G. W. FISH.

COLLAPSIBLE AND ADJUSTABLE MOLD FOR CEMENT CULVERTS.

APPLICATION FILED OCT. 8, 1908.

955,779. Patented Apr. 19, 1910.

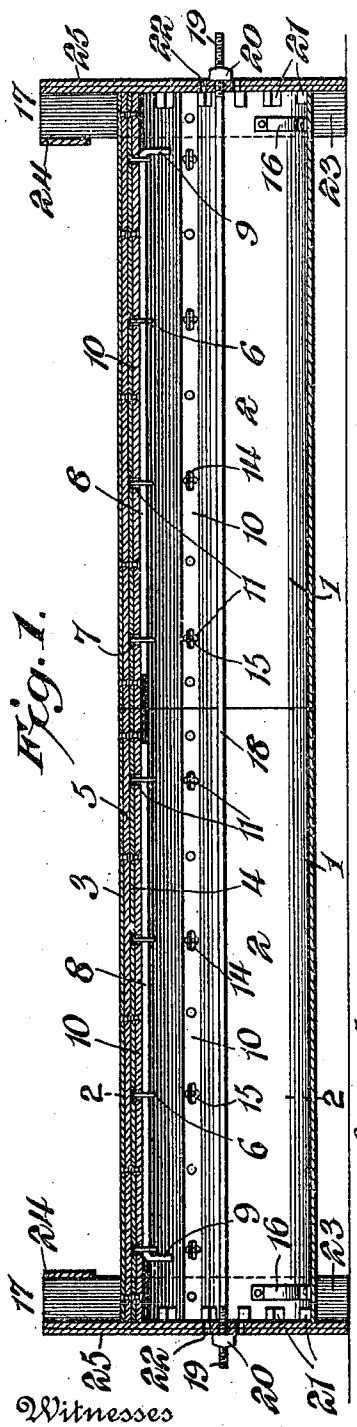

Fig. 1.

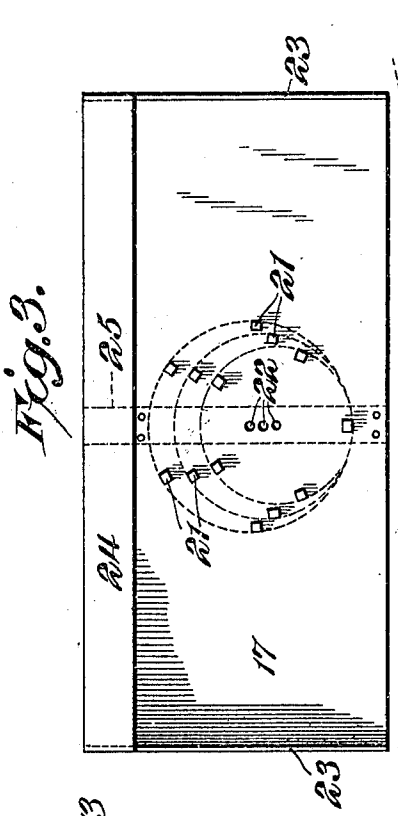

Fig. 3.

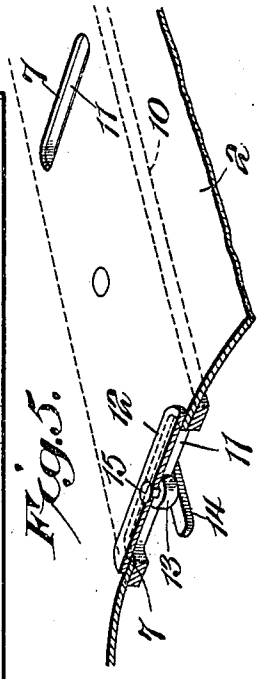

Fig. 5.

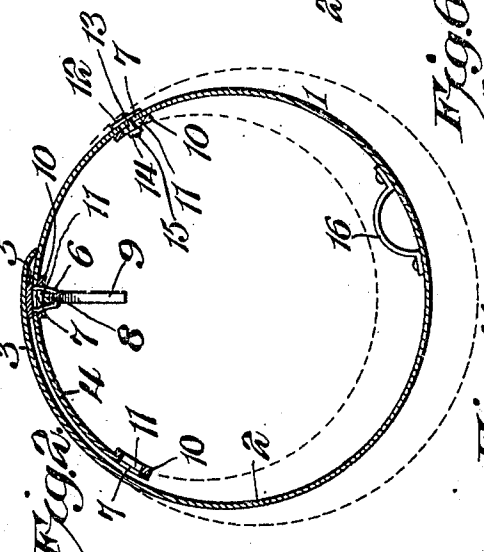

Fig. 2.

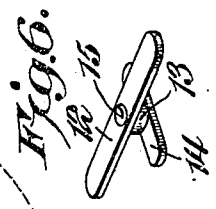

Fig. 6.

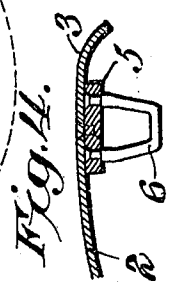

Fig. 4.

Witnesses

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UNITED STATES PATENT OFFICE.

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COLLAPSIBLE AND ADJUSTABLE MOLD FOR CEMENT CULVERTS.

955,779. Specification of Letters Patent. Patented Apr. 19, 1910.

Application filed October 8, 1908. Serial No. 456,783.

To all whom it may concern:

Be it known that I, GEORGE W. FISH, a citizen of the United States, residing at Central City, in the county of Linn and State of Iowa, have invented a new and useful Collapsible and Adjustable Mold for Cement Culverts, of which the following is a specification.

The invention relates to improvements in molds for cement culverts.

The object of the present invention is to improve the construction of molds for cement culverts, and to provide a simple, inexpensive and efficient cement mold of great strength and durability, capable of adjustment to construct culverts or water-ways of different diameters, and adapted to be collapsed to enable it to be conveniently and quickly removed after a culvert has been molded.

With these and other objects in view, the invention consists in the construction and novel combination of parts hereinafter fully described, illustrated in the accompanying drawing, and pointed out in the claims hereto appended; it being understood that various changes in the form, proportion, size and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawing:—Figure 1 is a longitudinal sectional view of a collapsible and adjustable mold, constructed in accordance with this invention. Fig. 2 is a transverse sectional view, taken on the line 2—2 of Fig. 1. Fig. 3 is an elevation of one of the abutments. Fig. 4 is a detail sectional view of one of the overlapped longitudinal edges of the mold, illustrating the arrangement of the staples. Fig. 5 is a detail view of a portion of the mold, illustrating the means for covering the exposed slots of the sections. Fig. 6 is a detail perspective view, illustrating the construction of the closures.

Like numerals of reference designate corresponding parts in all the figures of the drawing.

The collapsible and adjustable culvert mold comprises in its construction a plurality of sections 1, constructed of sheet steel, or other suitable sheet metal and each consisting of a cylindrical shell 2, having overlapped longitudinal edges or portions 3 and 4 and adapted to be varied in size to construct culverts, having openings or water-ways of different diameters. The section 1 is equipped at the inner face of the edge of the overlapped portion 3 with a longitudinal bar 5, provided at intervals with staples 6, forming inwardly projecting loops adapted to be passed through slots 7 of the other overlapped portion 4. The slots are arranged at the edge of the portion 4 and at points spaced from the edge, and are disposed in longitudinal sets or series to correspond to the inwardly projecting loops 6, and in practice the section 1 will be equipped with three sets of slots for constructing culverts of three different sizes, but the number of slots may be varied, as will be readily understood. The overlapped portions of the section 1 are secured together by a longitudinal key 8, passing through the alined staples and having one end angularly bent to form a combined handle and stop 9. The loops 6 are wedge-shaped and taper inwardly and presenting inclined sides to the walls of the slots, whereby the overlapped slotted portion of the section can be readily dropped off the loops without binding when the longitudinal key is withdrawn. The key and the rest of the fastening means for securing the overlapped portions 3 and 4 of the section together are arranged interiorly of the section, so as to facilitate a ready manipulation of the parts and also to enable the section 1 to present a smooth exterior. In practice the sections will be preferably ten feet in length and any number may be employed to provide a culvert of the desired length.

The section 1 is reinforced at the slots 7 by means of longitudinal bars 10, riveted or otherwise secured to the inner face of the section 1, and provided at intervals with slots 11, corresponding with the slots 7 of the section. The exposed slots of the sections are covered by closures, consisting of an outer plate 12, a shank 13 and an inner pivoted button 14. The plate, the shank and the button are secured together by means of a rivet 15, piercing the said parts and constituting the pivot of the button. The plate 12

is of a size to cover and conceal the slot 7, and in practice will be sufficiently thin so as not to materially project from the exterior of the section. The shank 13 is designed to be constructed of leather, or other suitable material, and the button 14, which is constructed of a size to pass readily through the slots 7 and 11, is adapted to be turned transversely thereof, as clearly illustrated in Fig. 5 of the drawing for securing the closure in position. The closure prevents the cement from entering the slots of the section.

Each section of the culvert mold is equipped at its outer end with an interiorly arranged handle 16, consisting of a piece of metal, bowed to form a loop and having its terminals riveted, or otherwise secured to the inner face of the section, but a handle of any other desired construction may be employed.

The sections of the culvert mold are secured together and to end abutments 17 by means of a tie rod 18, having threaded terminals 19 for the reception of nuts 20, which engage the outer faces of the abutments. The abutments, which may be constructed of either wood or metal, are provided at their inner faces with projecting lugs 21, forming supports for the adjacent ends of the sections 1 and arranged in annular series of different diameters to correspond to the adjustment of the sections of the mold. The annular sets or series of the lugs coincide at the bottom so that a single bottom lug serves for each of the sets or series, as clearly illustrated in Fig. 3 of the drawing. The abutments are also provided with a plurality of perforations 22, arranged centrally of the several series of lugs, so that the tie rod will occupy a central position in each adjustment of the sections. When the abutments, which are adapted to form end walls at the terminals of the culvert, are constructed of sheet metal, each will be provided at its ends with vertical inwardly extending integral walls or flanges 23, and at the top with a transverse connecting bar or piece, arranged horizontally and secured to the vertical flanges at the upper portions thereof. The top of the abutment is thereby lifted off to permit the cement or other plastic material to be poured into the abutment to build the end wall. The abutment is also reinforced by a centrally arranged vertical bar 25, secured to the outer face of the abutment and extending from the top to the bottom thereof.

The abutments form closures for the ends of the shell of the mold and they support the sections in proper alinement, and after the cement sets, the abutments are first detached and then the sections are removed.

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

1. A culvert mold including an approximately cylindrical collapsible section adjustable to vary the diameter of the mold and consisting of a continuous piece of sheet metal having overlapped longitudinal portions, one of the portions being provided with sets of longitudinal slots, a longitudinal bar secured to the inner face of the other overlapped portion at the edge thereof and provided with loops arranged to project through the said slots, and a removable interiorly arranged key passing through the loops and detachably securing the overlapped portions together.

2. A culvert mold including a collapsible and adjustable section consisting of a cylindrical shell having overlapped longitudinal portions, a longitudinal bar secured to the inner face of one of the overlapped portions and provided with inwardly extending loops, a plurality of longitudinal bars arranged in spaced relation and secured to the inner face of the other overlapped portion and provided at intervals with slots to receive the said loops to vary the length of the overlapped portions and thereby change the diameter of the mold, and an interiorly arranged key engaging the loops for securing the overlapped portions together.

3. A culvert mold including a collapsible and adjustable section, an abutment provided at its inner face with supporting lugs arranged in annular sets or series coinciding at one lug, and a tie rod passing through the section and detachably connected with the abutment.

4. A culvert mold including a collapsible adjustable tubular section, a sheet metal abutment fitting against the end of and forming a closure for the adjustable tubular section and provided with vertical side flanges and having a transverse connecting flange secured to the upper ends of the side flanges, the abutment being open at the top, and supporting means carried by the abutment and receiving the said section.

5. A culvert mold including a collapsible and adjustable section, an abutment fitted against the section and provided with supporting lugs arranged in a plurality of annular sets or series coinciding at the bottom and corresponding with the adjustments of the section, said abutment being also provided with a plurality of perforations, arranged centrally with relation to the several sets of supporting lugs, and a tie rod adapted to pass through the said perforations for securing the abutments to the section.

6. A culvert mold including a collapsible shell adjustable to vary the diameter of the mold, an abutment fitting against and closing the end of the mold, and means carried by the abutment and arranged to support the shell in its various adjustments.

7. A culvert mold including a collapsible shell adjustable to vary the diameter of the

mold, and an abutment fitting against and closing the end of the mold and provided with supporting lugs arranged in annular sets or series to correspond with the adjustment of the mold, and means for securing the abutment to the mold.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

GEORGE W. FISH.

Witnesses:
A. T. MINEHART,
R. E. FISH.