

F. E. GLAZE & S. A. HACKLEY.

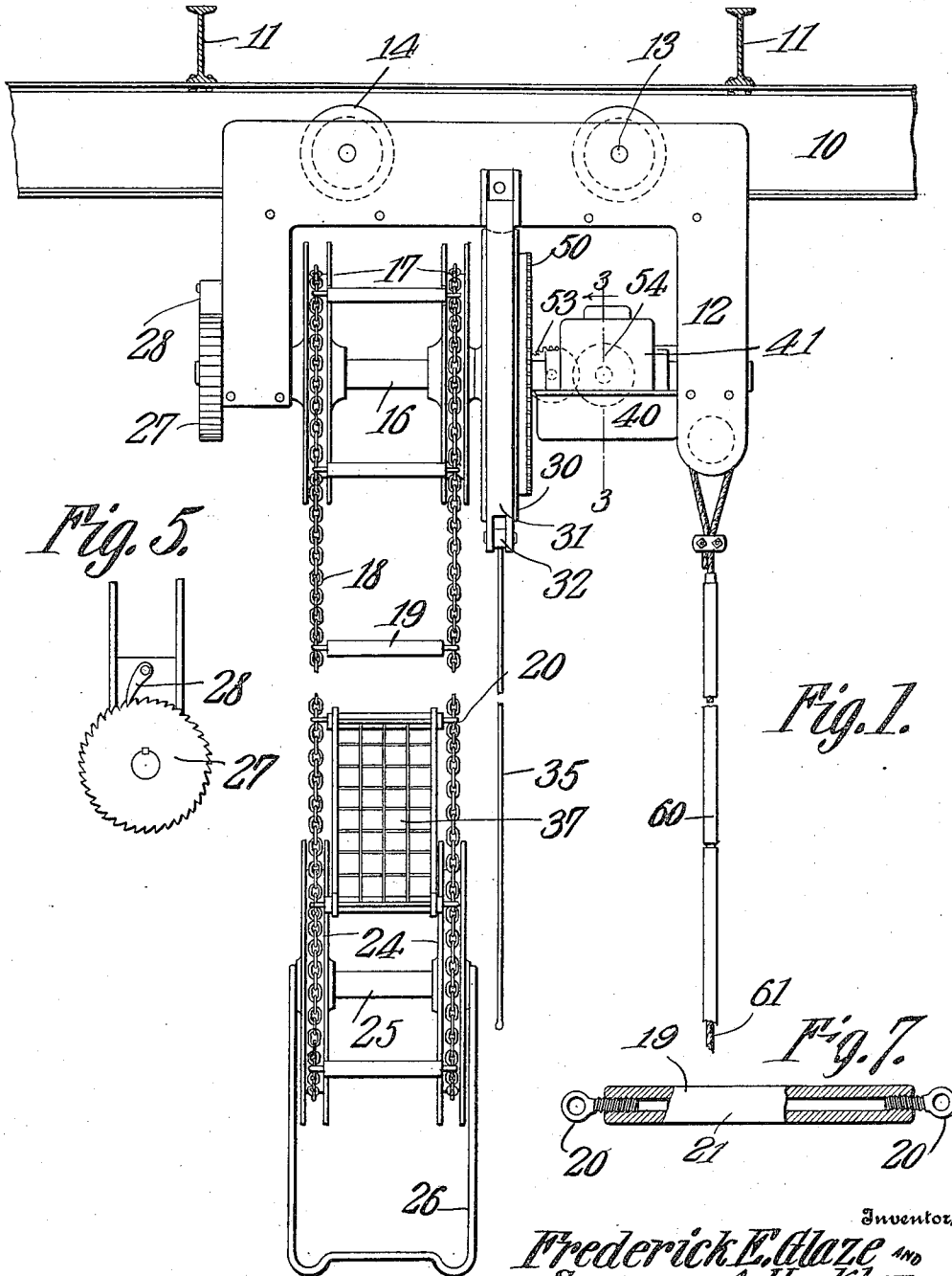
FIRE ESCAPE.

APPLICATION FILED JULY 7, 1908.

1,031,922.

Patented July 9, 1912.

2 SHEETS—SHEET 1.



Witnesses

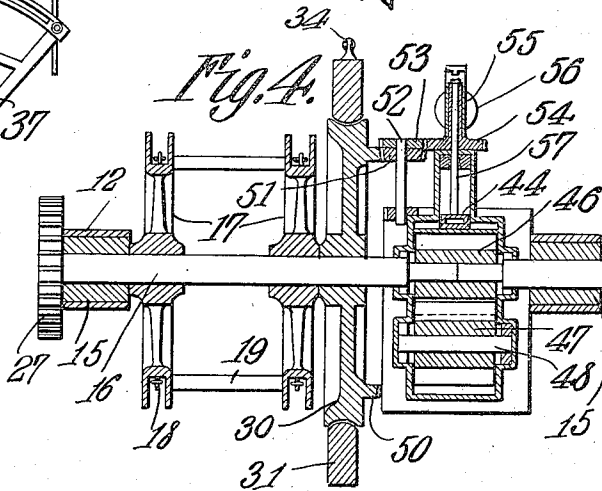
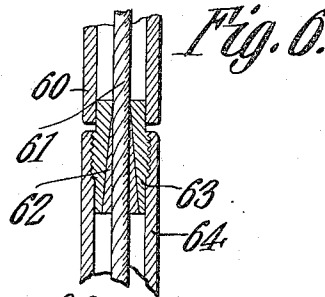
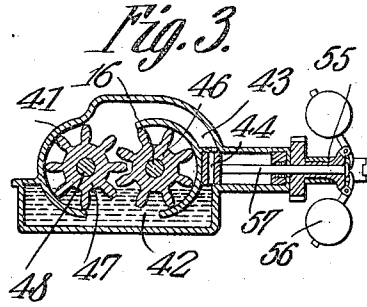
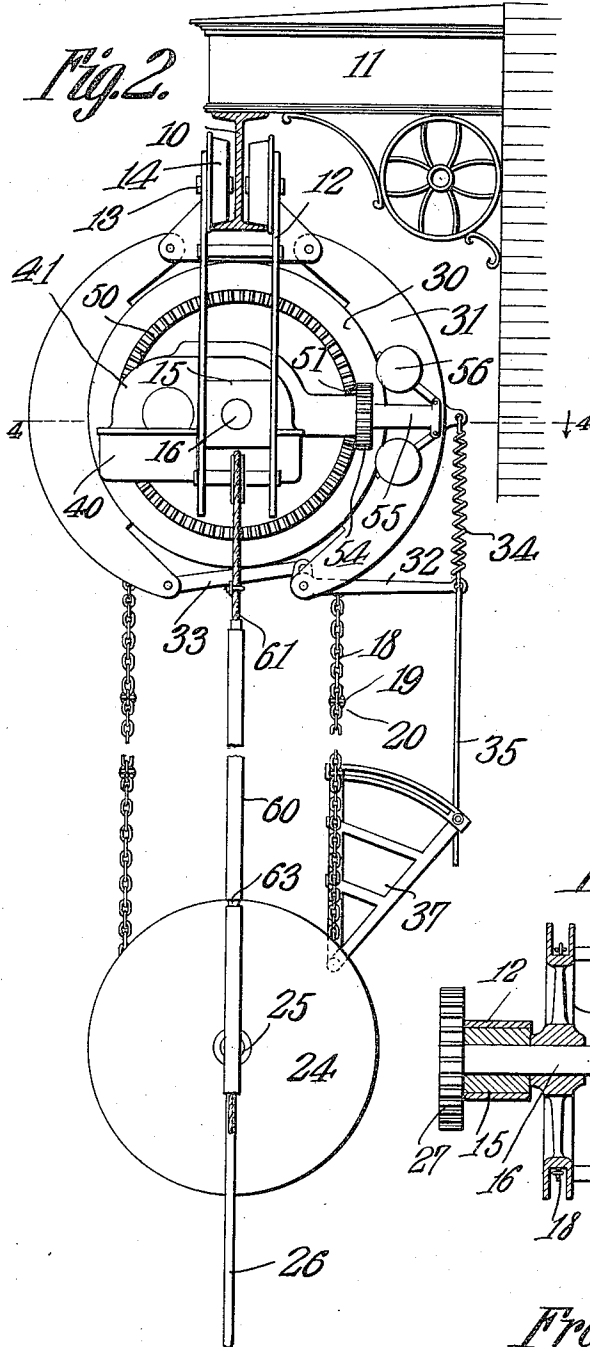
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Witnesses

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UNITED STATES PATENT OFFICE.

FREDERICK E. GLAZE AND SUMNER A. HACKLEY, OF VICTOR, COLORADO; SAID
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FIRE-ESCAPE.

1,031,922.

Specification of Letters Patent.

Patented July 9, 1912.

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To all whom it may concern:

Be it known that we, FREDERICK E. GLAZE and SUMNER A. HACKLEY, citizens of the United States, residing at Victor, in the county of Teller, State of Colorado, have invented a new and useful Fire-Escape, of which the following is a specification.

This invention relates to fire escapes, and has for its principal object to provide a novel form of fire escape which may be applied to the exterior of buildings and which is so arranged as to permit of travel around the building so that it may be placed opposite all of the windows.

A further object of the invention is to provide a fire escape in which a continuous belt like ladder is employed, one run of the ladder facing the building so that it may be conveniently reached from the windows and the ladder being so arranged as to move under the weight of the persons who step upon it, provision being made for automatically controlling the speed at which the ladder moves, in order to prevent injury.

A still further object of the invention is to provide a fire escape of the continuous ladder type in which the inner run may be used for persons descending from the building, while the outer run may be employed for the ascending of the firemen, the construction being such that persons on the ground may by pulling down on the inner run of the ladder assist in the ascent of the firemen and hose.

A still further object of the invention is to provide a novel form of automatic governing means by which the speed of movement of the ladder may be controlled without regard to the number of persons being carried.

A still further object of the invention is to provide an auxiliary hand brake which may be actuated at any point in the length of the ladder or from the ground for the purpose of arresting the descent when necessary.

A still further object of the invention is to provide a fire escape of this character with baskets or similar receptacles in which invalids or children may be placed.

A still further object of the invention is to provide a fire escape of this type in which the lower end of the ladder is so arranged as to permit free swinging movement to a position outward from the building, so that the persons descending the ladder may be

held clear of flames escaping through the lower windows.

A still further object of the invention is to provide a fire escape of this type with a traversing or operating rod so arranged as to permit free adjustment of the ladder along the length of or around the building by a person located on the ground, the rod being further of such construction as to permit its use as a slide rod for quick descent independent of the ladder.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claim, it being understood that various changes in the form, proportions, size and minor details of construction may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings:—Figure 1 is a front elevation of a fire escape constructed in accordance with the invention. Fig. 2 is a side elevation of the same. Fig. 3 is a transverse sectional view through the regulating valve. Fig. 4 is a sectional plan view on the line 4—4 of Fig. 2. Fig. 5 is an end view showing the ratchet mechanism for preventing reverse movement of the ladder. Fig. 6 is a detail view of a portion of the traversing rod. Fig. 7 is a detail view of one of the ladder rungs.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

The fire escape is mounted on a continuous rail 10 which may be in the form of an I beam and which extends along the front of the building, or continuously around the same, and is supported at suitable intervals by outwardly extending beams or similar supports 11 which may form a portion of the cornice of the building. The fire escape proper is mounted in a suitable metallic frame 12 which is provided with small arbors 13, on which are mounted flanged wheels or rollers 14 that travel on the supporting rail 10. The frame in the present instance is shown as comprising a pair of vertically disposed parallel plates arranged in spaced relation and provided with suitable bearings 15 for the reception of a hori-

zontal shaft 16 and secured to this shaft is a pair of sprocket wheels 17 over which passes a chain ladder 18 that is provided with suitable rungs 19, arranged at equidistant intervals. The rungs may be of the type shown in Fig. 7, each rung comprising a pair of eye bolts 20 connected to the links and provided with opposing right and left hand threads, that are connected by central tubes 21.

The lower end of the continuous ladder passes around a pair of sprocket wheels 24 which are carried by a shaft 25 and to the opposite ends of the shaft 25 is pivoted a bail 26 that serves as a handle by which the lower end of the fire escape may be pulled outward from the building, so as to prevent injury to persons descending the ladder from contact with flames issuing from the lower portion of the building.

In order to prevent reverse movement of the ladder, one end of the shaft 16 is provided with a ratchet wheel 27 with which engages a pawl 28 that is pivoted on a stud projecting from a portion of the frame, so that the ladder can move in but one direction only, that is to say, its inner run descending and moving downward under the weight of persons who may step thereon from the windows of the building. The outer run may be utilized by the firemen, and when a hose is to be carried up, the ascent of the firemen may be assisted by the weight of the persons descending on the opposite side, or by pulling down on the inner run of the ladder by persons located on the ground. The shaft 16 is further provided with a friction disk 30 with which engages a pair of brake shoes 31. To the lower end of one of the brake shoes is pivoted a bell crank lever 32, the shorter arm of which is connected to the opposite brake shoe by a link 33. The longer and approximately horizontal arm of the bell crank lever is normally held up in inoperative position by a tension spring 34, and depending from the longer arm of the lever is a rod or cord 35 which preferably extends down to the bottom of the ladder, so that it may be within convenient reach of a person stationed at any point on the ladder or on the ground, and by operating this brake the movement of the ladder may be arrested at any point so that invalids or infants may be removed from the ladder with safety, or the ladder may be stopped at any point and conveniently used in the washing of windows, or making repairs to the building.

The ladder is provided at suitable intervals with baskets 37, the lower ends of which are pivoted, and the upper ends of which are arranged to fall outward by gravity, as the ladder descends. These baskets may be used for the reception of in-

fants, invalids, and other persons, and are of such construction as to automatically fold flat against the ladder when they reach the ascending side thereof.

At one side of the main frame is arranged a platform 40 on which is mounted an automatic governor. This governor comprises a pump casing 41, that is disposed immediately above and in communication with a liquid containing tank 42, and the upper portion of the pump casing communicates with the tank through a by-pass 43, that is under the control of a valve 44.

Secured to the shaft 16 is a rotary pumping piston 46 that preferably is in the form of a spur gear and intermeshing with this piston is a second piston 47 that is mounted on a fixed stud 48. The outer portions of both pistons are arranged to fit snugly against the curved inner walls of the pump casing, and the liquid passes from the lower to the upper portion of the casing between the pistons, the speed at which the latter rotate being wholly under the control of the valve, and if the latter be moved to full open position, the pistons rotate with comparative rapidity. When the speed is excessive, however, the valve will be automatically moved for the purpose of reducing the effective area of the by-pass and thereafter reducing the speed at which the pistons rotate when the ladder descends.

On one face of the friction disk 30 is arranged a crown bevel gear 50 which intermeshes with a bevel pinion 51 that is mounted on a counter-shaft 52 and on the counter-shaft is a gear 53 intermeshing with a pinion 54 on a governor shaft 55. The governor shaft carries an ordinary form of ball governor 56, and the spindle 57 of this governor is connected to the valve 44, so that as the speed of the governor increases, the valve stem 57 is moved, and the valve is shifted for the purpose of reducing the area of the by-pass, and thus reducing the speed at which the ladder is moving.

For convenience of shifting the position of the fire escape, a traversing rod 60 is employed. The base of this rod is in the form of a wire rope 61, the upper end of which is secured to the frame 12. Arranged on the rope at intervals are soft metal cones 62 which preferably are cast in place, and fitting over these are bushings 63, the outer faces of which are provided with screw threads for the reception of the threaded upper ends of tube sections 64. The upper end of each bushing 63 forms a sleeve that projects within the lower end of the next upper section of the tubing, so that while the traverse rod is flexible and will permit ready manipulation of the fire escape and movement of the latter along its supporting rail 10, it will, also, afford a smooth slide

rod down which persons may rapidly descend without the aid of the ladder.

The construction of the ladder may be modified in a variety of ways, and any desired form of endless wire, rope, belt, or cable may be substituted for the ladder shown, the term ladder being used in the claim to include any of the equivalent forms.

What is claimed is:—

A fire escape comprising a frame, a shaft journaled for rotation thereon, an endless ladder arranged to move about the shaft, a disk fixed to the shaft and having upon its side a crown gear, a brake mechanism located upon the frame and adapted to operate upon the periphery of said disk, a liquid

containing casing, a revoluble member fixed on the shaft for setting up a circulation of liquid in the casing, a governor operatively connected with the disk through the crown gear thereof, and a valve connected to and shiftable by the governor for regulating the circulation of the liquid and the speed of rotation of the revoluble member.

In testimony that we claim the foregoing as our own, we have hereto affixed our signatures in the presence of two witnesses.

FREDERICK E. GLAZE.

SUMNER A. HACKLEY.

Witnesses:

ELMER HACKLEY,

CHAS. EDWARD MAJOR.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."