Sept. 3, 1946. J. H. DAVIS ET AL 2,406,809

WATER-COOLED AMMUNITION RACK

Filed July 15, 1944

Fig. 1

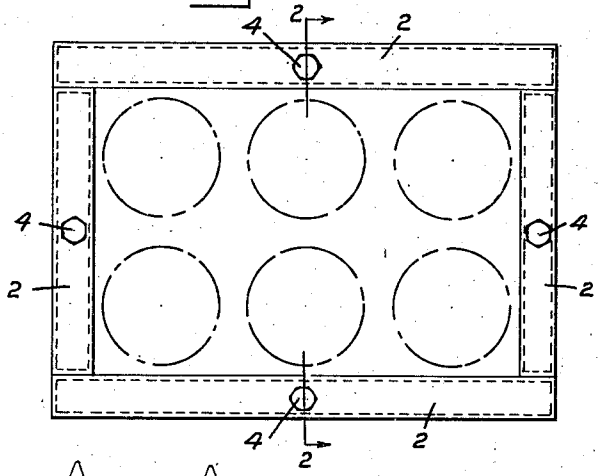
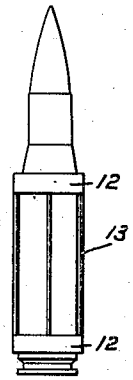


Fig. 4.



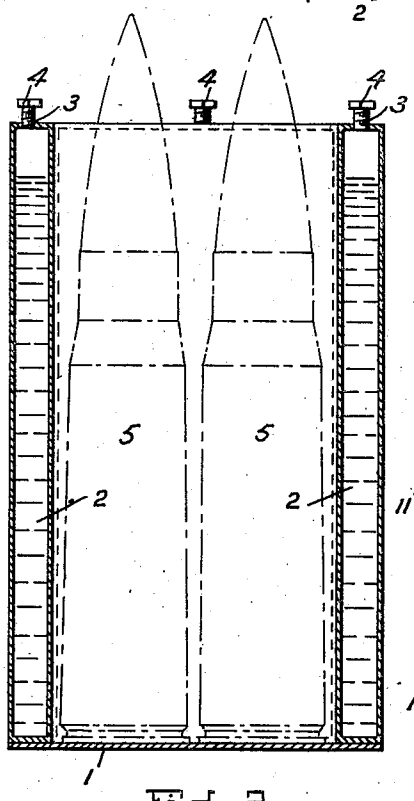
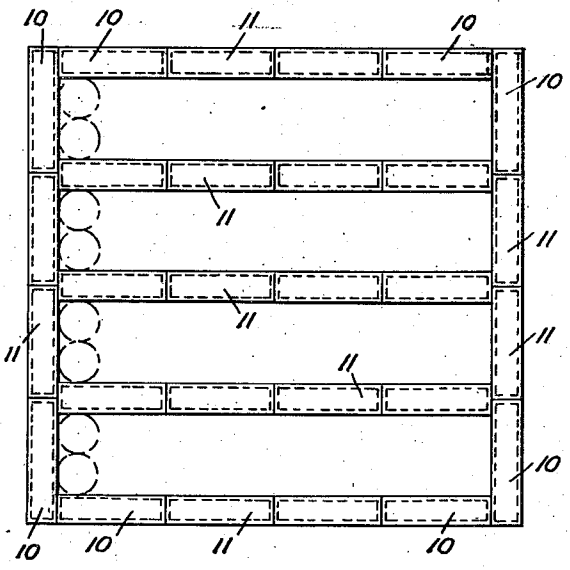


Fig. 2.

Fig. 3.



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WATER-COOLED AMMUNITION RACK

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3 Claims. (Cl. 220—13)

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

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

The present invention pertains to a novel water-cooled ammunition rack designed particularly for use on combat tanks but also useful in other installations.

Two types of such racks have previously been proposed. The first is a container for enclosing a body of water immediately surrounding the ammunition-receiving tubes comprised in the rack. This construction is objectionable because the confinement of the propelling charge causes detonation rather than burning when struck by a projectile. The second form includes a water jacket around each tube, the individual jackets being spaced apart to leave empty space within the outer receptacle, for the purpose of avoiding excessive hydrostatic pressure. This construction is objectionable because of the high cost of manufacture and assembly.

The object of this invention is to provide a water-cooled rack that overcomes the aforementioned objections. In the accomplishment of this object a wall or body of water encloses the entire receiving space without surrounding each round individually. In the actual embodiment, an enclosure for a number of upright rounds of ammunition is made from a number of box-like wall members, or double-walled units, adapted to contain water. Each side of the configuration is preferably an independent box-like unit so that the destruction of one will not necessarily drain the others.

An illustrative embodiment of the invention is shown in the following description and in the accompanying drawing in which:

Figure 1 is a plan view of a vertical rack;

Figure 2 is a section on the line 2—2 of Figure 1;

Figure 3 is a plan view of another construction, and

Figure 4 is a detail of an ammunition receiver.

The container for the ammunition consists of a base 1 on which are erected a number of walls forming an enclosure. Each such wall is a comparatively thin box-like member 2 adapted to contain water. It is preferred that these sections be provided as independent units rather than in communication with one another. Thus, each unit is provided with a filler neck 3 at the top covered by a cap 4. The units may be secured together by any suitable means such as welding.

The rounds 5 of ammunition are merely set

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upright within the enclosure as shown. For a small number of rounds in a rack, it is not necessary to provide means for maintaining the rounds in the upright position. For larger numbers of rounds, guides for the individual rounds may be employed. The guides may consist of receiving the tubes or wings fixed to the receptacle, as will presently appear.

When the device is penetrated by a projectile, metal fragments from the members 2 are thrown into the enclosure. The shells of the rounds may be penetrated by both the projectile and the fragments, which are of sufficiently high temperature to ignite dry powder. However, the projectile and fragments have been cooled in passing through the water and thereby rendered less effective. Moreover, the exposed powder is wetted by the water released from the ruptured wall or walls and is thereby rendered non-explosive and the absence of confinement of the propelling charge eliminates detonation in the charge.

Figure 3 shows a construction for a larger supply of rounds with intermediate protection. The outer enclosure consists of units 10 as previously described. Internal partitions of similar units 11 are provided in parallel relation to separate the supply into equal groups.

The guide shown in Figure 4 consists of upper and lower bands 12 joined by rods 13. One such guide may be provided for each round.

While specific embodiments of the invention have been shown and been described, it will be understood that various alterations may be made without departure from the spirit of the invention as indicated by the appended claims.

What we claim is:

1. An ammunition receptacle comprising a plurality of substantially identical hollow elongated fluid-tight vertically-extending parallelopiped units each having a length equal to the predetermined, desired height of said receptacle and being of elongated rectangular cross section, said units being secured together along their vertical sides of lesser cross-sectional dimension, to form four walls, corresponding vertical ends of two opposed spaced walls being secured to the contiguous sides of the remaining two side walls, respectively, and a bottom secured to the coplanar lower ends of all said four walls, whereby to form a double-walled, fluid-tight receptacle.

2. An ammunition receptacle of rectangular shape having spaced inner and outer walls forming a fluid-tight chamber therebetween, partition means extending between said walls to di-

vide the wall of each side of said receptacle into a plurality of fluid-tight chambers, at least two partition means in respective ones of two opposite walls being aligned in a common plane, a double-walled partition extending across said receptacle in fluid-tight relation with the inner walls and bottom of said receptacle, and having its two walls lying upon respectively opposite sides of said common plane.

3. In an ammunition receptacle, a plurality of substantially identical, hollow, elongated, fluid-tight vertically-extending parallelopiped units each having a length equal to the height of said receptacle and being of elongated rectangular cross section, said units being secured together along their vertical sides of lesser cross-sectional dimension to form four walls each including a plurality of units, the ends of first and second

opposite walls being secured in fluid-tight relation with the sides of the remaining third and fourth walls, a bottom secured to the ends of all said units to form therewith a fluid-tight receptacle, the joints between two pairs of said units on respectively opposite sides of said receptacle, being in a common plane, and a number of said units joined in fluid-tight relation, as aforesaid, to form a partition having spaced planar walls, said partition being secured in and across said receptacle in fluid-tight relation with said third and fourth walls and bottom, and with its said planar walls on respectively opposite sides of said common plane.

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