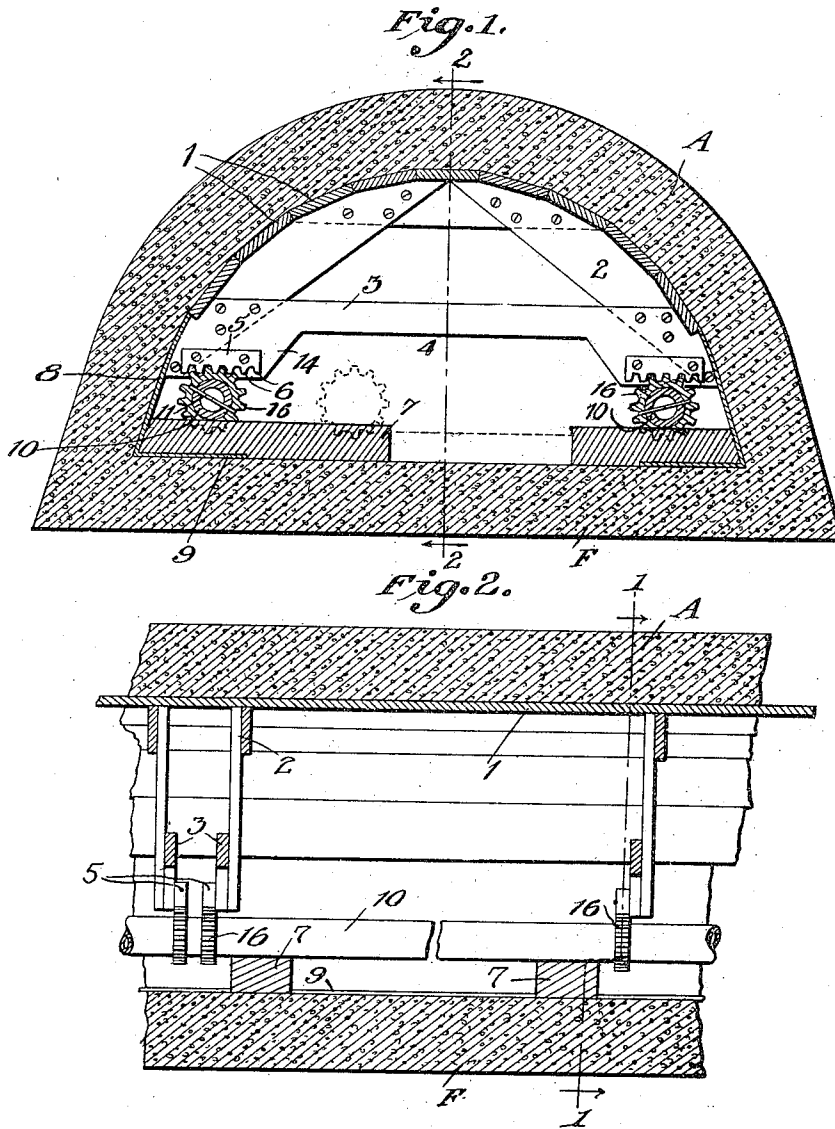


W. W. JOHNSTON,
MOLD FOR CULVERTS.
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1,241,393.

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MOLD FOR CULVERTS.

1,241,393.

Specification of Letters Patent. Patented Sept. 25, 1917.

Original application filed May 27, 1916, Serial No. 100,277. Divided and this application filed January 18, 1917. Serial No. 143,156.

To all whom it may concern:

Be it known that I, WALTER W. JOHNSTON, a citizen of the United States, residing at Gadsden, in the county of Etowah and State of Alabama, have invented certain new and useful Improvements in Molds for Culverts; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to plastic apparatus, and more especially to the cores of concrete arches, pipes, etc., and the object of the same is to produce an improved structure for supporting the form or core over which a plastic material is poured to form the desired concrete structure, and providing means for dropping or disengaging this form from the concrete structure after it has set and permitting it to be removed longitudinally from the structure for reuse. Small culverts under roadways or the like may be built by this structure when the latter is made in sections, from two to six being necessary for a culvert under the ordinary roadway, according to the length of the sections and the width of the roadway. While these culverts are generally built before the fill is made to carry the road over the stream being arched, it is quite possible to use my improved mold when forming a culvert in a tunnel, and in various other adaptations, and accordingly I reserve all rights to the use of this invention in any way of which it is susceptible.

I have shown one embodiment of my invention in the accompanying drawings in which:

Figure 1 is a cross section on line 1—1 of Fig. 2 of a type of the form or mold for use in the construction of a culvert, and

Fig. 2 is a longitudinal section on line 2—2 of Fig. 1.

The floor F and arch A of the culvert are shown in Fig. 1. The invention aims at the provision of a support which will sustain the upper part or shell of the form or mold from the floor of the structure being erected until the plastic material has set, after which the form may be collapsed by the removal of supporting elements which are adapted to be moved inwardly or laterally with relation to the side walls of the wall to permit the latter to drop, whereupon the

form and the demounted elements may be removed for use in other installations. I have shown the form as nearly semicircular over its top, but would not be limited at all to the shape of the same, and obviously the sizes, proportions and materials of parts are not essential.

The upper portion or shell of the form shown is made up of slats 1 mounted on ribs 2, and the latter braced at intervals by transverse templets 3 cut out or recessed at their lower edges at the center as at 4. To certain templets, and it might be those near opposite ends of the form-section, are secured sections of racks consisting of plates 5 having teeth 6 along the lower edges, two of these racks being attached to the pendant end of the templet, and their teeth standing on a line below the top of the recess 4. In some instances it may be desirable to utilize the sill or sill structure which in the present instance is shown as comprising pieces 7 shown in full lines in Fig. 1, or the sill may be continued entirely across the adjacent permanent structure or floor F. The shell is filled out on each side by a strip 8 which may be of any suitable material but is preferably sheet iron, and the strip shown in Fig. 1 conforms preferably with the arch 8 and is turned in at the sill as at 9.

The detachable or temporary support for the form or mold in this type of my invention consists of a set of rotary members or shims in the form of tubes 10, each resting on the adjacent structure F or sills 7 when these latter are utilized, and in supporting position are disposed beneath the side walls and pendant portions 14 of the form structure. Secured to or formed upon each of the rotary supports or tubes or shafts 10 are toothed members constituting gears 16, the teeth of which mesh with those of the racks 5 as shown. Any suitable means may be provided for revolving the rotary supports when it is desired to remove them from supporting relation to the forms, and a simple means consists of pins 11 as shown. In using this form, after the floor F has set the sills 7 may be laid thereon with the intumed ends 9 of the strips 8 beneath the sills as shown, or resting upon the sills if so desired, the shafts 10 are laid upon the sills, and the shell or form put in place with the dropped or pendant ends 14 of its templets adjacent the shafts, and its racks engaging

with the teeth of the gears 16. The cementitious plastic arch A is now filled in place on the assembled form and allowed to set.

To remove the form the shafts are then
5 rotated so that their lower sides slide inwardly upon the sills, the intermeshing of the teeth of the gears with the racks bringing about this sliding movement without fail. As soon as the shafts have been thus moved
10 inward so that they come beneath the recess 4 to the position indicated in dotted lines, Fig. 1, they can be drawn longitudinally out of place. Next the sills, if they are employed, may be removed, and then by tapping
15 the form or mold this latter disengages itself from its cling to the hardened concrete arch and may be removed longitudinally freely from the chamber within the arch, after which the crossing strips 8 may
20 be freely removed.

This application is a division of the parent application Serial No. 100,277, filed May 27, 1916.

What is claimed as new is:

25 1. In a mold for culverts, a collapsible form or core comprising an arch structure, and rotary supports for the arch adapted to be rolled inwardly along and from supporting relation therewith to permit the arch
30 to be lowered from the top wall of said culvert.

2. In a mold for culverts, etc., an arch structure, and a set of rolling, longitudinal

supports for sustaining the structure and adapted to be rolled inwardly from engagement therewith to permit the latter to be
35 lowered and withdrawn from the finished culvert.

3. In a mold for concrete culverts, an arch structure, and a set of detached supports
40 for the structure and having rolling disengagement therefrom.

4. In a mold for concrete culverts, a form structure having downwardly extending side walls, and rotary shims for sustaining said
45 walls and adapted to be bodily rolled laterally as to and from the walls to release the form.

5. In a mold for concrete culverts, a form structure having downwardly extending side walls, and rotary shims for sustaining said
50 walls and adapted to be rolled laterally as to the walls to release the form, said supports having meshing engagement with the lower portion of the wall structure.
55

6. In a mold for concrete structures, a form adapted to be erected in position with relation to a fixed part, rack sections secured to said form, and removable temporary supports having engagement with said racks.
60

In testimony whereof I affix my signature in presence of two witnesses.

WALTER W. JOHNSTON.

Witnesses:

WILLIAM HILL,
J. V. BLACKWELL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."