

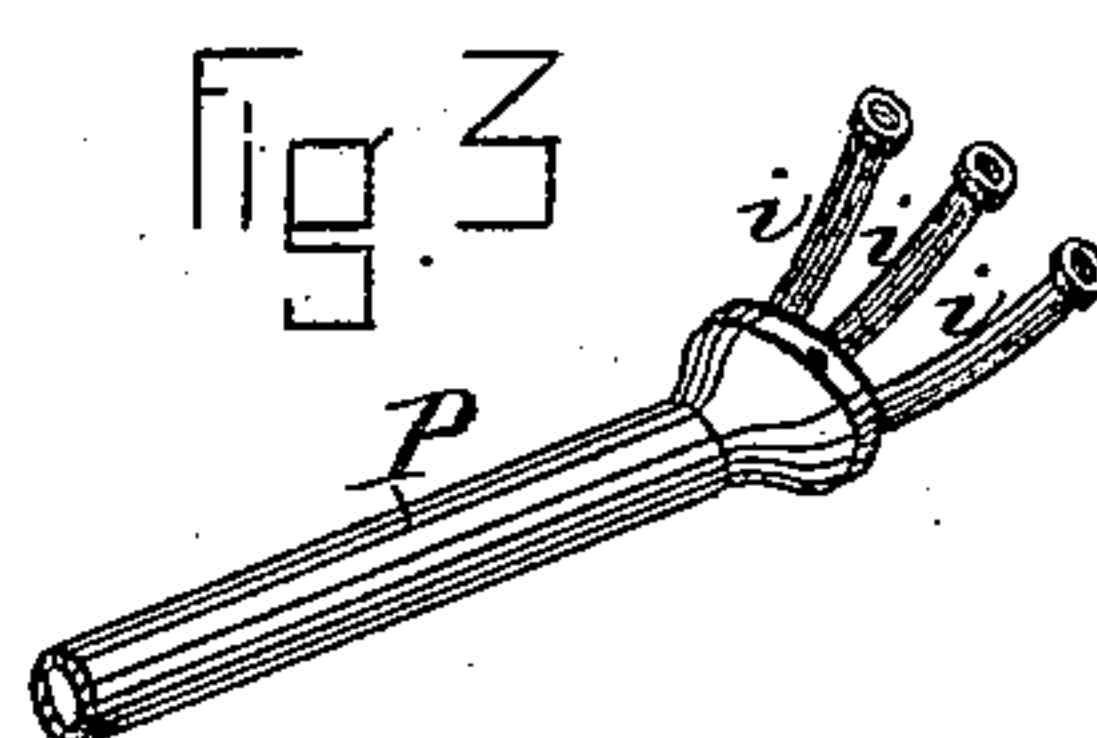
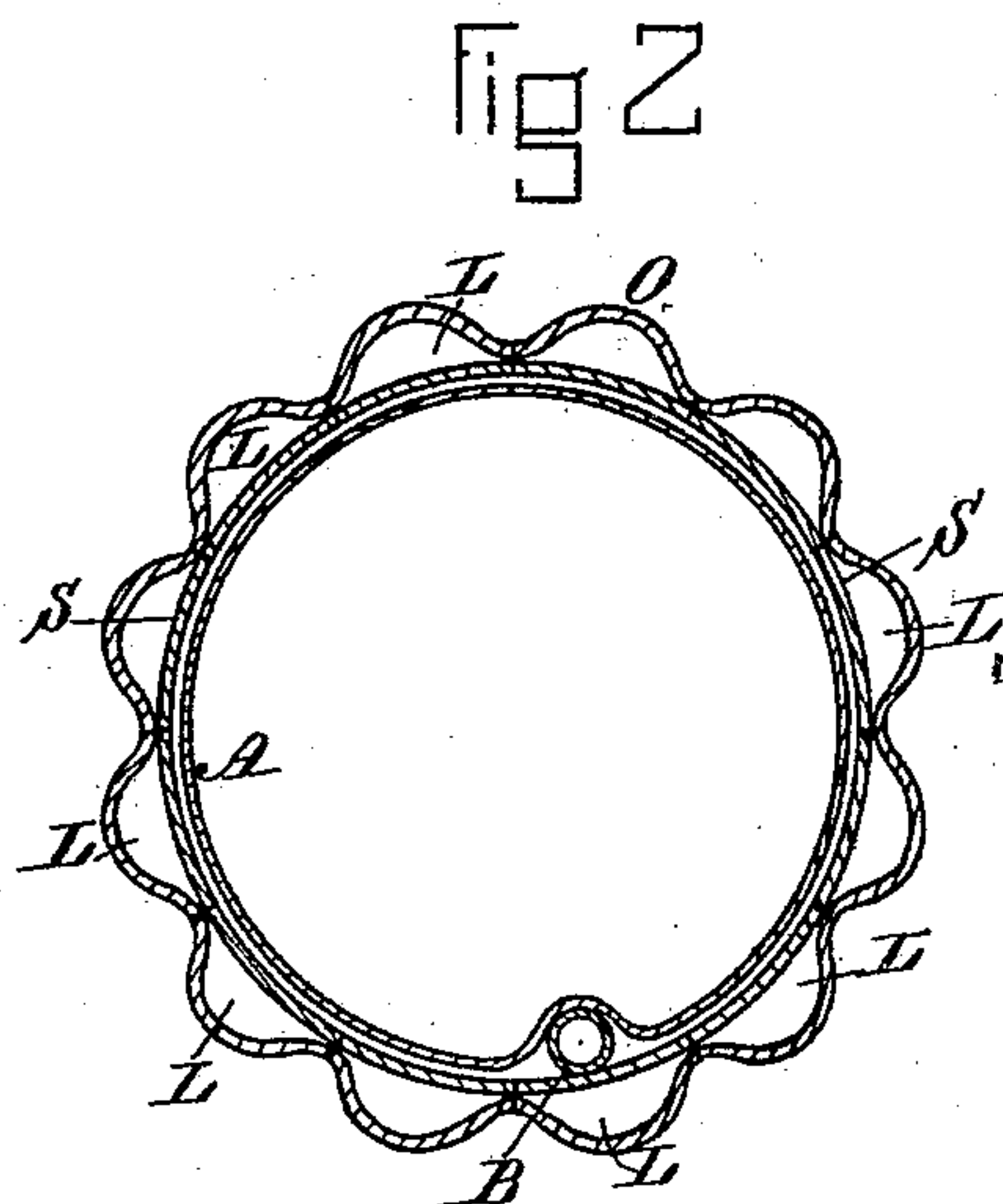
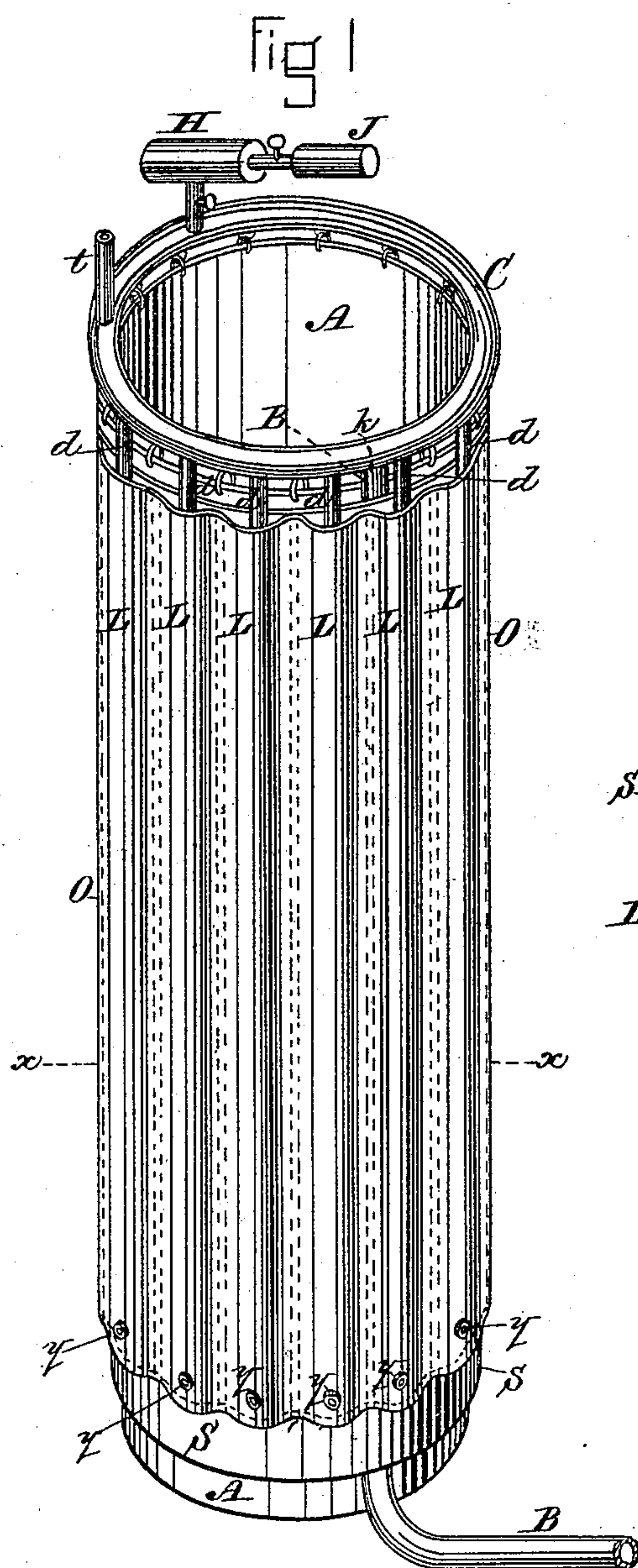
(No Model.)

G. W. PUTNAM.

FIRE ESCAPE.

No. 342,810.

Patented June 1, 1886.



WITNESSES
W. A. Cambridge
R. C. Young

INVENTOR
George W. Putnam.

UNITED STATES PATENT OFFICE.

GEORGE W. PUTNAM, OF MALDEN, MASSACHUSETTS.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 342,810, dated June 1, 1886.

Application filed December 14, 1885. Serial No. 185,672. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. PUTNAM, a citizen of the United States, residing at Malden, in the county of Middlesex and State of Massachusetts, have invented certain Improvements in Fire-Escapes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective view of a fire-escape having my improvements applied to the same. Fig. 2 is a horizontal section of the same on the line $x x$ of Fig. 1. Fig. 3 is a view of the device employed for supplying water or carbonic-acid gas to the lower ends of the water channels or pockets of the fire-escape.

My invention relates to certain improvements on the fire-escape for which Letters Patent of the United States were granted to me on the 24th day of February, 1885, No. 313,024. The said fire-escape consisted, essentially, of a canvas tube or chute provided with one or more flexible pipes or water-conductors having branches provided with perforations or nozzles for the purpose of conveying water from a fire-engine or hydrant to all portions of said tube or chute and instantly sprinkling every part of the same.

The above-named method of sprinkling is not always to be fully relied upon for the purpose of wetting the chute, the water being very unevenly distributed by the sprinkling process, so that portions of the chute are frequently left dry, other portions being scantily wet, and still other portions overdrenched.

My present invention has for its object to overcome these difficulties; and it consists in a novel construction and arrangement of parts, as hereinafter set forth and specifically claimed.

In the said drawings, A represents a canvas fire-escape chute.

B is an unperforated flexible pipe or hose leading from a fire-engine or hydrant or other source of supply, the said pipe or hose B entering the chute A at the lower end and passing to the upper end of the same. To the upper end of the chute A is secured an annular tube, C, made of copper, brass, or other

suitable material, and this tube C passes entirely around the top or upper end of the chute A, as seen in Fig. 1. To this annular tube C, I attach, by a suitable coupling at k , the upper end of the pipe or hose B. From the under side of the annular tube C project a series of small pendent pipes, d , extending all around said annular tube C.

S is a water-proof covering placed outside of the canvas chute A, to prevent persons passing through the chute from getting wet. On the outside of the chute A are formed a series of longitudinal water-channels or water-pockets, L, made by sewing one or more pieces of cloth, O, to the water-proof covering S, which is immediately behind it. These water-channels or water-pockets L extend side by side all around the outside of the chute A, and also vertically from the top to the bottom of the same.

On attaching a hose from a fire-engine or hydrant to the lower end of the pipe or hose B, and letting on the water, the water will instantly ascend the pipe or hose B and fill the annular tube C, and from thence it will pass down through the small pendent pipes d into the water-channels or water-pockets L. These water-channels or water-pockets L are sewed tightly at the edges thereof to the water-proof covering S, or other suitable backing immediately behind them, and in consequence the water which enters said channels or pockets at the top cannot possibly leave the said channels or pockets L to go in a lateral direction, but must continue to flow in an unbroken stream down each water channel or pocket L, and the water being thus fully governed and controlled in its course will inevitably and thoroughly and equally wet and saturate every portion of the cloth O, which constitutes the outermost covering of the chute A, and will thus effectually prevent all injury to the said chute A from the heat and flame of a conflagration. This system, it will be seen, can therefore be relied upon to accomplish the desired object of thoroughly and promptly wetting the outermost covering of the chute A, in contradistinction to the uncertain process of sprinkling heretofore referred to.

The above-described improvements upon

my former patented invention of February 24, 1885, it will be seen, secures also the utilization of all the water, and the instantaneous and equal wetting of every portion of the cloth O, which constitutes the outermost covering of the chute A, so that no water is wasted, as in my former process of sprinkling. The chute A is also arranged to be supplied with water at the upper end from the water-tanks or other water arrangements in the upper rooms of hotels, tenement-flats, factories, school-houses, and other public buildings, and for this purpose I have a tube or pipe, *t*, fixed on the upper side of the annular tube C, to which a suitable hose or pipe from a water-tank or other water-supply in the chambers can be attached.

In all cases where the water-supply is small the utmost economy in its use becomes a matter of vital importance in the efforts made for the saving of life and property. The amount of water in such cases being limited, and the process of sprinkling uncertain, it will readily be seen that my improvement above described—viz., the confining of the flow of the water strictly to the separate water-channels or water-pockets L—secures the equal and prompt distribution of the water, and effectually prevents all waste of the same, thus making the protection of every part of the chute A from injury by heat and flame a matter of absolute certainty. I propose to use in this chute A the transverse bar, or other means of fastening the chute to the window-frame, and the flexible ladder and distending-hoops, &c., described in my aforesaid patent of February 24, 1885.

In addition to my above-described improvements I have invented the following means for generating and using "carbonic-acid gas" or other chemical substances for the purpose of the still further protection of the chute A from injury by heat and flame: I place on or near the annular tube C, and communicating with the interior thereof by faucet or other suitable device, two vessels, H and J. I place inside the vessel H a quantity of alkaline substance. In the vessel J, I place a quantity of dilute sulphuric acid or other similar substance. These vessels H and J are so connected that by opening a faucet, or by melting a disk of fusible alloy, or in other suitable manner, the acid and the alkali will be brought into contact with each other, and the generation of carbonic-acid gas will at once take place, and the gas, rushing with much force through the annular tube C and the pendent pipes *d*, will pass into and down the water-channels or water-pockets L, and will serve to protect the chute A for a considerable length of time from injury by heat and flame.

The above arrangement for using carbonic-acid gas or other chemical fire-quenching substance will afford additional security to the chute A in case of delay in the arrival of the fire-department, or from any lack of prompt

water-supply in the chambers, and it will in no way interfere with the application of water from above or below. The chute A, for its protection from injury by heat and flame, is arranged also to receive carbonic-acid gas or other chemical fire-quenching substance from the chemical fire-engines in use by the various fire-departments, and through its water-channels L diffuse the gas all around the chute A, thus protecting the chute from injury by heat and flame.

It will be seen from the above description that the principal and most important part of my above-named improvements over my former invention, patented February 24, 1885, consists in the construction of separate water-channels or water-pockets L, by which the stream of water which enters said channels or pockets is controlled in its course, and cannot leave them to pass in a lateral direction, but must keep within the said channels or pockets L that it may thoroughly wet and saturate the outermost cloth covering, O, which constitutes the outside of said water-channels or water-pockets L, and by thus securing the constant presence of a quantity of water between the chute A and the outermost covering, O, accomplishing the desired object of the protection of the chute from all injury by heat and flame.

In case of any disaster occurring to the pipe or hose B, the annular tube C, or the pendent pipes *d*, or for convenience, or for any other reasons, it should be found desirable to send the water up the water-channels or water-pockets L from the bottom or lower ends of the same, in lieu of using the pipe or hose B, annular tube C, and pendent pipes *d* for the purpose of supplying the water-channels or water-pockets L with water at the upper ends thereof, I employ a hose, P, Fig. 3, one end of which is provided with a suitable number of branches, *i*, adapted to be attached by suitable couplings to nozzles *y* at the lower ends of the channels or pockets L, the opposite end of said hose P being adapted to connect with a fire-engine or hydrant, or with a chemical fire-engine, in such a manner that the water from the fire-engine or hydrant, or carbonic-acid gas, or other chemical fire-quenching substance from the chemical fire-engine, will pass through the hose P and its branches *i*, and thence into the lower ends of the water-channels or water-pockets L, and by these means secure the wetting and permeating with water or carbonic-acid gas, or other chemical fire-quenching substance, of the said water-channels or water-pockets L, thus effectually protecting the fire-escape chute A from all injury by the heat and flame of a conflagration.

The nozzles *y* above named are arranged, by screw-plug or otherwise, so that they can be closed at will, and by closing the said nozzles *y* the water-channels L are transformed into water-pockets capable of holding water. The said nozzles *y* are to be opened whenever it is desired to attach the branches *i* to the same by

suitable couplings, for the purpose of sending water from a fire-engine or hydrant, or carbonic-acid gas or other chemical fire-quenching substance up the water-channels or water-pockets L from the lower ends thereof.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A canvas fire-escape chute, A, provided at its upper end with an annular tube, C, adapted to be connected with a pipe for supplying the same with water or carbonic-acid gas, and having one or more vertical channels or pockets communicating with said tube C, substantially as and for the purpose set forth.

2. A canvas fire-escape chute, A, provided with an unperforated pipe or hose, B, extending from the bottom to the top of the same, and an annular tube, C, communicating with said pipe or hose B, pendent pipes *d*, and separate water channels or pockets L, communicating with said tubes C through the pipes *d*, substantially as and for the purpose set forth.

3. The canvas fire-escape chute A, provided with an unperforated pipe or hose, B, annular tube C, communicating therewith, pendent pipes *d*, separate channels or pockets L, communicating with said tube C, water-proof covering S, and the outermost cloth covering, O, the whole constructed and arranged substantially in the manner and for the purpose herein shown and described.

4. The combination, with the fire-escape chute A, of the vessels H and J, for containing, respectively, the materials for generating carbonic-acid gas or holding other chemical

fire-quenching substance, so arranged that the carbonic-acid gas or other chemical fire-quenching substance may be instantly generated and diffused throughout the water-channels or water-pockets L, for the additional protection of said chute A from injury by heat and flame, the whole constructed and arranged substantially in the manner and for the purpose herein set forth and described.

5. The hose P, one end of which is arranged to be connected with a fire-engine or hydrant or chemical fire-engine, the opposite end of said hose P being provided with a suitable number of branches, *i*, adapted to be connected by suitable couplings to the nozzles *y* at the lower ends of the water-channels or water-pockets L, for the purpose of supplying said channels or pockets L with water from a fire-engine or hydrant, or with carbonic-acid gas or other chemical fire-quenching substance from a chemical fire-engine, the whole constructed and arranged substantially in the manner and for the purpose herein shown and described.

6. The combination, with said water-channels or water-pockets L, of the nozzles *y*, adapted to be attached by suitable couplings to the branches *i*, said nozzles being so constructed that they can be closed or opened at will, the whole constructed and arranged substantially in the manner and for the purpose herein shown and described.

GEORGE W. PUTNAM.

In presence of—

W. J. CAMBRIDGE,
R. A. YOUNG.