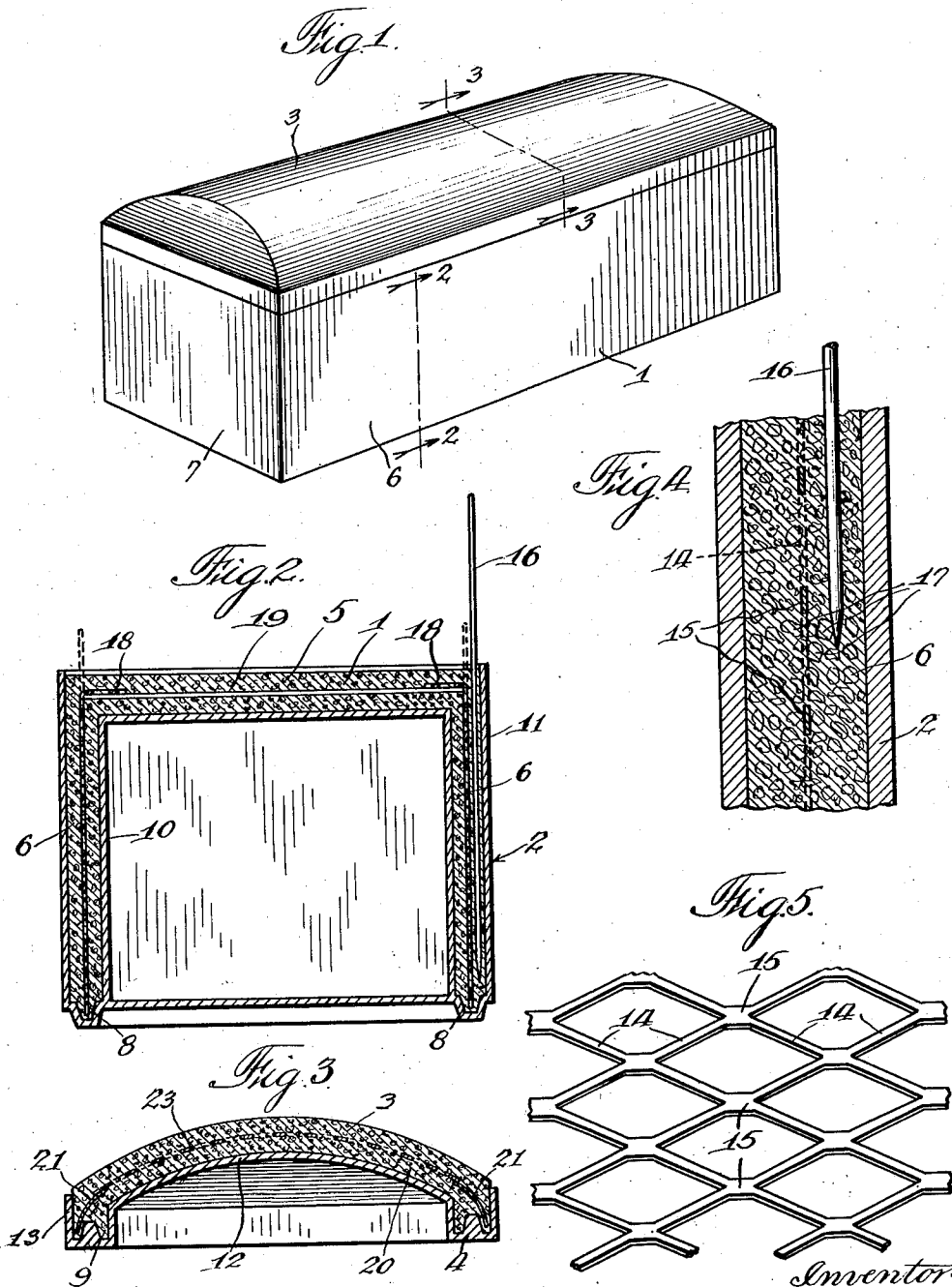


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VAULT CONSTRUCTION  
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## VAULT CONSTRUCTION

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3 Claims. (Cl. 72-7)

My invention relates to vault construction.

One of the objects of my invention is to provide an improved vault construction, making use of flat expanded metal as a reinforcement, thus enabling the concrete to be spaded on both sides of the reinforcement, as the flat reinforcement offers no projections which might catch on the spading tool used.

A further object is to provide a reinforced vault construction, making use of a relatively light reinforcement of flat expanded metal whereby the expansion and contraction due to temperature changes will not cause serious danger to the concrete. Where a relatively heavy reinforcing is used it causes an extreme internal pressure in the concrete which is so destructive to burial vaults.

A further object is to provide an improved reinforced vault construction, making use of flat expanded metal as a reinforcement whereby shaping and forming the reinforcement is readily accomplished.

A further object is to provide a reinforced vault construction in which the flat expanded metal has relatively large openings which permit natural settling of the complete concrete mixture regardless of the size and aggregate used in the mix. When the ordinary type of expanded metal with a small mesh is used, the aggregate is not permitted to settle in unison with the cement, resulting in most of the fine cement being on one side and most of the aggregate on the other side of the reinforcing, thus weakening the concrete.

A further object is to provide an improved reinforced vault construction, making use of flat expanded metal as a reinforcement whereby the reinforcement can be safely handled by the workmen because of the fact that it has no sharp edges.

A further object is to provide a reinforced vault construction, making use of flat expanded metal as a reinforcement in such a manner that the strands and bonds of the reinforcement will provide a truss-like construction with the strands and bonds lying in a plane in which they will be most effective in taking care of the strain to which the vault is subjected.

Further objects and advantages of the invention will be apparent from the description and claims.

In the drawing, in which an embodiment of my invention is shown,

Figure 1 is a perspective view showing the complete vault;

Fig. 2 is a transverse sectional view showing the box portion in position in its mold;

Fig. 3 is a transverse sectional view showing the cover portion in position in the mold;

Fig. 4 is an enlarged sectional view of a portion of Fig. 2; and

Fig. 5 is a perspective view showing the flat expanded metal used as a reinforcement.

Referring to the drawing in detail, the construction shown comprises the reinforced concrete box portion 1, the mold 2 in which it is formed, the arched cover portion 3 and the mold 4 in which it is formed. The box portion shown is rectangular in shape comprising bottom, side and end portions 5, 6 and 7, respectively, the upper edges of the box portion having a dovetail portion 8 fitting a corresponding dovetail portion 9 in the cover portion 3.

In molding the box portion, the box is molded upside down, the mold comprising an inner core 10 for forming the inside of the box and an outer shell 11 for forming the outside of the box. The lower portion of the mold is shaped to form the dovetail portion 8 on the box. The mold for the cover comprises an inner core-like portion 12 for shaping the inside of the cover and an outside flange portion 13 for forming the outer edge of the cover. The expanded metal (Fig. 5) used as a reinforcement is flat, that is, the strands 14 and bonds 15 forming the expanded metal all lie in a common plane so that there are no rough projections which might interfere with spading the concrete in the molds and which might cause injury to the workmen handling the concrete, due to sharp edges. Furthermore, the use of the flat expanded metal, particularly on the side walls of the box, results in a placement of the strands and bonds in such a way that they form a flat truss-like construction, well calculated to resist the strains to which the box is subjected in handling, etc.

In molding the box, the flat expanded metal is provided of a suitable width to serve as a reinforcement for the side and end walls of the box and is cut into such lengths as are suitable for placement in the mold. The reinforcement sections thus provided are then inserted edgewise into the mold as shown in Fig. 2 so that the lower edges lie in the dovetail forming recesses in the bottom of the mold. The concrete is then placed in the mold on both sides of the reinforcement and the concrete is then spaded down on both sides of the reinforcement by means of a suitable spading tool 16. It will be noted that the use of this flat reinforcement presents no obstructions or obstacles to the use of the spading tool and that, as shown in Fig. 4, the mesh of the rein-

forcement is of such a size as to permit the natural settling of the complete concrete, regardless of the size of aggregate 17 used in the mix. After the concrete has been spaded in on both sides of the reinforcement, the upper edges of the reinforcing strips are bent over, as shown at 18 in Fig. 2, and the placement of the concrete is completed by supplying it to form the bottom portion of the box in which the bent-over edges 18 of the reinforcement are embodied. If desired, suitable reinforcement 19 may be provided for the bottom of the box, either in the form of the flat expanded metal or in the form of steel reinforcing rods.

In forming the cover, the first layer of concrete 20 is poured over the arched portion of the mold to about half the desired thickness. The reinforcement 21 for the side edges of the cover is then put in place. This may be either flat expanded metal or ordinary expanded metal, the lower edge of the strip being inserted into the dovetail forming portion of the mold. A section 22 of suitable length of the flat expanded metal is then bent into shape on top of the partly formed cover and additional concrete 23 is then supplied to bring the cover to the desired thickness. The flat expanded metal lends itself well to the arched construction of the cover as it is easily bent into a generally cylindrical shape without warping.

By the use of the flat expanded metal in vault construction, a much lighter reinforcement can be used than is necessary if an ordinary expanded metal is used, as it has been found by test that this flat truss-like construction is much stronger for this particular application than ordinary expanded metal.

Further modifications will be apparent to those skilled in the art and it is desired, therefore, that the invention be limited only by the prior art and the scope of the appended claims.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. A vault construction comprising a box-like structure having the bottom and side walls formed of reinforced concrete, said side walls be-

ing relatively thin and wide and said reinforcing comprising a sheet of flat expanded metal having flat strands and flat bonds lying substantially in a common plane, said sheet extending substantially from top to bottom of a wall and having a free edge extending along and adjacent the line of juncture of the bottom with said wall, said sheet being spaced a substantial distance from the inside and outside surfaces of the wall, said concrete mixture being spaded on both sides of the flat expanded metal sheet.

2. A vault construction comprising a box-like structure having the bottom and side walls formed of reinforced concrete, said side walls being relatively thin and wide and said reinforcing comprising a sheet of flat expanded metal having flat strands and flat bonds lying substantially in a common plane, said sheet extending substantially from top to bottom of a wall and having a free edge extending along and adjacent the line of juncture of the bottom with said wall, said sheet being spaced a substantial distance from the inside and outside surfaces of the wall, said concrete mixture being spaded on both sides of the flat expanded metal sheet, the free edge of the reinforcement adjacent the bottom of the vault construction being bent inwardly to extend into the concrete of the bottom.

3. A vault construction comprising a box-like structure having bottom and side walls, said side walls being of reinforced concrete and being relatively thin and wide, said reinforcing comprising a sheet of flat expanded metal having flat strands and flat bonds lying substantially in a common plane, said sheet extending substantially from top to bottom of a wall and having a free edge extending along and adjacent the line of juncture of the bottom with said wall, said sheet being spaced a substantial distance from the inside and outside surfaces of the wall, said concrete mixture being forced into the meshes of the expanded metal by pressure exerted on both sides of the flat expanded metal by means of a tool.

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