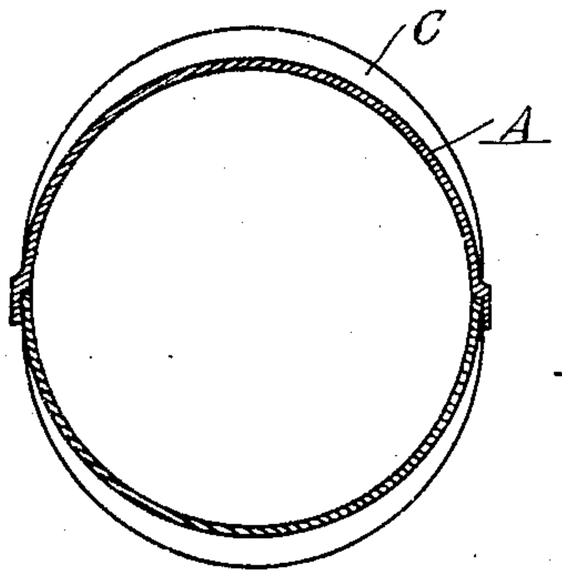
No. 777,714. PATENTED DEC. 20, 1904.

C. W. CARTER.

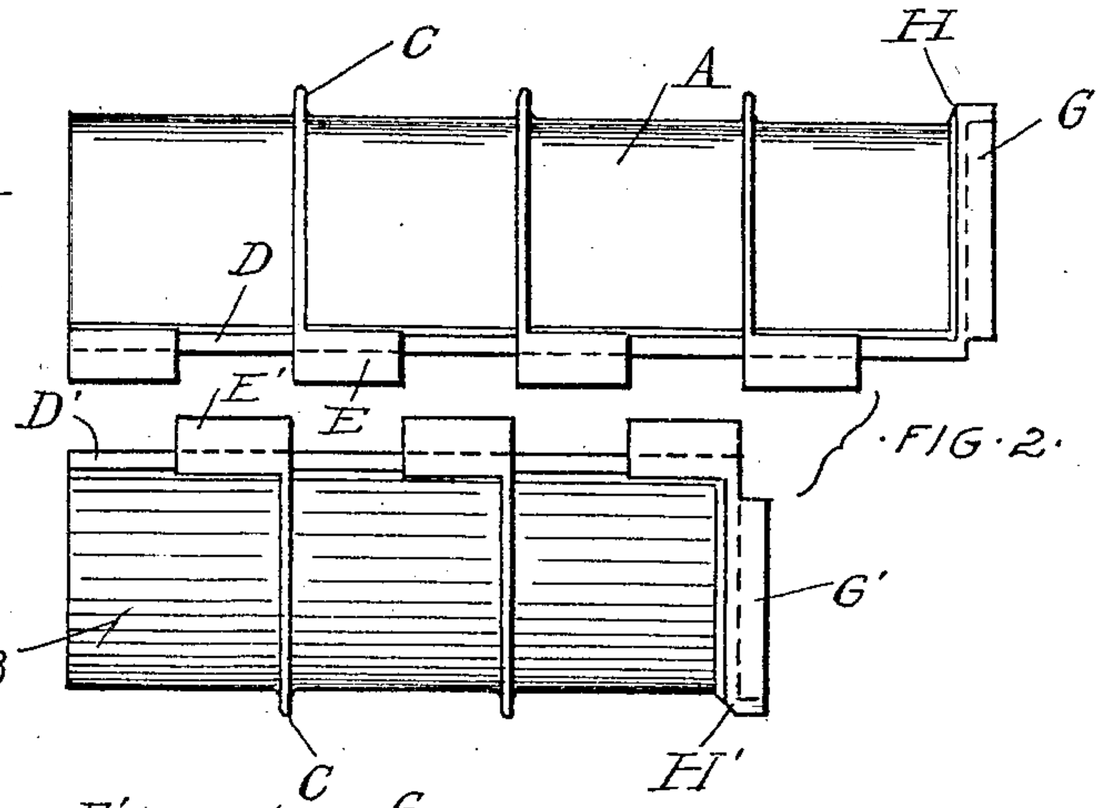
CULVERT.

APPLICATION FILED JUNE 9, 1904.

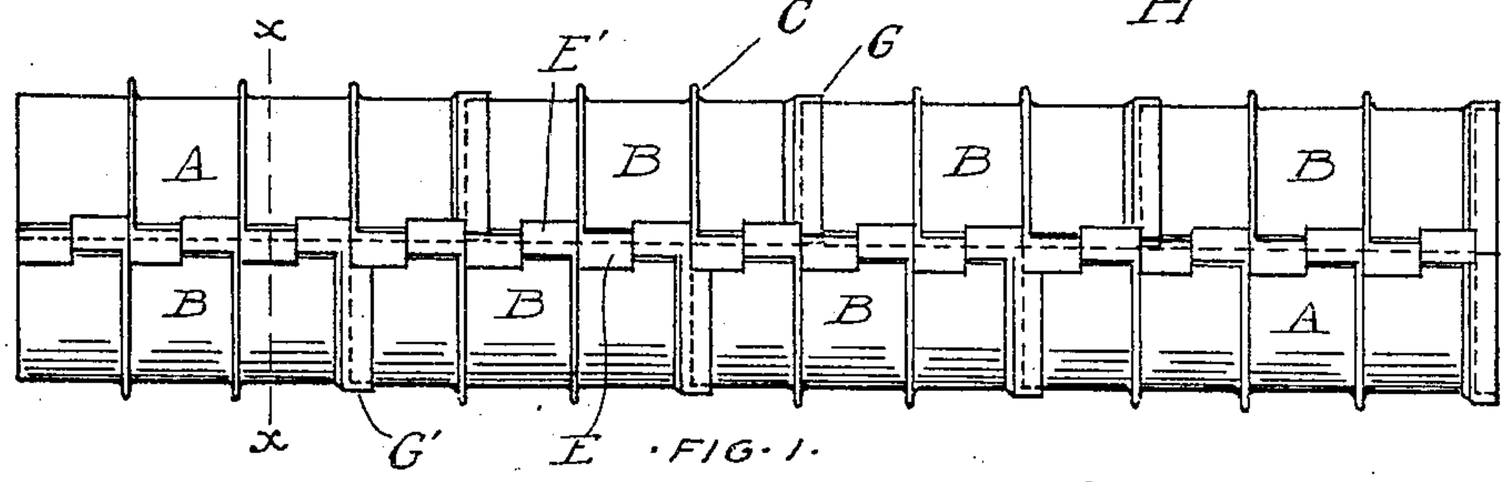
NO MODEL.



·FIG·3·

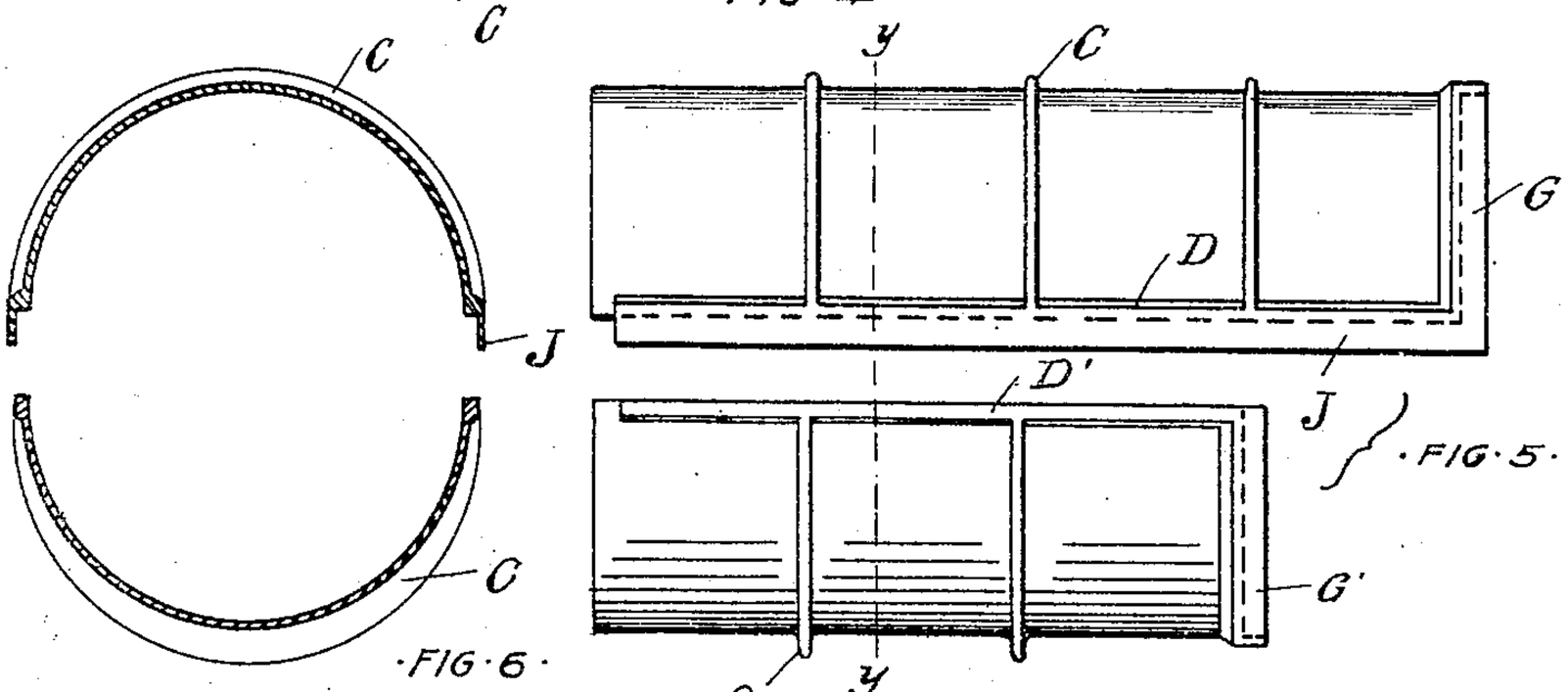


·FIG·2·



·FIG·1·

·FIG·4·



·FIG·6·

·FIG·5·

WITNESSES

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No. 777,714. Patented December 20, 1904.

UNITED STATES PATENT OFFICE.

CHARLES W. CARTER, OF ST. JOHNS, MICHIGAN.

CULVERT.

SPECIFICATION forming part of Letters Patent No. 777,714, dated December 20, 1904.

Application filed June 9, 1904. Serial No. 211,776.

To all whom it may concern:

Be it known that I, CHARLES W. CARTER, a citizen of the United States, residing at St. Johns, in the county of Clinton and State of Michigan, have invented certain new and useful Improvements in Culverts, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates to new and useful improvements in drainage-tubes, especially designed for tubes used for culverts, sluices, &c.; and it consists in the construction of the tubes made in semicylindrical sections with means for interlocking the sections at their horizontal edges and at the ends and, further, in the construction, arrangement, and combination of the various parts, as more fully hereinafter described, and particularly pointed out in the claims.

In the drawings, Figure 1 is a side elevation of a culvert embodying my invention. Fig. 2 is a side elevation of two of the end sections thereof, showing the upper and lower halves slightly separated to illustrate their construction. Fig. 3 is a cross-section on line *x x* of Fig. 1. Fig. 4 is a side elevation of the culvert as shown in Fig. 1, but of slightly-modified construction of flange on the horizontal edges. Fig. 5 is an elevation similar to Fig. 4 of the upper and lower half of the end section of the construction shown in Fig. 4 slightly separated to illustrate the construction of the parts. Fig. 6 is a vertical section on line *y y* of Fig. 5.

In the manufacture of culverts, especially for country roads, it is desirable to make the same in sections, so that they may be easily handled, and in putting them together it is desirable to break the joints, so as to have as little leakage as possible at any one point in the length of the culvert. I accomplish this by making my culvert in semicylindrical sections and provide end sections of different lengths. The intermediate sections can, if desired, be of uniform length, and in this way the meeting edges of the upper halves and the meeting edges of the lower halves will be out of line or staggered. I also prefer to construct the sections with interlocking flanges, so as to prevent the possibility of endwise movement of the upper portion in relation to the lower portion thereof.

Referring to the construction shown in Figs. 1, 2, and 3, A represents one section, and B a shorter section, each semicylindrical in cross-section and adapted when brought together to form a tube, as shown in Fig. 3. These sections I preferably provide also with strengthening-ribs C. At the lower meeting edges of the two sections are the horizontal ribs D D′, which give a comparatively wide contacting face for the two sections when laid one upon the other. Projecting inwardly from the outer face of the horizontal flanges D D′ are the overlapping flanges E E′, these flanges on two sections to be superimposed being staggered so that the flanges E will fit into the space between the flanges E′, and vice versa, when the two parts are brought together. At one end of each of the two sections are the semicircular flanges G and G′, these flanges extending out from the end ribs H and H′. The opposite ends of the sections A and B are plain and are adapted to fit within the flanges G G′ of adjoining sections. The sections being thus constructed, they are assembled as shown in Fig. 1. In this case the sections A are longer than the usual length of the intermediate sections and the sections B are of the length of the intermediate sections. Commencing at the left hand end of Fig. 1, I have shown three of the short sections B and one long section A for the lower half of the culvert and a long section A and three short sections B for the upper half thereof, and being so arranged it will be observed that the meeting ends of the upper series and lower series form break-joints or are staggered. It will be observed also that the flanges E E′ form a continuous overlap for the horizontal joint between the upper and lower sections and also lock the upper and lower sections against endwise movement unless they are first vertically separated, as shown in Fig. 2.

I prefer the construction shown in Figs. 1, 2, and 3 for the reason, as described, that this interlocking construction of the flanges E E′ prevents the endwise movement of the upper and lower portions of the culvert in relation to each other. I may, however, make the

culvert as shown in Figs. 4, 5, and 6, in which one of the sections, either the upper or the lower, preferably the upper, is provided with a continuous flange J, extending out from the horizontal rib D at the lower edge and in line with the end flange G, while the lower section has a continuous rib D′ along its upper edge; but the sections are otherwise constructed as described for the construction shown in Figs. 1, 2, and 3. In this construction there is no means except the friction of the superimposed parts to prevent the upper half of the culvert from sliding longitudinally along the lower half, or vice versa.

It will be seen that I use long sections in the construction shown in Fig. 1 upon the ends, the long section at one end being at the bottom and the long section at the other end being at the top, and the other end sections are short, so that in order to make a staggered joint in the intermediate sections I make the diagonally opposite end sections of like length, while the upper and lower sections at each end are of different length. These culvert-sections are preferably made of cast-iron, but may be made of cement, clay, or any other material that I find to be convenient or desirable.

While I have described the construction as semicylindrical, it is obvious that other suitable cross-section may be employed so long as the upper and lower halves form complementary portions of the tube.

What I claim as my invention is—

1. A culvert-section adapted to form one-half of a culvert in cross-section having depending from its horizontal edges a series of separated flanges and a complementary section having projecting upwardly from its horizontal edges complementary interlocking flanges.

2. A culvert comprising a series of top and bottom sections each shaped to form a half in cross-section of the same, horizontal ribs along the meeting edges of the top and bottom sections, transverse ribs around the outer face of the both sections merging into the horizontal ribs, flanges on the sections overlapping the horizontal joint, end ribs at both ends of the sections, and overlapping flanges extending out from one side of the end ribs and overlapping the circumferential joints between the adjoining sections.

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

CHARLES W. CARTER.

Witnesses:
H. C. SMITH,
JAS. P. BARRY.