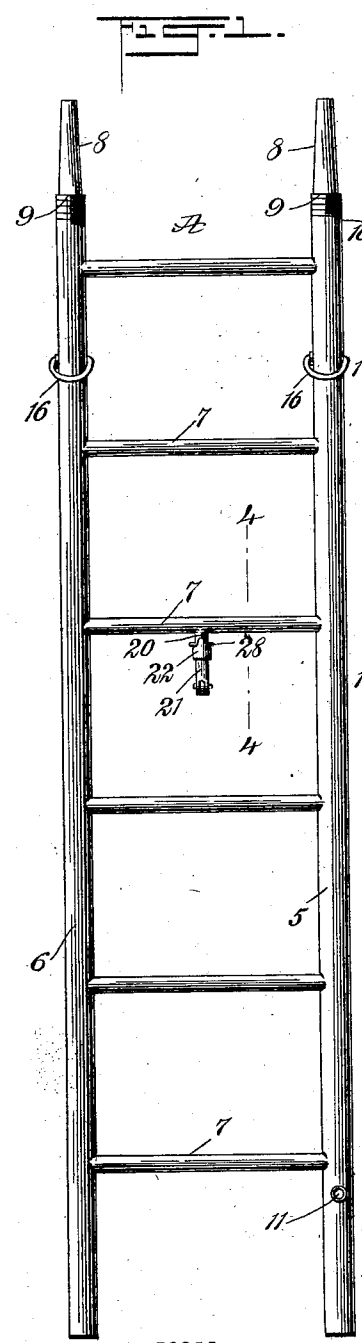
No. 724,953. PATENTED APR. 7, 1903.

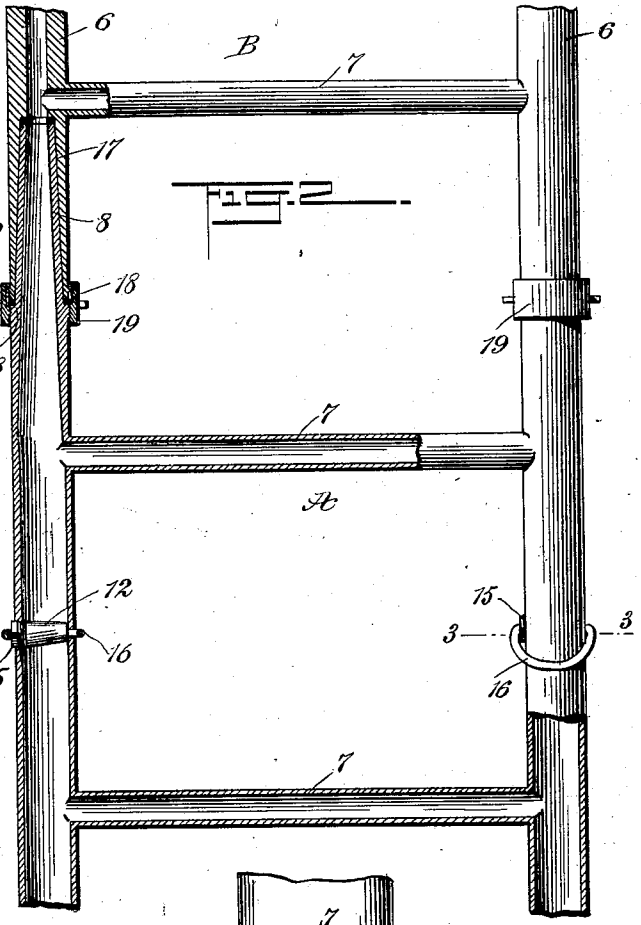
J. C. SCHALLER.

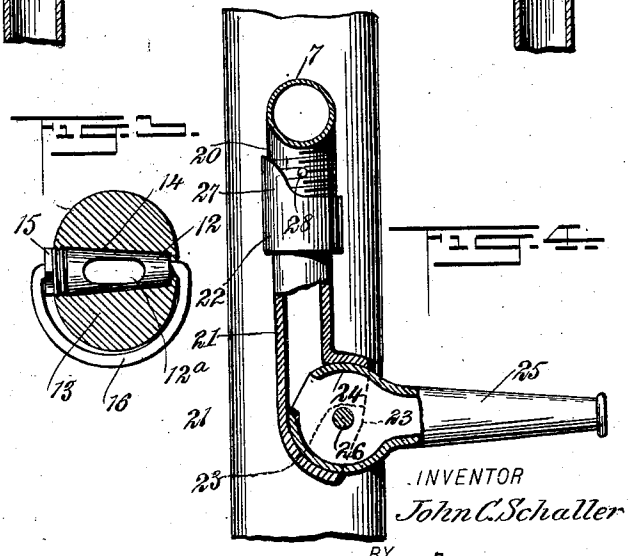
FIRE LADDER.

APPLICATION FILED AUG. 7, 1902.

NO MODEL.







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# UNITED STATES PATENT OFFICE.

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## FIRE-LADDER.

SPECIFICATION forming part of Letters Patent No. 724,953, dated April 7, 1903.

Application filed August 7, 1902. Serial No. 118,765. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN C. SCHALLER, a citizen of the United States, and a resident of Hastings-upon-Hudson, in the county of Westchester and State of New York, have invented new and useful Improvements in Fire-Ladders, of which the following is a full, clear, and exact description.

My invention relates to improvements in portable ladders especially adapted for use by firemen in extinguishing burning structures; and one object that I have in view is the provision of a metallic non-destructible ladder arranged to provide for the circulation of water through the same, so as to stiffen the device by the water-pressure and to keep it in a cool condition.

A further object is to equip the ladder with means for distributing water toward a door, window, or other place, so as to quench the flames which may issue therefrom and enable the fireman to better carry on the work of rescue, such distributing means being adjustable at will in any direction.

A further object is to enable the ladder to be built up of two or more sections, so as to secure a device of any desired length, such sections being coupled in a way to secure tight joints between them and to allow the circulation of water through all the sections and their distributing devices.

With these ends in view the invention consists of a portable fire-ladder embodying novel features of construction, which will be hereinafter fully described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of a ladder or the lower section of a ladder embodying my improvements. Fig. 2 is a sectional elevation illustrating two members of a ladder coupled together to provide continuous waterways. Fig. 3 is an enlarged horizontal section through the side of one ladder-section and illustrating a particular form of cut-off seated therein, the plane of the section being indicated by dotted lines 3 3 of Fig. 2; and Fig. 4 is an enlarged sectional elevation through one of the ladder-rungs, illustrating an adjustable distributing-nozzle, the plane of the section being indicated by the dotted line 4 4 of Fig. 1.

A designates the lower member of a ladder, and B is a portion of another ladder member. Each ladder member or section A B consists of hollow sides 5 6 and a series of transverse hollow rungs 7, said sides and rungs being made of metal and joined together for the spaces in the rungs to communicate with the passages of the hollow sides. In the manufacture of the ladder I prefer to employ aluminium, because of its lightness and strength; but it will be understood that any other metal may be adopted. The sides and rungs of the ladder are preferably tubular, and the hollow rungs may be integral with the hollow sides or they may be brazed or otherwise united to said sides.

The member A has its hollow sides 5 6 closed at their lower ends by heads, plugs, or other suitable means; but the upper ends of these tubular sides of each ladder section or member are tapered to form the coupling members 8, said tapered members terminating in shoulders 9 and the tubular sides 5 6 being provided with external or male threads 10, the latter lying just below the shoulders 9. One tubular side of the ladder-section A—as, for example, the side 5—is provided at or near its lower end with a nipple 11, to which may be attached the coupling on a line of hose, (not shown,) thus making provision for supplying water under pressure to all the hollow parts of the ladder.

When the section A is used alone or by itself, the passage of water from the upper ends of the hollow sides 5 6 is cut off by the employment of the valves 12, one of which is provided in each tubular side, near the upper end thereof. Each valve 12 is arranged transversely in the tubular side of the ladder, and at the point where the valve is provided the ladder member is enlarged or thickened transversely, as indicated at 13 in Fig. 3, said thickened portion being fashioned to produce a tapering seat 14 for the accommodation of the turning-plug forming the valve 12, said plug being tapered longitudinally, as shown by Fig. 3. The plug is provided with a transverse slot or waterway $12^a$, adapted to be brought into alinement with the longitudinal passage through the hollow side; but said

plug may be turned by a suitable handle in a position to lie transversely across the hollow ladder side in order to cut off the passage of water therethrough. As shown by Fig. 3, the plug is held against endwise displacement in one direction by the tapered seat 14, and to limit the movement of the plug in the opposite direction I provide a cap 15, which is screwed into one end of the valve-seat and is adapted to engage with the larger end of the valve-plug.

It is evident that any suitable style of handle may be employed for turning the valve-plug; but I prefer to use the bail-shaped handle 16, because it lies compactly to the hollow side of the ladder. The handle embraces one-half of the ladder side in a manner to be out of the way of the fireman, and the end portions of this bail-shaped handle are connected with the ends of the turning-plug.

The ladder section or member B is similar in construction to the member A, heretofore described; but the hollow sides 5 6 of this section B are provided at their lower ends with the internally-tapered sockets 17, said sockets conforming to the taper of the ends 8 of the tubular sides 5 6, forming the parts of the lower section A. The socketed lower ends of the ladder-section B may be fitted snugly to the tapered upper ends 8 of the section A, and between the meeting portions of the two ladder-sections are interposed gaskets or washers 18. (See Fig. 2.) A coupling-sleeve 19 has swiveled connections with each tubular side of the ladder-section B, and this sleeve is internally threaded, so as to engage with the male-threaded portions 10 of the section A, whereby the sleeves 18 may be operated to draw the sections A B tightly together at their meeting ends and produce water-tight joints between the alined tubular members 5 6 of the two ladder-sections. The described construction overcomes any tendency of the ladder-sections to become detached from each other, and the water supplied to the lower ladder-section is free to pass through the hollow parts thereof and through the corresponding parts of the upper section B.

Each section or member A B of the ladder is provided with one or a series of distributing devices, said devices being employed, preferably, on a rung or series of rungs of the ladder-section.

In Figs. 1 and 4 of the drawings I have shown one of these distributing devices, and in this embodiment of the invention the rung 7 is provided with a depending male-threaded tube 20. A tubular hanger-arm 21 is provided with a female-threaded sleeve 22, said sleeve being screwed detachably to the lower portion of the male-threaded tube 20, said hanger-arm communicating with the hollow rung by the tube 20 and the sleeve 22, which are coupled together. The lower part of the hollow hanger is enlarged to form the face-plates 23, to which is loosely fitted the enlarged head 24 at the inner end of a distributing-nozzle 25. This end of the nozzle is pivoted to the lower end of the tubular hanger by a transverse horizontal bolt 26, and said nozzle communicates with the tubular hanger, so as to be supplied with water thereby from the hollow rung. The sleeve 22 of the tubular hanger is provided with an upwardly-projecting lug or shoulder 27, and the stud 28 is fastened to the threaded tube 20, so as to lie in the path of this shoulder 27, thus making provision for limiting the turning movement of the hanger on the threaded tube.

The described construction of the nozzle and the hanger provides for the adjustment of the nozzle in any direction, because the nozzle may be turned up or down on the horizontal axis afforded by the bolt 26, and it may be shifted to the right or left by the hanger 21 turning on the threaded sleeve 20, the adjustment of the hanger and the nozzle on a vertical axis being limited by the coöperating shoulder 27 and stud 28.

The head 24 of the adjustable nozzle fits snugly between the plates 23 of the tubular hanger, and a part of this head is constructed to extend across the waterway from the hanger when the nozzle is turned in a downward direction beyond a certain point, whereby the head is adapted to serve as a cut-off and prevent the passage of water from the tubular hanger into the nozzle. If desired, however, a separate cock may be provided in the hanger 21 to act as a cut-off.

The shoulders 9 may be disposed at any desired distance above the top rung; but it is preferable to arrange the shoulder and the threads 10 quite close to the top rung in order to secure a long overlap in the meeting ends of the ladder-sections and increase the strength of the joints between the two sections.

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

1. A portable ladder of the class described, comprising detachable sections, each having hollow sides and hollow rungs communicating with said sides; one ladder-section having its hollow sides provided with tapered ends and with male threads at one side of the tapered ends, and the other ladder-section being provided in its hollow sides with tapering sockets arranged to fit snugly to the tapered ends, and coupling-sleeves fitted on the socketed ends of one ladder-section and screwed on the threaded portions of the other ladder-section.

2. A portable ladder of the class described, consisting of a series of detachable sections, each having hollow sides, and hollow rungs in communication with said sides; the sides of the ladder-sections being separately coupled together to form continuous waterways; each ladder-section being provided on one hollow rung with an adjustable nozzle, and the sides of each ladder-section being provided above the nozzle with cut-off valves.

3. A portable ladder-section consisting of

hollow sides, and hollow rungs in communication with the sides; each side being provided with a fixed valve-seat, a turning valve-plug fitted to said valve-seat, and a bail-shaped handle attached to the end portions of the valve-plug and compactly disposed relative to the hollow sides.

4. A portable ladder-section consisting of hollow sides, and hollow rungs communicating with each other and forming water-passages adapted to keep the ladder-section from undue heating by circulation of water therethrough; one of the ladder-rungs being equipped with a nozzle which is disposed between the sides; said nozzle being adjustable on horizontal and vertical axes to direct water supplied to the hollow sides in different directions from the ladder.

5. A portable hollow ladder having a hollow rung provided with a tube, a tubular hanger adjustably connected to said tube, and a distributing-nozzle supported by said hanger and communicating through the same with the hollow rung.

6. A portable hollow ladder having one of its rungs provided with a tube, a tubular hanger fitted to said tube, and a nozzle communicating with the hanger and attached thereto for adjustment on an axis at right angles to the axial adjustment of said hanger.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN C. SCHALLER.

Witnesses:
JOHN W. WING,
JOHN J. MARTIN.