

H. B. LOXTERMAN.

CULVERT MOLD.

APPLICATION FILED FEB. 23, 1916.

1,245,477.

Patented Nov. 6, 1917.

2 SHEETS—SHEET 1.

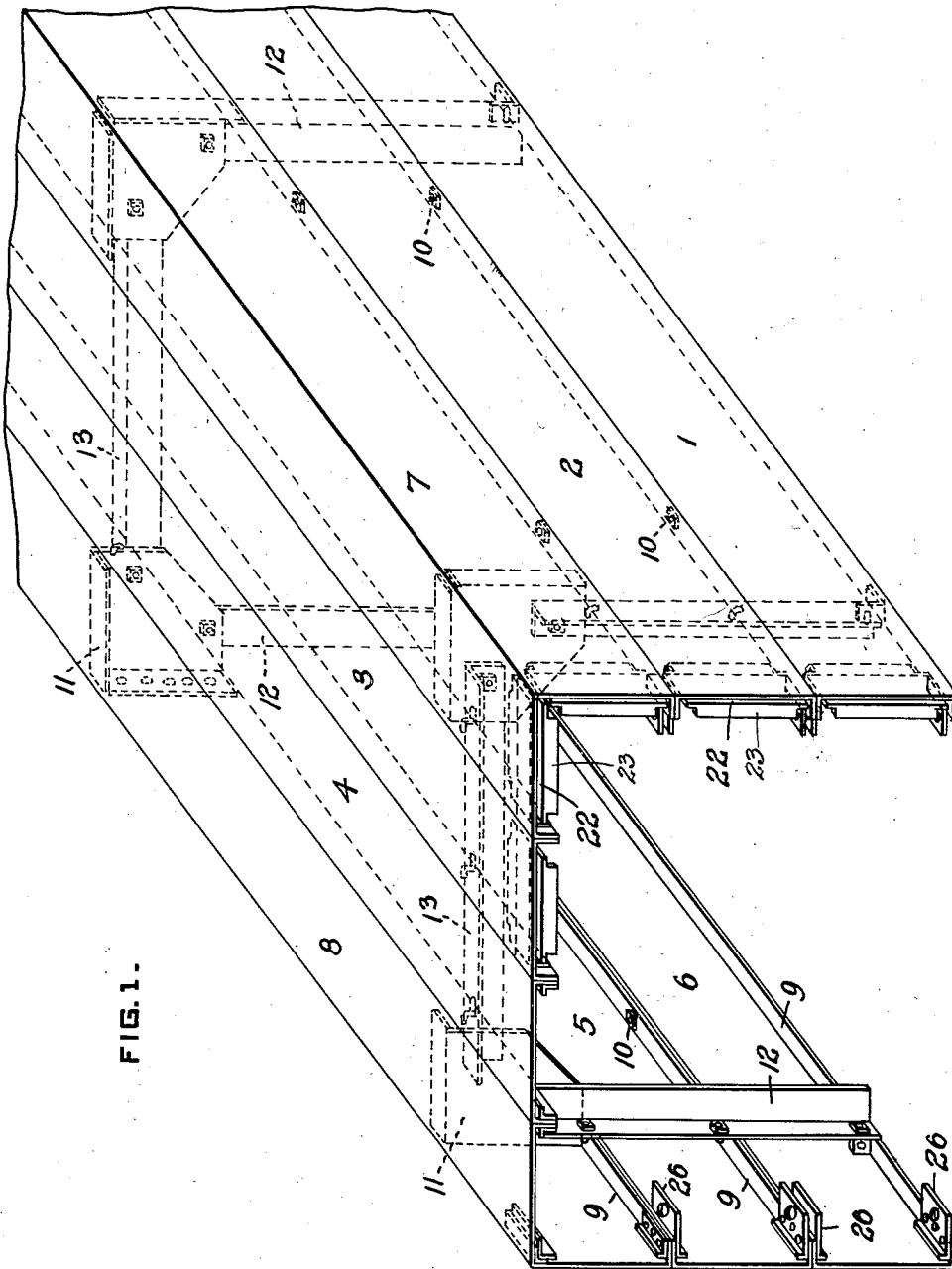


FIG. 1.

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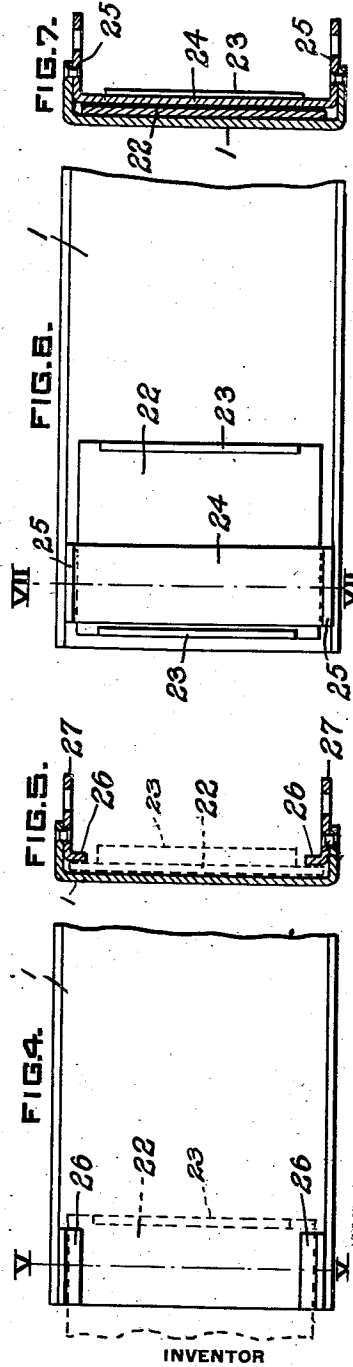
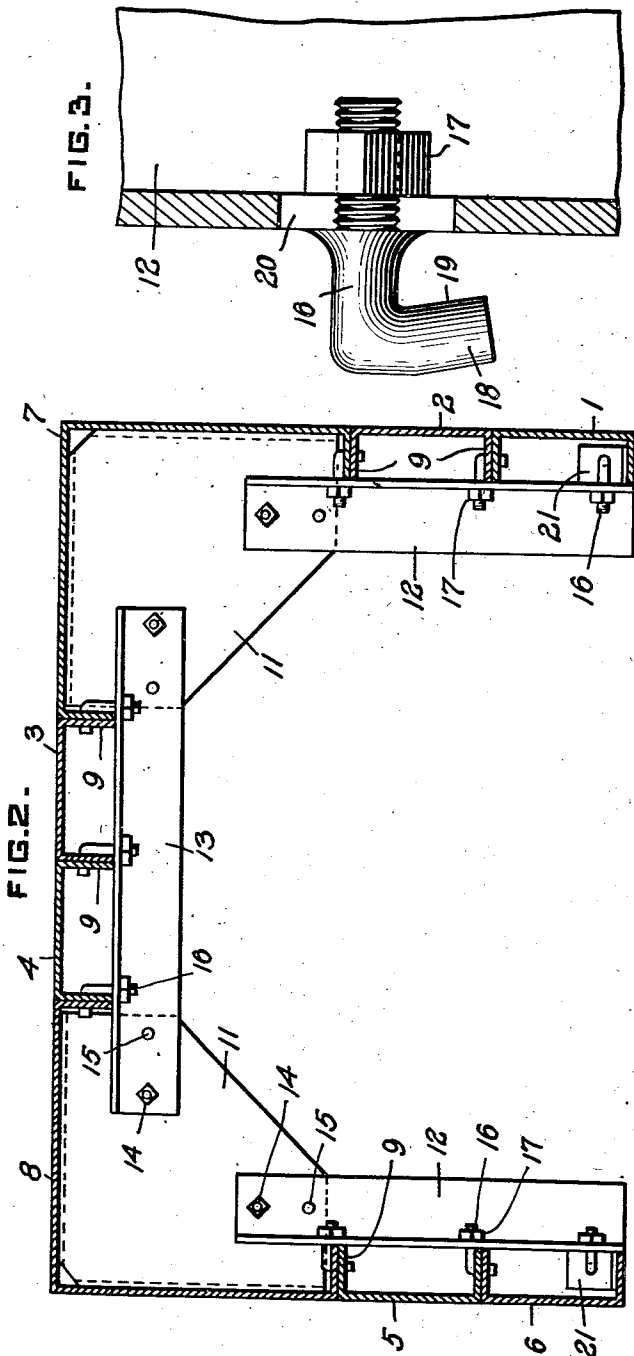
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UNITED STATES PATENT OFFICE.

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CULVERT-MOLD.

1,245,477.

Specification of Letters Patent.

Patented Nov. 6, 1917.

Application filed February 23, 1916. Serial No. 79,843.

To all whom it may concern:

Be it known that I, HOWARD B. LOXTERMAN, a citizen of the United States, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Culvert-Molds, of which the following is a specification.

The invention relates to a conduit mold for use with concrete, designed particularly for making culverts, but useful in the construction of conduits other than culverts. The invention has for its principal objects, the provision of a form or mold of cheap simple construction (1) which can be easily operated by unskilled labor, (2) which is made of units capable of use in molds of different heights and widths, (3) which has improved means for detachably securing one length of the mold to an abutting length, (4) which has improved means for alining and supporting the series of units constituting the walls of the mold. One embodiment of the invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a perspective view of a portion of the mold or form, Fig. 2 is a transverse section through the mold, Fig. 3 is a section on an enlarged scale through one of the alining bars, showing the locking bolt in side elevation, and Figs. 4, 5, 6 and 7 are detail views showing the means for coupling mold sections together, Figs. 4 and 6 being elevations and Figs. 5 and 7 being sections on the lines V—V of Fig. 4 and VII—VII of Fig. 6.

The side and top walls of the mold consists of the longitudinally extending channels, 1, 2, 3, 4, 5 and 6, and the corner plates 7 and 8. The channels and corner plates are preferably made of sheet metal and are provided with inturned flanges 9. The opposing flanges are secured together at intervals by means of stove bolts 10. The mold can be built up to any desired size by the use of additional channels, and channels of greater or less width may be used when desired.

The angular corner plates are provided at intervals with stiffener plates 11 having their flanges riveted to the horizontal and vertical faces of the plates. These plates 11 also serve to support the ends of the upright alining bars 12 and the horizontal alining bars 13 (Figs. 1 and 2). The alining

bars are angular in cross-section and are perforated at their ends to receive the securing bolts 14 and pins 15 by means of which the bars are fastened to the stiffener plates 11. The pins 15 are employed instead of bolts because they can be removed and positioned more rapidly and when used in connection with the bolts 14 have been found to provide a sufficient attachment for the bars. In order to clamp the bars 12 to the flanges 9 of the channels and corner plates, securing bolts 16 (Fig. 3) are employed, such bolts having their shanks threaded and provided with the nuts 17 and having their other ends 18 bent in somewhat so that the face 19 is at an acute angle with respect to the axis of the bolt shank.

The flanges 9 with which the bolts cooperate are slotted to receive the ends 18, and the flanges of the bars 12 and 13 are also slotted so that when the nuts 17 are loosened the bolts can be released from the flanges 9 by sliding the shanks along the slots 20. When the nuts 17 are tightened the flanges of the channels and angle plates are clamped tightly against the bars and brought into alinement. The inclination 19 upon the bolts serves to prevent the bolts from becoming unfastened from the flanges 9 as the nuts are tightened. The bottom channels 1 and 6 are provided with clips 21 with which the securing bolts 16 cooperate, such lower bolts being mounted in horizontal slots in the bars 12. This arrangement with respect to the channels 1 and 6 is necessary because the lower flanges of such channels rest upon supporting means which would prevent the passage of the bent ends of the bolts if such bolts were arranged in the same way as the bolts lying higher up.

Figs. 4 to 7, in connection with Fig. 1, illustrate the means for attaching abutting mold sections together. Figs. 6 and 7 illustrate one form of guideway carrying a locking slide 22, while Figs. 4 and 5 illustrate another form of guideway with the locking slide 22 indicated in dotted lines. The locking slide comprises a flat plate fitting inside the channel 1 at the end thereof and having upturned flanges 23 by means of which the plate may be grasped and moved endwise or may be driven endwise by means of a hammer in case the fit is a tight one. The slide is held in position by means of a strap 24 which has its edges 25 turned inwardly as

indicated in Fig. 7, and riveted to the flanges of the channel 1. The upturned edges 23 on the locking slide prevent the accidental removal of the slide from the channel 1. The end of the channel which the channel 1 abuts and which is illustrated in Figs. 4 and 5, is provided with a guideway for receiving the locking slide 22 consisting of the clips 26 having the inturned perforated flanges 27. In order to lock the two channels together, the locking slide 22 is moved to the left from the position indicated in Fig. 6 and slides beneath the clips 26 and occupies the position illustrated in dotted lines in Figs. 4 and 5. As shown in Fig. 1 the channels 1, 2 and 3 and the corner plate 7 are provided with the construction of Figs. 6 and 7, while the other channels and corner plate 8 are provided with the construction of Figs. 4 and 5. The section end which opposes the end of the section of Fig. 1 would of course require a reverse arrangement. If desired one mold section might obviously carry upon all the channels and angle plates the construction of Figs. 6 and 7, in which case the opposing mold section would require the construction of Figs. 4 and 5. The inwardly projecting flanges of the clips 26 and straps 25 are perforated in order to provide for the insertion of a tool to assist in removing the channels from the concrete or for moving and handling the channels, and the lower edges of the side walls may be maintained properly spaced apart by means of transverse braces of wood or other material (not shown).

In assembling the mold the side walls are first built up and the alining bars 12 placed in the position illustrated and the bolts tightened after their ends have been inserted through the perforations in the opposing flanges of the channels and corner plates. The transverse alining bars are then secured in position by means of the pins 15 and bolts 14 after which the roof channels are positioned and the bolts 16 tightened. After the concrete has set around the mold, it is taken apart in reverse order, the transverse alining bars being first detached from the roof channels and taken down followed by the roof channels 6, after which the bars 12 are detached from the corner plates and side wall channels and removed. The corner plates and wall channels can then be removed in order.

What I claim is:

1. In combination in a conduit mold, side walls comprising longitudinally extending plates provided with inwardly extending stiffening flanges and arranged one above the other, a top wall, corner mold sections extending longitudinally and fitting the spaces between the side and top walls, transverse stiffeners secured in the corner sections, upright alining bars extending across the flanges of the side wall sections and se-

cured detachably at their upper ends to the stiffeners, and means for detachably clamping the bars to the said flanges.

2. In combination in a conduit mold, side walls comprising longitudinally extending plates provided with inwardly extending stiffening flanges and arranged one above the other, a top wall, corner mold sections extending longitudinally and fitting the spaces between the side and top walls and comprising upright and lateral plates with inwardly extending flanges at their edges, transverse stiffeners secured in the corner sections, upright alining bars extending across the flanges of the side wall sections and secured detachably at their upper ends to the stiffeners, and means for detachably clamping the bars to the said flanges.

3. In combination in a conduit mold, side walls comprising longitudinally extending plates provided with inwardly extending stiffening flanges and arranged one above the other, a top wall comprising longitudinally extending plates provided with inwardly extending flanges, corner mold sections extending longitudinally and fitting the spaces between the side and top walls and comprising upright and lateral plates with inwardly extending flanges at their edges, stiffeners in the corner sections, upright alining bars extending across the flanges of the wall sections and secured detachably at their upper ends to the stiffeners, and other alining bars extending transversely across the flanges of the plates of the top wall and secured detachably at their ends to the stiffeners.

4. In combination in a conduit mold, side walls comprising longitudinally extending plates provided with inwardly extending stiffening flanges and arranged one above the other, a top wall comprising longitudinally extending plates provided with inwardly extending flanges, corner mold sections extending longitudinally and fitting the spaces between the side and top walls and comprising upright and lateral plates with inwardly extending flanges at their edges, stiffeners in the corner sections, upright alining bars extending across the flanges of the wall sections and secured detachably at their upper ends to the stiffeners, and other alining bars extending transversely across the flanges of the plates of the top wall and secured detachably at their ends to the stiffeners, and means for clamping the alining bars detachably to the flanges across which they extend.

5. In combination in a conduit mold, side walls comprising longitudinally extending plates provided with inwardly extending stiffening flanges and arranged one above the other, a top wall comprising longitudinally extending plates provided with inwardly extending flanges, corner mold sec-

tions extending longitudinally and fitting the spaces between the side and top walls and comprising upright and lateral plates with inwardly extending flanges at their edges, stiffeners in the corner sections, horizontal alining bars extending transversely across the flanges of the plates of the top wall and secured detachably to the stiffeners, and means for clamping the alining bars to the flanges across which they extend.

6. In combination in a conduit mold, side and top walls comprising longitudinally extending channel plates having their flanges turned in and angular corner plates having flanges at their edges turned in, stiffeners in the corners of the corner plates, and alining bars extending vertically and horizontally and secured detachably at their ends to the stiffeners, the said bars engaging the flanges of the plates comprising the mold.

7. In combination in a conduit mold, side and top walls comprising longitudinally extending channel plates having their flanges turned in and angular corner plates having flanges at their edges turned in, stiffeners in the corners of the corner plates, alining bars extending vertically and horizontally and secured detachably at their ends to the stiffeners, and means for releasably clamping the flanges of the plates to the alining bars.

8. The combination with a pair of mold plates having abutting perforated flanges, of an alining bar, a bolt having a threaded shank extending through the bar and having its end turned laterally and adapted to engage the perforations in the flanges, and a nut on the shank of the bolt.

9. The combination with a pair of mold plates having abutting perforated flanges, of an alining bar, provided with a longitudinal slot, a bolt having a threaded shank extending through the slot and having its end turned laterally and adapted to engage the perforations in the flanges, and a nut on the shank of the bolt.

10. The combination with a pair of mold plates having abutting perforated flanges, of an alining bar, provided with a longitudinal slot, a bolt having a shank extending through the slot and having its end turned laterally and adapted to engage the perforations in the flanges, and means for moving the bolt endwise to force the flanges against the alining bar and hold them in such position.

11. The combination with a pair of mold plates having abutting perforated flanges, of an alining bar, provided with a longitudinal slot, a bolt having a shank extending through the slot and having its end turned laterally at an acute angle to the shank and adapted to engage the perforations in the flanges, and means for moving the bolt endwise to force the flanges against the alining bar and hold them in such position.

12. In combination with a mold plate, a slotted alining bar, a bolt having a shank extending through the slot and having its end turned laterally to engage the plate, and means cooperating with the shank to cause the turned end to approach the bar and clamp the plates to the bar.

13. In combination with a pair of mold plates, a slotted alining bar, a bolt having a shank extending through the slot and having its end turned laterally to engage the plates and a nut threaded on the shank to draw the bar into engagement with the plates.

14. In combination with a pair of plates provided with perforations, a slotted alining bar, a bolt having a shank extending through the slot and having its end turned laterally, at an acute angle to the shank to engage the perforations, and means cooperating with the shank to cause the turned end to approach the bar and clamp the plates to the bar.

15. The combination with a pair of mold sections placed end to end and having its walls composed of channels with their edges turned in, guideways consisting of opposing clips secured to the inner sides of the flanges of the channels of one of the mold sections, guideways on the other mold sections comprising straps with intumed edges secured to the flanges of the channels and extending thereacross, and locking slides lying beneath the straps and adapted to have their edges slid beneath the clips forming the first mentioned guideways.

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