F. GRINNELL.

SPRINKLING-PIPE.

No. 169,355. Patented Nov. 2, 1875.

Fig: 1

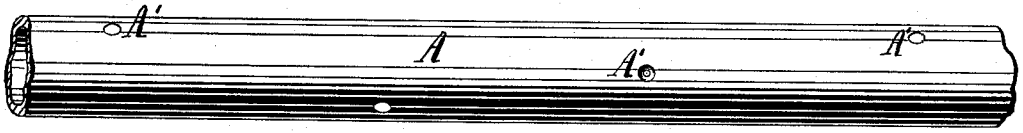
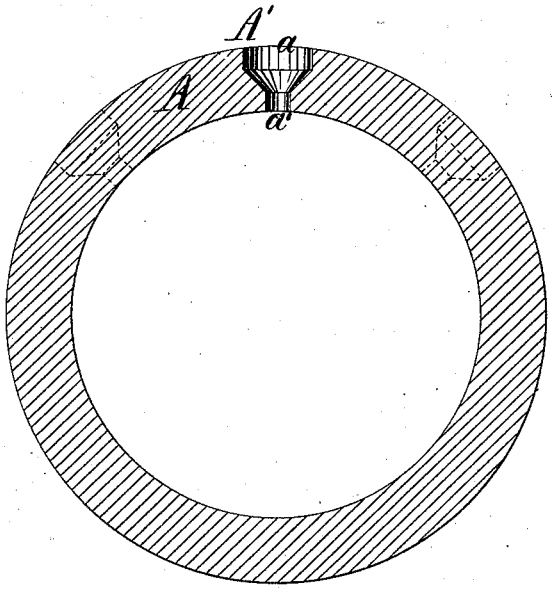


Fig: 2.



Witnesses.

Harry Gardner

W. E. Guy

Inventor:

Wm. F. Grinnell

by his attorneys

Thomas D. Stetson

UNITED STATES PATENT OFFICE.

FREDERICK GRINNELL, OF PROVIDENCE, RHODE ISLAND.

IMPROVEMENT IN SPRINKLING-PIPES.

Specification forming part of Letters Patent No. **169,355**, dated November 2, 1875; application filed June 16, 1875.

To all whom it may concern:

Be it known that I, FREDERICK GRINNELL, of the city and county of Providence, in the State of Rhode Island, have invented certain new and useful Improvements relating to Sprinkling-Pipes, of which the following is a specification:

The pipes may be used in various situations, but are intended more particularly to be arranged near ceilings of those parts of cotton-mills and other buildings which are most liable to the bursting out of fires from any causes. Experience has demonstrated the utility and importance of perforated pipes in such situations connected with large tanks or with pumps adapted to supply water under considerable pressure without any delay, and to distribute the same uniformly over the ceiling and the entire area below.

I have devised a form of perforation which can be produced with more economy, and will keep itself more easily clear, and will throw a fine stream of water with more force, than any heretofore known to me.

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

Figure 1 is the plan view, and Fig. 2 is a cross-section on a larger scale.

In the figures, A represents the body of the pipe of wrought-iron welded, and A′ the holes therein. Each hole is large at the exterior end *a*. It contracts conically to a small diameter, and is continued of small diameter through to the interior of the tube.

In the use of my pipes the water filling the tubes and pressing for exit forms in small smooth streams, having a diameter corresponding with the diameter of the small part *a′* of the holes. It flows through the enlarged outer part without contact with the sides thereof. The holes are produced in this form very rapidly and cheaply by machinery, taking care to produce the large part *a* first, by a large drill suitably operated, and then, after the point of the large drill has penetrated nearly to the inner surface of the pipe, a small drill is introduced to complete the hole. In this manner of operating, drills may be used to complete a hole of a fineness and delicacy which would not endure the rough usage of penetrating the hard scale on the exterior of the pipe. I usually produce three rows of these holes, and arrange the pipe with the holes on the upper side, so that one row of holes throws the water vertically upward, and the other two throw it obliquely to the right and the left.

The number of lines of holes may be one or more, to suit circumstances.

I claim as my invention—

A pipe having the sprinkling-apertures *a a′*, the larger portion *a* being on the outside, and the smaller portion *a′* being on the inside, of the pipe, and adapted to operate as herein specified.

In testimony whereof I have hereunto set my hand this 11th day of June, 1875, in the presence of two subscribing witnesses.

FREDERICK GRINNELL.

Witnesses:

F. H. MAYNARD,

F. W. HARTWELL.