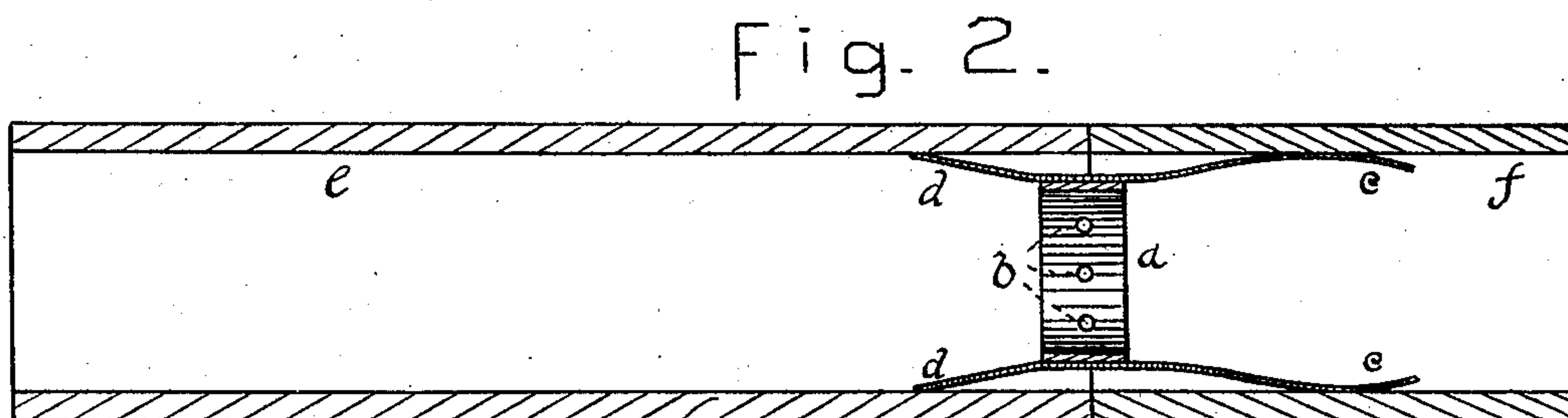
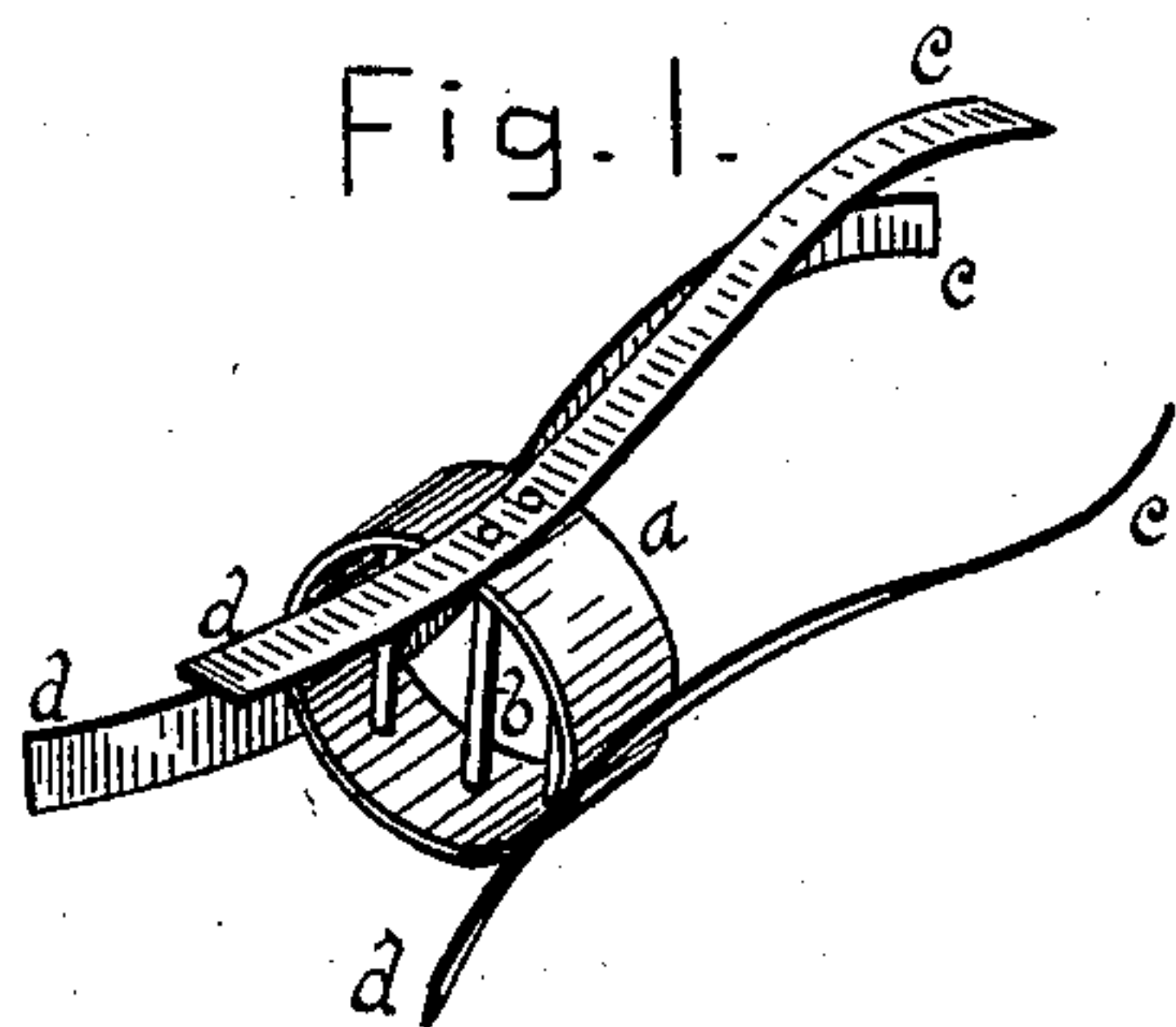


(No Model.)

W. W. INGOLD.  
PROTECTOR FOR DRAIN TILES.

No. 364,823.

Patented June 14, 1887.



ATTEST :

C C Clark

J D Walker

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# UNITED STATES PATENT OFFICE.

WILLIAM W. INGOLD, OF ASSUMPTION, ILLINOIS.

## PROTECTOR FOR DRAIN-TILES.

SPECIFICATION forming part of Letters Patent No. 364,823, dated June 14, 1887.

Application filed April 2, 1887. Serial No. 233,457. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM W. INGOLD, of Assumption, in the county of Christian and State of Illinois, have invented a certain new and useful Protector for Drain-Tiles, of which the following is a specification.

The object of my invention is to exclude animals from the tile, while permitting the water to flow freely; and I attain my object in a cheap and effective manner by means of the device hereinafter set forth and claimed.

In the drawings accompanying and forming a part of this specification, Figure 1 represents my invention in isometrical perspective, and Fig. 2 is a longitudinal section of a portion of a tile-drain, showing my device, also in section, in position therein.

My device comprises a grate or lattice somewhat smaller than the internal diameter of the tile to which it is applied and means, preferably elastic and self-adjusting, for sustaining the grate or lattice in the tile.

As shown, *a* represents an annular band or rim. *b* are cross-bars therefor. *c* are elastic bars having inwardly-inclined terminations. *d* are elastic bars having outwardly-inclined terminations. *e* and *f* are sections of drain-tile. The bars *d* are preferably continuous with bars *c*, and a line circumscribing either set of bars at the point of their greatest divergence would exceed the inner circumference of the tile.

In use, the protectors are inserted in the tile to any desired extent, the inwardly-inclining surfaces of bars *c* facilitating the operation,

and are held against the action of the water by the diverging and abruptly-terminating bars *d*, which tend to penetrate the tile to a limited extent when subjected to expelling pressure. The grate is held squarely across the tile by the combined action of spring-bars *c* and *d*, which together should press against the tile with sufficient firmness to effectually prevent the entrance of animals. The retentive action of bars *d*, while sufficient to hold the protectors against the discharging water, is not strong enough to prevent them from being withdrawn for the purpose of cleaning, so that any accumulation of dirt may be readily removed by the withdrawal of the protectors by means of a hooked rod or other suitable contrivance.

I claim—

1. A drain-tile protector comprising a grate composed of an outer frame and cross-bars, and springs for retaining the same in a transverse position in the tile.

2. A drain-tile protector comprising a grate formed of an annular band and cross-bars, and springs for retaining the grate in the tile.

3. The drain-tile protector consisting in the combination of band *a*, cross-bars *b*, elastic bars *c*, having the inwardly-inclined terminations, and the elastic bars *d*, having the outwardly-inclined terminations.

WILLIAM W. INGOLD.

Attest:

J. N. BILLS,  
L. D. MOORE.