

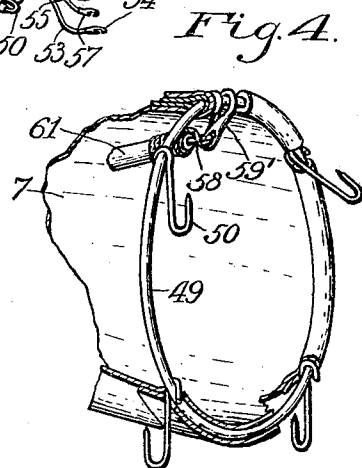
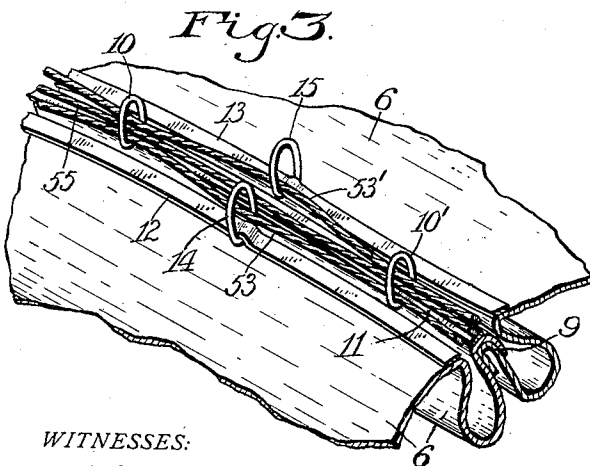
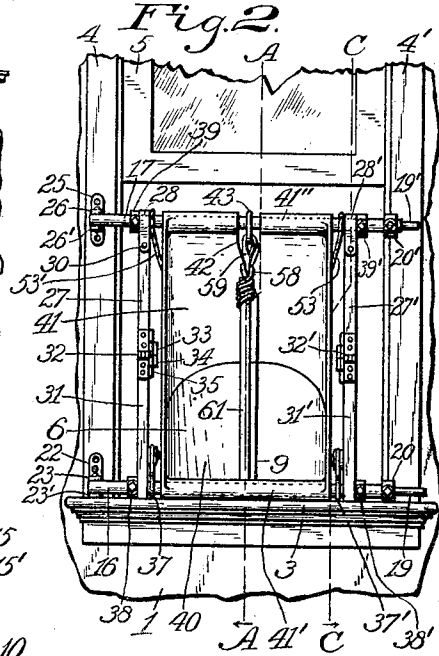
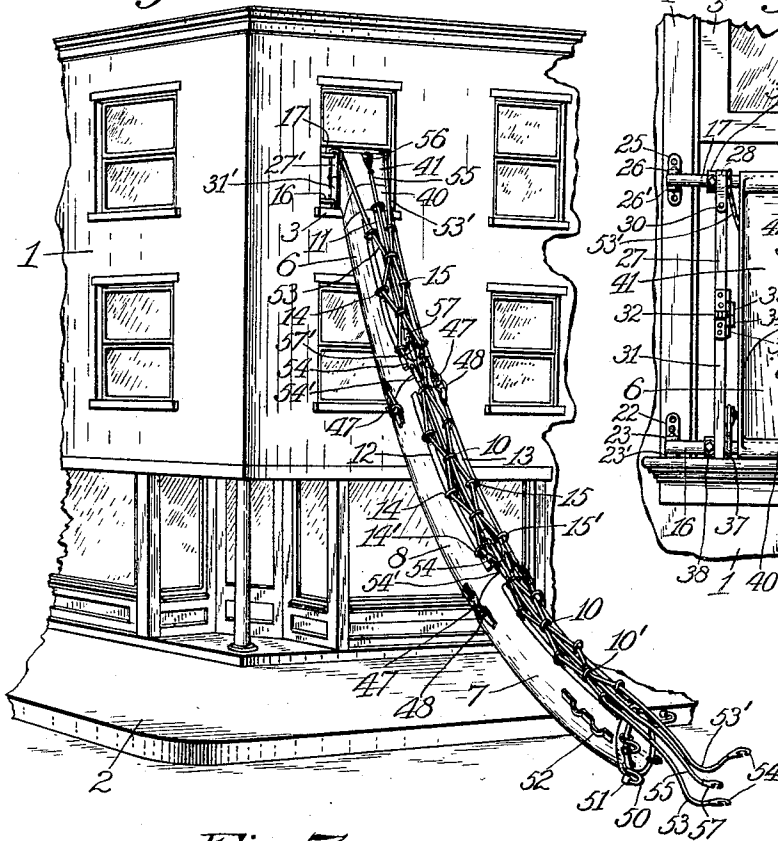
M. HOHL.
PORTABLE FIRE ESCAPE.
APPLICATION FILED JULY 19, 1911.

1,057,835.

Patented Apr. 1, 1913.

3 SHEETS—SHEET 1.

Fig. 1.



WITNESSES:

J. H. Gardner.
E. W. Boyner.

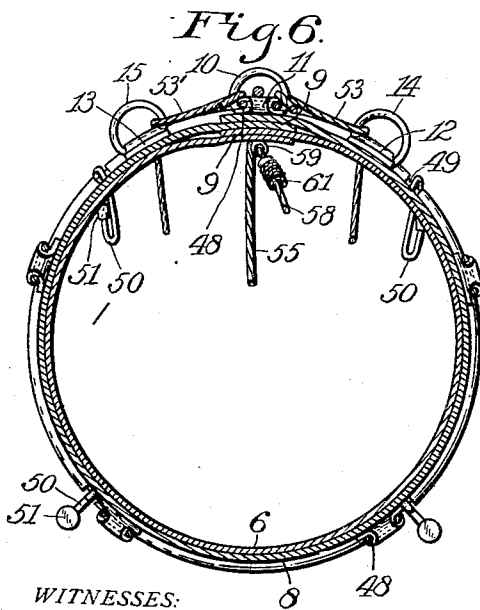
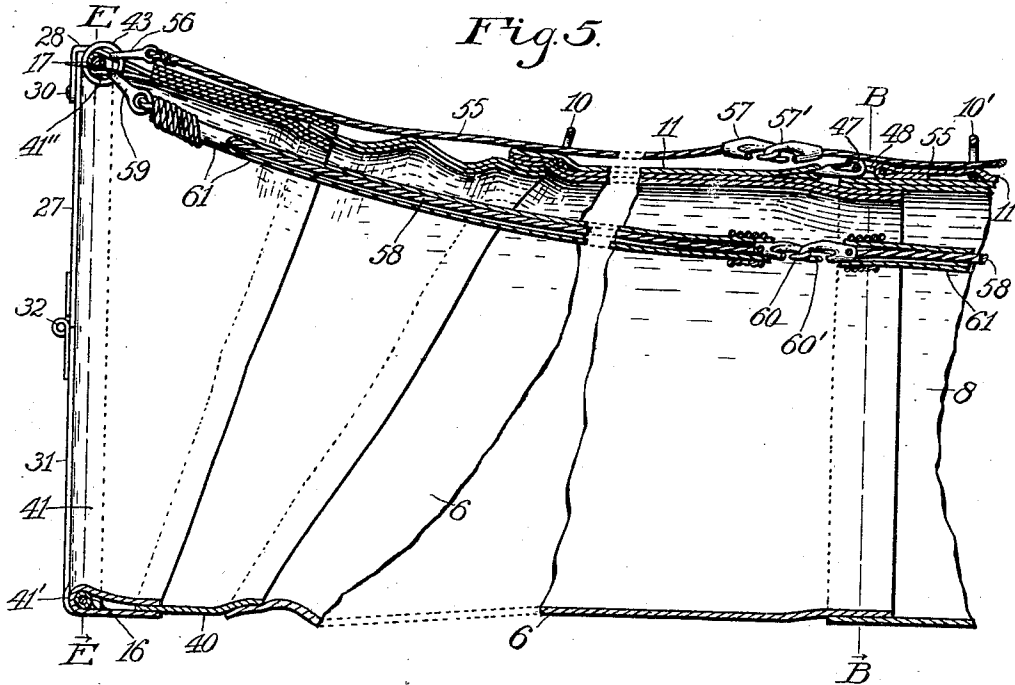
INVENTOR:

Martin Hohl,
BY
E. J. Silvius.
ATTORNEY.

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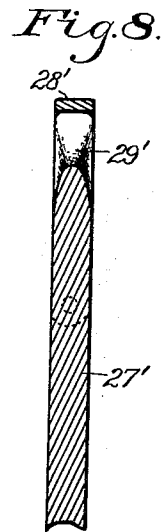
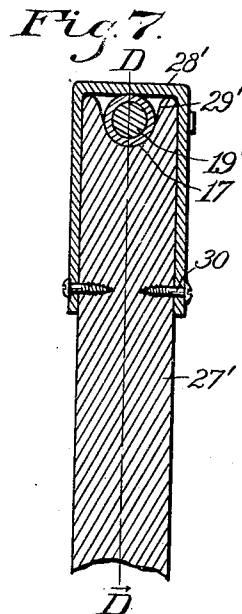
1,057,835.

Patented Apr. 1, 1913.
 3 SHEETS—SHEET 2.



WITNESSES:

J. H. Gardner,
 G. W. Poyner.



INVENTOR:

Martin Hohl,
 BY
 E. D. Silvius,
 ATTORNEY.

M. HOHL.
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3 SHEETS—SHEET 3.

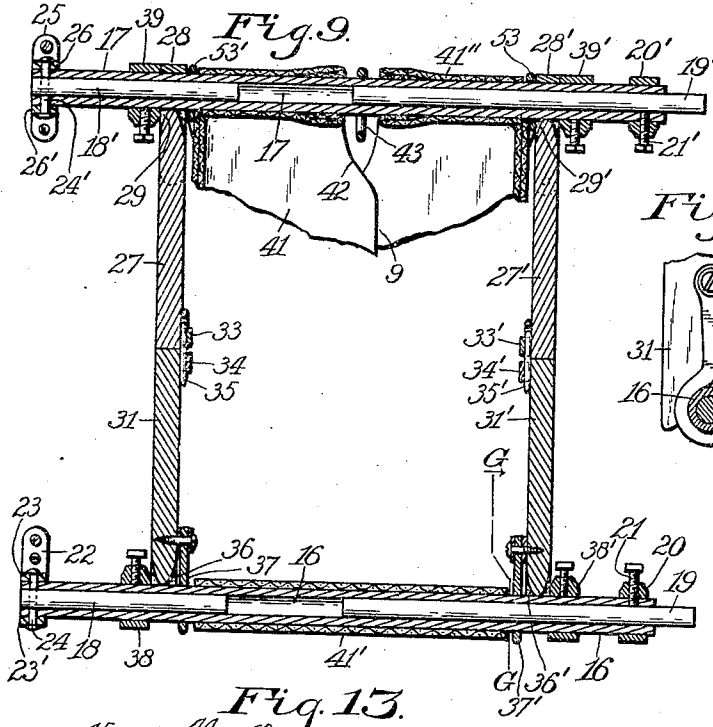


Fig. 10.

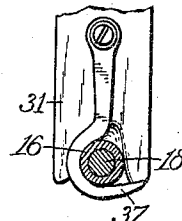


Fig. 11.

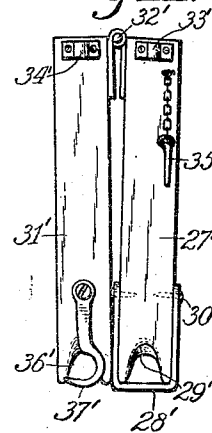


Fig. 12.

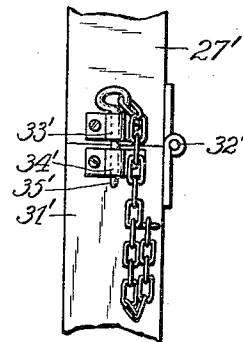
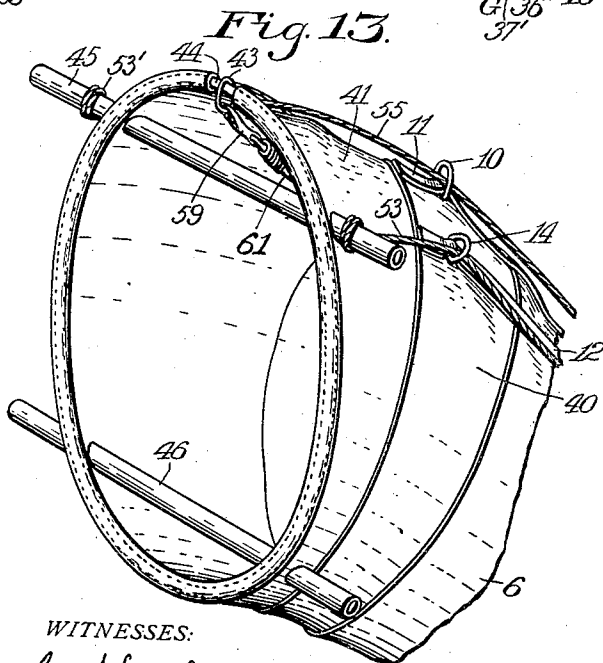
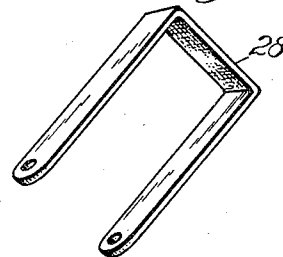


Fig. 14.



WITNESSES:

J. H. Gardner.
G. W. Poyner.

INVENTOR:

Martin Hohl,
BY
E. J. Silvius,
ATTORNEY.

UNITED STATES PATENT OFFICE.

MARTIN HOHL, OF INDIANAPOLIS, INDIANA.

PORTABLE FIRE-ESCAPE.

1,057,835.

Specification of Letters Patent.

Patented Apr. 1, 1913.

Application filed July 19, 1911. Serial No. 639,264.

To all whom it may concern:

Be it known that I, MARTIN HOHL, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented a new and useful Portable Fire-Escape, of which the following is a specification, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon.

This invention relates to apparatus adapted to enable either adults or children to safely escape from the windows of buildings in case conflagrations in the buildings prevent escape by way of stairways or elevators within the buildings, the invention having reference more particularly to improvements in flexible tubes adapted to permit occupants of buildings to safely descend therethrough to the ground.

The object of the invention primarily is to provide a convenient and improved fire-escape by the use of which the most timid or excited persons may quickly escape from buildings without liability to injury in the descent, a further object being to provide an improved adjustable flexible tube which will be so constructed as to permit it to be readily enlarged or contracted in diameter in order to render it more convenient for larger or smaller persons; a still further object being to provide a fire-escape of the above mentioned character that will be adapted to be readily lengthened or shortened as exigency may require, and which shall be of light weight so that it may be readily handled and placed in position for use.

With the above mentioned and minor objects in view, the invention consists in an improved sectional and diametrically adjustable tubular fire-escape provided with an improved internal rope adapted for use of those descending in the tube, to enable them to govern speed of descent; and the invention consists further in the novel parts and combinations and arrangements of parts embodied in the construction thereof, as herein-after particularly described and pointed out in the appended claims.

Referring to the drawings, Figure 1 is a fragmentary perspective view of a building to which the improved fire-escape is connected in position for use; Fig. 2, a fragmentary internal view of the building at the window with which the fire-escape is connected, looking outward into the tube; Fig. 3, a fragmentary perspective view of the tube in di-

ametrically contracted condition; Fig. 4, a fragmentary perspective view of the terminal end of the tube partially in section; Fig. 5, a fragmentary longitudinal section of the tube as on the plane of the line A A in Fig. 2; Fig. 6, a transverse section of the tube on the plane of the line B B in Fig. 5; Fig. 7, a fragmentary sectional detail on the plane of the line C C in Fig. 2; Fig. 8, a fragmentary section of a portion of the supporting frame of the tube on the plane of the line D D in Fig. 7; Fig. 9, a fragmentary section of the supporting frame on the plane of the line E E in Fig. 5; Fig. 10, a fragmentary section of the frame on the line G G in Fig. 9; Fig. 11, a side elevation of a part of the frame folded; Fig. 12, a fragmentary side view of a part of the frame in operative condition; Fig. 13, a fragmentary perspective view of a modified form of supporting frame and a tube connected thereto; and Fig. 14, a perspective view of a part of the preferred form of supporting frame.

Similar reference characters throughout the drawings indicate like elements or features of construction herein referred to.

In the drawings the numeral 1 indicates a building, 2 the sidewalk at the front of the building; 3 a window sill, 4 and 4' the window frame casings in the interior of the building, and 5 the lower sash of the window.

The improved fire-escape comprises essentially a tubular main section 6 which may be of sufficient length for a one story building; a terminal section 7 and one or more intermediate sections 8, the body portions of all the sections being substantially alike, the terminal end of each section being adapted to enter the inlet end of the terminal and intermediate sections. Each section is composed of suitable material such as canvas and preferably is sufficiently heavy and stiff to enable the tube to stand out in approximately cylindrical form when in use. Each tubular section is made of a sheet of the material, and two edges are brought together to form a longitudinal seam 9 which is arranged so as to be at the upper side of the tube when in use, the remaining portions of the tube being unobstructed or substantially smooth so as to avoid the presentation of any obstacle to a person sliding through the tube. A suitable number of rings 10 and 10' are secured to the exterior of each section at the longitudinal seam preferably by means

of a longitudinally arranged strip or welt 11 extending along the outer side of the seam and secured thereto, serving the double purpose of securing the rings to the section and stiffening the fabric so that it will not readily collapse abruptly. Two similar strips or welts 12 and 13 are secured longitudinally on the outer side of each section at a suitable distance from the seam, one strip 12 being utilized to secure a suitable number of rings 14 and 14' to the tubular section, and the other strip 13 being utilized to secure other rings 15 and 15' to the section. The fabric is adapted to fold in order that the upper portion may be drawn together so that the strips 12 and 13 may be brought nearly together, and thus the diameter of the tubular section is decreased, as illustrated more particularly in Fig. 3, further explained herein-after.

The inlet end portion of the main section is provided with a suitable frame whereby to connect it to the window frame of a building in a substantial manner, either permanently or removably as may be desired.

The preferred form of the supporting frame of the main section comprises preferably two horizontal bars adapted to be placed against the window casings 4 and 4' and upright spreaders connecting the two bars together, the horizontal bars consisting of tubes 16 and 17 having reinforcing plugs 18 and 18' driven in one end portion thereof, the opposite end portions having extension rods 19 and 19' therein respectively which are secured adjustably by means of collars 20 and 20' embracing the tubes, and set screws 21 and 21' inserted in the collars and extending through the tubes to the rods. The reinforced end portions of the tubes preferably are provided with hinging members comprising a base plate 22 having two hinging ears 23 and 23' thereon, and provided with a hinge pin 24 extending through the tube 16 and its reinforcement 18; and a base plate 25 having hinging ears 26 and 26' thereon provided with a hinge pin 24' extending through the tube 17 and its reinforcement 18', the plates 22 and 25 being secured to one of the window frame casings 4 with the plate 22 close to the window sill so that the lower bar may be supported on the window sill, the horizontal bars thus being permitted to swing away from the window opening when not in use. The spreaders preferably are adapted to be folded for convenience in handling in case the frame is not hingedly supported, and they comprise two members 27 and 27' provided with shackles 28 and 28' for holding the members in contact with the tube 17, the contacting ends of the members preferably having crotches 29 and 29' therein respectively to receive the tube. The shackles

preferably are connected to the members by means of pivoting screws 30. The spreaders comprise also companion members 31 and 31' respectively which are connected to the members 27 and 27' by means of hinges 32 and 32' respectively. The members 27 and 31 are provided with eyes 33 and 34 respectively through which a pin 35 is inserted for holding the members in alignment. The members 27' and 31' are similarly provided with eyes 33' and 34' respectively, in which a pin 35' is inserted. The free ends of the members 31 and 31' preferably have crotches 36 and 36' therein to receive the tube 16 and they are provided with hooks 37 and 37' detachably connected with the tube. The tube 16 is provided with two collars 38 and 38' secured thereto at the outer sides of the spreaders, and the tube 17 is provided with two similar collars 39 and 39' secured thereto at the outer sides of the spreaders.

The inlet end portion of the tube section 6 is formed with a mitered elbow section 40 and also a similar section 41, the latter preferably being composed of doubled fabric, and the longer portions of both elbow sections are uppermost so that the inlet end portion of the tube section is slightly curved in order to fit conveniently in a window frame and extend downwardly at the outer side of the building. The section 41 has a portion 41' turned over the tube 16 of the supporting frame, and also a portion 41'' turned over the tube 17 of the frame, and has a slit 42 to clear a ring 43 which is placed on the tube 17 mid way between the spreaders.

In some cases a less elaborate supporting frame of cheap construction is provided which comprises a ring 44 secured to the elbow section 41 of the tube, and two horizontal bars 45 and 46 pass through portions of the elbow section adjacent to the ring, the ring 43 being connected to the ring 44 as illustrated in Fig. 13.

The exterior of the outlet end portion of the main tube section 6 and each intermediate section 8 is provided with a suitable number of snap hooks 47 adapted to hook into a like number of rings 48 with which the exterior of the intermediate section 8 and the terminal section 7 are provided, one section being inserted into another section and coupled together by means of the hooks and rings. The outlet end of the terminal section 7 is provided with a hoop or ring 49, and a suitable number of hooks 50 are connected thereto, the points of the hooks usually being covered by means of suitable caps 51. The exterior of the terminal section is provided with suitable handles 52 for lifting the terminal end.

Two lacing cords 53 and 53' are secured to the upper horizontal bar of the support-

ing frame and are laced through the rings 10 and also through the rings 14 and 15 for contracting the tube in diameter, there being two cords for each tube section and the 5 cords of the main section are provided with coupling hooks 54 adapted to be quickly connected to similar hooks 54' with which the cords of the adjacent section are provided. An attendant at the terminal end of the sectional tube may draw the cords at will or release them as may be desired. Each tube section is provided also with another cord 55, the cord of the main section being provided with a hook 56 that is connected to the ring 43, the opposite end of the 15 cord being provided with a coupling hook 57 adapted to be connected to a similar hook 57' with which the cord of the adjacent section is provided. The sectional cord 55 extends through all the rings 10, 10', and enables an attendant to exert his force to prevent the tube from sagging undesirably while in use.

Each tube section is provided internally 25 with a rope or cable 58 which is provided at one end with a hook 59 that is connected to the ring 43, the opposite end of the rope being provided with a coupling hook 60 adapted to be connected to a similar hook 30 60' with which the rope of the adjacent tube section is provided. Each rope is covered by a rubber tube 61 suitably secured to the rope so as to enable persons to slide their hands freely along the rope without burning their hands, the rubber enabling the person to firmly hold to the rope when desired. The coupling hooks 60 and 60' are of the type commonly known as bell cord couplings which permits the hands to pass 40 freely over them.

In emergency when a relatively short fire-escape tube is sufficient the terminal section 7 may be utilized by removing the caps 51 from the hooks 50, and after inverting the 45 section the hooks 50 may be connected to the inner side of a window frame for support.

In practical use, in case the supporting frame is hinged to the building and the tubular escape folded up within the building, it is only necessary to throw the tubular escape out of the open window and swing the supporting frame around to operative position as shown in Fig. 2, and the terminal end of the tube should be attended to 55 by persons on the ground, it being desirable that the tube be drawn out at an inclination somewhat as shown in Fig. 1 and may be held up from the ground, or obviously a mattress may be placed on the ground if desired at the end of the tube. When the tube is not permanently connected to a building, it will be understood that the inlet end is to be drawn up to a window and connected therewith by firemen. It will be seen from 65 the foregoing that a person may enter the

tube and grasp the rope 58 or its cover 61 and easily hold to it sufficiently to prevent too rapid descent, the descent being retarded by frictional contact with the under portion of the tube. The terminal hook 59' of 70 the rope 58 with which the terminal section is provided may be connected to the ring 49 or be held by an attendant.

Having thus described the invention what is claimed as new, is—

1. In a fire-escape, a supporting frame comprising two tubes, two spreaders having each a crotch in one end thereof receiving a portion of one of said tubes and a crotch 80 in the opposite end thereof receiving a portion of the remaining one of said tubes, two shackles connected to the two spreaders respectively and extending about one of said tubes, and two hooks connected to the two spreaders respectively and engaging the remaining one of said tubes, in combination 85 with a flexible tube having portions thereof connected to said two tubes.

2. In a fire-escape, a supporting frame comprising two tubes, two spreaders having 90 each a crotch in one end thereof receiving a portion of one of said tubes and a crotch in the opposite end thereof receiving a portion of the remaining one of said tubes, two shackles connected to the two spreaders respectively 95 and extending about one of said tubes, two hooks connected to the two spreaders respectively and engaging the remaining one of said tubes, and two rods adjustably secured in said two tubes respectively, in combination with a flexible tube having portions thereof connected to said two tubes. 100

3. In a fire-escape, a supporting frame comprising two tubes, two spreaders having each a crotch in one end thereof receiving 105 a portion of one of said tubes and a crotch in the opposite end thereof receiving a portion of the remaining one of said tubes, two shackles connected to the two spreaders respectively and extending about 110 one of said tubes, two hooks connected to the two spreaders respectively and engaging the remaining one of said tubes, two collars secured to one of said tubes at the outer sides of said spreaders, and two collars secured 115 to the remaining one of said tubes at the outer sides of said spreaders, in combination with a flexible tube having portions thereof connected to said two tubes between said two spreaders. 120

4. In a fire-escape, a supporting frame comprising two tubes, two spreaders loosely connected at one end to one of said tubes and at the opposite end to the remaining one of said tubes, two supporting devices 125 pivoted to one end of said two tubes respectively, two collars secured to one of said tubes at the outer sides of said spreaders, two collars secured to the remaining one of said tubes at the outer sides of said spread- 130

ers, two rods adjustable longitudinally in said two tubes respectively and extending beyond the opposite ends thereof, two clamping collars on said two tubes respectively adjacent said opposite ends, and two set-screws mounted in said two clamping collars and extending respectively through said tubes to said rods, in combination with a flexible tube having portions thereof connected to said two tubes.

5. In a fire-escape, a supporting frame comprising two tubes, two spreader members having each an end connected with one of said tubes, the opposite end portion of each of said members having an eye thereon, two spreader members hinged at one end to said opposite ends of the first-described members and having each an eye on said hinged end portion, the opposite ends of said last-described members being connected to the remaining one of said tubes, two pins removably inserted respectively in the eyes of the two adjacent hinged members, two chains connecting the two pins respectively with two of said members. two collars secured to one of said tubes at the outer sides of the two members respectively that are connected to said tube, and two collars secured to the remaining one of said tubes at the outer sides of the two members respectively that are connected to said tube, in combination with a flexible tube having portions thereof connected to said two tubes.

6. In a fire-escape, the combination of two tubes, two spreaders connected to the two tubes, two supporting devices pivoted to one end of the two tubes respectively and rigidly supported, two collars secured to one of the tubes at the outer sides of the two spreaders respectively, two collars secured to the remaining one of the tubes at the outer sides of the two spreaders respectively, a ring loosely embracing one of said tubes, a flexible tube connected to said two tubes between said spreaders and at opposite sides of said ring, a snap-hook connected to said ring, a rope secured to said snap-hook and extending into said flexible tube, and a flexible tube inclosing said rope and secured thereto.

7. In a fire-escape, a folding supporting

frame comprising two tubes, two spreader members having each a crotch in one end thereof receiving a portion of one of said tubes, two shackles connected to the two members respectively and extending about the tube that is in the crotches, two spreader members hinged at one end to the opposite end of the first-described members and having each a crotch receiving a portion of the remaining one of the tubes; and having also a hook thereon removably holding the tube in the crotch, each of said members being beveled at the edges of said crotches, collars secured to the tubes at the outer sides of the spreader members, two rods adjustably secured in said two tubes respectively, and two supporting devices pivoted to said two tubes respectively, in combination with a flexible tube having portions thereof connected to said two tubes.

8. In a fire-escape, the combination with a supporting frame, of a flexible tube connected to the frame, a plurality of rows of rings connected to the outer side of said flexible tube, two cords and also a ring connected to the supporting frame, said two cords extending through the rings of one of said rows and also through the rings of two other rows respectively, a rope connected to said ring and extending into said flexible tube, and a cord connected also to said ring and extending through the rings of one of said rows that said two cords extend through.

9. In a fire-escape, the combination of a supporting frame comprising two bars, a flexible tube connected to the frame, a plurality of rows of rings connected to the outer side of said tube, two cords spaced apart and connected to one of said bars adjacent to different portions of said tube, said cords extending convergently to and through the rings of different rows thereof, and a cord connected to said frame between said two cords and extending through the rings of one of said rows.

In testimony whereof, I affix my signature in presence of two witnesses.

MARTIN HOHL.

Witnesses:

P. A. HAVELICK,
LENARD HOHL.