Nov. 5, 1929. S. B. MOORE 1,734,392

CONCRETE CULVERT

Filed Nov. 8, 1926

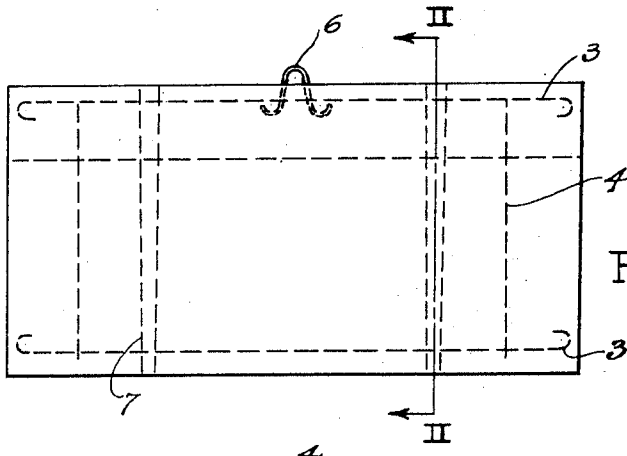


FIG. 1

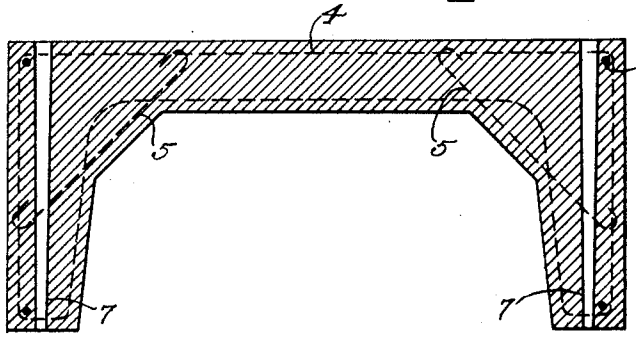


FIG. 2

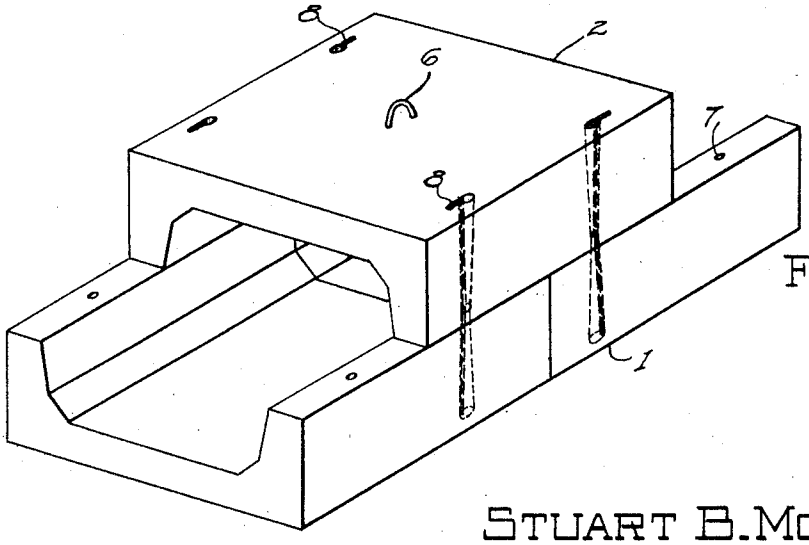


FIG. 3

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UNITED STATES PATENT OFFICE

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CONCRETE CULVERT

Application filed November 8, 1926. Serial No. 147,121.

This invention relates to reinforced concrete culverts, and particularly to the type in which the culvert is constructed of preformed units.

The making of culverts of two rows of reinforced concrete units, the lower row forming a trough and the upper row forming a cap, is well known. In some forms of construction one row has set into it a series of tie rods which project through corresponding holes in the other row, a nut being screwed onto the end of the tie rod to bind the two rows together. The disadvantage with this construction is that it is difficult to slip the four holes of a unit over the corresponding four tie rods of the opposed row on account of the weight of the units. The present invention obviates this disadvantage by making relatively large holes in all the units, and inserting the tie rods in the holes and grouting them in after the units have been set in position. On account of the size of the holes accurate alinement is not necessary.

One embodiment of the invention is illustrated in the accompanying drawing in which—

Figure 1 is a side elevation of one of the units of which the culvert is constructed,

Fig. 2 is a cross section on the line II—II of Fig. 1, and

Fig. 3 is an isometric view of a portion of a finished culvert.

The culvert consists of a number of trough shaped lower units 1 capped over by a corresponding number of arch shaped upper units 2, the upper units overlapping the joints between the lower units.

The upper and lower units are identical in construction. Each is provided with suitable reinforcement such as bars 3, stirrups 4, and knee bars 5. An eye 6 may be set in the concrete for wrecking and loading purposes.

To facilitate joining the units to each other each is provided with four holes 7 through which tie rods 8 are inserted. The holes are so situated that when an upper unit is placed in position so as to extend an equal distance on each side of the joint between two lower units, the holes of the upper unit will aline with holes in each lower unit. For example if a unit is two feet long the holes will be located six inches from each end. The holes are tapered and preferably made somewhat larger at their smallest diameter than the tie rod which is to be inserted so that the sections need not be so accurately positioned. For example with a one-fourth inch tie rod the hole may be made three-fourths inches in diameter at its smallest point. The tie rods are secured in place by grouting. The tapered holes permit the tie rod to be slightly bent at its mid-point before it is inserted, so that when it is held flat against the tapered walls of the two alined holes by the grout it forms a positive bond between the two units.

It will be at once apparent that the setting up of my improved culvert will be decidedly easier than the old form in which it was necessary to guide a heavy unit accurately while lowering it into place so as to slip the holes over their tie rods.

Having described my invention I claim:

A culvert consisting of a plurality of channel-shaped units set up in two opposed rows to form a pipe, the sides of said units having holes extending through them transversely with respect to the meeting edges of the units and parallel to said sides, said holes tapering to a smaller diameter at said meeting edges, the holes of opposed units being substantially alined, and tie rods in said holes, said tie rods being bent at said meeting edges so as to lie substantially flat along one wall of the doubly tapered passageway formed by opposed holes and being held in place by a grout.

In testimony whereof the foregoing specification is signed.

STUART B. MOORE.