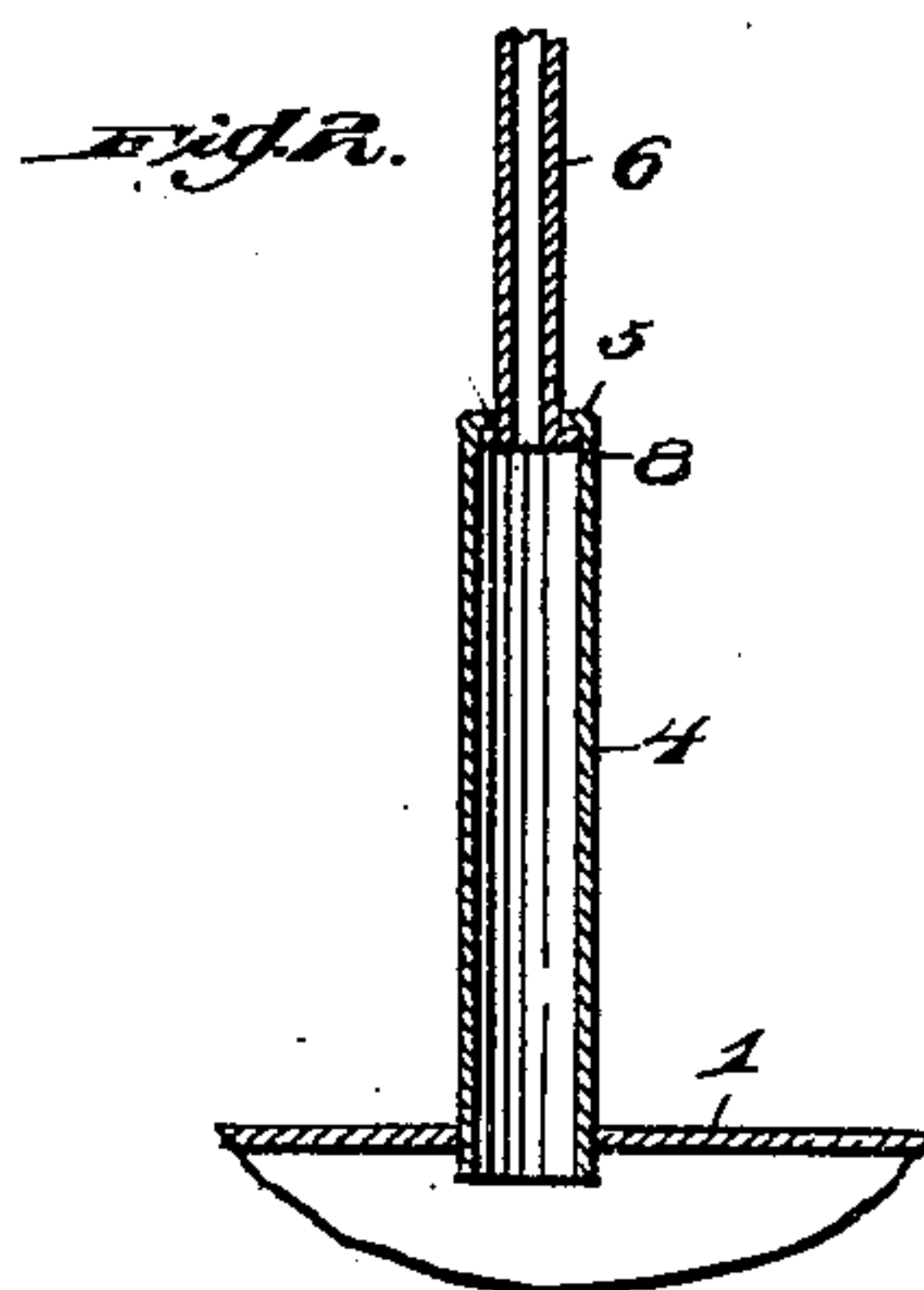
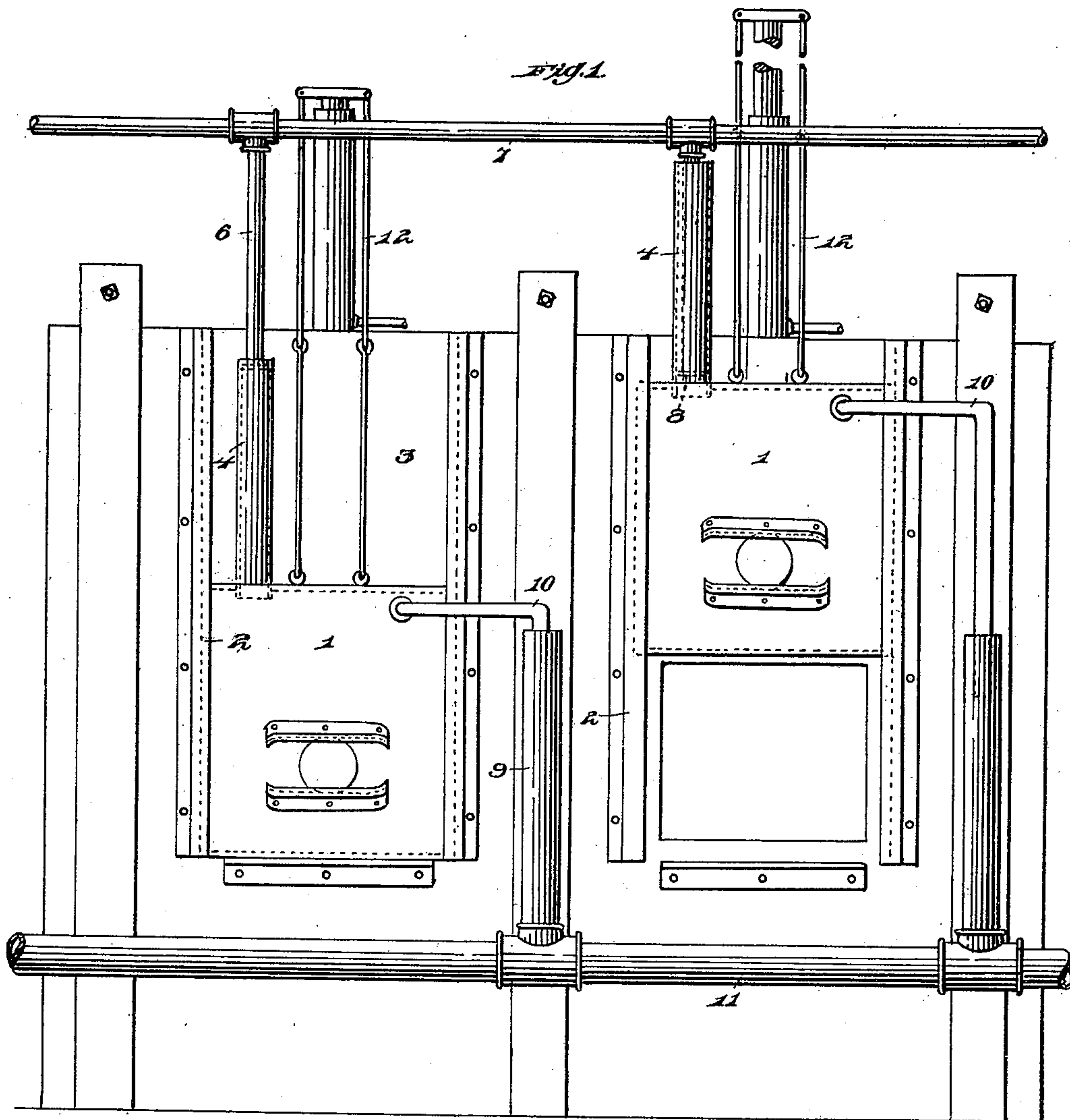


No. 712,678.

Patented Nov. 4, 1902.

N. HOUY, JR.  
WATER COOLED DOOR.  
(Application filed Mar. 8, 1902.)

(No Model.)



Witnesses:  
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# UNITED STATES PATENT OFFICE.

NICHOLAS HOUY, JR., OF MUNHALL, PENNSYLVANIA.

## WATER-COOLED DOOR.

SPECIFICATION forming part of Letters Patent No. 712,678, dated November 4, 1902.

Application filed March 8, 1902. Serial No. 97,286. (No model.)

*To all whom it may concern:*

Be it known that I, NICHOLAS HOUY, Jr., a citizen of the United States, residing at Munhall, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Water-Cooled Doors, of which improvement the following is a specification.

This invention relates to certain new and useful improvements in water-cooled doors for open-hearth furnaces or for use in connection with any form of furnaces that employ water-cooled doors.

The object of my invention is to provide novel and effective means to save the water-pipe and prevent damage to the furnaces and, further, to permit the operation of the doors in case the latter should become sprung, so as to be out of true alinement.

Briefly described, the invention consists in making the pipe which feeds the water from the water-line to the water-cooled door in sections, telescoping one within the other; and the special construction by which I accomplish this will be hereinafter more specifically described and then particularly pointed out in the claim.

In describing the invention in detail reference is had to the accompanying drawings, forming a part of this specification, and wherein like numerals of reference indicate like parts throughout the several views of the drawings, in which—

Figure 1 is a front elevation of a pair of furnaces with my improved device in position, showing one of the doors closed and the other door elevated or open. Fig. 2 is a vertical sectional view of a part of the telescoping pipes which feed the water from the water-line to the water-cooled door.

In some classes of furnaces it is necessary to furnish the same with a door through which water is constantly passed to cool the door and prevent same from being burned out and rendered worthless. In the accompanying illustration of my invention 1 represents a door of this form, usually arranged to slide in guides 2, suitably connected to the furnace 3. This door is hollow, and feeding into the

same at the upper edge thereof is a pipe 4, which at its upper end is turned inwardly to form an interior flange or collar 5. Telescoping into this pipe 4 is a pipe 6, which at its upper end connects with the water-line 7 and at its lower end is formed with an annular exterior flange or collar 8, that engages with the collar or flange 5 on the pipe 4 when the pipes are fully extended, so as to prevent disengagement thereof. Communicating with the door 1, near the upper end thereof, is a pipe 9, that extends outwardly from the side of the door and downwardly, so as to telescope within a pipe 10, connected to the waste-water line or pipe 11. Doors of this nature are usually elevated by hydraulic pressure. I preferably construct these rods or links 12 in two parts, as shown, the lower sections being connected to the door and the upper sections connected to the cross-head of the piston. This construction in event of the doors being sprung permits sufficient lateral movement of the rods to effect the raising of the doors.

With the water-feeding pipe telescoped, as shown, it will be observed that the doors may be elevated or lowered without cutting off the water-supply, thus constantly cooling the doors, and in the practice of the invention it will also be observed that various changes may be made in the details of construction without departing from the general spirit of my invention.

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

In a device of the type set forth, the combination with a horizontal water-line at the upper portion of the furnace, of doors formed hollow on the interior and operating in suitable guides provided therefor on the furnace, pipes depending from said water-line and rigidly secured thereto, the lower ends of the pipes carrying flanges, pipes having their lower ends extending into the said interior of the doors, and rigidly secured to the doors, and receiving said first-named pipes at their upper portions, the upper ends of said second-named pipes being bent inwardly to engage the exterior of the first-named pipes, a hori-



zontal pipe at the lower portion of the furnace, upwardly-extending pipes carried by said horizontal pipe, and outwardly and downwardly extending pipes carried by the doors  
5 extending into said last-named upwardly-extending pipes, substantially as described.

In testimony whereof I have hereunto

signed my name in the presence of two subscribing witnesses.

NICHOLAS HOUY, JR.

In presence of—

LOUIS MOESER,  
R. R. LOWREY.