L. A. GOUCH.

Sewer.

No. 161,222. Patented March 23, 1875.

Fig. 1.

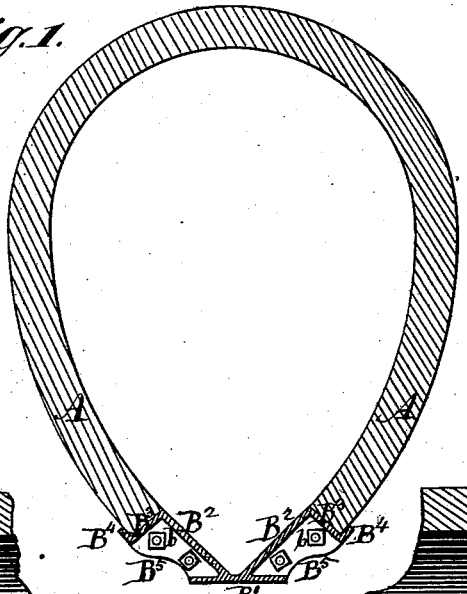


Fig. 4.

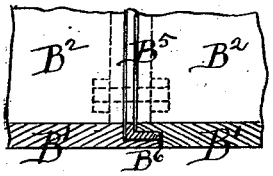


Fig. 2.

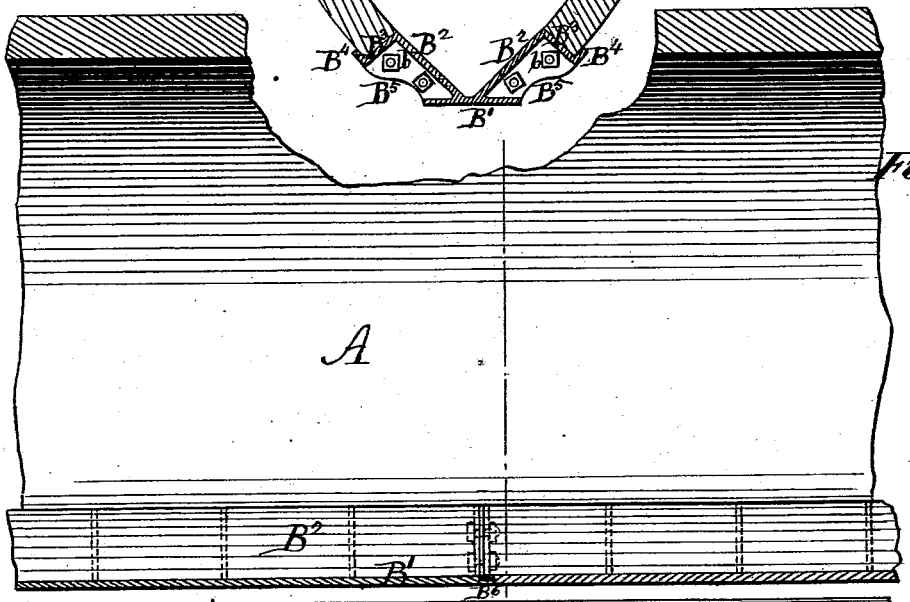
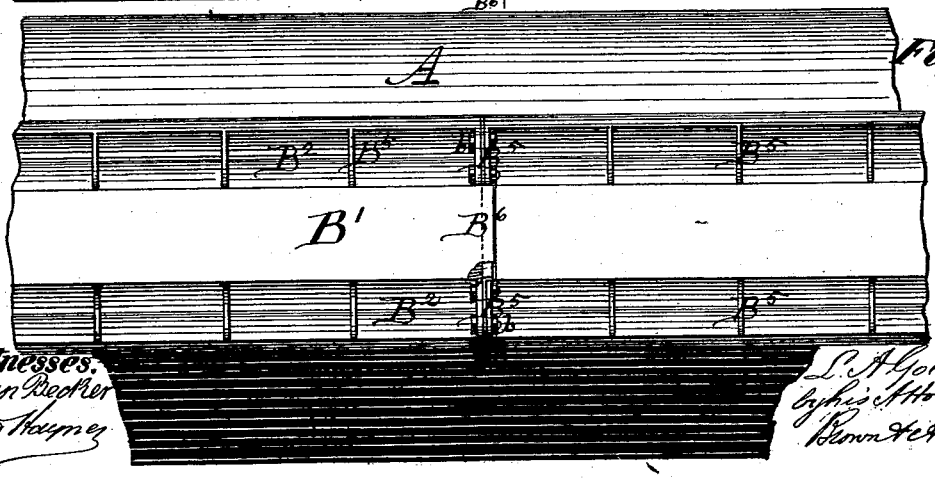


Fig. 3.



Witnesses.
John Becker
Fred Haynes

L. A. Gouch
by his Attorneys
Brown & Allen

UNITED STATES PATENT OFFICE.

LYMAN A. GOUCH, OF YONKERS, NEW YORK.

IMPROVEMENT IN SEWERS.

Specification forming part of Letters Patent No. **161,222**, dated March 23, 1875; application filed September 3, 1874.

To all whom it may concern:

Be it known that I, LYMAN A. GOUCH, of Yonkers, in the county of Westchester and State of New York, have invented an Improvement in Sewers, of which the following is a specification:

This invention relates to an improved mode of constructing sewers, whereby they are rendered more durable, the cost of construction is reduced, facility is afforded for building sewers in wet ground or across chasms or gullies, and a less amount of excavation is necessary than in sewers of ordinary construction.

The invention consists in a sewer constructed in part of masonry, and in part of iron, the masonry being in the form of an arch, and resting upon an iron girder of novel construction, forming the bottom of the sewer.

In the accompanying drawing, Figure 1 is a transverse vertical section of a sewer constructed according to my invention. Fig. 2 is a longitudinal vertical section. Fig. 3 is a bottom view. Fig. 4 is a detail view, hereinafter particularly referred to.

A represents an arch of masonry, of oval form, or approximately so, the lower portion of which rests upon an iron girder. This girder consists of a base, B^1, lying in a horizontal position, and two sides, B^2 B^2, each inclined upward and outward at an angle of about forty-five degrees, more or less, and extending from the center of the base B^1 a distance somewhat greater than the entire width of said base, so as to form a V-shaped gutter, as shown. At the top of this gutter the metal extends outward and downward at about right angles with the sides B^2 B^2 a distance equal to the thickness of the masonry-wall A, so as to form supporting-surfaces B^3 B^3 for the wall A to rest upon, and then extends upward about parallel with the sides B^2 B^2, so as to form flanges B^4 B^4, bearing against the outer surface of the bottom of the wall A. By this construction, the surfaces B^3 B^3 furnish a firm support for the weight of the wall, and the flanges B^4 B^4 serve to prevent the lower portion from spreading. The sides B^2 B^2 are braced by webs B^5, extending from the sides B^2, base B^1, and supporting-surfaces B^3 at right angles with the length thereof, and at suitable distances from each other, to impart the necessary degree of strength to the parts. Each girder has one of these webs at each end, which forms a flange, and when it is necessary to attach the ends of two girders together as the work of constructing the sewer progresses a packing of rubber or other substance is placed between these flanges, and they are secured by bolts *b* passed through them, as shown, thus forming a continuous girder of any desired length. At one end of each girder the base projects slightly beyond the edges of the sides, so as to form a lip or flange, B^6, which engages with a groove or depression in the end of the next adjacent girder, as shown clearly in Fig. 4. By this means the continuous girder is rendered firm and solid, and the joint is prevented from accidental displacement.

The girder, constructed as above described, is laid upon the bottom of the excavation made for the sewer, and the masonry is built upon it.

A sewer constructed according to my invention possesses many advantages over those of ordinary construction. The cost of construction is reduced; the sewer is rendered more durable; the amount of excavation necessary is not so great, which is an important consideration, especially in rocky ground.

By the use of the iron girder bottom the sewer may be laid in wet or swamp ground, or may be carried on piles over gullies or chasms. The girder bottom may be applied to old sewers, the bottoms of which have become defective in consequence of the washing away or dropping out of portions thereof.

In building new sewers, as soon as the girder is laid the bottom of the sewer is complete, and said bottom is perfectly straight, so that there is no lodgment or collection of water or sewerage at any point, and the V-shaped gutter facilitates the carrying off of the deposits.

The girder may be of either cast or wrought iron, as preferred.

What I claim as new, and desire to secure by Letters Patent, is—

A sewer composed of an iron girder constructed with a base, B^1, inclined sides B^2, and flanged supporting-surfaces B^3, in combination with a superincumbent arch of masonry, substantially as herein described.

LYMAN A. GOUCH.

Witnesses:

BENJAMIN W. HOFFMAN,

MICHAEL RYAN.