E. R. PROBERT.

SHEET METAL CULVERT.

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1,066,945.

Patented July 8, 1913.

Fig. 1

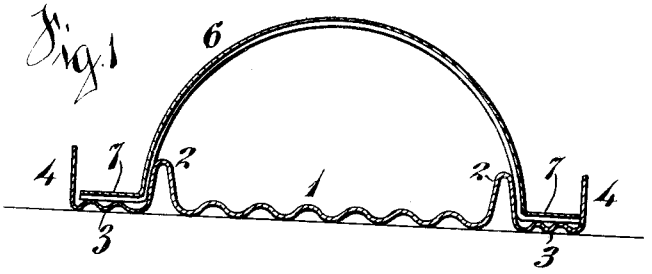


Fig. 2

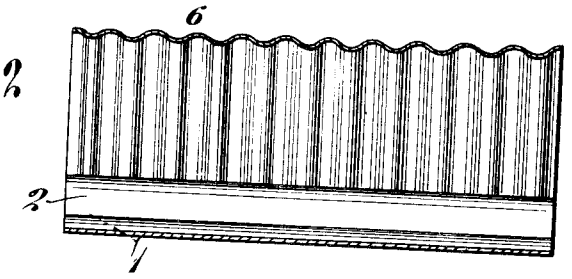


Fig. 3

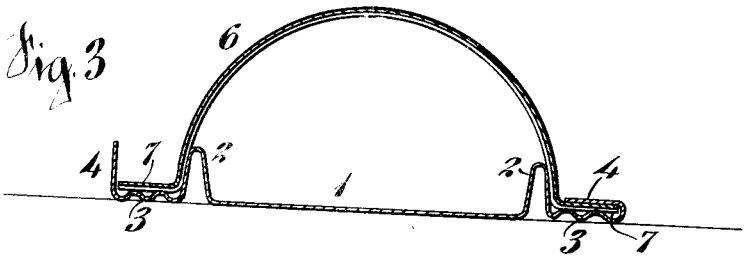
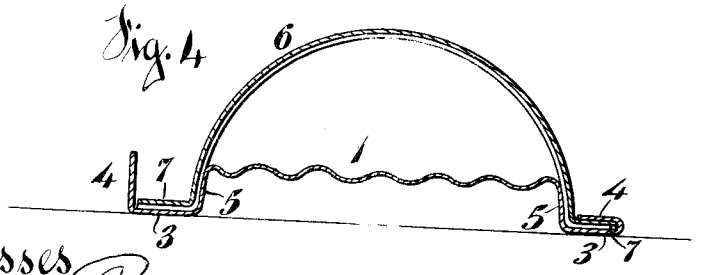


Fig. 4



Witnesses

Oliver Harman

Loretta Luck

Inventor

Edwin R. Probert,

by John Elias Jones,

Attorney

UNITED STATES PATENT OFFICE.

EDWIN R. PROBERT, OF COVINGTON, KENTUCKY.

SHEET-METAL CULVERT.

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To all whom it may concern:

Be it known that I, EDWIN R. PROBERT, a citizen of the United States of America, and a resident of Covington, in the county of Kenton and State of Kentucky, have invented a certain new and useful Improvement in Sheet-Metal Culverts, of which the following is a specification.

This invention relates to sheet-metal culvert-sections, preferably of the type having a semi-circular cross-section and, also, having a straight horizontal bottom.

The object of the invention is to provide each culvert-section with an arched top or cover member that has horizontal extensions or feet along its opposite longitudinal edges and a bottom-member that is raised or shouldered along its opposite longitudinal edges and then develops laterally into feet or horizontal flanges that have upturned outer longitudinal edges whereby suitable pockets or chambers are provided to receive or contain the said lateral feet along the arched cover and are better adapted to sustain or support the arched cover in an intact manner free from lateral flattening or collapse in either direction.

The details of the invention herein will be specifically described hereinafter and then particularly pointed out in the claims.

In the accompanying sheet of drawings, Figure 1 is a transverse section showing one of the specific forms of my invention herein; Fig. 2, a central longitudinal section of Fig. 1; Fig. 3, a transverse section showing a slightly modified form; and Fig. 4, a transverse section of still another modified form but within the scope of the claims herein.

1 indicates the body portion of the bottom-member having an inverted U-shape or elevated flange 2 along each of its longitudinal edges, a lateral extension or foot 3 along each of said elevated flanges 2, and an upright extension or flange 4 along the outer longitudinal edges of the feet 3. The flanges 2 may be either open, as shown, or the two vertical members thereof closed into a double wall or upright thickness of metal, as best suits the purpose to which the device is put.

In Fig. 1 I have shown the body-portion 1 of the bottom-member as being longitudinally-corrugated and, also, the feet or extensions 3 similarly longitudinally-corrugated, for greater strength and a better drainage capacity. In Fig. 3 I have shown said body-portion 1 of the bottom-member as being perfectly flat or plane, which is not as strong as the corrugated form seen in Fig. 1 but it does not require as much metal and would thereby serve the purpose of economy in manufacture and sale. The upright flanges or elevations 2 in this view are the same as those seen in Fig. 1 and the lateral extensions 3 and 4 are the same.

In Fig. 4 I have shown a modification that has an elevated, longitudinally-corrugated body-portion 1 in the bottom-member, the longitudinal edges 5 of which are turned downwardly and slightly sloped outwardly to take the place of the upright flanges 2 and then lateral foot-extensions 3 are provided at the bases of said down-turned flanges or edges 5, that are, in turn, then extended into the outer, upright flanges 4, the latter being the same as those seen in said previous views. The elevated body-portion 1 seen in Fig. 4 can be made either flat or plane instead of corrugated, as is clearly obvious, but the greater strength of the corrugated form shown would be sacrificed to the economy of material and labor the same as in the flat structure seen in Fig. 3. Of course, however, the capacity of the culvert will be somewhat reduced in having the bottom 1 elevated, but it is believed that a better anchorage of the structure will be effected with the earth engaging the chamber provided beneath and thereby prevent any undue shifting of the culvert out of line. It will be seen that said elevated body-portion 1 of the bottom-member is a very useful part of the invention herein and forms an important feature especially in connection with the maintenance of true alinement of the culvert while in use.

6 indicates an arched top or cover member having lateral feet or horizontal bases 7, the latter being adapted to engage the longitudinal chambers provided by the flanges 2, 3 and 4 along the opposite longitudinal edges of the bottom-member. The flanges 2 and 5 form a barrier or wall along the lower inner edges of the arched top or cover member 6 to prevent inward collapse, and the outer flanges 4 serve to prevent an outward spreading or collapse of the arched top or cover member.

In Figs. 3 and 4 I show the outer flange

4 along one side of the culvert-section as being folded or laid horizontally in contact with the horizontal foot or base 7 of the cover-member, such folding of the metal being adapted to enhance the locking of the lateral feet or bases 7 of the cover-member in place on the lateral feet or bases 3 of the bottom-member and making a snug fitting along both edges of the culvert-section. The folding of the flanges 4 is not effected until the culvert-section is in place and it does not thereby interfere with the nesting of the culvert-sections for storage and shipping, as it is desired that the cover-members be nested independent of the bottom-members, the latter being, also, adapted to be nested.

It is preferred to corrugate the arched top or cover section with the grooves and elevations running transversely, the same as it has been in the past manufacture of sheet-metal culvert-sections, the feet or bases 7 being corrugated the same as the body-portion 6 and the metal bent lengthwise in the manufacture of the cover-member so as to duly form the said feet or bases 7 after the corrugations are made.

The longitudinal corrugations of the lateral feet or bases 3 along the outer edges of the bottom-member not only stiffen or strengthen said feet or bases lengthwise, but, also, furnish convenient drainage passages or channels beneath the feet 7 of the cover-member. Rust between those parts is, also, reduced to a minimum thereby. In Fig. 4 I show said feet 3 as being flat or plane and not longitudinally corrugated, but they may be corrugated the same as in Figs. 1 and 3 and be the better therefor.

I claim:—

1. A sheet-metal culvert-section comprising a bottom-member having a body portion, upright flanges or elevations along the opposite longitudinal edges of the said body portion, lateral extensions or feet projecting from said upright flanges, upright flanges extending from the outer edges of said lateral feet, and an arched top or cover member having lateral extensions or feet adapted to engage the gutters or chambers provided by said first-named flanges or elevations, the first-named lateral extensions or feet and the second-named upright flanges along the opposite longitudinal edges of said first-named lateral extensions or feet.

2. A sheet-metal culvert-section comprising a bottom-member having an elevated body portion, down-turned flanges at the opposite longitudinal edges of said body portion, outwardly-extending feet or horizontal flanges along the longitudinal edges of said down-turned flanges, upright flanges provided along the outer longitudinal edges of said feet, and an arched top or cover member having laterally-projecting feet or horizontal flanges adapted to engage the gutters or chambers provided by said down-turned flanges, feet and upturned flanges of the bottom-member.

EDWIN R. PROBERT.

Witnesses:
JOHN ELIAS JONES,
WILLIAM SCHUCHARDT.