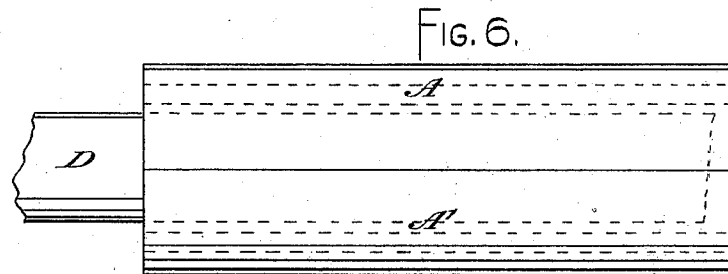
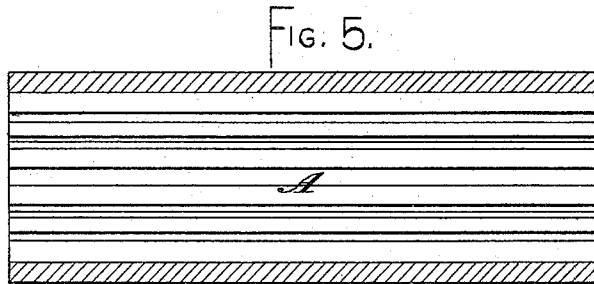
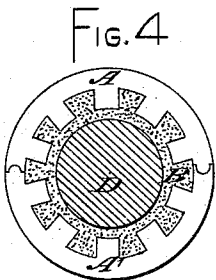
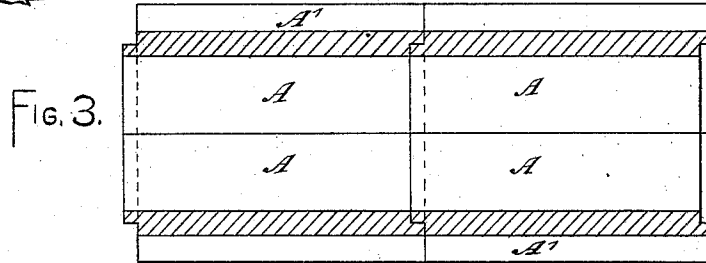
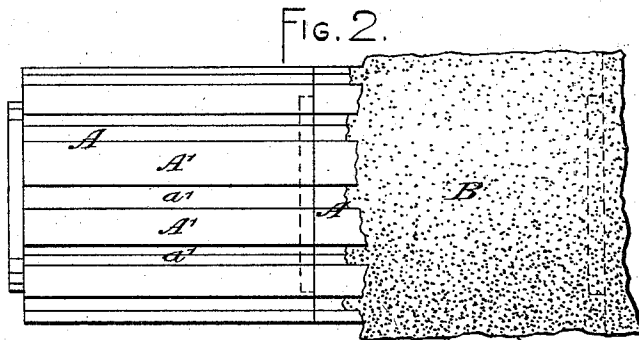
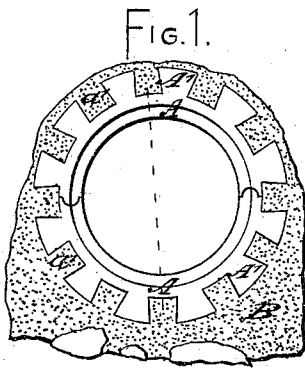


A. CAMPBELL.  
Drain-Tile.

No. 220,749.

Patented Oct. 21, 1879.



WITNESSES:

E. B. Bolton  
Charles C. Stetson

INVENTOR:

Augustine Campbell,  
by his attorney  
Thomas D. Stetson,

# UNITED STATES PATENT OFFICE.

AUGUSTINE CAMPBELL, OF PERTH AMBOY, NEW JERSEY.

## IMPROVEMENT IN DRAIN-TILES.

Specification forming part of Letters Patent No. 220,740, dated October 21, 1879; application filed August 7, 1879.

*To all whom it may concern:*

Be it known that I, AUGUSTINE CAMPBELL, of Perth Amboy, county of Middlesex, and State of New Jersey, have invented certain new and useful Improvements in Drain-Tiles, of which the following is a specification.

My tiles are adapted for draining purposes, or for protecting telegraph or other posts.

According to my invention I form each tile with a series of external or internal projections or ribs extending lengthwise of the same, the spaces between such projections or ribs being adapted to receive asphaltum cement, concrete, or other suitable substance. The tiles are formed of such shape and at their edges are so constructed that when placed together they shall form a tube.

When employing my tiles for drainage purposes, I prefer to form the ribs or projections externally; but when using the same to protect the ground ends of telegraph-posts or other posts, I prefer to form the same internally.

The accompanying drawings form a part of this specification, and represent what I consider the best means of carrying out the invention.

Figure 1 represents an end view of a pair of tiles constructed according to my invention, and set in cement, adapted to be used for drainage purposes. Fig. 2 represents an external side view of four of my tiles, with a portion of the cement covering removed. Fig. 3 is a sectional interior view of four tiles in a horizontal position. Fig. 4 represents an end view of a pair of my tiles with the cement lining, and adapted for the protection of the bases of telegraph or other posts. In these the ridges are inside instead of outside. Fig. 5 represents an internal, and Fig. 6 an external, side view of one of the latter style of tiles, showing a part of the pole.

Similar letters of reference indicate corresponding parts in all the figures.

A represents the main body of my improved tile, and A' a series of ribs or projections formed lengthwise of the tile, in such manner as to leave dovetailed grooves *a* between the same, adapted to receive a coating or layer of asphaltum cement or concrete, B, for the purpose

of strengthening and protecting the main body A of the tile.

One edge of each section is tongued and the other is grooved. These tongues and grooves match together and form a complete pipe, as shown by Figs. 1 and 4.

One end of each tile, when intended for drainage purposes, is formed with a smooth projection, and the other end with a corresponding recess, so that when the tiles are placed together in continuous length they shall form a perfect tube.

When employing my tiles for drainage purposes, I first lay a hollowed foundation of cement or concrete, B, then lay my line of tiles A in position, pressing each gently down thereon till the soft cement fills the grooves between the longitudinal ribs, and afterward place in position the upper tiles, A, and apply the coating of cement B over the same, and after it has hardened over the whole, filling all the grooves in the top half, cover the whole with earth.

When using my tiles to protect telegraph or other posts, as shown by Figs. 4 to 6, the tiles A A' are sunk around the bottom of the post D, and the interior is filled with cement or other suitable material, B, to completely fill the grooves between the several ribs A', which, for the purpose, are on the interior, and also to fill the entire space between the tiles and the post. The portions *a'* of the cement, which engage in the spaces between the ribs A', hold both by the adhesion of the material and by the dovetail form, which locks them firmly in addition to the adhesion.

Modifications may be made in the details.

Although I have shown my tiles adapted to form a cylindrical pipe or tube, they may be of other shapes, as octagonal or hexagonal. I can also use one tile or series of tiles A only for drainage purposes, using the same as a bridge, upon any suitable base to support the superimposed load of earth or material. I can also form my drain or protecting pipes of more than two sections.

I am aware that drain-tiles have been made in sections, with external longitudinal ribs. Such I do not claim; but

I claim as my invention—

1. An earthen tile, A, forming a section of a cylinder, with continuous ribs or projections A', formed lengthwise of the same, with spaces a' between, of dovetail section adapted to serve as and for the purposes described.

2. A pipe formed of a series of tiles having projections A', formed as described, in combination with the coating B, applied in a soft state and allowed to harden in position, as and for the purposes herein specified.

In testimony whereof I have hereunto set my hand this 29th day of July, 1879, in the presence of two subscribing witnesses.

AUGUSTINE CAMPBELL.

Witnesses:

W. COLBORNE BROOKES,  
WM. C. DEY.