No. 645,631. Patented Mar. 20, 1900.

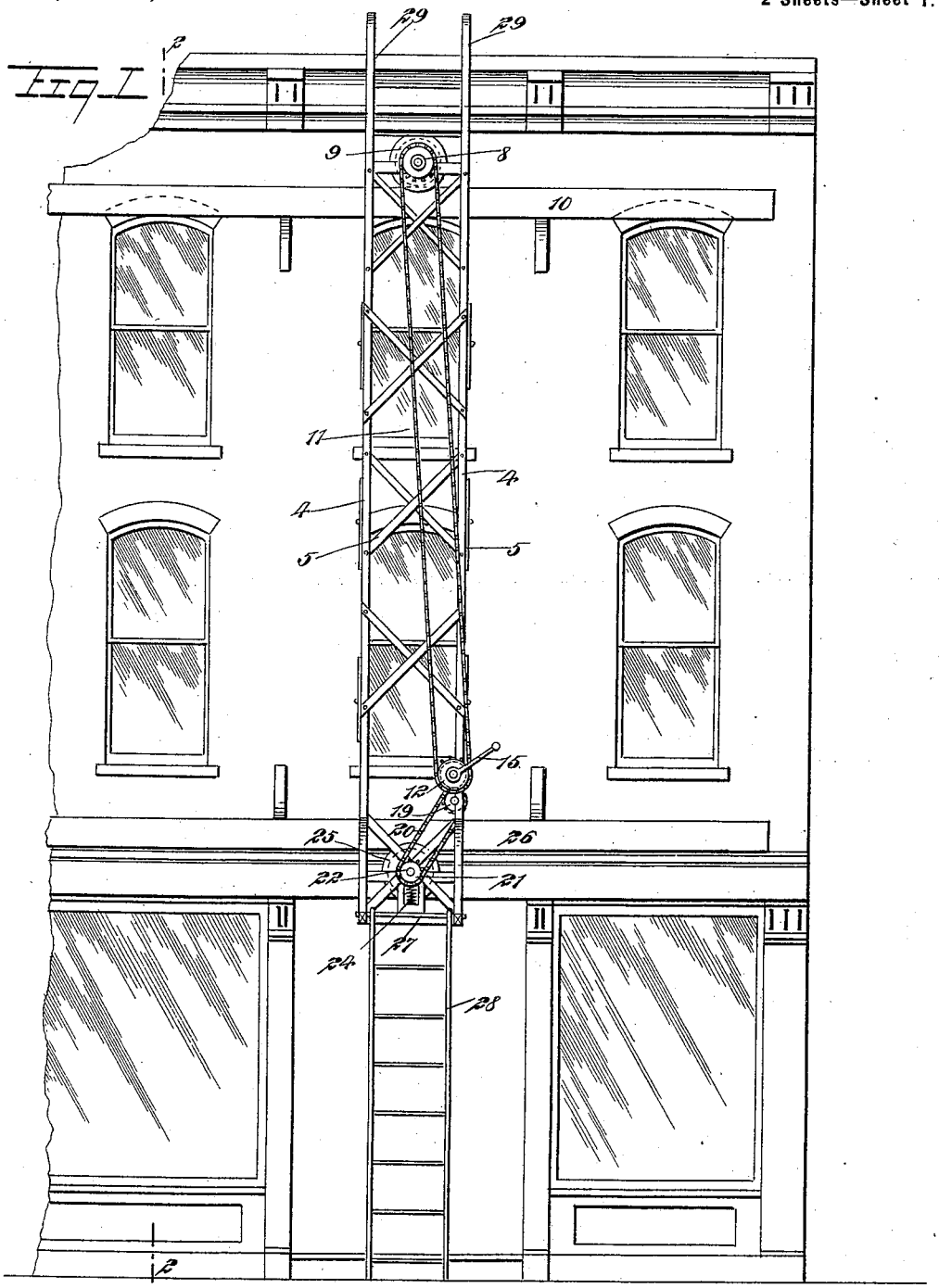
C. H. SHIELDS & A. SHAW.

FIRE ESCAPE.

(Application filed July 12, 1899.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.



WITNESSES:

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Fig 2

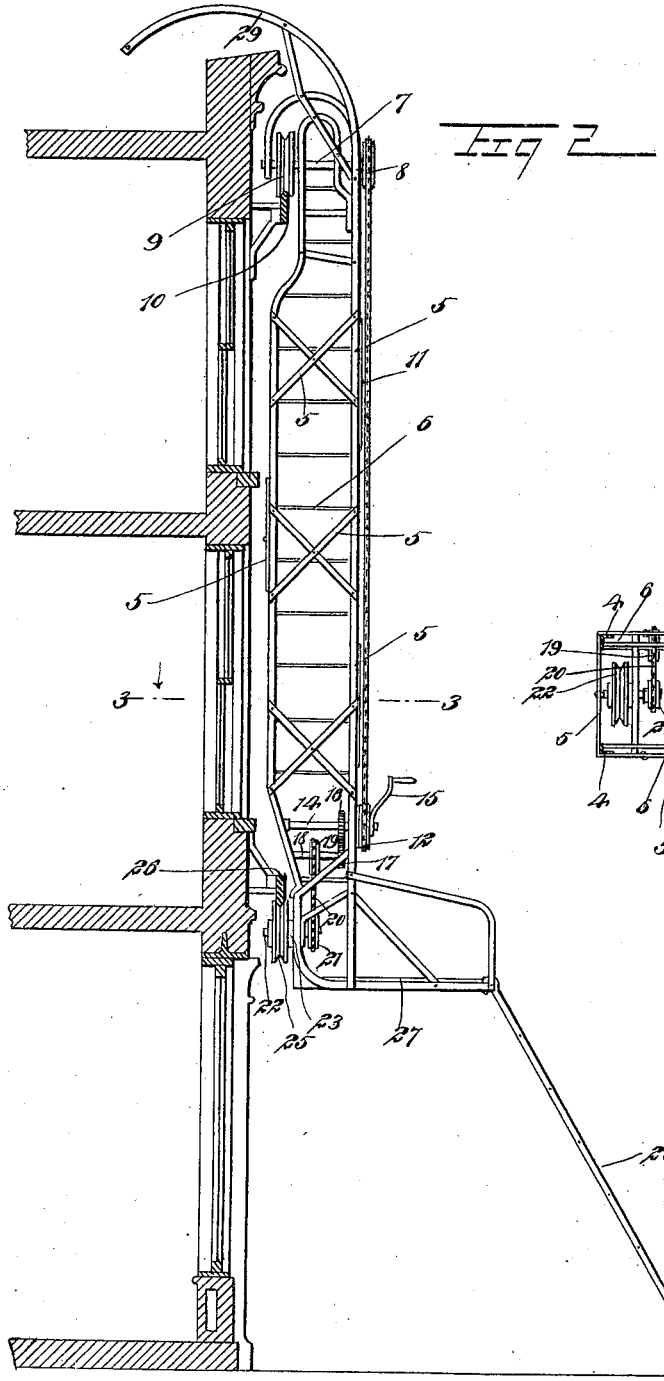
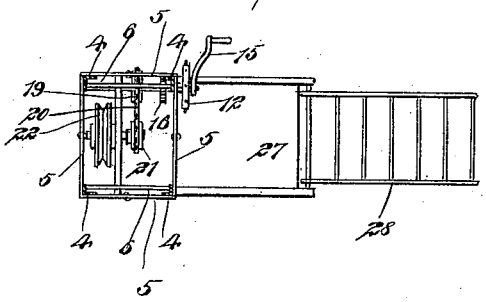


Fig 3



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UNITED STATES PATENT OFFICE.

CHARLES H. SHIELDS AND ALVIN SHAW, OF SPOKANE, WASHINGTON, ASSIGNORS OF ONE-HALF TO BENJAMIN F. SHIELDS, OF SAME PLACE.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 645,631, dated March 20, 1900.

Application filed July 12, 1899. Serial No. 723,609. (No model.)

To all whom it may concern:

Be it known that we, CHARLES H. SHIELDS and ALVIN SHAW, of Spokane, in the county of Spokane and State of Washington, have invented a new and Improved Fire-Escape, of which the following is a full, clear, and exact description.

This invention relates to a fire-escape of that class in which a ladder or like structure is mounted outside the wall of a building and arranged to be moved along the same, so that persons within the building may descend by the ladder.

This specification is the disclosure of one form of our invention, while the claims define the actual scope thereof.

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 views.

Figure 1 is a front elevation of the invention. Fig. 2 is a side elevation of the invention with the building in section on the line 2 2 of Fig. 1, and Fig. 3 is a section looking down upon the line 3 3 of Fig. 2.

Our invention comprises a ladder in the form of a skeleton tube. This ladder is constructed of four angle-iron stringers 4, extending vertically and having cross-braces 5 and rungs 6 secured thereto, as illustrated, whereby to form a rigid skeleton structure, affording a passage through it for persons to escape. The rungs and braces may be arranged in any desired manner, as long as the structure is duly strengthened, and means are provided for facilitating the passage of the persons. According to the arrangement shown, however, the cross-braces 5 are arranged at all sides of the ladder, spaces being left through which persons may pass to enter the ladder, and the rungs 6 are arranged at each side of the ladder, but not at the front and rear thereof.

The head of the ladder is contracted and provided with a revoluble shaft 7, carrying a sprocket-wheel 8 at one end and a grooved wheel 9 at the other. The wheel 9 runs on a rail 10, which is supported at the upper portion of the building, and the sprocket-wheel 8 carries a chain 11, passing downward around a sprocket-wheel 12, fixed to a shaft 14, mounted in the foot of the ladder and provided with a crank 15, by which the shaft may be turned. The shaft 14 carries a spur-gear 16, meshing with a pinion 17, fast on a shaft 18, and this shaft 18 carries a sprocket-wheel 19, over which passes a chain 20, also passing over a sprocket-wheel 21. The sprocket-wheel 21 is secured to a shaft 22, which is mounted in a box 23, slidable in the lower end of the ladder and pressed upward by a spring 24. The shaft 22 carries also a grooved wheel 25, which engages a rail 26, secured to the lower portion of the building at a point above the windows on the ground floor. The lower end of the ladder carries a platform 27, on which the persons descending land and on which a person engaged in manipulating the ladder may stand. By means of the crank 15 and the gearing therewith engaged the wheels 25 and 9 may be turned to move the ladder upon the rails 10 and 26 in either direction. A short ladder 28, of ordinary form, may be connected with the platform 27 and lead downward to the ground to facilitate mounting to and descending from the platform 27. The head of the ladder is provided with a superstructure 29, which may, if desired, be provided with rungs or other means for facilitating the passage of persons from the roof to the ladder.

Various changes in the form, proportions, and minor details of our invention may be resorted to without departing from the spirit and scope thereof. Hence we consider ourselves entitled to all such variations as may lie within the scope of our claims.

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

1. A fire-escape, comprising a ladder in the form of a skeleton tube, a carrying-wheel mounted at each end of the ladder, the wheels being adapted to run on tracks attached to a building, a sprocket-wheel in connection with the upper carrying-wheel, a shaft mounted in the lower portion of the ladder, a sprocket-wheel attached to said shaft, a chain running between the two sprocket-wheels, means for driving the shaft, a third sprocket-wheel in connection with the lower carrying-wheel, a counter-shaft, a sprocket-wheel on the counter-shaft, chains passing between the sprocket-

wheel of the counter-shaft and of the lower carrying-wheel, means for driving the counter-shaft from the first-named shaft, a platform attached to the lower end of the ladder adjacent to the first-named shaft and the driving means thereof, and an extension-ladder supported by the platform and capable of being raised and lowered therefrom.

2. A fire-escape, comprising a ladder, carrying-wheels mounted thereon and adapted to run on tracks carried by a building, a platform attached to the lower end of the ladder and projecting outward transversely therefrom, an extension-ladder section hingedly mounted on an outward extremity of the platform and capable of swinging up and down thereon, and means for driving the carrying-wheels, such means extending down to the lower end of the ladder in proximity to the platform.

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