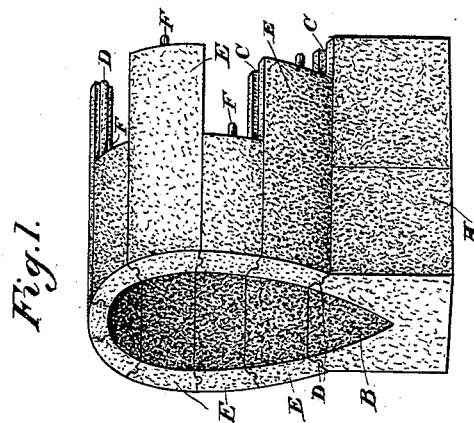
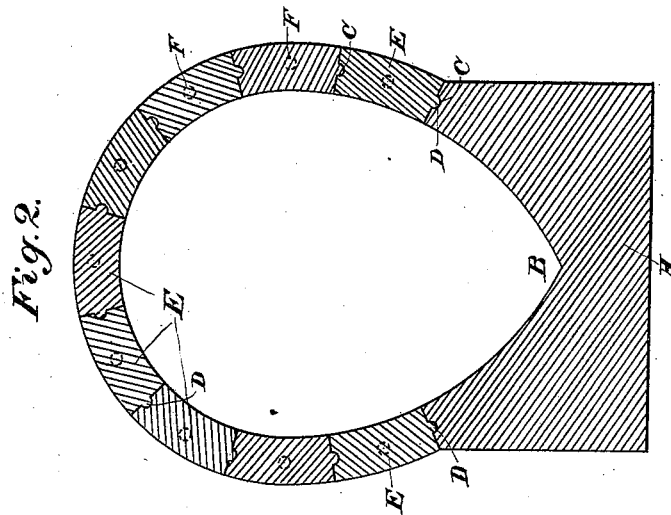


(No Model.)

B. W. MURRAY.  
CONSTRUCTION OF DRAINS OR SEWERS.

No. 419,277.

Patented Jan. 14, 1890.



Witnesses,  
Geo. H. Strong  
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attys

# UNITED STATES PATENT OFFICE.

BERNARD W. MURRAY, OF SEATTLE, WASHINGTON.

## CONSTRUCTION OF DRAINS OR SEWERS.

SPECIFICATION forming part of Letters Patent No. 419,277, dated January 14, 1890.

Application filed February 26, 1889. Serial No. 301,248. (No model.)

*To all whom it may concern:*

Be it known that I, BERNARD W. MURRAY, of Seattle, King county, Washington Territory, have invented an Improvement in Construction for Drains or Sewers; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to certain improvements in drains or sewers; and it consists in the construction and combination of devices which I shall hereinafter fully describe and claim.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a perspective view showing a portion of one end of such a sewer or drain. Fig. 2 is a transverse section taken through the sewer.

A is the yoke or sole piece, which may either be formed in place by the use of concrete or artificial stone or other substance which can be molded in a plastic state and will afterward set and become hard, or it may be molded in sections of different length and afterward laid in place. This sole forms the base upon which the upper portion of the sewer is constructed, and its central depression B forms the bottom of the interior of the sewer. The outer edges of this yoke or sole piece are grooved or channeled longitudinally, as shown at C, to receive corresponding tongues D, which are formed upon the fixed adjacent sections E, of which the sewer or pipe is to be built. These sections succeed each other, being properly

curved, so that they may be laid together, and when complete will form the proper curve and arch of the sewer. They are made in any suitable lengths, and arranged to break joints, as shown in Fig. 1, and they are also preferably provided with mortises and with dowel-pins F, which fit into said mortises at the ends of the sections, so as to make the structure continuous and bind it together into a continuous structure. It will be seen that by this construction the pipes can be easily handled and laid up with very little cost, as no centers are needed in building it. When used as a culvert with other masonry, it can be built dry and the other masonry built around it.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

A sewer or culvert consisting of the sole with the central longitudinal depression and the grooves or channels in its edges, in combination with tongued and grooved strips or sections fitted together and laid up to form the outline, said sections being mortised or doweled together at the ends, so as to form a continuous passage, substantially as described.

In witness whereof I have hereunto set my hand.

BERNARD W. MURRAY.

Witnesses:

BYRON PHELPS,  
FRANK E. BROWN.