July 14, 1970 D. W. GATES 3,520,400

CASELESS AMMUNITION PACKAGE AND CONTAINER

Filed Dec. 12, 1968

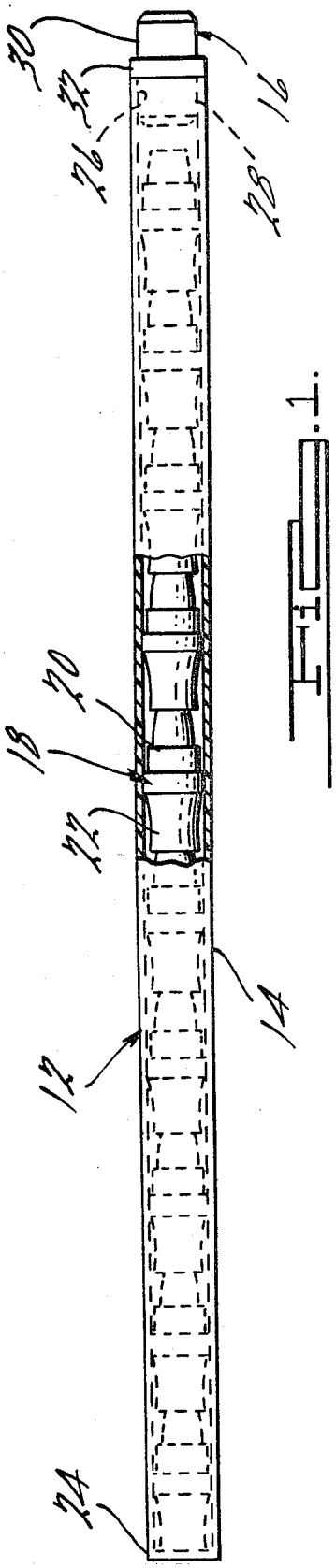


Fig. 1.

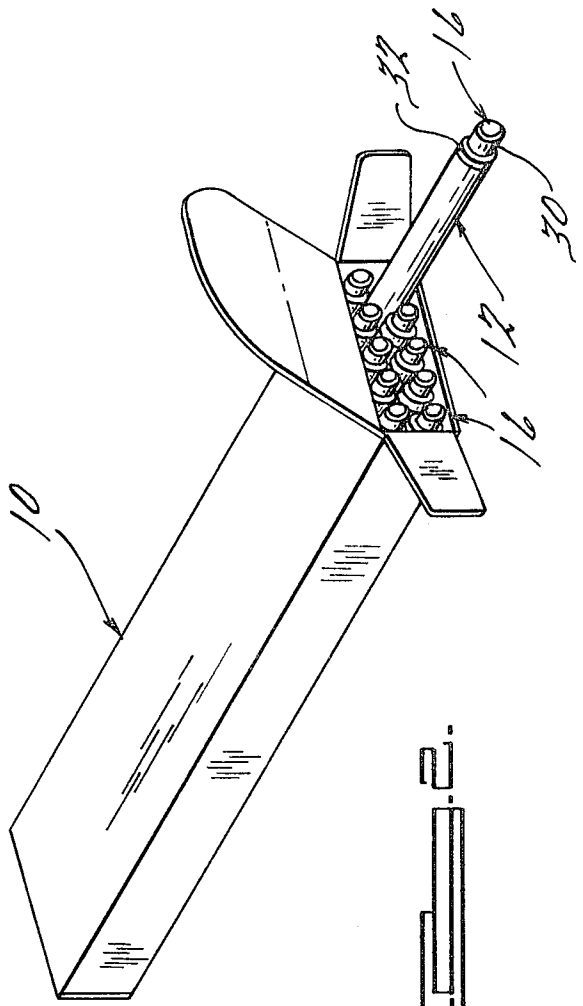


Fig. 2.

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CASELESS AMMUNITION PACKAGE AND CONTAINER

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U.S. Cl. 206—3 10 Claims

ABSTRACT OF THE DISCLOSURE

There is herein disclosed a method and apparatus for packaging caseless ammunition in which multiple rounds of the ammunition are packaged in axial alignment in tubular containers of plastic material.

SUMMARY OF INVENTION

This invention relates to the packaging and storing of ammunition and, more particularly, to the packaging and storing of caseless ammunition of the type wherein an exposed surface of the propellant is ignitable by surface contact with high temperature compressed air. One of the objects of this invention is to provide packaging and storage means for a number of rounds of ammunition, e.g. 10, having manually removable and replaceable sealing means providing a water resistant and/or moisture impervious package prior to sale to the consumer and being usable thereafter as a water resistant and/or moisture impervious openable and recloseable storage container. Another object is to provide a packaging and storage means from which the ammunition may be easily transferred to and loaded in a gun without having to be individually handled. Another object is to provide a packaging and storage means which can be readily associated with other similar packaging and storage means in groups, e.g. a group of 10, and carried by additional packaging and storage means such as a paper board box or the like.

The objects of this invention have been attained by the combinations of features of the illustrative and presently preferred embodiment of the inventive concepts shown in the accompanying drawings in which:

FIG. 1 is a perspective view of a box of ammunition packaging and storage means; and

FIG. 2 is an enlarged plan view of one of the ammunition packaging and storage means.

Referring now to the drawings, a rectangular paper board box **10** may be of a size to hold a number (e.g. 10) of tube means **12** comprising an elongated tubular member **14** and sealing means comprising a plug member **16**. The tubular member provides an ammunition storing chamber **17** in which a number (e.g. 10) of similarly oriented and axially aligned rounds of caseless ammunition **18** are stored in axially abutting nose to tail relationship. The rounds of ammunition comprise a projectile nose portion **20** of lead or the like and a solid caseless propellant tail portion **22** which is ignitable by surface contact with high temperature compressed air. The maximum outside diameter of the propellant portion is approximately equal to or slightly less than the maximum outside diameter of the projectile portion which is approximately equal to or slightly less than the inside diameter of the tubular member so as to be slidably mounted therein. The solid caseless propellant is preferably quite porous and, therefore, it is desirable to provide water resistance and/or moisture impervious storage means therefor.

The tube **14** is made of natural color (see through) semi-rigid but flexible resilient plastic tubing, such as polypropylene, having a wall thickness of, for example,

approximately .010 inch and heat sealed closed at one end **24**. Tubes of this material in such a thickness may be squeezed between the fingers to bring opposite wall portions into contact without exerting any great pressure and the wall portions will spring back to their original tubular configuration. The other end is open and receives the removable and replaceable plug **16** which may be made of a solid piece of the same plastic material. The inside diameter of the tube is approximately equal to or slightly larger than the outside diameter of the ammunition to enable the ammunition to relatively freely slide therewithin. The length of the tube is somewhat longer than the length of the number of rounds to be packaged therein so as to provide a plug chamber **26** in which a cylindrical portion **28** of plug **16** is received. The diameter of the chamber **26** is approximately equal to or slightly less than the diameter of mating plug portion **28** to provide a slight interference fit causing the plug to be frictionally held in place unless and until the plug is manually removed by application of axially directed forces on a handle portion **30** separated from the plug portion **28** by a shoulder **32**. The plug member may be made reversible by providing similar plug and handle portions as shown and the plug may be removed and replaced any number of times.

In use, each tubular member **14** is filled with **10** rounds of ammunition at the factory. The rounds are slipped into the open end of the tube with the projectile portion facing the open end so as to be ready for direct loading into the rear of a multiple shot gun magazine. A plug member **16** is forced into the open end of the tube to seal the ammunition therewithin. The see through plastic enables quick visual inspection of each tube to determine the number and orientation of the rounds. The filled and sealed tube provides ammunition packaging, storage, and handling means by which the ammunition may be stored and handled at the factory, during transport to and at the wholesale and retail outlets, and also during transport to and at the ultimate areas of use such as a shooing gallery and hunting camp. The removable and replaceable sealing plug enables the removal of less than all rounds without destroying the package and while enabling an effective seal to be maintained for the remaining rounds. Also, the tubular package is well suited for direct loading of a firearm without requiring individual handling of each round. Thus, as a combination loading and storage means, it is contemplated that the open end of the tube can be placed directly behind the firing chamber or the magazine of a firearm to load one or more rounds. The wall thickness of the plastic tube may be such as to provide sufficient flexibility to enable one or more rounds to be squeezed out of the tube. In this regard it is further contemplated that the tube may be used directly with or as a magazine in a firearm. While there are various well known ways of combining individual tubes into larger packages, the use of cardboard boxes is presently contemplated for holding, storing, and displaying multiple tubes.

What is claimed is:

1. In a package for caseless ammunition or the like, the combination of:

an elongated tubular member having a tubular ammunition storage chamber therewith;

a loading opening in said tubular member providing for insertion and removal of rounds of ammunition relative to said ammunition storage chamber; and

manually removable and replaceable sealing means associated with said loading opening to seal and hold rounds of ammunition within said ammunition storage chamber.

2. A moisture resistant ammunition package comprising:

a tubular body formed from a semi-rigid plastic material;

a plug member closing one end of said tubular member and being slidably mounted therein and movable under force;

a plurality of ammunition rounds positioned in said tubular body; and

means closing and sealing the other end of said tubular body.

3. The ammunition package of claim 2 in which said other end is secured by heat sealing.

4. The combination of a plurality of rounds of generally cylindrical caseless ammunition and a erally cylindrical caseless ammunition and a package therefor:

the ammunition comprising: a generally cylindrical projectile nose portion and a generally cylindrical propellant tail portion attached thereto, the propellant tail portion being caseless and having an exposed outer surface ignitable by application of hot air thereto, the outside diameter of the propellant portion being approximately equal to or slightly less than the outside diameter of the projectile portion;

the package comprising: an elongated generally cylindrical tubular member having constant inside diameter and length in excess of the length of two or more of the rounds of ammunition, one of said tubular member being closed and the other end of said tubular member being open and said tubular member being otherwise closed and water restant, the inside diameter of said tubular member being approximately equal to or slightly larger than the outside diameter of said projectile portion;

the combination further comprising: a number of rounds of ammunition slidably mounted in said tubular member in axial alignment and in nose portion to tail portion abutting relationship therewith, the nose portion of the round of ammunition next adjacent the one open end of said tubular member being spaced a distance therefrom sufficient to provide a cylindrical plug chamber, and a generally cylindrical plug member having a plug portion slidably mounted in said plug chamber, the outside diameter of said plug portion being approximately equal to or slightly larger than the inside diameter of said plug chamber to provide an interference fit requiring the application of an axially directed force to insert and remove the plug member and to provide a substantially water resistant closure for said tubular member.

5. The combination as defined in claim 4 and said plug member including a handle portion extending axially beyond the open end of said tubular member providing a gripping surface for manual application of axially directed forces to insert and remove the plug member.

6. The invention as defined in claim 5 and wherein said plug member comprises a cylindrical shoulder between said plug portion and said handle portion, said shoulder having a diameter greater than the inside diameter of said plug chamber and abutting the end of said tubular member.

7. The combination as defined in claim 2 and wherein the tubular member is made of clear plastic material permitting visual inspection of the rounds of ammunition rial permitting squeezing of the tubular member to eject therewithin.

8. The combination as defined in claim 2 and wherein the rounds of ammunition.

the last mentioned means and plug member are also made of plastic material.

9. The invention as defined in claim 8 and wherein the plastic material is polypropylene.

10. The invention as defined in claim 2 and wherein the tubular member is made of a flexible resilient mate-

References Cited

UNITED STATES PATENTS

2,352,803	7/1944	Sawin.
3,119,541	1/1964	Lynn.
3,263,806	8/1966	Ring.
3,373,520	3/1968	Into.

WILLIAM T. DIXSON, JR., Primary Examiner

U.S. Cl. X.R.

42—49; 206—56

UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

July 14, 1970

Patent No. 3,520,400

David W. Gates

It is certified that error appears in the above identified patent and that said Letters Patent are hereby corrected as shown below:

Column 2, line 39, "shooing" should read -- shooting --. Column 3, cancel line 13; line 26, after "and" insert -- a --; line 27, after "one" insert -- end --; line 30, "restant" should read -- resistant --. Column 4, cancel line 21; cancel line 24; line 30, after "mate-" insert -- rial permitting squeezing of the tubular member to eject the rounds of ammunition. --.

Signed and sealed this 6th day of October 1970.

(SEAL)

Attest:

Edward M. Fletcher, Jr.

Attesting Officer

WILLIAM E. SCHUYLER, JR.

Commissioner of Patents