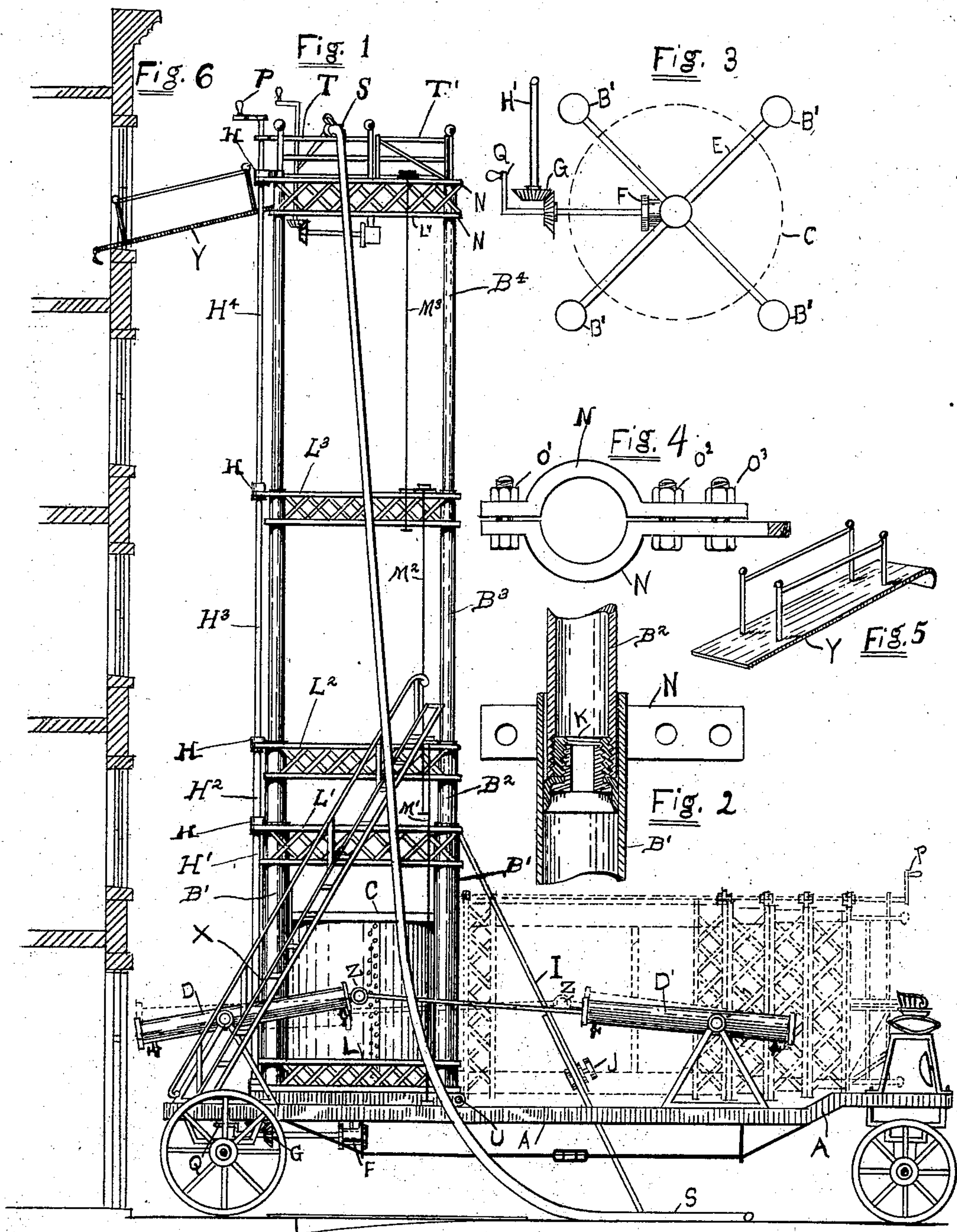


No. 725,964.

PATENTED APR. 21, 1903.

I. HOGELAND.  
PNEUMATIC FIRE ESCAPE.  
APPLICATION FILED OCT. 14, 1901.

NO MODEL.



WITNESSES:

Wm B Campbell.  
Stephen B. Lovelace.

Israel Hogeland INVENTOR.



# UNITED STATES PATENT OFFICE.

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## PNEUMATIC FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 725,964, dated April 21, 1903.

Application filed October 14, 1901. Serial No. 78,552. (No model.)

*To all whom it may concern:*

Be it known that I, ISRAEL HOGELAND, a citizen of the United States, residing at Indianapolis, county of Marion, and State of Indiana, have invented new and useful Improvements in Pneumatic Fire-Escapes, of which the following is a specification.

My invention relates to certain new and useful improvements in an apparatus which may be used not only as a fire-escape, but also may be employed as an elevator in buildings; and it consists of a series of vertically-extending telescoping or extensible tubes pneumatically operated to be extended to elevate a platform, car, or crib, which latter is secured on the top ends of and supported by said extensible tubes, as hereinafter set forth, and particularly pointed out in the claims.

The object of my invention is to provide a portable apparatus by means of which people may be rescued from burning buildings with both safety and despatch and to provide an apparatus that will be durable, safe, and easily operated under all conditions of weather. I attain these objects by means of the apparatus illustrated in the accompanying drawings, in which similar letters of reference designate like parts throughout the several views.

Figure 1 is a side elevational view of my pneumatic elevator or fire-escape, showing the same placed in position in front of a building. Fig. 2 is an enlarged detail sectional view of the packing-joint of the telescoping tubes. Fig. 3 is a plan diagram view of the telescoping tubes, showing the branch or feed pipes connected to the said tubes. Fig. 4 is an enlarged detail view of one of the ends of the tube-braces, showing the means whereby said braces are secured to their telescoping tubes; and Fig. 5 is a detail perspective view of a removable gangway which is provided for the purpose of forming a means of passage from the crib or platform of the elevator to a building.

A series of three, four, or more—preferably four—vertically-extending base-tubes  $B'$  are permanently secured in parallel relation to

each other and at their proper or fixed distances apart by the upper and lower tie or brace bars  $L$  and  $L'$ . The series of tubes  $B'$  are capped or otherwise plugged at their bottom or base ends and open at their top ends to receive the telescoping tubes  $B^2$ . The telescoping tubes  $B^2$ , which are equal in number to the tubes  $B'$ , telescope into the latter tubes, and the said tubes  $B^2$  are maintained at their proper distances apart and in parallel relation to each other by the upper or top braces or tie-bars  $L^2$ , and, similarly, into these latter tubes  $B^2$  the tubes  $B^3$  enter and telescope, and these latter are also connected at their top ends by the ties or brace-bars  $L^3$ , and finally the telescoping tubes  $B^4$ , which are closed or capped at their top ends and open at their base or bottom telescoping ends, enter and telescope into the latter tubes  $B^3$ , and said tubes  $B^4$  are also connected at their top ends by the braces or tie-bars  $L^4$  similarly to the tubes  $B'$ ,  $B^2$ ,  $B^3$  and for the same purpose. Packing-valves  $K$  (see Fig. 2) are secured on each of the open base or telescoping ends of the telescoping tubes  $B^2$ ,  $B^3$ , and  $B^4$  and are provided for the purpose of securing air-tight joints between the outer and inner surfaces of the pairs of telescoping tubes  $B'$  and  $B^2$ ,  $B^2$  and  $B^3$ , and  $B^3$  and  $B^4$  to prevent a leakage or escape of the air or fluid therethrough. The braces or tie-bars  $L$ ,  $L'$ ,  $L^2$ ,  $L^3$ , and  $L^4$  each have their ends formed to encircle and embrace one half of the circumference of each of the telescoping tubes to which they are connected, and a similarly-formed clamping-cap  $N$  encircles the other half of the tubes and is secured to each of the ends of each of said braces or tie-bars by their clamping or securing bolts  $O'$ ,  $O^2$ , and  $O^3$ , by means of which latter said cap is drawn up toward the clamping end of the brace to tightly clamp the telescoping tube to hold said braces securely in position. A crib or other suitably-railed-in platform or car  $T$ , provided with a closing-gate  $T'$ , is secured on the top ends of the top telescoping tubes  $B^4$  and the said crib is provided for the purpose of safely conveying or transporting passengers from a high place or building to the



ground. A storage-tank C, into which air is pumped and compressed to a suitable pressure for use in operating the hoist or fire-escape, is secured permanently in position between the base telescoping tubes B' and to the latter. The distributing or feed branch pipes E are connected at their outer ends to the lower or fixed base telescoping tubes B' at the base ends of the latter, (see Fig. 3,) and said distributing-pipes converge to a central point to connect with the three-way valve F, which latter is connected to the storage-tank C. When the entire series or system of telescoping tubes are telescoped to lower the crib or platform T to its bottom position—that is, closed up—the said crib will be still elevated a considerable distance above the ground and not within easy access, and in order that the said crib may be easy of access I provide a suitable ladder X, which is permanently secured to the supporting-truck A, and said ladder is extended upwardly to a height to conveniently reach said crib T when the latter is at its lower or bottom position.

The entire mechanism constituting the elevator or fire-escape is secured on and supported by the carrying-truck A, and said elevator or fire-escape mechanism is hinged to said truck by a hinge-rod U, so that when the elevator or fire-escape tubes are telescoped the same may be swung into horizontal position over upon the truck A, as shown in dotted lines in Fig. 1. To facilitate the swinging of said elevator mechanism from a vertical position to a horizontal position, or vice versa, I provide the pneumatically-operated oscillating cylinders D and D', which are pivotally mounted at their central portions or at a point intermediate their ends by any suitable means to the truck A and which have the ends of their piston-rods connected to the wrist-pin Z, which latter may be secured to the side of the storage-tank C or to the base pipes or tubes B' by any suitable connections, so that when it is desired to elevate the elevating mechanism from a horizontal position to a vertical position air under pressure is admitted into the cylinder D' to force its piston-rod outwardly to swing said elevator mechanism on its hinge-rod U, during which movement of said piston the opposing piston of the cylinder D is moved inwardly to compress the air confined therein to an extent to form a cushion in said cylinder, and thereby prevent the too-rapid movement of or excessive jar to the mechanism.

The stop-rods M', M<sup>2</sup>, and M<sup>3</sup> are adapted to freely fit and to slide in suitable guide-ways or holes drilled in the pairs of braces L' and L<sup>2</sup>, L<sup>2</sup> and L<sup>3</sup>, L<sup>3</sup> and L<sup>4</sup>, and the said stop-rods are each of a length that when the said telescoping tubes are fully extended the end heads or stops will contact with the braces through which said rods pass to prevent any

further movement or extension of said telescoping tubes to separate them.

A crank-handle Q is secured on the valve-stem of the valve F and is provided for the purpose of operating said valve F by an operator standing either on the ground or on the truck A.

A vertically-extending telescoping or extensible tubular shaft consisting of the sections H', H<sup>2</sup>, H<sup>3</sup>, and H<sup>4</sup> is journaled in the bearings H, formed in the prolonged ends of the braces L', L<sup>2</sup>, L<sup>3</sup>, and L<sup>4</sup>, and on the top end of the top section H<sup>4</sup> of said shaft is secured the crank-handle P, by means of which said shaft is rotated. The vertical extensible shaft is connected to the valve-stem of the valve F by the bevel-gears G, by which means the latter shaft is turned simultaneously with said vertically-extensible shaft, and thus the said three-way valve F may be manipulated by an operator standing in the crib T by means of the crank P. One or more hose-pipes, as S, may be lashed to the crib-railing and elevated therewith to be used by a fireman or other operator.

Any suitable extensible brace, as I, having a binding-bolt J, may be employed to brace the elevator when the latter is fully extended and in its vertical position to secure stability.

Any suitable gangway, as Y, may be provided for the purpose of forming a passageway from the crib T to a building, and the application of the same is shown in Fig. 1 and needs no particular explanation.

Having thus fully described this my invention, what I claim as new and useful, and desire to cover by Letters Patent of the United States therefor, is—

1. In a pneumatic fire-escape, the combination with a truck, of a tower arranged thereon and comprising a series of vertically-extending telescopic tubes, a crib or platform arranged at the upper ends of said tubes and adapted to be moved thereby, a source of compressed air carried by the truck, a distributing and controlling valve connected to said source, pipes connecting said valve with said tubes, whereby the latter are supplied with the compressed air for operating the crib or platform, and a telescopic shaft arranged at the side of said tower and having its upper end extending to the crib or platform and its lower end connected to said distributing and controlling valve, said shaft being provided with means to effect its operation from the crib or platform, whereby the distributing and controlling valve may be operated from the crib or platform when the latter is either in motion or at rest.

2. In a pneumatic fire-escape, the combination with a truck, a tower arranged thereon and comprising a series of vertically-extending telescopic tubes, said tower being hinged to said truck, whereby the tower is adapted to be folded on the truck when not required for use, and means connected to said tower



for swinging the same, of a crib or platform arranged at the upper ends of said tubes and adapted to be moved thereby, a source of compressed air carried by the truck, a distributing and controlling valve connected to said source, pipes connecting said valve with said tubes, whereby the latter are supplied with the compressed air for operating the crib or platform, and a telescopic shaft arranged at the side of said tower and having its upper end extending to the crib or platform and its lower end connected to said distributing and controlling valve, said shaft being provided with means to effect its operation from the crib or platform, whereby the distributing and controlling valve may be operated from the crib or platform when the latter is either in motion or at rest. 15

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Witnesses:

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