

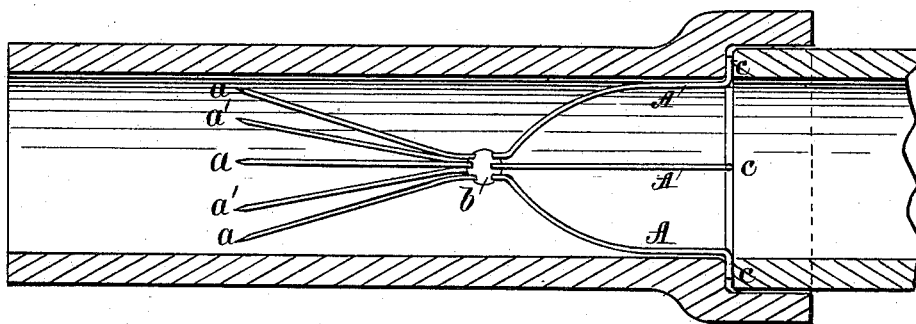
(No Model.)

A. L. SHOULTS.  
DRAIN TILE PROTECTOR.

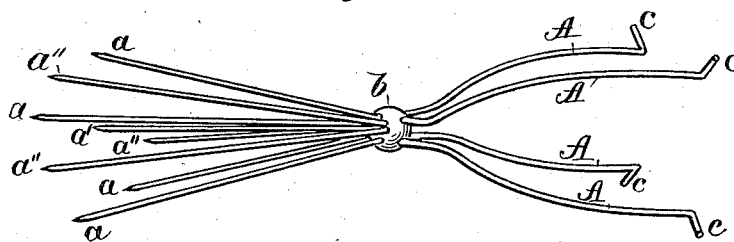
No. 344,141.

Patented June 22, 1886.

*Fig 1.*



*Fig 2.*



WITNESSES:

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BY

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# UNITED STATES PATENT OFFICE.

ALEXANDER LYTLE SHOULTS, OF BLOOMINGBURG, OHIO.

## DRAIN-TILE PROTECTOR.

SPECIFICATION forming part of Letters Patent No. 344,141, dated June 22, 1886.

Application filed February 27, 1886. Serial No. 193,481. (No model.)

*To all whom it may concern:*

Be it known that I, ALEXANDER LYTLE SHOULTS, of Bloomingburg, in the county of Fayette and State of Ohio, have invented a new and useful Improvement in Drain-Tile Protectors, of which the following is a specification, reference being had to the annexed drawings, forming a part thereof, in which—

Figure 1 is a side elevation of my improved drain-tile protector, showing its position in the drain. Fig. 2 is a perspective view.

Similar letters of reference indicate corresponding parts in both figures of the drawings.

The object of my invention is to provide a simple and efficient device for application to a drain tile and pipes, for preventing the entrance of animals, and which may be readily applied to or removed from drain-tiles of different diameters.

My invention consists in a series of spring-arms provided with right-angled ends adapted to enter into the joints of a drain tile or pipe, and supporting in the center of the pipe a number of divergent pointed wires or spears whose points lie in the direction of the open end of the pipe.

In carrying out my invention I do not limit or confine myself to any particular number of spring-arms or spear-points, nor to any special method of securing the arms and the points together. Four spring-arms, A, preferably made of galvanized iron wire and provided with pointed diverging ends *a*, are secured together and to a central and to intermediate pointed wires, *a' a''*, by a ball of solder or other soft metal applied to the adjacent wires by the process of soldering or casting. The extremities of the arms A are bent outward to form the fingers *c*, which are received in the joint between the adjoining ends of the drain-tile, thus supporting the divergent points *a' a''* in the center of the drain.

The several wires of which the protector is

formed may be secured together by twisting or clamping or in any other convenient and effective way.

The application of my improved protector to a drain does not interfere with the free discharge from the drain, but it effectually prevents the smaller animals from entering the drain by presenting a series of sharp points protecting the entire area of the drain.

The protector is applied to the drain by compressing the arms A sufficiently to permit of introducing the fingers *c* into the mouth of the tile, when the protector is pushed along until the fingers enter the joint between the adjacent ends of the tile-section. In this manner the points of the wires or spears are held centrally in the tile and cannot be readily displaced.

In protectors of larger sizes than that represented in the drawings a greater number of points, *a a'*, &c., will be employed, and the size of the wire used in making the protector may be proportionate to the diameter of the drain or pipe to be protected.

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

1. As an improved article of manufacture, a drain-tile protector formed of a series of spring-arms, A, having angled ends *c*, and a series of diverging wire points or spears, *a a' a''*, secured to each other and to the spring-arms A by a cast or soldered joint, substantially as herein shown and described.

2. A drain-tile protector formed of the arms A, having angled ends *c*, and provided with the points *a*, pointed wires *a' a''*, and means for securing the several parts of the protector together, substantially as herein shown and described.

ALEXANDER LYTLE SHOULTS.

Witnesses:

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H. H. SANDERSON.