

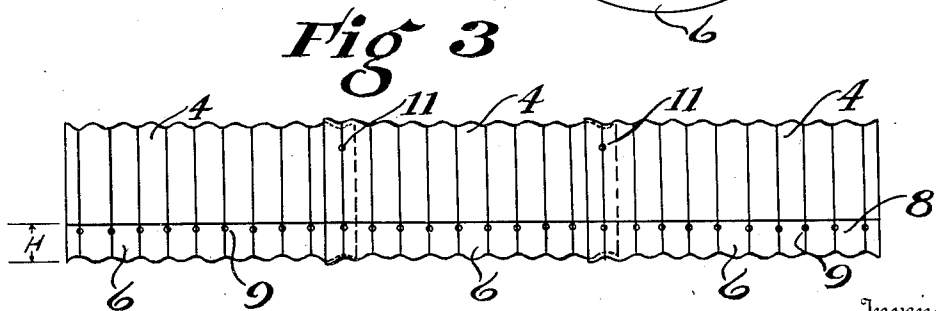
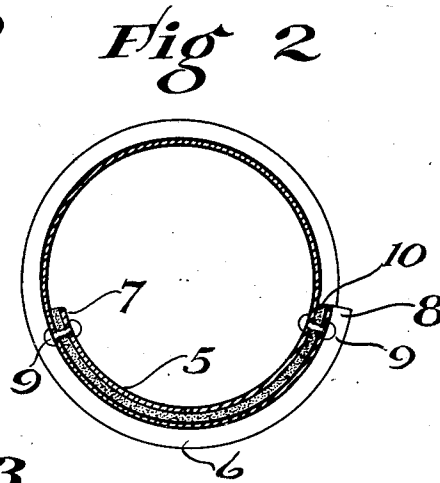
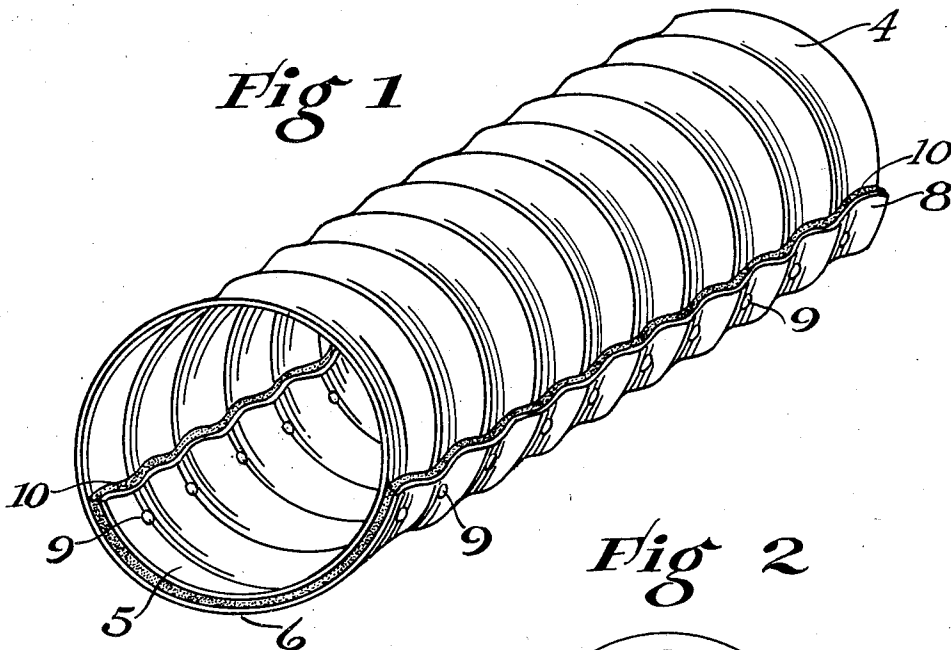
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H. HUTCHINSON

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CULVERT

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UNITED STATES PATENT OFFICE

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CULVERT

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This invention relates to new and useful improvements in corrugated culverts, such as are commonly employed beneath roadways, railway tracks, and the like, or in the construction of sewers, conduits, and similar structures.

As is well known, corrugated metal culverts are subject to destructive forces, such as erosion or abrasion, which exert their maximum effect on the bottom or stream-carrying portion of the culvert. The water stream traversing the lower portion of the interior of the culvert carries, both mechanically and in suspension, solid matter, such as sand, silt, and gravel, and these, in time, erode or abrade the metal of the culvert to such an extent as to render the culvert unfit for further use.

An object of the present invention is the provision of a corrugated culvert section, which can be easily fabricated, can be readily joined to similar sections for the purpose of forming a culvert of any desired length, and in which certain details of construction are incorporated, which will enable the culvert to have a much longer life than has heretofore been attainable, by virtue of its prolonged ability to withstand the aforesaid factors of erosion or abrasion.

Another object of the invention is the provision of a corrugated culvert which shall be capable of withstanding the strains of expansion, contraction, and deflection to a greater degree than the ordinary type of corrugated culvert.

These and other objects of the invention will become more readily apparent in the course of the following description of the invention, taken in connection with the accompanying drawing, wherein

Fig. 1 is a perspective view of a culvert section, embodying the novel features of the present invention;

Fig. 2 is a transverse cross-section through the culvert section shown in Fig. 1;

Fig. 3 is a side elevation of a complete culvert, showing the manner in which the sections are connected to each other.

Referring more particularly to the drawings, it is seen that each culvert section 4 is formed from a single sheet of previously cor-

rugated metal, having its sides 5 and 6 overlapped to a considerable extent, as shown in Fig. 1, to provide a double-walled lower portion. The marginal edges 7 and 8 of the sides of the sheet are secured to the body of the culvert section by means of rivets 9, and the corrugations of the overlapped sides nest within each other, so that little if any space is left between the contiguous faces of the overlapped sides, and in order to avoid the entrance of water or other fluid between the overlapped sides, a layer or coating of sealing material 10, such for example as tar, asphalt, tarred paper, sheet rubber, sheet lead or the like is preferably applied or placed between the overlapped sides in any desired manner, as clearly shown in Figs. 1 and 2.

The height of the double-walled lower portion of the culvert section, as indicated by the letter H in Fig. 3, should not be less than one-third of the overall height or diameter of the culvert section, but need not in any case exceed two-thirds of the overall height or diameter.

As shown in Fig. 3, a plurality of culvert sections may be joined to each other in end to end arrangement, as by rivets 11, to provide a complete culvert.

It is obvious that a culvert or culvert section, made in accordance with the present invention, will have from two to four times the life of the ordinary type of full circle corrugated culvert. After the inner lapped side 5 has become entirely eroded, the outer lapped side 6, which remains securely held to the body of the culvert by means of the second row of rivets 9, becomes exposed to erosion, and the culvert literally begins a new period of life.

In cases where a layer of tar or other sealing material is interposed between the inner and outer lapped sides 5 and 6, such material must be entirely eroded before the outer lapped side 6 is attacked, and in this manner, the life of the culvert is still further increased.

The double-walled construction of the lower portion of the culvert section also enables the culvert to resist the strains of expansion, contraction, and deflection to a greater

degree than the ordinary type of full circle corrugated culvert.

Having described my invention, what I claim is:

5 1. A cylindrical culvert section formed from a single sheet of metal having its sides overlapped to provide a double-wall at its lower portion only, the walls comprising said lower portion being permanently secured to
10 each other at their marginal edges, so that after the inner overlapped side has become entirely eroded by passage of water through the lower portion of the culvert section, the outer overlapped side will remain securely
15 held to the body of the culvert section.

2. A culvert comprising sections as defined in claim 1, connected to each other in end to end arrangement, the lower portions of the sections being in alignment with each
20 other.

3. A circumferentially corrugated culvert section having a lower portion comprising plural layers of corrugated metal extending along an arc less than a complete circle, the
25 corrugations of which nest within each other and the layers of metal being permanently secured to each other at their marginal edges, so that after one of the layers has become entirely eroded by passage of water through
30 the lower portion of the culvert section, the other layer will remain securely held to the body of the culvert section.

4. A culvert comprising sections as defined in claim 3, connected to each other in end to end arrangement, the lower portions of the sections being in alignment with each other.
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5. A cylindrical culvert section formed from a single sheet of corrugated metal having its sides overlapped to provide a double-wall at its lower portion only with the cor-
40 rugations of one of the overlapped sides nesting within the corrugations of the other overlapped side, the walls comprising said lower portion being permanently secured to each
45 other at their marginal edges, so that after the inner overlapped side has become entirely eroded by passage of water through the lower portion of the culvert section, the outer overlapped side will remain securely held to
50 the body of the culvert section.

6. A culvert comprising sections as defined in claim 5, connected to each other in end to end arrangement, the lower portions of the sections being in alignment with each
55 other.

7. A cylindrical culvert section having a lower portion comprising plural layers of metal extending along an arc less than a complete circle which are permanently secured
60 to each other at their marginal edges, so that after one of the layers has become entirely eroded by passage of water through the lower portion of the culvert section, the other layer will remain securely held to the body of the
65 culvert section.

8. A culvert comprising sections as defined in claim 7, connected to each other in end to end arrangement, the lower portions of the sections being in alignment with each other.

In testimony whereof I affix my signature. 70

HARRY HUTCHINSON.

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