

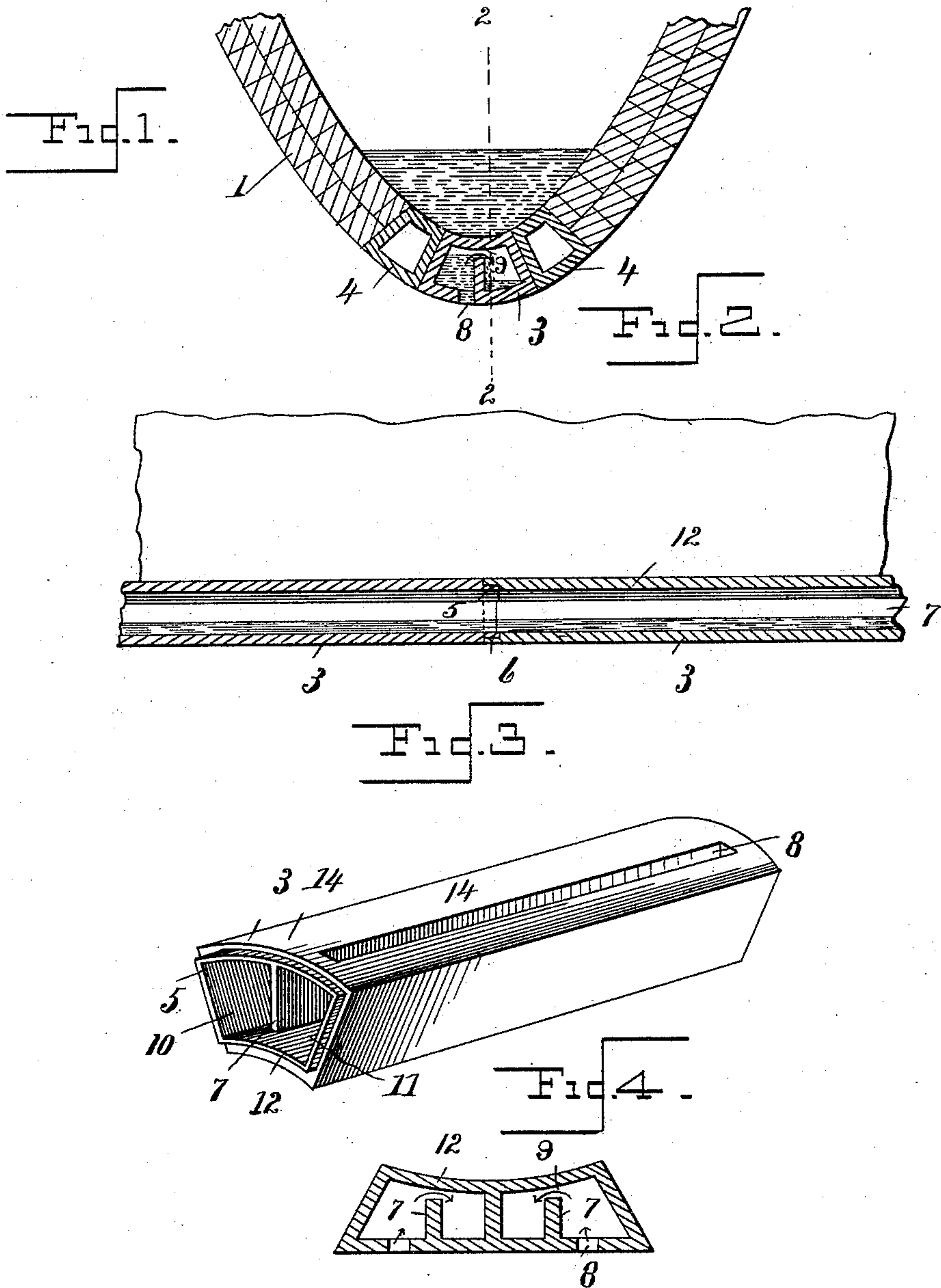
(No Model.)

S. E. BABCOCK.

SEWERAGE SYSTEM AND HOLLOW TILE FOR USE IN SAME.

No. 473,490.

Patented Apr. 26, 1892.



Witnesses  
W. H. Courtland  
O. C. Sample

Inventor  
Stephen E. Babcock  
by R. P. Smith  
his atty.



# UNITED STATES PATENT OFFICE.

STEPHEN E. BABCOCK, OF LITTLE FALLS, NEW YORK.

## SEWERAGE SYSTEM AND HOLLOW TILE FOR USE IN SAME.

SPECIFICATION forming part of Letters Patent No. 473,490, dated April 26, 1892.

Application filed November 18, 1891. Serial No. 412,280. (No model.)

*To all whom it may concern:*

Be it known that I, STEPHEN E. BABCOCK, a citizen of the United States, residing at Little Falls, in the county of Herkimer and State of New York, have invented certain new and useful Improvements in Sewerage Systems and Hollow Tile for Use in Same; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention consists of an improved drain-tile or hollow brick for carrying off ground-water, and in the combination of said tile with and arrangement in the walls of an ordinary sewer.

In the drawings, Figure 1 is a cross-section of a portion of a brick sewer with my invention applied to it. Fig. 2 is a section on line 2 of Fig. 1. Fig. 3 is a perspective view of a tile or hollow brick turned upside down. Fig. 4 is a cross-section of a double tile.

My invention is designed to solve the problem of carrying off the excess of ground-water in any particular district, either alone or preferably in connection with, but separate from, the sewage from the same district. The present method of doing this in connection with the ordinary system of sewers is to build into the bottom of a brick sewer a series of hollow bricks or tiles, whose joints are left open so that the ground-water can percolate into the hollow brick. The bottom of the main sewer is then made tight by putting a layer of cement over the line of hollow brick.

The disadvantages of the arrangement are, first, that the lining of cement is liable to be broken through the action of natural causes, and the sewage then leaks out; second, the spaces between the abutting ends of the hollow bricks or tiles are filled up by dirt or sewage working into them, or perhaps this stuff accumulated in the interior of the bricks and entirely clogs up the passage-way; third, the open joints which allow water to percolate in also allow it to ooze out, and the ground-water collected at one portion of the sewer system will be allowed to run out into the ground at another and drier locality, instead of being carried away through such dry locality to the mouth of the sewer. To avoid these and other difficulties I have made the invention illus-

trated in the accompanying drawings, in which—

1 represents a portion of a brick wall of an ordinary sewer of oval or other cross-section.

3 is my preferred form of hollow tile in place, so as to form a portion of the bottom of the sewer and at the same time serving as a water-tight conduit to carry off the ground-water.

4 4 are ordinary hollow tiles serving as a foundation for the sewer-walls. These tiles 4 might evidently be made like the tile 3 and assist in carrying off the ground-water if a greater capacity were needed.

The construction of the hollow drain-tile 3 is best shown in Fig. 3. It has a longitudinal partition or septum 7, which extends up from the bottom wall 14 of the tile almost to the top wall 12. A space 9 is left, however, so that the interior of the hollow tile is divided into two longitudinal compartments 10 and 11, connected at the top. Facility of manufacture would render it desirable that the partition 7 should be in the center of the tile; but it might be located to one side of the center without affecting the operative-ness of the invention. In the bottom wall 14 of each tile is an opening, preferably in the form of a longitudinal slit 8, which connects with one of the compartments 11, but not with the other 10.

Each tile is provided with a projecting portion 5 at one end and a corresponding depression 6 at the other end, so that the tiles will match when placed end to end and can by means of cement be made to form permanent water-tight joints.

The double tile shown in Fig. 4 would be used in extra large sewers.

The operation of my invention is as follows: A line of tiles having been put down through the ground to be drained, either by themselves or in conjunction with a regular sewer, as shown in Fig. 1, the ground-water accumulates until it rises through the opening 8 and flows over the partition 7 into the compartment 10, which affords it a free and water-tight conduit to conduct it to the mouth of the sewer. The dirt may work up into the compartment 11 and nearly fill the same at certain points, so that there can be no flow of water along said compartment; but the com-



partment 10 will always be open because nothing but water gets into it. When these tiles form the bottom of a sewer, they form a rigid and permanent one on account of the strength of the joints 5 and 6.

It is evident that the slit 8 might be replaced by a series of holes, and that the partition 7 might be carried all the way up to the upper wall 12 of the tile, if only the requisite perforations through said partition were made to allow the water to flow into the compartment 10. Various other changes of form might be made without departing from the spirit of my invention.

Of course the opening 8 must connect with the corresponding compartment of each tile, so as to leave the other and water-tight compartments in line when the tiles are laid in position.

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

1. A hollow drain-tile which has a longitudinal septum or partition which is cut away at the upper portion, thereby dividing the interior of said tile into two longitudinal compartments connected at the top, and which has an opening or openings through its bottom wall connecting with one of said compartments only, substantially as described.

2. A hollow drain-tile which has an interior longitudinal septum or partition which extends from the bottom wall nearly to the top wall, thereby dividing the interior of said tile into two longitudinal compartments connected at the top, and which has a longitudinal slit

in the bottom of one of said compartments, the bottom wall of the other compartment being water-tight, substantially as described.

3. The combination of a series of hollow drain-tiles whose ends are matched to form male and female joints, each of which tiles has a central longitudinal septum or partition which is cut away at the upper portion, thereby dividing the interior of said tile into two longitudinal compartments connected at the top and each of which tiles has an opening or openings in the bottom wall connecting with one of said compartments only, said openings connecting with corresponding compartments of the several tiles, substantially as described.

4. The combination, with the walls of a sewer, of a series of hollow tiles which fit into and form the bottom of said sewer, the ends of which are matched to form water-tight male and female joints and each of which tiles has a central longitudinal septum or partition which is cut away at the upper portion, thereby dividing the interior of said tile into two longitudinal compartments connected at the top and each of which has an opening or openings in the bottom wall connecting with one of said compartments only, said openings connecting with corresponding compartments of the several tiles, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

STEPHEN E. BABCOCK.

Witnesses:

CHARLES O. VAN ALSTINE,  
H. E. GOLDEN.