(No Model.)

R. T. BRYANT & D. TOSTEVIN.

SEWER.

No. 273,945. Patented Mar. 13, 1883.

Fig. 1.

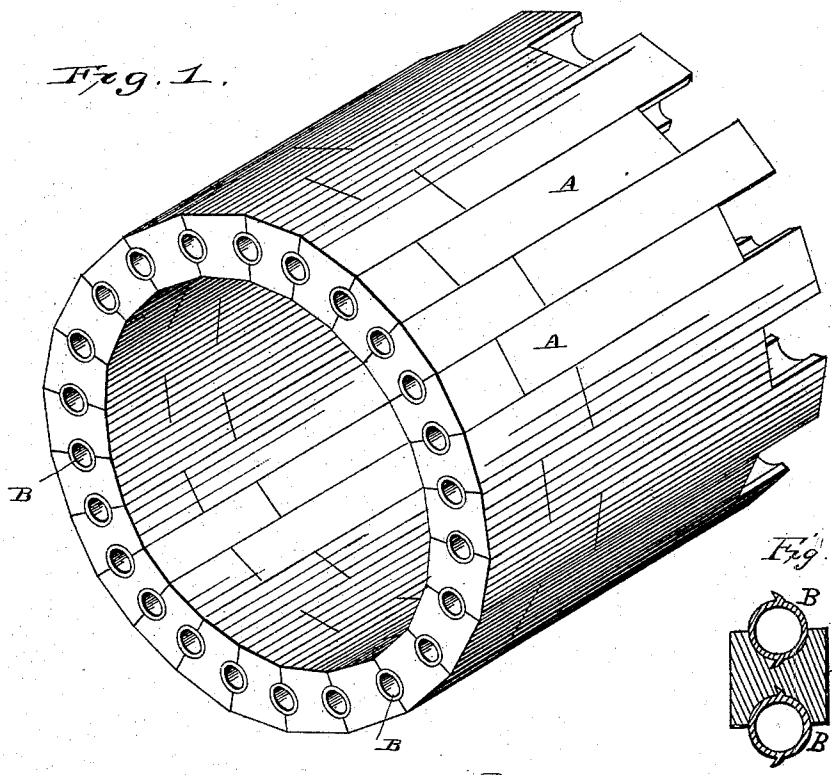
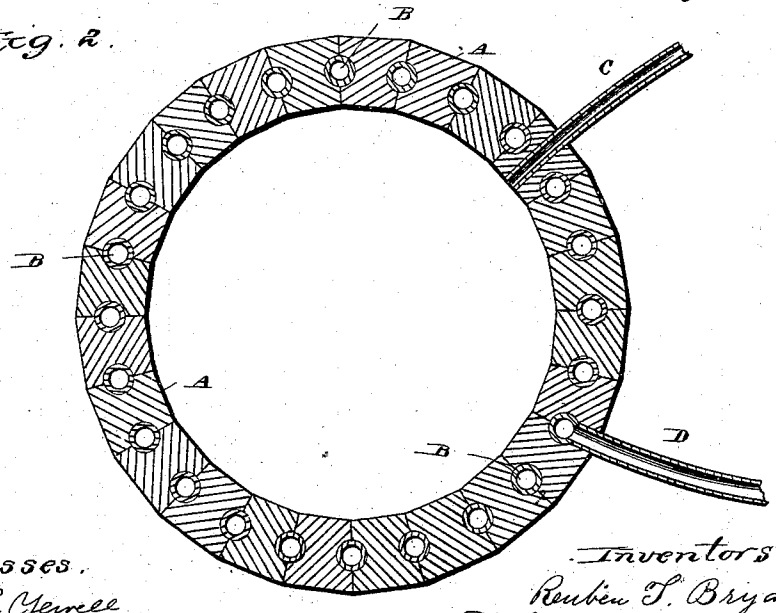


Fig. 3.

Fig. 2.



Witnesses.
Edwin L. Yewell
J. J. McCarthy.

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C. M. Alexander, Atty.

UNITED STATES PATENT OFFICE.

REUBEN T. BRYANT AND DAVID TOSTEVIN, OF COUNCIL BLUFFS, IOWA.

SEWER.

SPECIFICATION forming part of Letters Patent No. 273,945, dated March 13, 1883.

Application filed October 13, 1882. (No model.)

To all whom it may concern:

Be it known that we, REUBEN T. BRYANT and DAVID TOSTEVIN, of Council Bluffs, in the county of Pottawattamie, and in the State of Iowa, have invented certain new and useful Improvements in Sewerage, &c.; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

This invention relates to certain improvements in the construction of sewers, drains, culverts, wells, and cisterns, open arches for buildings and other purposes, and tunnels and other like structures, as will be more fully hereinafter pointed out.

In the drawings, Figure 1 represents a perspective view of our improvement as applied to a sewer; Fig. 2, a transverse section of the same; and Fig. 3, a like view, showing a modified form of section.

The letter A indicates a series of sections, which may be constructed of cast metal, artificial stone, prepared wood, baked clay, or any other suitable material. The said sections are wedge-shaped in cross-section, so that when built up they will form a polygonal structure, as indicated in the drawings. The adjoining edges of the sections are provided with longitudinal semi-cylindrical grooves, which form longitudinal cylindrical passages in the walls of the structure. Said semi-cylindrical longitudinal grooves are provided with depressions or recesses at suitable intervals apart, and the longitudinal tubes, (hereinafter mentioned,) which fit within said grooves, with lugs or projections *b*, corresponding in location and size with the depressions, the lugs and depressions being adapted to register or fit one within the other, and thereby hold the sections more securely together. In the passages above referred to are located the longitudinal tubes B, which serve to key the parts together, and as air or water passages, as may be required. The tubes B are usually built up with the walls, and are provided with external lugs or projections, for the purpose above indicated. The sections, as well as the cylinders or tubes, are arranged to break joint at the ends in the finished structure, the cylinders or tubes being jointed at their ends and laid within the sections in cement, making the walls of the structure water-tight. The structure, by properly beveling the sections, may be built in the form (in cross-section) of a circle, semicircle, parabola, or ellipse approximately, the exterior and interior walls being polygonal for the purpose of securing strength. When used simply as a sewer, the structure may be provided with drain-connections emptying directly in its interior.

In many cities and towns there are small creeks fed by springs passing through them, and it is often desirable to preserve the water uncontaminated to be utilized for domestic or mechanical purposes. In most cases these creek-courses are the only available drainways. In such cases we perforate the cylinders or tubes in the main wall, and conduct the gutterage and surface water through them, keeping the water in the main drain clear and uncontaminated; or we conduct the clear water through the tubes, the inner passage serving as the sewer. The letters C and D indicate conductors for this purpose. For wells or cisterns the structure is set vertically, and for cisterns the sections are reduced in thickness, bringing the cylinders closer together, forming a series of closely-set air-chambers, which prevents injury by frost.

It will also be observed by reference to Fig. 3 that the sections are formed with parallel walls, being square in cross-section. These are to be used in the construction of buildings or other structures in which it is desired to build vertical walls. It is further evident that the sections may be formed with right or other angles for the purpose of turning corners.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In a sewer, the combination of the longitudinal grooved wedge-shaped sections, provided with recesses or depressions, with the intermediate longitudinal tubes, having lugs or projections which register or fit within the depressions in the sections, substantially as shown and described.

2. In combination with the structure con-

structed as described, the connections leading into the interior and into the longitudinal tubes, substantially as and for the purposes set forth.

3. In combination with the structure constructed as described, the lateral connections passing partially through the wall thereof, and leading into the interior of the longitudinal tubes, substantially as and for the purpose described.

In testimony whereof we affix our signatures, in presence of two witnesses, this 20th day of September, 1882.

REUBEN T. BRYANT.
DAVID TOSTEVIN.

Witnesses:
JONAH FISK,
J. H. BURROUGHS.