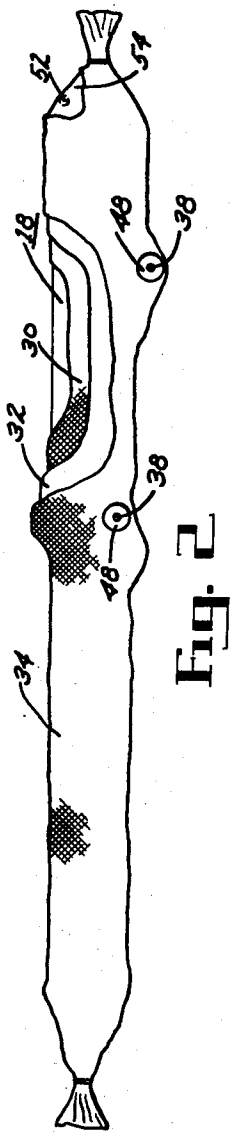


Fig. 2

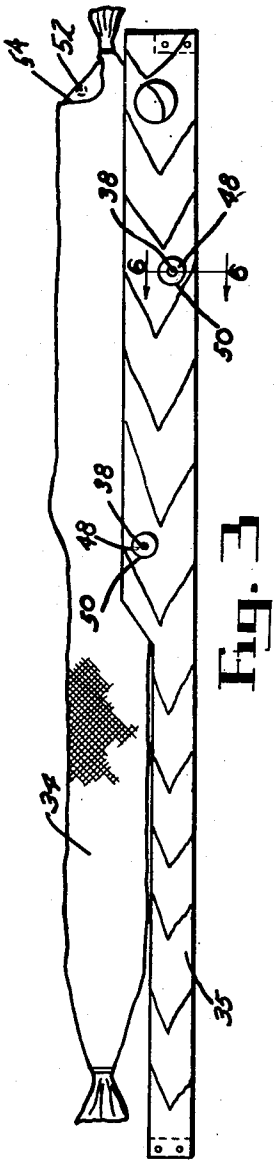


Fig. 3

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Fig. 7

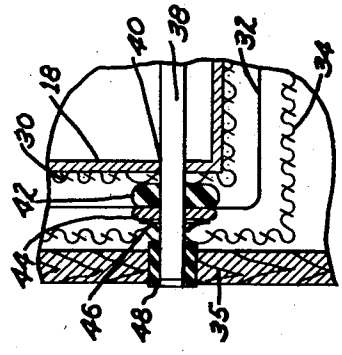


Fig. 6

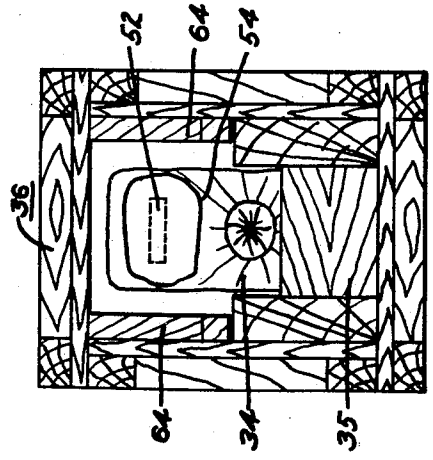


Fig. 5

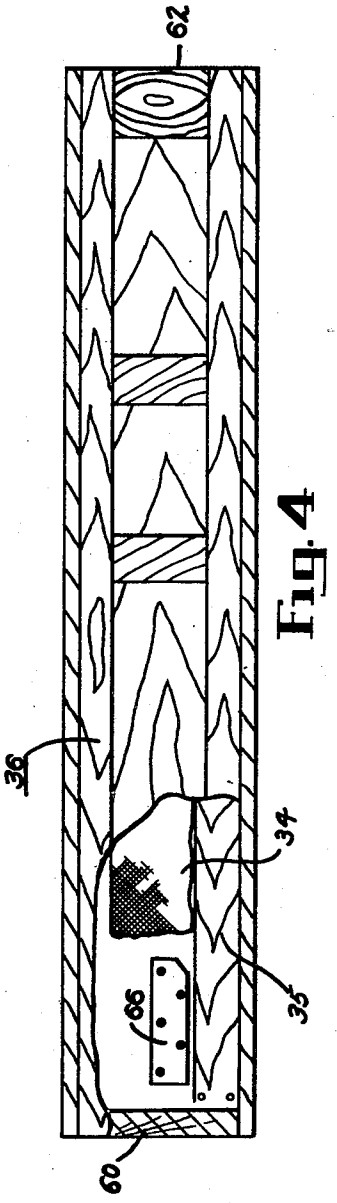


Fig. 4

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2,428,861

MACHINE GUN PACKAGE

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8 Claims. (Cl. 312—31)

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This invention relates to means for crating a machine gun for shipment and storage.

It is an object of this invention to provide a package unit which will prevent moisture from coming into contact with the gun during shipment and storage.

A further object of this invention is to provide a low cost package for use in shipping and storing a machine gun which eliminates the need for packing the gun in heavy grease such as was formerly done.

Another object of this invention is to reduce the amount of time and labor required to pack and unpack a machine gun and to place it in condition for use on the battlefield.

A further object of this invention is to provide an improved package unit in which a given quantity of moisture absorbing medium is placed within a substantially moisture vapor proof envelope for removing the moisture initially present in the envelope and for removing the small amount of moisture entering the envelope during shipment and storage.

A further object of this invention is to provide a visual indicator for indicating the presence of moisture in the sealed package.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawings, wherein a preferred form of the present invention is clearly shown.

In the drawings:

Fig. 1 is an elevational view with parts broken away showing a desiccant package surrounding the barrel of a machine gun prior to its insertion into the moisture proof envelope;

Fig. 2 is an elevational view with parts of the wrappers broken away so as to show the various wrappers which enclose the machine gun;

Fig. 3 is an elevational view showing the wrapped machine gun mounted in a cradle prior to its insertion into a wooden shipping container;

Fig. 4 is an elevational view with parts broken away to show the cradle and the machine gun disposed within the shipping crate;

Fig. 5 is an end view showing the machine gun and cradle inserted in the shipping crate;

Fig. 6 is a fragmentary view taken on line 6—6 of Fig. 3; and

Fig. 7 is a fragmentary view showing the envelope sealing washer.

Prior to our invention the Government required that in crating machine guns for shipment, the guns had to be completely covered inside and outside with a heavy grease which

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served to protect the gun from rusting during shipment and storage. This method not only required the use of a large amount of grease which was badly needed for other purposes but also required that the recipients spend a day or more in removing the grease from the gun prior to placing it in condition for use. In accordance with our invention the gun is carefully wrapped in a substantially moisture vapor proof package and a quantity of dehydrating material is placed within the package so as to absorb any moisture which might cause rusting of the gun.

Referring now to Fig. 1, reference numeral 10 designates generally a desiccant package which consists of an outer cylindrical cardboard tube 12 and an inner cardboard tube 14 which is slightly larger than the barrel 16 of the machine gun which is designated generally by the reference numeral 18. The space between the tubes contains a suitable dehydrating substance 20 such as silica gel. The space between the tubes is sealed at each end by means of a cardboard washer such as the washer 22 shown in Fig. 1. The package 10 is held between the washers 24 by means of a clamp 26. The cardboard allows the moisture to pass therethrough freely but is impervious to dust and the silica gel.

The machine gun with the desiccant package 10 surrounding the barrel thereof in a manner indicated hereinabove is then wrapped in a knitted stockinet 30. This assembly is then inserted within the moisture resistant envelope 32 which is preferably made out of polyvinylidene chloride known as "Saran." This material allows very little moisture to pass therethrough, is transparent, and is quite strong. The open end of the envelope through which the gun is inserted is mechanically sealed by passing it through a lead washer 33 which is flattened out so as to tightly grip the Saran as shown in Fig. 7. After this envelope is fully sealed the assembly is inserted within an outer knitted stockinet 34 which serves to protect the envelope 32 from injury. The inner stockinet 30 also serves to protect the envelope 32 in that it prevents the envelope 32 from coming in contact with the sharp corners of the gun.

The envelope 32 could also be made from metal foil such as lead or aluminum foil coated with "Butvar" which is a polyvinyl butyral plastic material. When using this latter material the envelope could be heat sealed rather than mechanically sealed.

The amount of silica gel used depends upon the length of time the gun is required to remain

in the envelope, the material of the envelope, and the environmental moisture conditions. Four pounds of silica gel, for example, will absorb the moisture entering a Saran envelope over a period of one year under rather humid conditions.

A cradle **35** is used for supporting the wrapped gun within the outer case designated generally by the reference numeral **36**. A pair of mounting pins **38** which pass through the holes **40** in the machine gun serve to support the gun within the cradle **35**. The pins **38** pass through the stockinets **30** and **34** as well as the envelope **32**.

In order to prevent leakage of moisture through the envelope at the point where the pins **38** pass through the envelope, special washers are provided as shown in Fig. 6. Thus a rubber or rubber-like washer **42** is placed on each of the pins just after the first stockinet **30** has been placed over the gun. A second steel washer **44** is placed on each pin after the envelope **32** has been placed around the gun. A nut **46** which may, for example, be a speed nut is placed on the pin **38** so as to press the washers **42** and **44** tightly against opposite sides of the envelope **32**. The nut **46** is of the type which has prongs projecting in the one direction (See Fig. 6) which allow sliding the nut on the pin **38** towards the right as viewed in Fig. 6 but restrict movement to the left due to the prongs gripping the pin. A rubber or rubber-like mounting bushing **48** is placed on the end of each of the shafts and these in turn fit within the holes **50** in the cradle **35**.

In order to make it possible to check the condition of each package before shipment, during shipping or during subsequent storage, we use a humidity indicator tube **52** containing a moisture sensitive material, such as silica gel impregnated with a chemical such as cobalt chloride which changes color as the moisture content changes.

This tube is placed directly between the inner stockinet **30** and the transparent envelope **32** adjacent the end of the gun where it may be inspected without breaking the transparent envelope **32** merely by removing the end of the shipping crate and tearing a hole **54** in the outer stockinet **34**. If desired the hole **54** may be made in the stockinet **34** when the gun is first wrapped so as to reduce the danger of some careless individual puncturing the Saran envelope when tearing open the outer stockinet **34** for inspecting the indicator.

By virtue of this simple indicator arrangement the guns in storage may be inspected from time to time to ascertain whether or not there is any need for replacing the moisture absorbing material. Normally the amount of moisture absorbing material inserted in the desiccant package **10** is sufficient to absorb all of the moisture which can pass through the walls of the envelope **32** within the time elapsing from the date of packing to the date of unpacking, whereby the need for replacing or regenerating the moisture absorbing material is eliminated except in those instances where the guns are placed in storage for an abnormally long period of time.

The cradle **35** may be inserted into the crate **36** from the one end. The cradle **35** is held in place within the crate **36** by the end walls **60** and **62** of the crate and by means of cleats **64** and **66** secured to the inside walls of the crate as shown in Figs. 4 and 5.

While the form of embodiment of the invention as herein disclosed constitutes a preferred form, it is to be understood that other forms might

be adopted, as may come within the scope of the claims which follow.

What is claimed is as follows:

1. Protective covering for shipping and storing machine guns comprising in combination, a first cylindrical tube member slidable onto the barrel of the gun, a second cylindrical tube member larger in diameter than said first tube member surrounding said first tube member so as to form a desiccant chamber between the two tube members, desiccant material disposed within said chamber, means for preventing the escape of desiccant from the ends of said space including at least one closure member through which the barrel of the gun is adapted to project, at least one of said members being sufficiently porous to allow passage of moisture therethrough, and a substantially moisture-proof envelope for surrounding said desiccant chamber and the entire gun.

2. Means for packing a machine gun for shipment and storage comprising in combination, a first mounting pin adapted to pass through a first portion of a gun and having projecting ends, a second mounting pin adapted to pass through a second portion of said gun and having projecting ends, a substantially water-proof envelope adapted to enclose the gun, openings in said envelope through which said projecting ends extend, gasket means for sealing said openings, a box, means adapted for supporting said pins within said box including means for engaging said projecting ends so as to support said envelope out of contact with the walls of said box.

3. Means for packing a machine gun for shipment and storage comprising in combination, a substantially moisture proof transparent envelope adapted to enclose a gun, an opaque stockinet protecting said transparent envelope and having an observation opening adjacent one end, a desiccant container within said envelope comprising a tube member adapted to slide onto the barrel of a gun, and means cooperating with said tube member forming a desiccant chamber and adapted to extend substantially the full length of a gun barrel, and a moisture indicator within said envelope adjacent said opening so as to be visible through said opening.

4. Means for packing a machine gun for shipment and storage comprising in combination, a substantially moisture proof transparent envelope adapted to enclose a gun, an opaque stockinet protecting said transparent envelope and having an observation opening adjacent one end, a desiccant container within said envelope, a moisture indicator within said envelope adjacent said opening so as to be visible through said opening, and a crate enclosing said stockinet and envelope and having a removable end wall adjacent said observation opening whereby the moisture condition within the envelope may be determined without removing the envelope and its contents from the crate and without tearing open the moisture proof envelope.

5. Means for packing a machine gun for shipment and storage comprising in combination, a substantially moisture proof transparent envelope adapted to enclose a gun, an opaque stockinet protecting said transparent envelope and having an observation opening adjacent one end, a desiccant container within said envelope, a moisture indicator within said envelope adjacent said opening so as to be visible through said opening, a crate enclosing said envelope and its contents and having a removable end wall adjacent said observation opening whereby the moisture condi-

tion within the envelope may be determined without removing the envelope from the crate and without tearing open the moisture proof envelope, and means adapted to mount said envelope and its contents within said crate so as to prevent the stockinet and the transparent envelope from contacting the crate during shipment.

6. Means for packing a machine gun or the like for shipment and storage comprising in combination, a transparent polyvinylidene chloride envelope into which a gun or the like may be inserted through an end opening, means for closing said end opening comprising a lead ring which when flattened out tightly grips the polyvinylidene chloride adjacent said opening and thereby seals said envelope against the admission of moisture through said opening, an opaque stockinet surrounding said envelope and having an observation opening therein intermediate the ends thereof and means for holding closed the ends of said stockinet.

7. A hermetically sealed package comprising a polyvinylidene chloride envelope adapted to be gathered at one end for closing the envelope, and a lead band adapted to surround said gathered end portion, said lead band, when flattened, serving to tightly squeeze the gathered end portion of the polyvinylidene so as to seal the end of the envelope against the passage of moisture, handle means for supporting said envelope comprising pin means passing through one wall of said envelope, a yieldable washer carried by said pin means on one side of said wall and a rigid washer carried by said pin means on the other side of said wall, and means for urging said washers toward one another whereby said yieldable washer tightly engages said pin means and the wall of the envelope.

8. A hermetically sealed package comprising a polyvinylidene chloride envelope adapted to be gathered at one end for closing the envelope, and a lead band adapted to surround said gathered end portion, said lead band, when flattened, serving to tightly squeeze the gathered end portion of the polyvinylidene so as to seal the end of the envelope against the passage of moisture.

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