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F. E. SMITH ET AL
PORTABLE TANK CONSTRUCTION

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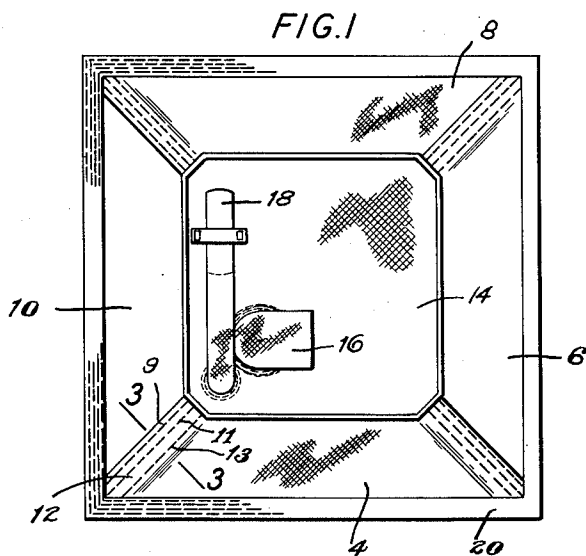
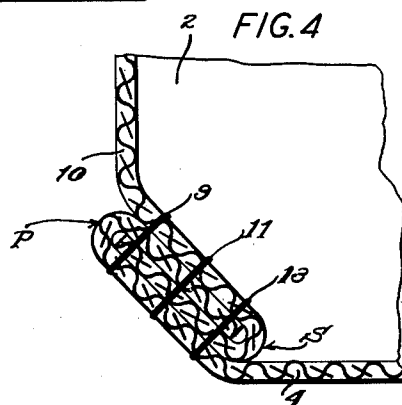
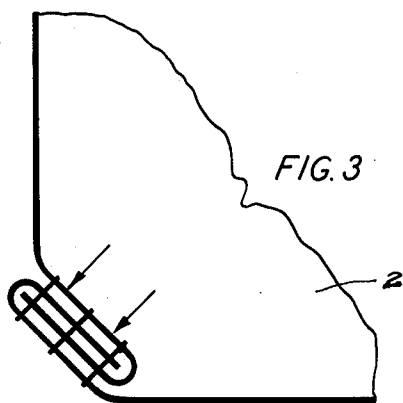
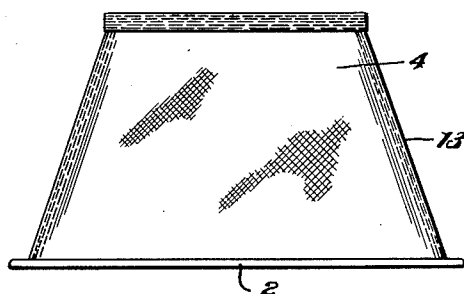


FIG. 2



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PORTABLE TANK CONSTRUCTION

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1 Claim. (Cl. 150—0.5)

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This invention relates to an improved portable collapsible tank of the class described and claimed in Pat. No. 2,507,939, issued May 16, 1950, which device has been found to be useful especially in connection with fire fighting apparatus employed in forest fires.

In the construction of the tank disclosed in the above noted patent outwardly projecting seams were formed by laying together edges of adjacent side sections of the tank and stitching the edges together in a position such that they constituted four corners of the tank. While this type of construction is satisfactory for some purposes, it has been found that in the course of severe operating conditions where rough handling and constant usage takes place, hydrostatic pressure may tend to force apart the stitched edges of the side sections, and this produces unusually severe stress concentrated against the innermost stitches. As a result these stitches tend to open slightly and permit water, or other contained liquid, to slowly leak out of the tank.

An object of the invention is to deal with this condition and to devise an improved seam construction for joining the side edges of a four-sided tank structure utilizing stitches which can be placed in a protected position so that leaking will not develop. It is also an object of the invention to provide an improved corner seam construction for a four-sided tank structure, which seam construction is efficient, easily applied, and which does not interfere with the normal functioning of the tank.

These and other objects and novel features will be more fully understood and appreciated from the following description of a preferred embodiment of the invention selected for purposes of illustration and shown in the accompanying drawings, in which

Fig. 1 is a plan view of the improved tank of the invention;

Fig. 2 is a side elevational view of the tank shown in Fig. 1;

Fig. 3 is a fragmentary, diagrammatic view illustrating the method of folding edges of adjacent side sections of the tank; and

Fig. 4 is a fragmentary plan cross-section taken on the line 3—3 of Fig. 1, showing the stitched seam of the invention greatly enlarged.

In the structure shown in the drawings, numeral 2 indicates the bottom section of the tank of the invention to which is secured four inclined sides denoted by numerals 4, 6, 8 and 10. The sides have their adjacent edges secured together to form relatively wide flat seams 12.

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Spaced rows of stitches, as 9, 11 and 13, extend angularly upward in spaced relation along the portions of the material constituting the seams.

At their upper edges the side sections of the tank are secured to a top 14 having a filling tube 16 and a relatively smaller outlet member 18, which may extend over the side of the tank or may be inverted to locate its mouth at a point below the level of the top section 14. These top, bottom and side sections of the tank are all made preferably of a flexible sheet material, such as a relatively heavy canvas, or similar fabric, which is treated so as to completely waterproof and rot-proof the fabric, within the ordinary meaning of these terms.

According to a preferred method of manufacture the sides are separately formed, as by being cut out of a sheet of canvas fabric, so as to provide pieces having converging side edges which are secured to the bottom section 2 to provide a bottom seam 20. In a like manner the upper portions of the side sections are secured to the top 14, as suggested in Figs. 1 and 2.

Adjacent edges of the sides 4, 6, 8, and 10 are joined together in the manner noted above and more particularly illustrated in Figs. 3 and 4, wherein it will be noted that the edges of each section are folded along lines of folding which extend angularly upwardly of the tank and which are spaced apart to provide a relatively wide flat seam extending angularly between its adjacent sides. The folded portions are located within one another in an interlocking position, such as suggested in Fig. 3, and the several rows of stitches 9, 11 and 13 pass through the overlapping layers of material, as noted in Fig. 4, firmly securing these interlocking portions of the tank sides to one another. It is pointed out that by thus providing a relatively wide seam the rows of stitching may be located well inside the line of folding. It will be observed also that there will occur, as a result of the arrangement described, an inner folded part denoted in the drawings by the letter S and an outer folded part denoted by the letter P. In the case of the folded part P, the immediately adjacent fabric from side 10 is secured by a row of stitching 9 and hydrostatic pressure from the fluid contained in the tank will force the inner fabric wall against the folded portion P to provide a substantial line of sealing at a point externally of the line of stitching 9.

Similarly, and of more importance, is the fact that the folded portion S, when subjected to the hydrostatic pressure of the fluid in the tank,

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will be forced against the fabric of the side 4 to provide a line of sealing which extends along points occurring externally of the row of stitching 13. An important feature of the invention resides in the line of sealing which is found to be especially effective in protecting the row of stitching 13, since it prevents each of the individual stitches from being spread apart and pulled out of the stitched fabric sections.

In thus providing a line of sealing externally of the line of stitching 13 it is found that any tendency of hydrostatic pressure to pull the stitches 13 out of the fabric into which they are secured is completely eliminated and even when exposed to severe usage under long periods of operation the row of stitching 13 will resist any tendency to develop leaking. As a result there is provided a more satisfactory and water-tight tank construction which is of importance in many types of usage where water is required to be conveyed into difficult localities, either in vehicles or by being carried by fire fighters on their backs.

It should be understood that in a collapsible four-sided fabric body of the type necessary for carrying water by hand into forest fire zones there must necessarily occur a great deal of flexing and there are various well known seam constructions which will not stand up under such conditions. However, the seam of this inven-

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tion when used in this particular connection is completely successful in permanently resisting the development of leaks.

We claim:

5 A portable collapsible tank provided with flat top and bottom sections and inclined side sections which extend angularly with respect to one another, edges of the side sections being secured together in interlocking relation to present diagonally extending seams having inner and outer folds, stitches located through the interlocked portions of the side sections, said inner fold of one section lying against the surface of an adjacent tank section at points just outside of the line of stitching to provide a sealing area, said 15 sealing area in response to hydrostatic pressure of fluid in the tank being adapted to resist forces seeking to separate the sections of the inner fold secured by the outermost line of stitching.

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