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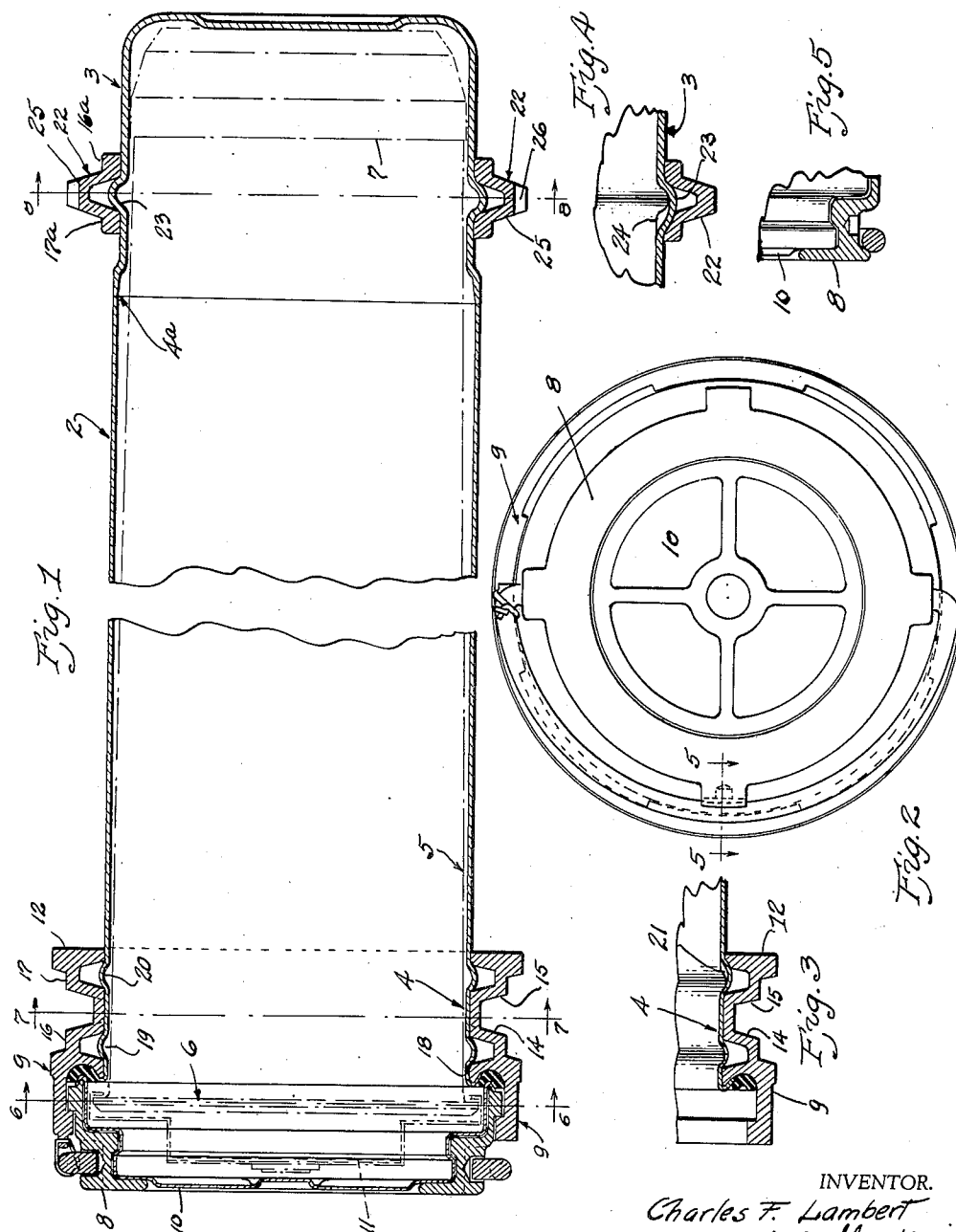
C. F. LAMBERT

2,127,263

AMMUNITION TANK

Filed April 7, 1936

5 Sheets-Sheet 1



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Aug. 16, 1938.

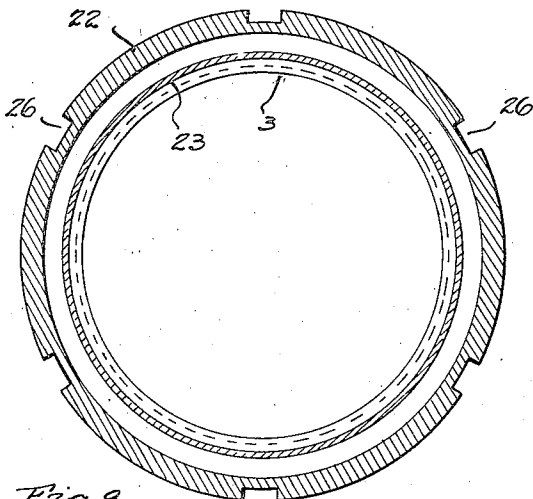
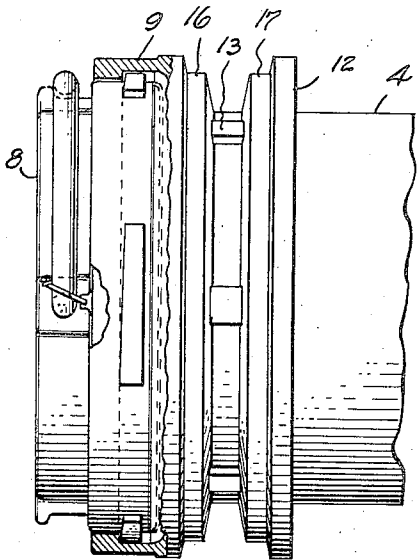
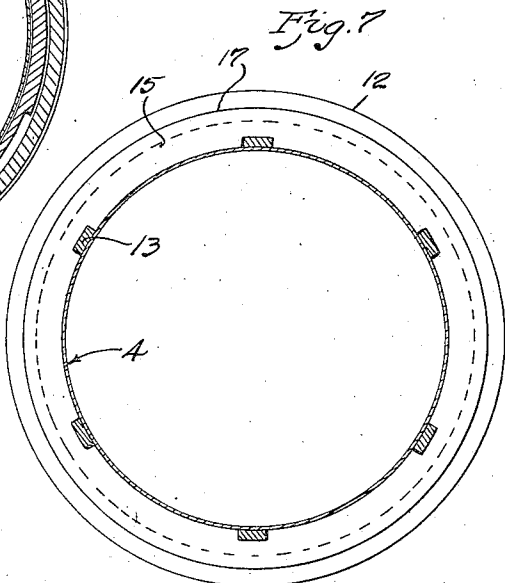
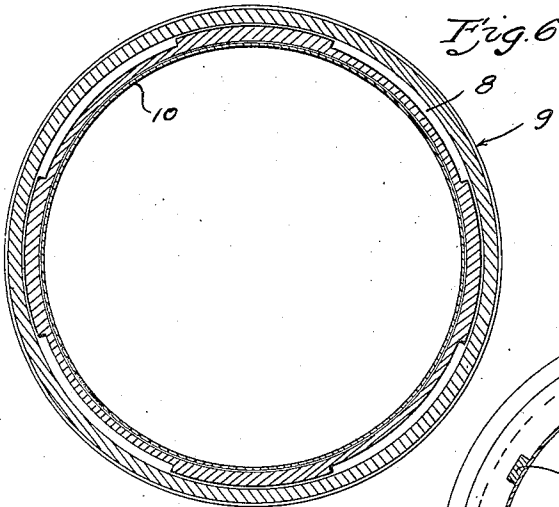
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AMMUNITION TANK

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5 Sheets-Sheet 2



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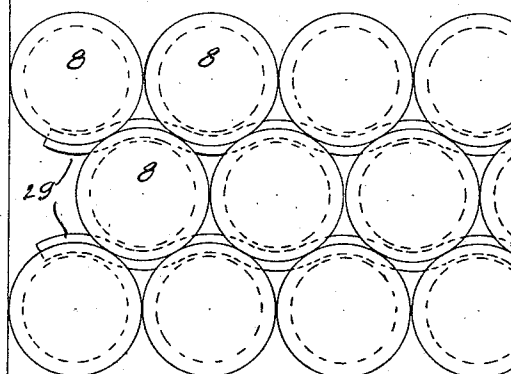
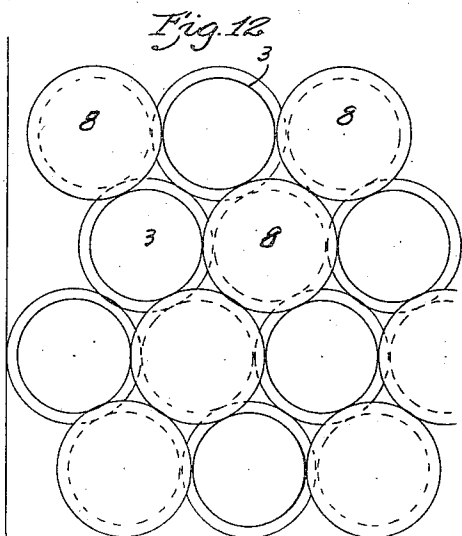
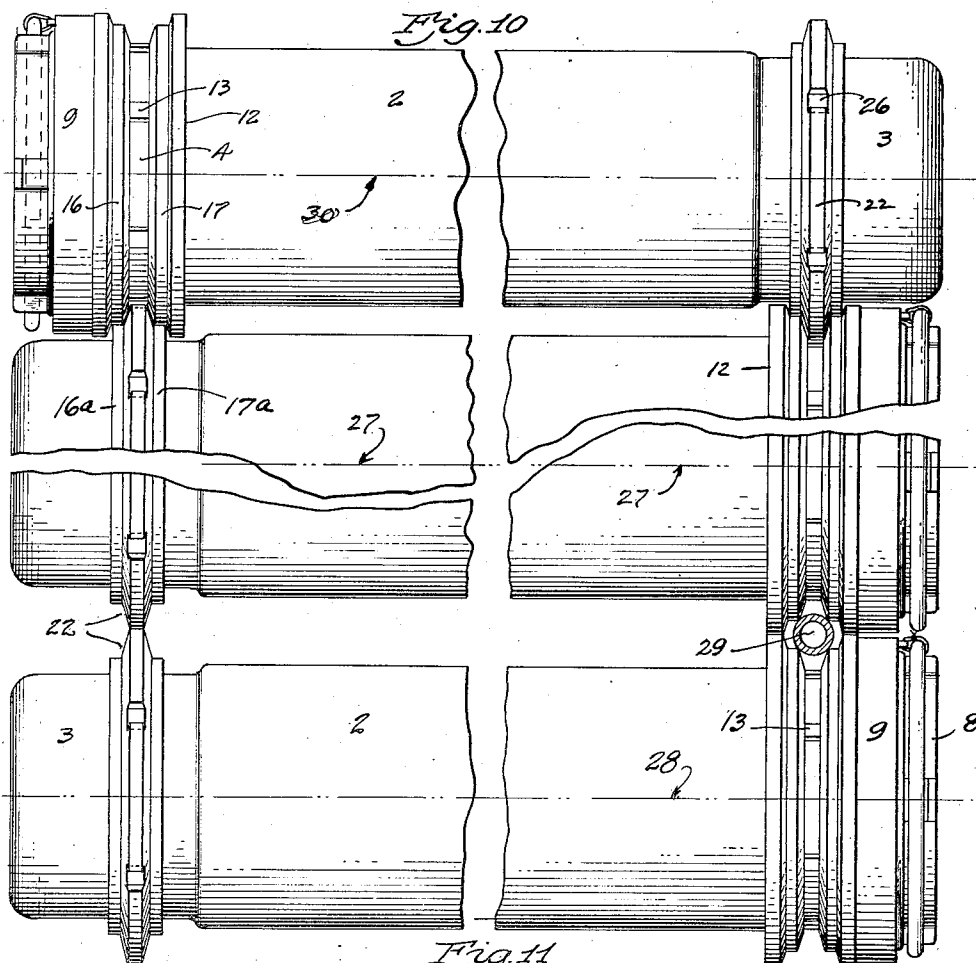
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AMMUNITION TANK

Filed April 7, 1936

5 Sheets-Sheet 3



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AMMUNITION TANK

Filed April 7, 1936

5 Sheets-Sheet 4

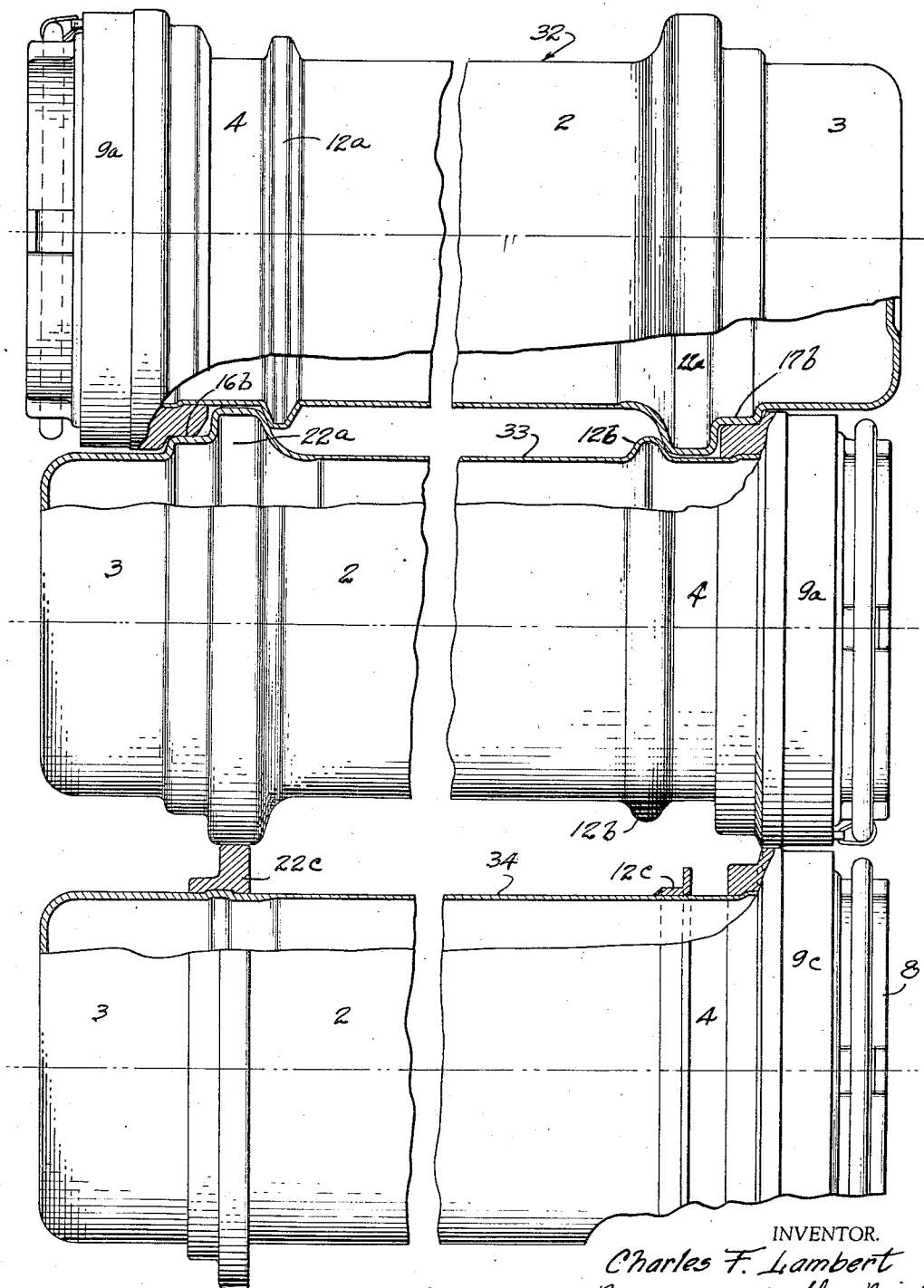


Fig. 14

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AMMUNITION TANK

Filed April 7, 1936

5 Sheets-Sheet 5

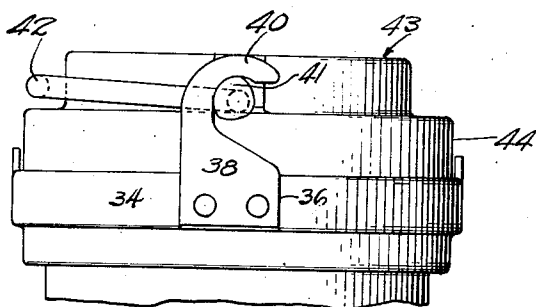
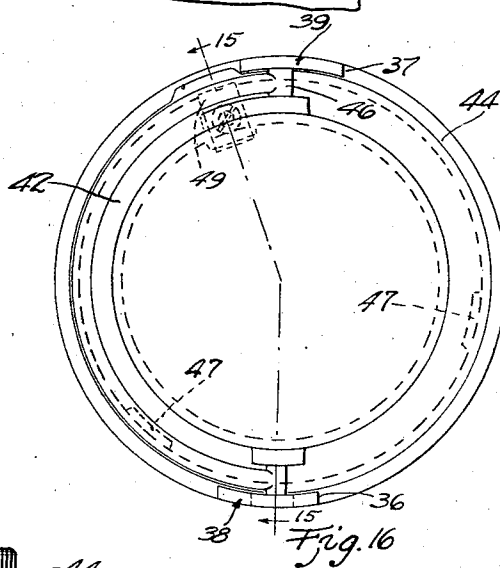
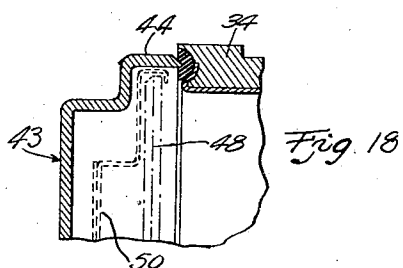
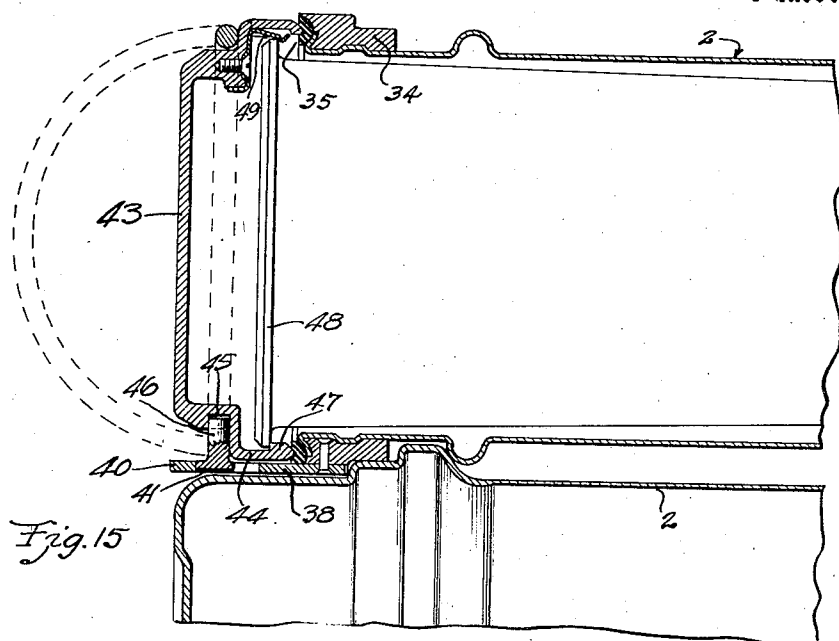


Fig. 17

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UNITED STATES PATENT OFFICE

2,127,263

AMMUNITION TANK

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Application April 7, 1936, Serial No. 73,056

20 Claims. (Cl. 206—3)

This invention relates to ammunition tanks and has to do particularly with air tight stowage means adapted to safely stow loaded cartridge shells, powder bags and the like within limited stowage spaces such as within ammunition magazines aboard ship.

Heretofore in providing containers or tanks for the stowage of ammunition it has been the practice to fabricate the tanks from aluminum or similar light metal, to provide a reinforcing annular ring member at the top of the tank and an enlarged reinforcing annular portion at the bottom of the tank of the same diameter as the ring; complementary interlocking means on adjacent ring members has usually been provided to prevent movement of the tanks in the stowage racks. Such tanks have been satisfactory as far as the safe stowing of ammunition is concerned, but have been relatively heavy and have necessitated the use of a relatively large stowage space and have permitted stowage of the tanks in only one position.

It is the object of the present invention to provide ammunition tanks which will provide just as safe a stowage as has been provided in the past but which tanks are of such design and construction as to materially reduce the space and weight, as compared to the type of tank that has heretofore been used.

A feature of the present invention of utmost importance is the provision of a tank designed for both "one way" and "reversed end" stowage, such tanks conserving space and weight whether they are stowed "one way" or "reversed end". In certain cases in the stowage of cartridge tanks it is necessary to so arrange the tanks in the magazine that not only must the cover end of each tank be accessible but space must be provided in the magazine for the removal of each cartridge case from each individual tank. The tank of the present invention is so completely formed that even when stowed with the cover ends stacked one way, a material saving in weight and space is obtained. However the tank of the present invention is even more important in the stowage of cartridge tanks where the same may be placed in the stowage racks and when used the complete tank with its charge is removed from the magazine. Where the complete tank and charge is removed, it is the practice to completely fill the magazine with tanks leaving only a small space at the magazine door to facilitate or start the removal of tanks from the magazine. In this kind of stowage tanks constructed according to the present invention afford a maximum

conservation of magazine space or conversely permit the stowing of a maximum amount of ammunition in a given magazine because the tanks are so designed as to permit of reversed end stowage. The direct result of this novel design is that it makes it possible to utilize the tank in either one way or reversed end stowage, without requiring individual magazine fittings.

Other features of the present invention have to do with the structural features of both the cover end and bottom of the tank which permit of a saving in space and weight and at the same time sufficiently reinforces the tank so as to enable it to carry the required loads. Still other features have to do with details of the cover construction, bottom end reinforcing and stacking means as will be more clearly set forth in the specification and claims.

In the drawings:

Fig. 1 is a longitudinal sectional view of one type of tank constructed in accordance with the present invention, illustrating the standard cartridge and clip means in dotted lines.

Fig. 2 is an end view of the cover end of the tank.

Fig. 3 is an enlarged sectional view of the top ring structure illustrating the manner of locking the ring relative to the tank.

Fig. 4 is a sectional view taken through the bottom ring reinforcing structure and illustrating the method of locking the tank to the bottom ring.

Fig. 5 is a sectional view taken on line 5—5 of Fig. 2.

Figs. 6, 7, and 8 are sectional views taken on lines 6—6, 7—7, and 8—8 respectively, of Fig. 1 and illustrating structural arrangement at three important points of the tank.

Fig. 9 is a fragmentary end elevation, partly in section of the cover end of the tank shown in Fig. 1.

Fig. 10 is a side elevation of two tanks constructed in accordance with the disclosure in Fig. 1, and illustrating the manner of stowing adjacent tanks in reversed end relationship.

Fig. 11 is a view similar to Fig. 10 but illustrating two tanks of the same type disclosed in Fig. 10 stowed with the cover ends positioned adjacent each other.

Fig. 12 is a diagrammatic end view of a plurality of tanks stowed in accordance with the disclosure in Fig. 10.

Fig. 13 is a view similar to Fig. 12, but illustrating the tanks stowed in accordance with the disclosure in Fig. 11.

Fig. 14 is a view similar to Figures 10 and 11, showing two tanks arranged in "reversed end" relationship and two in "one way" relationship, each of the tanks being shown partly cut away to illustrate modified forms of construction.

Fig. 15 is a fragmentary sectional view taken on line 15—15 of Fig. 16 illustrating a modified form of reinforcing ring and cover design for effecting a still greater weight and space saving in the overall construction.

Fig. 16 is an end view of the top ring unit shown in Fig. 15.

Fig. 17 is a fragmentary side elevation of the modified form of tank unit shown in Figures 15 and 16, and illustrating particularly the cam action between the cover handle and the ring unit.

Fig. 18 is a fragmentary sectional view similar to Fig. 15 but illustrating the standard form of extractor construction.

While the ammunition tank of the present invention contains various improvements covering structural details, the main feature thereof has to do with the design that makes it a double purpose tank, that is a tank that may be stowed "one way", or "reversed end". In the embodiment shown in Fig. 1, the tank is shown as consisting of a main body portion 2, a bottom portion 3, and a top portion 4, it being understood however, that the terms "body portion" and "top portion" are used only for the purpose of description and are not limiting in any sense. The bottom portion 3 may be of cast or drawn aluminum or similar light material and is preferably welded to the body portion 2, as at 4.

The cover end 4 of the shell is of just sufficient diameter to receive a cartridge case of standard type such as shown at 5 in dash and dot lines, the cap being designated 6 and the plug 7. A cover 8 just large enough to clear the cartridge cap has a bayonet and slot connection with top ring 9.

This top ring 9 is restricted in diameter as much as possible and is of a cross section sufficient to bear a predetermined weight and still retain its shape to permit easy removal of the cover 8. To keep the size and weight of the cover to a minimum, a sheet metal liner 10 is positioned within and is movable relative to the outer cover housing. A standard type of cartridge clip is shown in dotted lines at 11.

In the embodiment shown in Figs. 1 to 9, the ring 9 is formed to provide a spaced auxiliary ring member 12, connected to the main ring by web members 13; the side walls 14 and 15 forming an interlocking groove and weight receiving shoulders 16 and 17. The ring 9 is retained permanently in position by the curled over edge 18 of the tank shell and by annular embossed portions 19 and 20. As best shown in Fig. 3, additional spots 21 may be peened in to lock the ring 9 in position.

The bottom end 3 of the tank is of smaller diameter than the cover end and this makes possible the large saving of space in reversed end stowage. A reinforcing ring 22 may be positioned around the walls of the bottom end of the tank and held in position by an embossed portion 23, additionally peened at spaced points as at 24. The tapered side walls 25 of the ring 22 are complementally shaped relative to the walls 14 and 15 of the ring 9 and cut away parts 26, see Fig. 8, and shaped and positioned to cooperate with the webs 13.

The outer diameter of the rings 9 and 22 are substantially the same so that when two tanks

of the same construction as shown in Fig. 11 are stacked cover end to cover end the axes 27 and 28 of the tanks will be substantially parallel. When stowed "one way", as in Fig. 11 and Fig. 13, a flexible or sinuous fitting or conduit 29 may be placed within the groove formed by matching rings 9 of adjacent tanks, to keep the tanks from shifting relative to each other.

When the tanks of the embodiment shown in Fig. 1 are stowed "reversed end" as in Figs. 10 and 12, then the rings 22 on the respective bottom ends of adjacent tanks fit within the grooves formed by the respective rings 9 and 12. To accommodate for the diameter of the ring 22, the main groove formed between rings 9 and 12 extends to the surface 4 of the tank shell, except for webs 13. Contact between shoulders 16 and 17 on the top ring with shoulders 16a and 17a on the bottom ring 22 prevents any distortion of the exposed portion of the shell between rings 9 and 12. In other words, there is always some clearance between the periphery of the ring 22 and the outer surface of the tank shell; the weight of adjacent tanks being taken by shoulders 16—17—16a—17a.

It will be seen that the design and arrangement of my dual purpose tank results in a material saving in space and weight whether stowed "end to end" or "reversed end"; the greater saving in space being obtained in "reversed end" stowage, as in Figs. 10 and 12, where the axes 27 and 30 are closer together than axes 27 and 28, Fig. 11. The tanks may be stowed either "one way" or "reversed end" without requiring any changes or auxiliary fittings other than the simple, sinuous conduit. Also the very parts that make this dual purpose tank possible inherently provide ample reinforcement at the two ends of the tanks whereby to carry imposed loads.

In Fig. 14 I have illustrated three modifications of tank construction, the upper tank, generally designated 32, being similar to the tank shown in Fig. 1 except that the top ring 9a is completely separated from the auxiliary ring 12a, the ring 12a being formed by embossing the wall of the tank shell, one shoulder 16b on the top ring supporting the external load. The bottom end of the tank is provided with a reinforcing ring 22a embossed in the wall of the tank; one shoulder 17b of the bottom ring cooperating with the shoulder 16b when the tanks are stowed "reversed end".

Tank 33 differs from the tank 32 in the cross sectional contour of the auxiliary bead or ring member 12b. Tank 34 follows the lines of Fig. 1 in that the rings 9b, 12c and 22c are separately formed and secured to the tank. It will be understood that the three tanks of Fig. 14 are shown in interfitting relation merely for the purpose of illustration and that in actual practice each group of tanks used for stowing ammunition would preferably be of the same construction.

In Figs. 15 to 18 I have shown a modified cover and top ring construction wherein considerable additional saving in space and weight is obtained. The top ring 34 may be much shorter because it has sealing contact with the cover at the top edge 35. The ring 34 is cut away at two diametrically spaced points 36 and 37 to receive fastening members 38 and 39. The upper end of each fastening member 38 is cut away to form a hook shaped member 40 adapted to receive a cam 41, formed at each end of a bail 42. The bail 42 is carried by a cover member 43, which cover member has a low angular portion 44 of such di-

ameter as to be in substantial circumferential alignment with the spring 34 as best shown in Figure 15. The top portion of the cover is shouldered and this shoulder is provided with two diametrically positioned apertures 45 for receiving bearing studs 46.

As will be best seen in Figs. 15 and 16, the larger portion 44 of the cover just fits within the fastening means 38 and 39 and it will be seen that by lowering the cover into position within the members 38 and 39, then giving the cover a counterclockwise twist, the cam members 41 will pass under the hook portions 40 and then by lowering the bail from the dotted line position shown in Fig. 15 to the solid line position shown in Fig. 17, the camming action between the cam 41 and the hook portion 40 will force the lower edge of the cover down into contact with the upper edge 35 of the ring 34.

The portion 44 of the cover is so formed as to provide two lug members 47 which are so positioned that they can be inserted underneath the cap edge 48 of the cartridge case. Oppositely disposed from the lugs 47 is a spring member 49 so carried by the cap and so positioned that it will resiliently snap over the edge 48 of the cartridge case after the lugs 47 have been inserted under the opposite edge of the cartridge case. With this construction, the combination cover and handle may be utilized in placing the cartridge case within the tank and what is more important, may be used as a carrying clip when it is desired to carry the cartridge to its place of use. Removing the combined cover and clip, it is only necessary to place the cartridge in the position shown in Fig. 15 and then move the cover 43 about the lugs 47 as a fulcrum. In Fig. 18 I have illustrated the same type of cover construction as shown in Figs. 15, 16 and 17 but instead of utilizing a carrying clip as formed by the lug member 47 and spring 49, I have illustrated a standard type of clip as shown in dotted lines at 15. It is important to note that in stowing tanks of the type disclosed in Fig. 15, that when the tanks are stowed "reversed end", as in Fig. 15, the confining of the fastening means 38 and 39 within the contour of the ring 34 and the placing of the flange 44 of the cover in alignment with the ring 34 will materially reduce the distance between the axes of the respective tanks; this will be particularly obvious in comparing Fig. 15 with Fig. 1.

What I claim is:

1. A dual purpose ammunition tank comprising a container having a bottom end and a cover end of greater diameter than a portion of the bottom end, spaced means on said tank so shaped and positioned that when another tank of the same construction is stowed alongside of said first named tank said means on both tanks will complementally register and contact, both when said tanks are positioned cover end to cover end and with cover ends reversed, to maintain the axes of said tanks substantially parallel, the distance between said axes when said tanks are stowed with cover ends reversed being less than half the sum of the diameters of the cover ends.

2. A dual purpose ammunition tank comprising a container having a bottom end and a cover end of greater diameter than the bottom end, means at each end of said tank so shaped and positioned that when another tank of the same construction is stowed alongside of said first named tank said means on both tanks will complementally register, both when said tanks are positioned cover end to

cover end and with cover ends reversed, to maintain the axes of said tanks substantially parallel, the distance between said axes when said tanks are stowed with cover ends reversed being less than half the sum of the diameters of the cover ends, the weight of one tank when supported by the other being sustained substantially entirely by said means.

3. A dual purpose ammunition tank comprising a container having a bottom end and a cover end of greater diameter than a portion of the bottom end, spaced means on said tank so shaped and positioned that when another tank of the same construction is stowed alongside of said first named tank said means on both tanks will complementally register, both when said tanks are positioned cover end to cover end and with cover ends reversed, to maintain the axes of said tanks substantially parallel, the distance between said axes when said tanks are stowed with cover ends reversed being less than half the sum of the diameters of the cover ends, and auxiliary means cooperating with said complementally registering means when said tanks are positioned cover end to cover end for preventing relative longitudinal shifting.

4. A dual purpose ammunition tank comprising a container having a bottom end and a cover end of greater diameter than a portion of the bottom end, spaced means on said tank so shaped and positioned that when another tank of the same construction is stowed alongside of said first named tank said means on both tanks will complementally register, both when said tanks are positioned cover end to cover end and with cover ends reversed, to maintain the axes of said tanks substantially parallel, the distance between said axes when said tanks are stowed with cover ends reversed being less than half the sum of the diameters of the cover ends, the weight of one tank when supported by the other being sustained substantially entirely by said means.

5. An ammunition tank of the class described comprising a shell having a closed end and a cover end, the walls adjacent the closed end being of less diameter than the cover end, said cover end including annular reinforcing means, positioning means spaced from reinforcing means and leaving a portion of said shell between said means exposed, and annular reinforcing means adjacent the closed end and so shaped and positioned that when another tank of the same construction is reversely placed alongside said first tank the closed end reinforcing means of each tank will fit in between said positioning means and cover end reinforcing means.

6. An ammunition tank of the class described comprising a shell having a closed end and a cover end, the walls adjacent the closed end being of less diameter than the cover end, said cover end including annular reinforcing means, positioning means spaced from said reinforcing means and leaving a portion of said shell between said means exposed, and annular reinforcing means adjacent the closed end and so shaped and positioned that when another tank of the same construction is reversely placed alongside said first tank the closed end reinforcing means of each tank will fit in between said positioning means and cover end reinforcing means, portions of said reinforcing means on respective tanks overlapping and contacting to absorb substantially all pressure between adjacent tanks.

7. An ammunition tank of the class described

comprising a shell having a closed end and a cover end, the walls adjacent the closed end being of less diameter than the cover end, said cover end including annular reinforcing means, positioning means spaced from said reinforcing means and leaving a portion of said shell between said means exposed, and annular reinforcing means of substantially the same diameter as said first named reinforcing means positioned adjacent the closed end and so shaped and positioned that when another tank of the same construction is reversely placed alongside said first tank the closed end reinforcing means of each tank will fit in between said positioning means and cover end reinforcing means.

8. An ammunition tank of the class described comprising a shell having a closed end and a cover end, the walls adjacent the closed end being of less diameter than the cover end, said cover end including annular reinforcing means, positioning means spaced from said reinforcing means and leaving a portion of said shell between said means exposed, and annular reinforcing means of substantially the same diameter as said first named reinforcing means positioned adjacent the closed end and so shaped and positioned that when another tank of the same construction is reversely placed alongside said first tank the closed end reinforcing means of each tank will fit in between said positioning means and cover end reinforcing means, portions of said inter-fitting reinforcing means on respective tanks contacting to absorb substantially all pressure between adjacent tanks.

9. An ammunition tank of the class described comprising a shell having a closed end and a cover end, the walls adjacent the closed end being of less diameter than the cover end, said cover end including annular reinforcing means, positioning means spaced from said reinforcing means and leaving a portion of said shell between said means exposed, and annular reinforcing means adjacent the closed end and so shaped and positioned that when another tank of the same construction is reversely placed alongside said first tank the closed end reinforcing means of each tank will fit in between said positioning means and cover end reinforcing means and portions of the wall of said shell being distorted to hold one of said reinforcing means in place.

10. An ammunition tank of the class described comprising a shell having a closed end and a cover end, the walls adjacent the closed end being of less diameter than the cover end, said cover end including annular reinforcing means, positioning means spaced from said reinforcing means and leaving a portion of said shell between said means exposed, and annular reinforcing means adjacent the closed end and so shaped and positioned that when another tank of the same construction is reversely placed alongside said first tank the closed end reinforcing means of each tank will fit in between said positioning means and cover end reinforcing means and portions of the wall of said shell being distorted to hold both of said reinforcing means in place.

11. An ammunition tank of the class described comprising a cover end including a reinforcing ring, a cover having a portion in circumferential alignment with and contacting said cover end, a handle carried by said cover, and fastening means carried by and confined within the outer circumferential plane of said ring and adapted to complementally receive a portion of said handle for fastening said cover in position.

12. An ammunition tank of the class described comprising a cover end including a reinforcing ring, a cover having a portion in circumferential alignment with and contacting said cover end, a handle carried by said cover, and fastening means carried by and confined within the outer circumferential plane of said ring and adapted to complementally receive a portion of said handle for fastening said cover in position, the cover end of said tank being shaped to form an interlocking groove for complemental means formed as a part of an adjacent tank.

13. An ammunition tank of the class described comprising a cover end including a reinforcing ring, a cover having a portion in circumferential alignment with and contacting said cover end, a handle carried by said cover, and fastening means carried by and confined within the outer circumferential plane of said ring and adapted to complementally receive a portion of said handle for fastening said cover in position, the cover end of said tank being shaped to form an interlocking groove for complemental means formed as a part of an adjacent tank, said groove being in general circumferential alignment with said ring and cover portion.

14. An ammunition tank of the class described comprising a cover end including a reinforcing ring, a cover having a portion in circumferential alignment with and contacting said cover end, a handle carried by said cover, and fastening means carried by and confined within the outer circumferential plane of said ring and adapted to complementally receive a portion of said handle for fastening said cover in position, and cam means forming a part of said handle and fastening means construction for forcing said cover into sealing position.

15. A cartridge tank unit of the class described having cover receiving means, comprising a cover and means forming a part of said cover for directly contacting the cartridge cap whereby the cover and cartridge may be removed from the tank as a unit.

16. A dual purpose ammunition tank of the type having a bottom end portion and a cover end portion of greater diameter than a portion of said bottom end portion, comprising load reinforcing elements so positioned that when another tank of the same construction is stowed alongside of said first named tank said elements on both tanks will complementally register, both when said tanks are positioned cover end to cover end and with cover ends reversed, the effective diameter of said elements being such that they will contact with the elements of an adjacent tank positioned cover end to cover end to maintain the axes of said tanks substantially parallel, one of said elements having a shoulder portion of less diameter than the greatest effective diameter of said element, said shoulder portion cooperating and contacting with a portion of an element of an adjacent but reversed tank, whereby the registering elements of adjacent tanks positioned with cover ends reversed will maintain the axes of said reversed tanks substantially parallel, the distance between the axes of reversed end tanks being closer together than the axes of tanks positioned cover end to cover end by at least one half the difference between the diameter of said shoulder portion and the greatest effective diameter of the element carrying said shoulder portion.

17. An ammunition tank of the class described, comprising a shell having a closed end and a cover end, certain walls of the closed end be-

ing of less diameter than the cover end, said cover end including annular reinforcing means, reinforcing means spaced from said annular means of such diameter that when another tank of the same construction is stowed cover end to cover end alongside of said first tank both of said means on the adjacent tanks will contact and maintain the axes of the tanks substantially parallel, said spaced means being so positioned that when adjacent tanks are stowed in reversed end position the distance between axes of the tanks is materially closer than when stowed cover end to cover end, and load reinforcing means on said tank cooperating and contacting with reinforcing means on an adjacent tank of the same construction when stowed in reversed end position whereby to assume external loads on said tank and prevent deformation of said shell.

18. A dual purpose ammunition tank of the type having a bottom end portion and a cover end portion of greater diameter than a certain portion of said bottom end portion, comprising load reinforcing elements so positioned that when a similar tank is stowed alongside of said first named tank said elements on both tanks will complementally register, both when said tanks are positioned cover end to cover end and with cover ends reversed, in both instances maintaining substantially parallel axes, certain of said elements being so shaped and cooperating when said tanks are stowed in reversed end position as to materially reduce the distance between the axes as compared to the distance between the axes when said tanks are stowed cover end to cover end.

19. A dual purpose ammunition tank of the

type having a bottom end portion and a cover end portion of greater diameter than a certain portion of said bottom end portion, comprising load reinforcing elements so positioned that when a similar tank is stowed alongside of said first named tank said elements on both tanks will complementally register, both when said tanks are positioned cover end to cover end and with cover ends reversed, in both instances maintaining substantially parallel axes, certain of said elements being so shaped and cooperating when said tanks are stowed in reversed end but flush position as to materially reduce the distance between the axes as compared to the distance between the axes when said tanks are stowed cover end to cover end.

20. A dual purpose ammunition tank of the type having a bottom end portion and a cover end portion of greater diameter than a certain portion of said bottom end portion, comprising load reinforcing elements so positioned that when a similar tank is stowed alongside of said first named tank said elements on both tanks will complementally register, both when said tanks are positioned cover end to cover end and with cover ends reversed, in both instances maintaining substantially parallel axes, certain of said elements being so shaped and cooperating when said tanks are stowed in reversed end position as to lock said tanks against longitudinal shifting and materially reduce the distance between the axes as compared to the distance between the axes when said tanks are stowed cover end to cover end.

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