L. BARGMANN.

Mode of Utilizing Water-Power in Sewers.

No. 197,589. Patented Nov. 27, 1877.

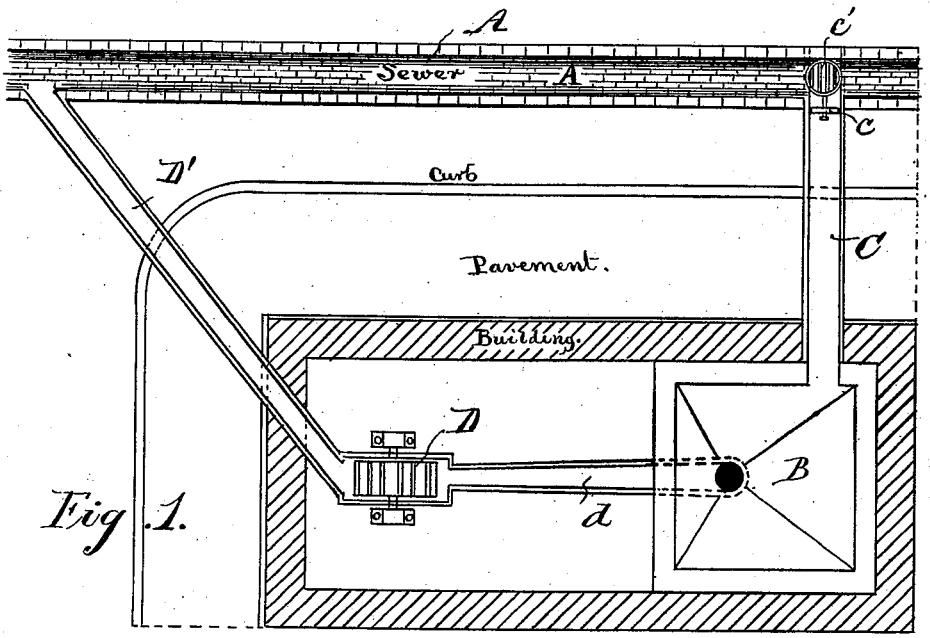


Fig. 1.

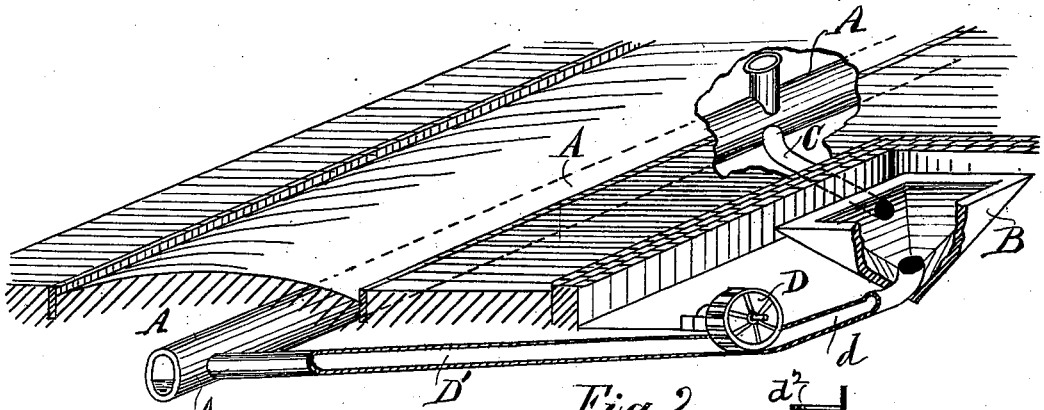


Fig. 2.

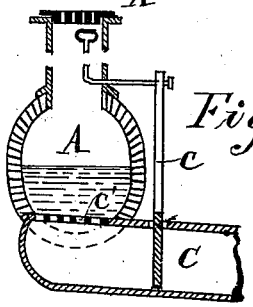


Fig. 3.

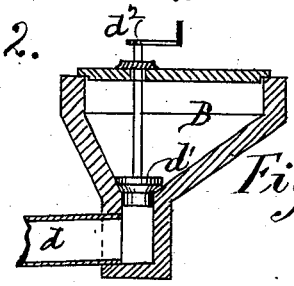


Fig. 4.

Witnesses;
J. W. Kerthel.
Chas. Kerthel.

Inventor;
Lorenz Bargmann
per
Kerthel & Co
Attys

# UNITED STATES PATENT OFFICE.

LORENZ BARGMANN, OF ST. LOUIS, MISSOURI.

## IMPROVEMENT IN MODES OF UTILIZING WATER-POWER IN SEWERS.

Specification forming part of Letters Patent No. **197,589**, dated November 27, 1877; application filed June 27, 1877.

*To all whom it may concern:*

Be it known that I, LORENZ BARGMANN, of St. Louis, in the county of St. Louis and State of Missouri, have invented an Improved Method of Utilizing Water-Power in Sewers, of which the following is a specification:

It is the object of this invention to utilize as a motor the water-power of sewers or underground channels with which cities and towns are provided.

Of the drawing, Figure 1 is a plan view of my invention. Fig. 2 is an isometrical perspective view of my invention. Fig. 3 is a detail section, showing the joint of the sub-sewer with main sewer, and the gate that controls the former. Fig. 4 is a section of the reservoir and its plug-valve.

As here shown, the location of my improvements with relation to an existing sewer or underground channel is where the same has an incline, and where the water thereof finds its outlet or discharge.

A represents the discharge-section of a sewer. B represents an underground reservoir. This reservoir can consist of one or more cellars of buildings existing in the vicinity, said cellars being properly cemented and made air-tight in any well-known manner. The reservoir B can also be built in such a cellar, (see Fig. 1,) or a special reservoir can be built the same as an ordinary cistern. The bottom of the reservoir, by preference, should have sloping sides converging to its outlet. (See Figs. 1, 2, 4.)

The sewer A and reservoir B communicate one with the other by suitable pipe-connection or a sub-sewer, C, (see Figs. 1, 2, 3,) so that part of the water from main sewer fills said reservoir.

At the junction of the sub-sewer to main sewer I provide an ordinary gate attachment, *c*, said gate operating vertically, so as to close or open the sub-sewer; said gate further being made to extend within the operator's reach from the street, its rod or gearing being suitably housed, as indicated in Fig. 3.

The bottom of the main sewer has the grating at *c'*, near junction of C with A, (see Figs. 1, 3,) and so that rubbish like bottles, cans, &c., shall be prevented entrance into the reservoir.

The water in the main sewer, when the gate *c* is open, flows through the sub-sewer into the reservoir and fills the same.

In communication with the reservoir B, I locate a water-wheel, D. This is done by pipe *d*, one end of which connects to the bottom of the reservoir, while the other end of said pipe is directed tangentially to the wheel D. (See Figs. 1, 2.)

The arrangement of the wheel can be either in a vertical or horizontal position. As apparent, the location of the wheel with relation to that of the reservoir should be as near the lowest point of the incline as practicable, to utilize the greatest fall of water.

The water escaping from the reservoir to the wheel can also be let on or shut off and controlled. Thus a plug-valve, $d^1$, can be arranged, fitted to close the opening in the bottom of the reservoir, the operating attachment $d^2$ of said valve extending out of the top of the reservoir within the operator's reach. (See Fig. 4.)

From the wheel the water or waste can be redirected by pipe D' back again into the main sewer; (see Figs. 1, 2;) or, as apparent, a separate discharge for said waste can be provided.

The reservoir, at top, can have a man-hole for cleansing, inspecting, and otherwise getting at the interior of said reservoir.

It is the water in the reservoir that drives the wheel D, and the only cessation for same takes place during the time required for filling said reservoir.

My improvement therefore utilizes a power that has heretofore been a waste.

What I claim is—

1. A hydraulic machine, consisting of a water-wheel, D, the pipe *d*, reservoir B, and sub-sewer C, said parts being arranged with relation to a main sewer, for the reception of the impelling current in same, as and for the purpose set forth.

2. The combination of the grating *c*, sub-sewer C, and main sewer A, as and for the purpose set forth.

3. The combination of the gate attachment $c'$, sub-sewer C, and main sewer A, as and for the purpose set forth.

4. The combination of the reservoir B, its plug-valve $d^1$, pipe $d$, sub-sewer C, and main sewer A, as and for the purpose set forth.

5. The pipe D′, water-wheel D, pipe $d$, and reservoir B, in combination with sewer A, as and for the purpose set forth.

In testimony of said invention I have hereunto set my hand.

LORENZ BARGMANN.

Witnesses:
WILLIAM W. HERTHEL,
JOHN W. HERTHEL.