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1,535,162

C. G. KIME

CULVERT PIPE

Filed April 10, 1923

Fig. 1.

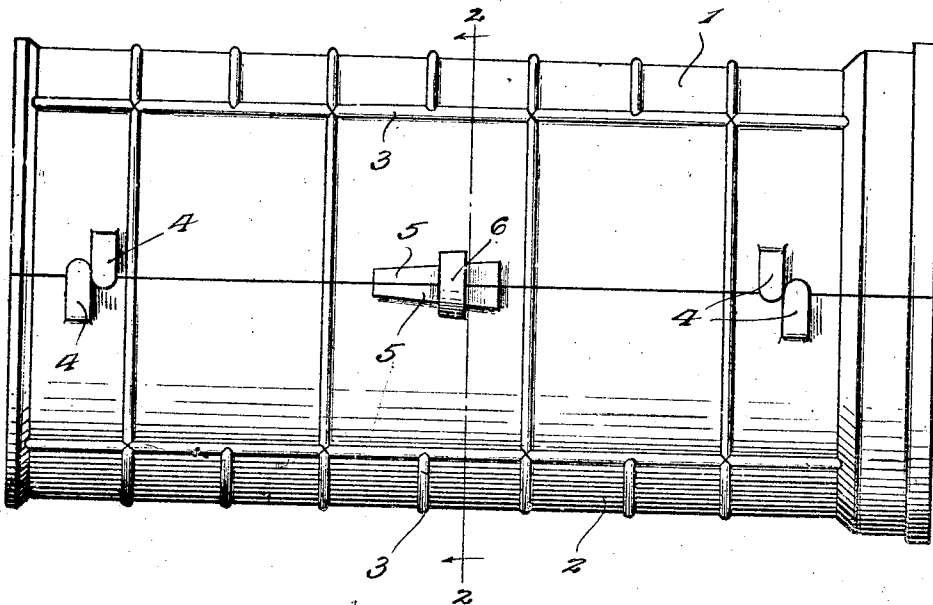
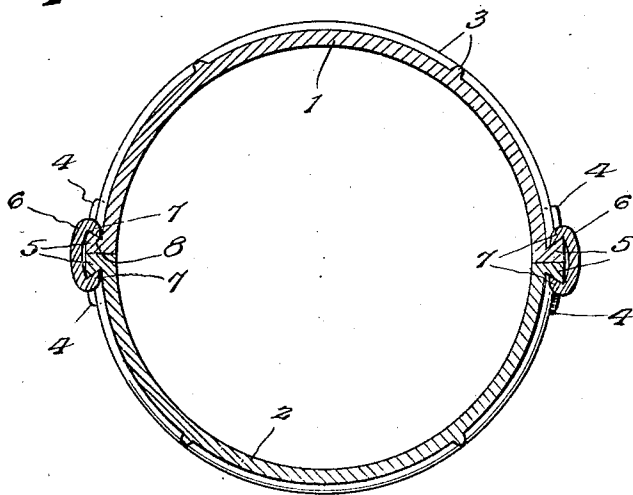


Fig. 2.



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UNITED STATES PATENT OFFICE.

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CULVERT PIPE.

Application filed April 10, 1923. Serial No. 631,225.

To all whom it may concern:

Be it known that I, CHARLES G. KIME, a citizen of the United States, residing at Crestline, in the county of Crawford and State of Ohio, have invented certain new and useful Improvements in Culvert Pipes, of which the following is a specification.

This invention relates to pipes for forming culverts or drains which pipes are supplied in semi-cylindrical sections and assembled in the finished culvert by resting one section upon the other, and the particular object of the present invention is to provide simple and inexpensive means whereby the superposed section may be positively and securely fastened to the lower section. The invention also provides a fastening means which will permit ready separation of the pipe sections should it become necessary to obtain access to the interior of the culvert for any reason. The invention is illustrated in the accompanying drawing and will be hereinafter fully set forth.

In the drawing:

Figure 1 is a side elevation of a length of culvert or drain composed of two sections embodying my invention, and

Fig. 2 is a transverse section on the line 2—2 of Fig. 1.

The culvert pipe to which my invention is particularly applied consists of two similar semi-cylindrical members 1 and 2 which are produced by casting in any preferred or well-known manner. These semi-cylindrical sections are provided externally with ribs 3 extending both longitudinally and transversely of their outer surfaces so that the pipe sections will possess maximum strength with minimum weight. These ribs also aid in preventing endwise movement of the sections when they have been placed in position in a ditch or other place where a culvert or drain is desired. The sections are also provided at their longitudinal or straight edges with lugs 4 which are adapted to abut, as shown in Fig. 1, and thereby prevent relative endwise movement of the sections. The free ends of the lugs 4 are preferably curved or rounded so as to assist in guiding the sections when said sections are assembled and also to prevent chipping or fracturing of the ends of the lugs which often occurs when the ends of said lugs are of square or angular formation. Heretofore it has been the general practice to omit any

means for positively securing the sections together one upon the other but it is desirable to provide means whereby, after the upper section has been placed upon the lower section to form a complete pipe, the two sections shall be positively locked together so that the joints will be tight and separation of the sections will not be apt to accidentally occur. With this end in view, I provide upon each section, preferably at the center of the same, and immediately at the longitudinal straight edge thereof, a lug 5 which has one side coincident with the straight edge of the pipe section and its opposite side inclined toward said straight side, as clearly shown in Fig. 1. The lugs upon the two sections will, of course, meet when the sections are brought together in proper position and will form a wedge-shaped member on the outer side of the pipe. After the pipe sections have been properly assembled, a clamp plate 6 is engaged over the smaller ends of the mating lugs and is driven along the same toward the wider ends thereof so that the sections will be positively brought together. This clamp consists of a plate or bar having its central portion adapted to bridge the mating lugs 5 and having its ends formed into hooks or under-cut terminals 7 adapted to engage the upper and lower sides respectively of the lugs, and it will be readily noted that the said sides of the lugs are not only inclined from one end of the lug toward the other end thereof but are also beveled inwardly, as shown most clearly at 8 in Fig. 2. The terminals 7 of the clamp are correspondingly shaped so that the clamp will be held to the lugs and can not fall off the same unless it be broken. Obviously a few light blows of a hammer or other tool upon one edge of the clamp will force it toward the wider ends of the lugs and the clamp will thereby become wedged upon the lugs so that the opposed sides of the lugs will be forced into firm binding contact. This action will also bring the meeting edges of the pipe sections into firm contact so that a tight joint will be attained. Should a pipe section become broken through some upheaval or derangement of the ground or for any other reason it should become necessary to separate the sections, a few blows upon the clamp will, of course, drive it toward the smaller end of the mating lugs so that it will be freed and

the upper pipe section may be readily lifted from the lower section.

My improved structure will not add appreciably to the cost of the culvert and will positively hold the two sections of the pipe together while at the same time they may be readily separated if occasion demands.

Having thus described the invention, what is claimed as new is:

10 1. In a culvert, the combination of mating substantially semi-cylindrical sections, longitudinally tapered mating projections upon the exterior surface of said sections, a clamp
15 constructed to engage over said projections whereby to bind the pipe sections together against vertical separation, and interengaging lugs carried by the semi-cylindrical sections and disposed on opposite sides of the
20 mating projections at substantially right angles thereto for preventing independent endwise movement of said semi-cylindrical sections, the free ends of said lugs being curved to assist in guiding the sections when the latter are brought together to form a
25 culvert.

2. In a culvert, mating substantially semi-cylindrical pipe sections provided upon their outer sides at their meeting edges with longitudinally extending projections, each pro-
30 jection having one side coincident with the edge of the pipe section whereby when the sections are brought together the projections will be in contact and the opposite side of the projection being inclined from one end
35 of the projection to the opposite end thereof and beveled inwardly toward the edge of the respective pipe section, lugs projecting from the contacting edges of the pipe sec-

tion on opposite sides of the longitudinal projections and disposed at right angles 40 thereto and adapted to engage one with the other to prevent independent endwise movement of the pipe sections, said lugs having their free ends curved to assist in guiding the sections when said sections are brought 45 together to form a culvert, and a clamp adapted to bridge said projections and having its ends constructed to constitute interturned hooks adapted to engage the beveled inclined edges of the projections whereby to 50 bind said projections and the pipe sections together against vertical separation.

3. A culvert comprising mating substantially semi-cylindrical pipe sections having their exterior walls provided with intersecting longitudinal and transverse reinforcing ribs and their meeting edges with longi- 55 tudinally tapered mating projections disposed at substantially the center of the culvert and between two of the transverse reinforcing ribs, a clamp constructed to engage 60 over said projections whereby to bind the pipe sections together against vertical separation, and interengaging lugs carried by the semi-cylindrical sections and arranged 65 between the ends of said sections and the adjacent transverse ribs and disposed at substantially right angles to the mating projections for preventing independent endwise 70 movement of said semi-cylindrical sections, the free ends of said lugs being curved to assist in guiding the sections when said sections are brought together.

In testimony whereof I affix my signature.

CHARLES G. KIME. [L. s.]