

W. AUSTIN.
CONSTRUCTION OF SHEET METAL PIPE.

No. 78,564.

Patented June 2, 1868.

Fig. 1

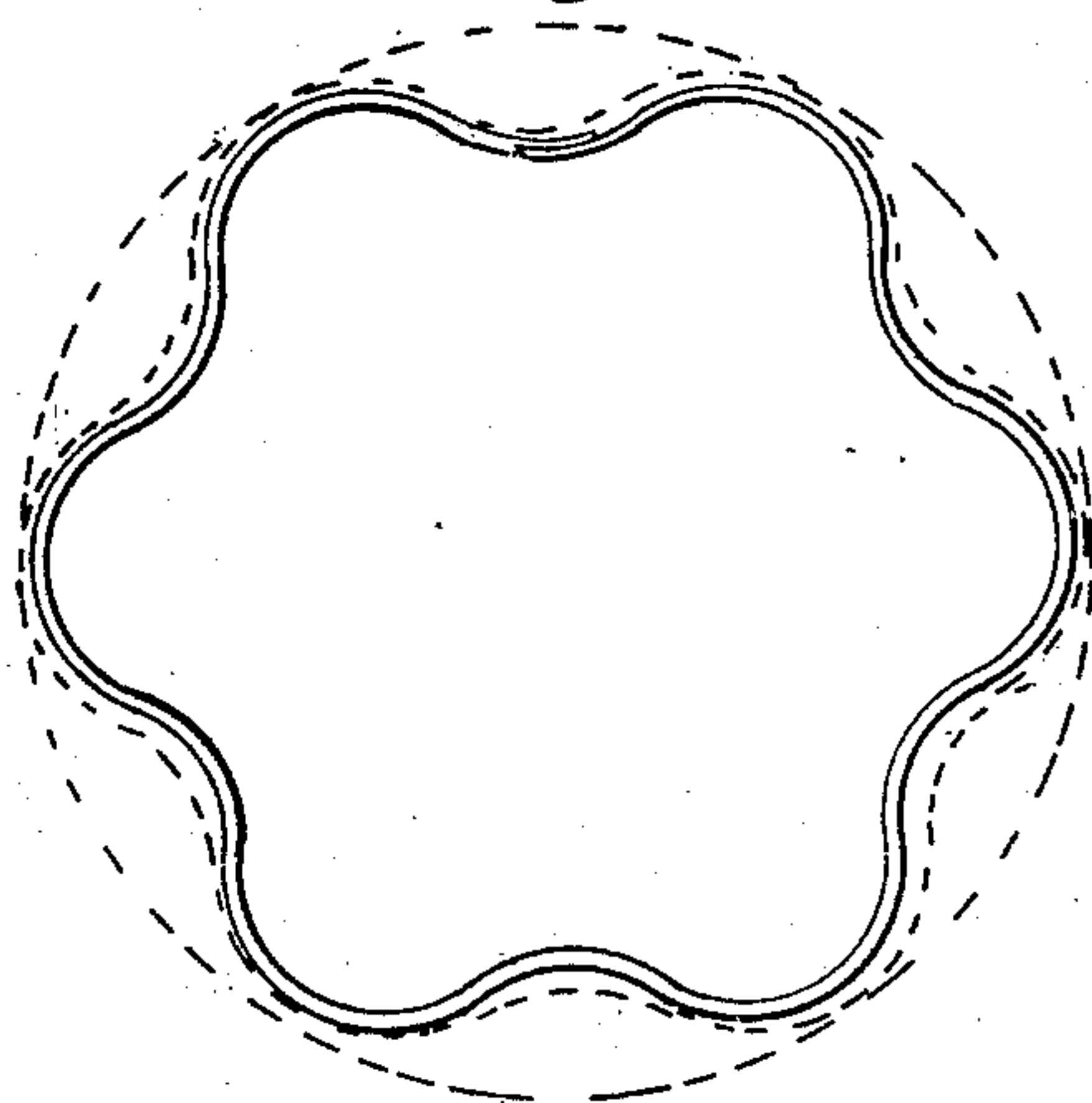
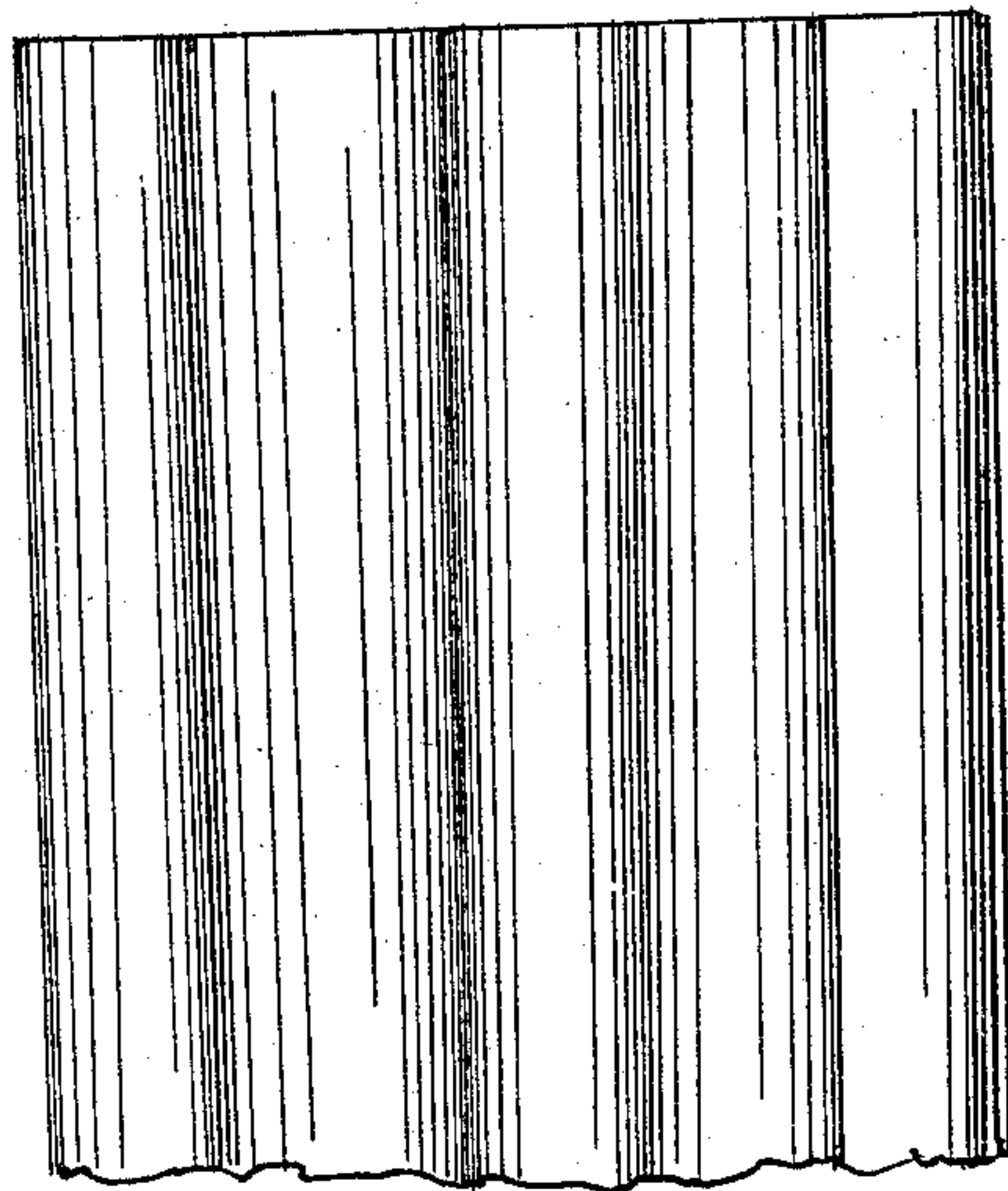


Fig. 2



Witnesses:
J. J. Dodge
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Inventor:
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by Dodge & Munroe
his attys

UNITED STATES PATENT OFFICE.

WILLIAM AUSTIN, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO
HIMSELF AND WM. OBDYKE, OF SAME PLACE.

IMPROVEMENT IN THE CONSTRUCTION OF SHEET-METAL CONDUCTOR-PIPES.

Specification forming part of Letters Patent No. 78,564, dated June 2, 1868.

To all whom it may concern:

Be it known that I, WILLIAM AUSTIN, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Sheet-Metal Water Conductors or Pipes; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, and to the letters of reference marked thereon, like letters indicating like parts wherever they occur.

To enable others skilled in the art to construct and use my invention I will proceed to describe it.

My invention relates to an improved method of constructing the pipes or sheet-metal tubes commonly used for conducting the water that accumulates on the roofs of buildings to the ground, or into a suitable receptacle; and the invention consists in so forming said pipe that it will yield to the expansive force of the water that may chance to become frozen therein, and thus prevent the pipe from being injured.

Figure 1 is an end view, and Fig. 2 a side elevation, of a pipe embodying my invention.

It is well known that as water is changed into ice by freezing it expands to such an extent that the ice occupies about one-ninth more space than the water did from which the ice is formed, and that, in consequence of this expansion, the ordinary conductors or pipes are frequently bursted, especially where there are angles in the pipe, or where, from a greater or less approach to a horizontal position, the flow of the water in the pipe is retarded.

Not only is the pipe itself thus injured, but it also often happens that the building and other property is likewise injured by the leakage caused by the bursting of the pipes by freezing.

To remedy these evils is the object of my invention; and this I do by corrugating, fluting, or crimping the metal, of which the pipe is made, as represented in the drawings, or in any similar manner.

This is most conveniently done by passing the sheets between suitably-grooved rollers first, and then forming them into joints of pipe afterward by bending the sheets and se-

curing their edges together either by seaming or soldering in the usual manner. Fig. 1 represents the end of a piece of pipe thus formed, the blue line indicating the form it will assume when expanded by the freezing of the water within it, and the red line indicating the size and form of the ordinary or plain tube that the same sheet would form if not corrugated.

It is obvious that the corrugations or indentations may be of any desired size, form, and number, the only requisite being that there shall be a surplus of the metal, so arranged as to permit the pipe to expand in diameter sufficiently to increase its area in cross-section at least one-ninth. After being expanded the spring of the metal will cause the pipe to resume its original form and size, with but little, if any, variation, especially if made of sheet-tin, which is the material ordinarily used for the purpose.

In order to render this improved pipe available in rural districts, and where the country tin-smiths may not have the means convenient for preparing the sheets, I propose to prepare the pipe in sections, and furnish it as an article of manufacture or trade.

Where it is to be shipped long distances, and its bulk in the form of pipe is objectionable, the sheets may be prepared and shipped in that compact form, and afterward formed into pipes as required, as any tin smith possesses the facilities for doing this.

By this simple improvement I am enabled to construct water conductors or pipes that will obviate entirely all injury from freezing of the water in the pipes.

I am aware that sheets or plates of metals have been corrugated for the purpose of rendering them more rigid, and that this idea has been embodied in the construction of linings for oil-wells, and, therefore, I do not claim such; but,

Having thus described my invention, what I claim is—

A water conductor or pipe made of corrugated sheets of metal, so as to yield to the internal pressure caused by the freezing of the water therein, substantially as described.

WM. AUSTIN.

Witnesses:

H. B. MUNN,
P. F. DODGE.