C. F. KAHLER.

KNOCKDOWN CULVERT.

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1,232,043.

Patented July 3, 1917.

Fig. 1.

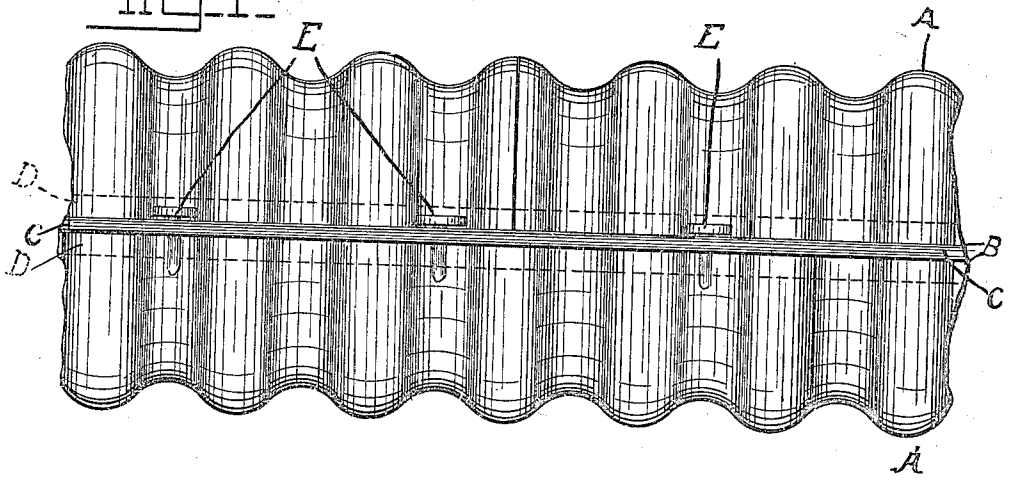


Fig. 2.

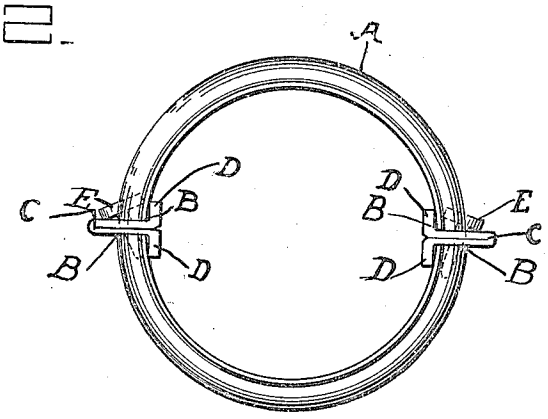


Fig. 3.

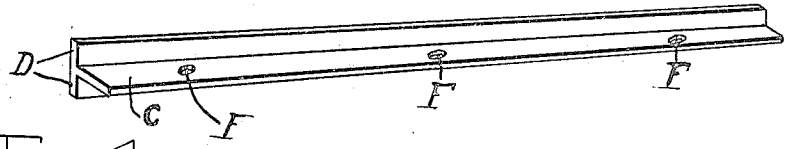
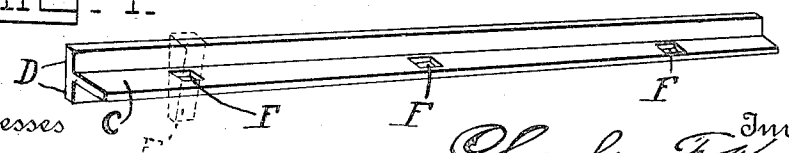


Fig. 4.



Witnesses

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KNOCKDOWN CULVERT.

1,232,043. Specification of Letters Patent. Patented July 3, 1917.

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To all whom it may concern:

Be it known that I, CHARLES F. KAHLER, a citizen of the United States, residing at Boise, in the county of Ada and State of Idaho, have invented certain new and useful Improvements in Knockdown Culverts, of which the following is a specification.

My invention relates to improvements in knockdown culverts or conduits, and refers particularly to a sectional corrugated nestable culvert, the main object being the provision of a corrugated culvert the sections of which may be instantly fitted and secured together to form the complete culvert and which can be readily taken apart when found desirable and necessary.

Another object of my invention is the provision of a corrugated metal culvert which can be easily nested for purposes of shipment and storage, which will have inexpensive and practical means for connecting the sections to form the complete culvert, and which generally will possess merit in point of efficiency and desirability.

With these objects in view the invention consists of a culvert composed of corrugated metal sections and means for securing the connections and sections.

The invention also consists in a corrugated metal sectional culvert embodying novel features of construction and combination of parts, substantially as shown, described and claimed.

Figure 1 represents a side view of a culvert constructed in accordance with and embodying my invention.

Fig. 2 represents a transverse sectional view of the culvert, and

Figs. 3 and 4 represent detail views of the means for connecting and securing the sections to form the complete culvert.

The culvert is composed of semi-cylindrical sections A, of corrugated metal, whose meeting edges B, are joined or connected by the novel means which forms my invention, such means consisting of plates rolled or bent to form the horizontal double wall C, and the pair of oppositely disposed flanges D. The horizontal wall C fits between the edges of the sections while the flanges D lie against the inner wall of the sections along their edges and form a complete seal with the horizontal wall for the sections and produce a culvert which is complete in every particular. The connecting means are secured in place by suitable clamps, wedges or headed studs E, which pass through the openings F, in the horizontal wall C, and serve to hold the connection in place as well as the sections of the culvert to produce the complete structure.

It will thus be seen that my invention permits of the use of ordinary corrugated sections in the construction of the culvert; also that the culvert can be quickly put together and taken apart and that when complete will hold the sections under all conditions and also that the means for connecting the sections can be produced at such a small price to make their use practically necessary and imperative.

It will also be understood that the connecting plates also form a reinforcing or strengthening means along the edges of the sections and enable the culvert to sustain great weight and stand excessive strain.

From the foregoing description taken in connection with the drawing it will be understood that the particular advantage of my improvement resides in the fact that a collapsible or knockdown culvert is produced, enabling every part of the culvert to be shipped with ease and allow the culvert to be built or assembled by any person without any tools or instructions, and which can if desired be easily taken apart or knocked down if found necessary. Also it will be noted that the ribs have the series of openings near the vertical flanges which enables the wedges when driven home to bear or bind against the outer surface of the sections to retain the sections in proper relation, and further that the openings are arranged between the raised portions of the corrugations which brings the wedges tight against the sections and disposes them between the raised portions of the corrugations which construction locks the sections to the ribs and also prevents any slipping or longitudinal movement of said sections, said location of the wedges with reference to the depressions in the sections forming a most important feature of my invention.

The important feature of my invention resides in the fact that my culvert can be built and removed by any unskilled person, as it is simply necessary to fit the sections together with the binding strips in place and secure the sections upon said strips by the insertion of the headed studs or by the keys

or wedges, and to remove the culvert the studs or wedges are removed and the strips and sections can be instantly taken apart.

The construction dispenses entirely with rivets, or other fastenings and allows the culvert to be constructed with ease and rapidity and insures an efficient and practical culvert.

Another important advantage of my culvert is that the culvert is composed of ordinary corrugated sections which do not have flanged edges, but whose edges are flat or straight so as to fit in the crotch or corners of the longitudinal binder plates, which permits the use of the ordinary commercial corrugated sections.

The most important feature of my invention resides in the use of the plates with vertical wall and horizontal wall, formed with openings, such openings being arranged to come in such relation to the corrugations of the sections as to admit the headed studs or wedges to bear against the sections and be located between the ribs of the sections, causes the headed studs or wedges, to clamp the sections upon the plates and the studs or wedges to be retained between the ribs of the corrugations. This construction binds the strips and sections firmly together and also the corrugations holds the studs or wedges and dispense entirely with bolts or other fastenings. The construction allows the culvert to be built quickly or to be taken apart rapidly and also no injury to either the strips or sections can occur.

I claim:

The combination with a knockdown culvert structure comprising semicylindrical commercial corrugated metal sections, of longitudinally disposed means for connecting the sections consisting of sheet metal plates bent to form a doubled horizontal portion fitting between the edges of said sections and a pair of vertical flanges bearing against the inner wall of said sections, said horizontal portion being provided with a series of openings disposed near the outer surface of said sections and opposite to and between the raised portions of the sections, and wedges passing through said openings and binding against the sections and disposed in the depressions between the raised portions of said sections to secure the sections from movement in any direction.

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

CHARLES F. KAHLER.

Witnesses:
A. W. SMITH,
W. C. PATRO.

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