

J. H. DEAN.
SHEET METAL CULVERT.
APPLICATION FILED SEPT. 16, 1912.

1,050,056.

Patented Jan. 7, 1913.

Fig. 1.

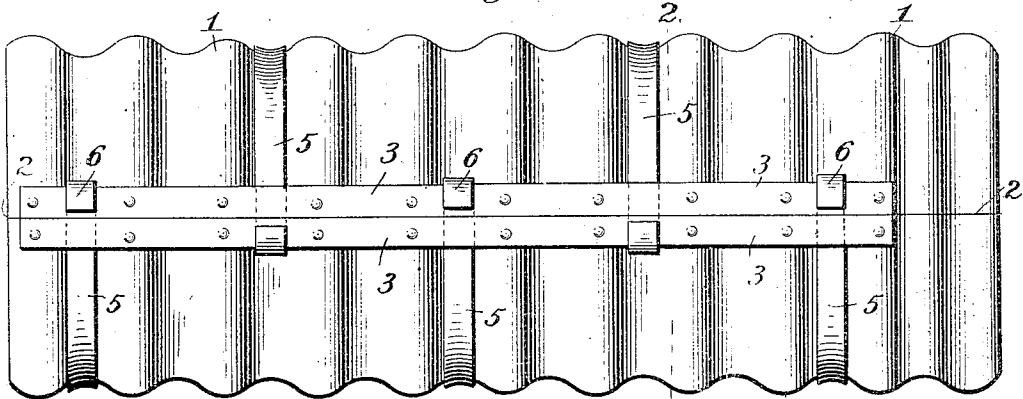


Fig. 2.

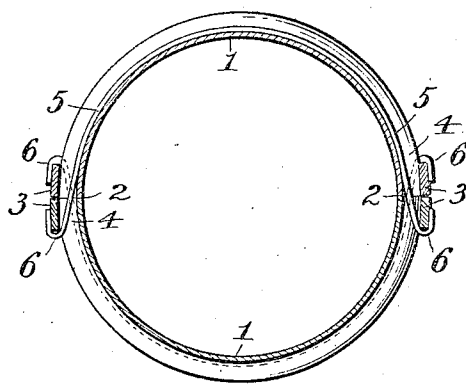
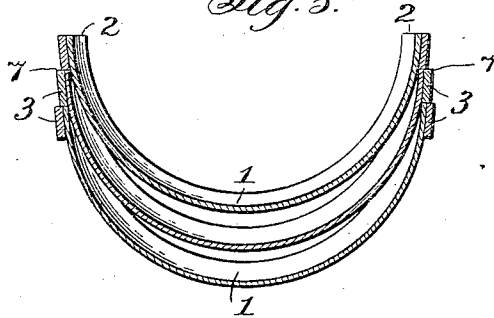


Fig. 3.



Witnesses:

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Inventor:

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By J. H. Hutchinson Attorney.

UNITED STATES PATENT OFFICE.

JOHN H. DEAN, OF BIRMINGHAM, ALABAMA, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE U. S. SHEET & METAL CULVERT CO., A CORPORATION OF DELAWARE.

SHEET-METAL CULVERT.

1,050,056.

Specification of Letters Patent.

Patented Jan. 7, 1913.

Original application filed April 22, 1912, Serial No. 692,326. Divided and this application filed September 16, 1912. Serial No. 720,528.

To all whom it may concern:

Be it known that I, JOHN H. DEAN, a citizen of the United States, residing at Birmingham, in the county of Jefferson and State of Alabama, have invented certain new and useful Improvements in Sheet-Metal Culverts, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to sheet metal culverts or pipes to be used as drains, aqueducts or the like, and more particularly to such culverts of the nestable type, wherein the same are built of sections adapted to be knocked down and nested together in shipment and storage and to be set up and formed into a complete culvert or pipe at the place where the same is to be used, the application for this invention being a division of an application filed by me on April 22, 1912, Serial No. 692,326.

The principal object of the invention is to generally improve the construction of such culverts and to provide a culvert which is strong and rigid in construction, cheaply made, and requiring a comparatively small amount of labor in assembling the culvert sections to form a completed culvert.

A further object of the invention is to provide a culvert which is made up of corrugated metal sections, preferably half sections, said sections having rigid metal strips or bars welded or riveted to the same at or near their longitudinal edges, so that when the sections are placed together with their longitudinal edges meeting, adjacent strips or bars serve as a means to which metal fastening devices may be applied for holding said adjacent sections in assembled relation. In connection with this object of the invention, it is to be noted that the rigid strips or bars are connected directly to the convex corrugations of the culvert sections, in which event they also serve to materially strengthen the sections.

A still further object of the invention is to provide a culvert of the type set forth, wherein the sections thereof are particularly adapted for nesting one within the other while being shipped or in storage, and furthermore wherein said sections may be easily connected together without the use of bolts, rivets or similar fastening devices, which obviates any punching or breaking

away of the metal from which the culvert sections are made, thereby prolonging the life of the culvert.

Further objects and advantages will appear in the following description, it being understood that various changes in form, proportions and minor details of construction may be resorted to within the scope of the appended claims.

I have illustrated my invention in the accompanying drawings, in which:

Figure 1 is a side elevation of a culvert showing the sections of the same constructed in accordance with my invention, and further illustrating my improved straps or connecting bands for retaining the complementary sections in connected relation. Fig. 2 is a transverse sectional view of the culvert taken on the line 2—2 of Fig. 1, and Fig. 3 is a view showing a number of the culvert sections in nested relation one with the other.

Referring to the drawing it is to be noted that each section, indicated at 1, of the metal culvert is provided with corrugations which are arranged parallel with opposite ends thereof, and that when these sections, which are preferably half sections, are arranged in assembled position to form the completed culvert, the corrugations of upper and lower sections coincide with each other, or in other words each convex and concave corrugation of an upper section is directly in line with the convex and concave corrugations respectively of the section below it. The sections 1, as has been stated, are preferably half sections, and the same are constructed without the usual outstanding flanges, but the longitudinal edges of complementary sections are adapted to abut as indicated at 2, so that when said sections are connected together with their longitudinal edges meeting or abutting, suitable improved means to be hereinafter described being provided for retaining them in such relation, the corrugated culvert, for all intents and purposes, has the appearance and strength of an integral corrugated cylinder.

The culvert sections are provided along their longitudinal edges with rigid metal strips or bars 3, which are secured to the convex corrugations of each section preferably by welding or riveting the same thereto. In the preferred embodiment of my in-

vention these strips 3 are continuous strips running substantially the entire length of each section, it being noted, however, that they stop short of at least one corrugation on one end of each section to permit the overlapping of the meeting ends of the longitudinally adjacent sections. These strips being formed from a rigid and straight piece of metal, and the same being attached only to the convex corrugations of each section, it will be obvious that said strips serve to greatly strengthen the sections and retain them in proper shape. These strips 3, however, may be made of short sections arranged at intervals along the longitudinal edges of the culvert sections, this construction being specifically claimed in a companion application, Serial Number 720,527, filed Sept. 30, 1912.

In assembling the sections of this culvert with the longitudinal edges of upper and lower sections abutting the metal strips or bars 3 of complementary sections are arranged to lie adjacent one another, and in this relation and when the same are fastened or tied together, serve as a means for retaining the sections in connected relation for forming the completed culvert. These adjacent strips of complementary sections, as before referred to, are connected to the convex corrugations of the sections, and are preferably arranged upon the outside of said sections, and it will be noted that passage-ways as indicated at 4 are formed between the corrugated culvert sections and the said metal strips at points intermediate the convex corrugations of said sections, and these passage-ways serve to receive the metal fastening devices 5, which are in the form of straps or connecting bands, and which are provided for fastening adjacent strips together for the purpose of holding the sections in connected relation. These straps or connecting bands 5, as is clearly illustrated in the drawing, are adapted to straddle one of the complementary sections at a point intermediate adjacent convex corrugations of the section, and the ends 6 of said straps or connecting bands are then passed through the passage-ways 4, referred to herein, and connected to the metal strips of the adjacent complementary section by bending said ends over the strips, as is clearly shown in the drawing. It is to be here noted that complementary sections are connected together at points intermediate the convex corrugations of the sections, and this is rendered possible by reason of the fact that the metal strips which are connected to the longitudinal edges of said sections are only connected to the convex corrugations thereof, so as to leave passage-ways between the sections and the metal strips at points intermediate the convex corrugations.

The particular purpose of the metal strips, as before mentioned, is to provide a connecting means between the complementary culvert sections, but these strips also serve as a means for supporting the sections in nested relation. In this connection it will be noted upon referring to Fig. 3 of the drawing, that when the sections are in nested relation the inner longitudinal edge 7 of each metal strip rests upon the longitudinal edge of the section below it, thereby allowing the sections to be neatly nested and supported one within the other.

In arranging the sections to form a culvert any number thereof may be employed to produce the desired circumference, but usually two sections only are necessary, preferably arranged as lower and upper complementary sections. It will be noted that the sections of the culvert embodying this invention, may be all alike, thus making it unnecessary to keep two different kinds of sections in stock to form a complete pipe or culvert.

Many advantages are obtained by a construction of sheet metal culvert along the lines, as herein specified, some of which advantages have already been set forth in the objects of this invention, and it will be perfectly obvious that the assembling of the parts is simple and effectual and is of such a character that it may be accomplished where the work of installing a culvert is being carried on. It is to be further noted that the sections are constructed without outstanding flanges and that the complementary sections are adapted to be connected together with their longitudinal edges abutting, without the use of bolts, rivets or similar fastening devices engaging the metal sections themselves.

Having thus described my invention, what I claim is:—

1. A sheet metal culvert comprising complementary sections, a metal strip or bar secured along each longitudinal edge of said sections, and a strap or connecting band engaging one of said sections and fastened to the metal strip of the opposite section for retaining the sections in connected relation.
2. A sheet metal culvert comprising complementary sections, a metal strip or bar secured along each longitudinal edge of said sections, and a strap or connecting band adapted to straddle one of the sections and to be secured to the metal strips of the opposite section for retaining said sections in connected relation.
3. A sheet metal culvert comprising complementary sections, and a strap or connecting band adapted to straddle one of the sections and to be secured to the longitudinal edges of the opposite section for retaining said sections in connected relation.
4. A sheet metal culvert comprising com-

plementary corrugated sections, a metal strip or bar secured to the convex corrugations of each section along each longitudinal edge thereof, thereby forming passage-ways between said metal strips and the sections themselves, and a strap or connecting band adapted to straddle one of the sections, the ends of said strap or band adapted to be inserted within the passage-ways and bent

over the metal strips of the opposite section 10 for retaining said sections in connected relation.

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

JOHN H. DEAN.

Witnesses:

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S. G. REYNOLDS.

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