

No. 695,775.

Patented Mar. 18, 1902

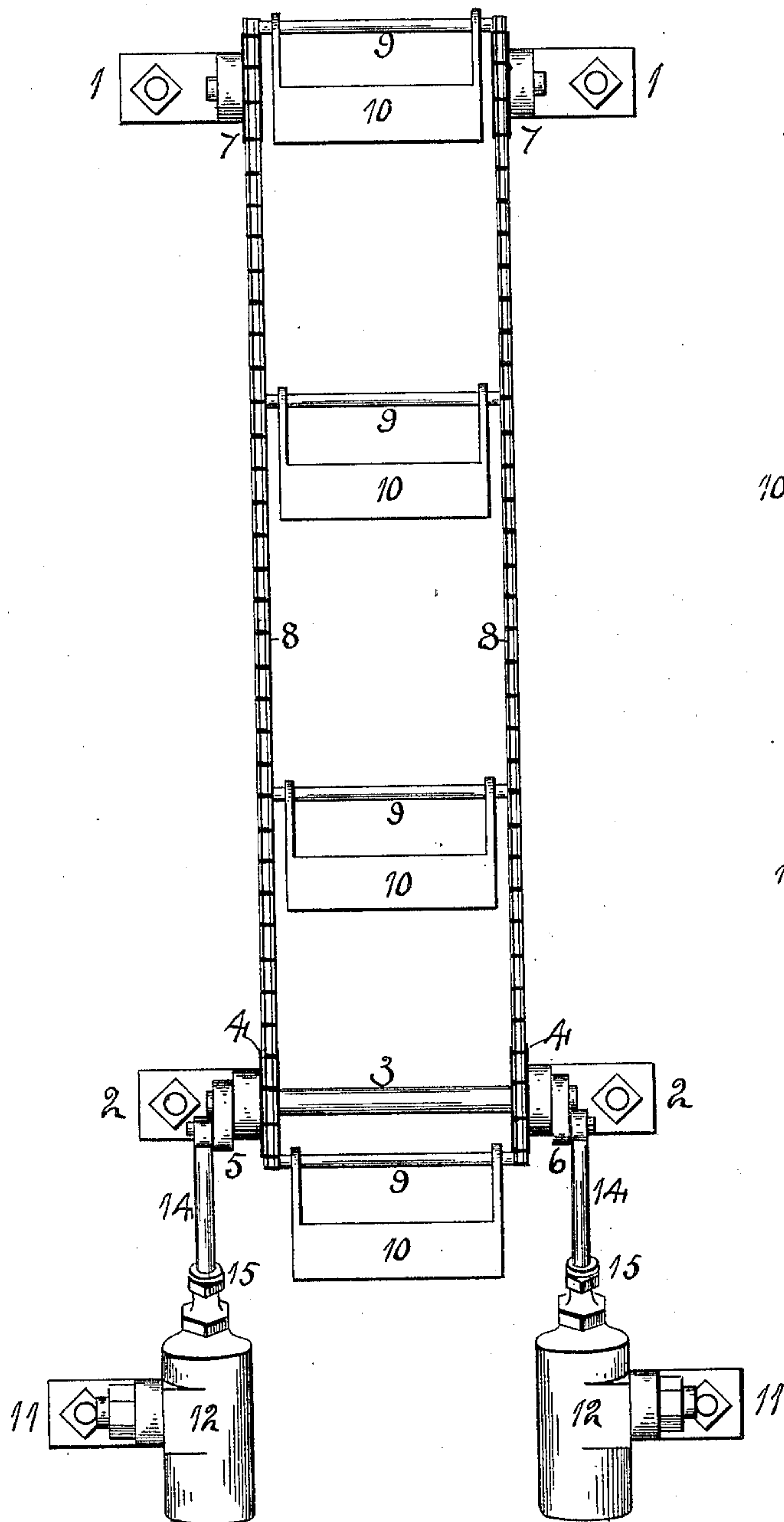
J. WILLIAMS  
FIRE ESCAPE.

(Application filed Aug. 19, 1901.)

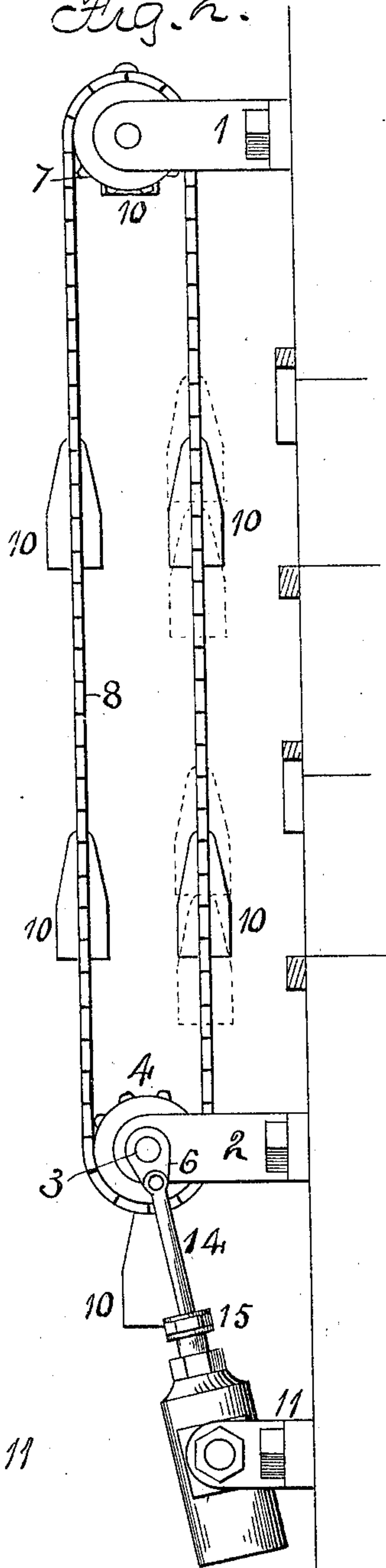
(No Model.)

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*Fig. 1.*



*Fig. 2.*



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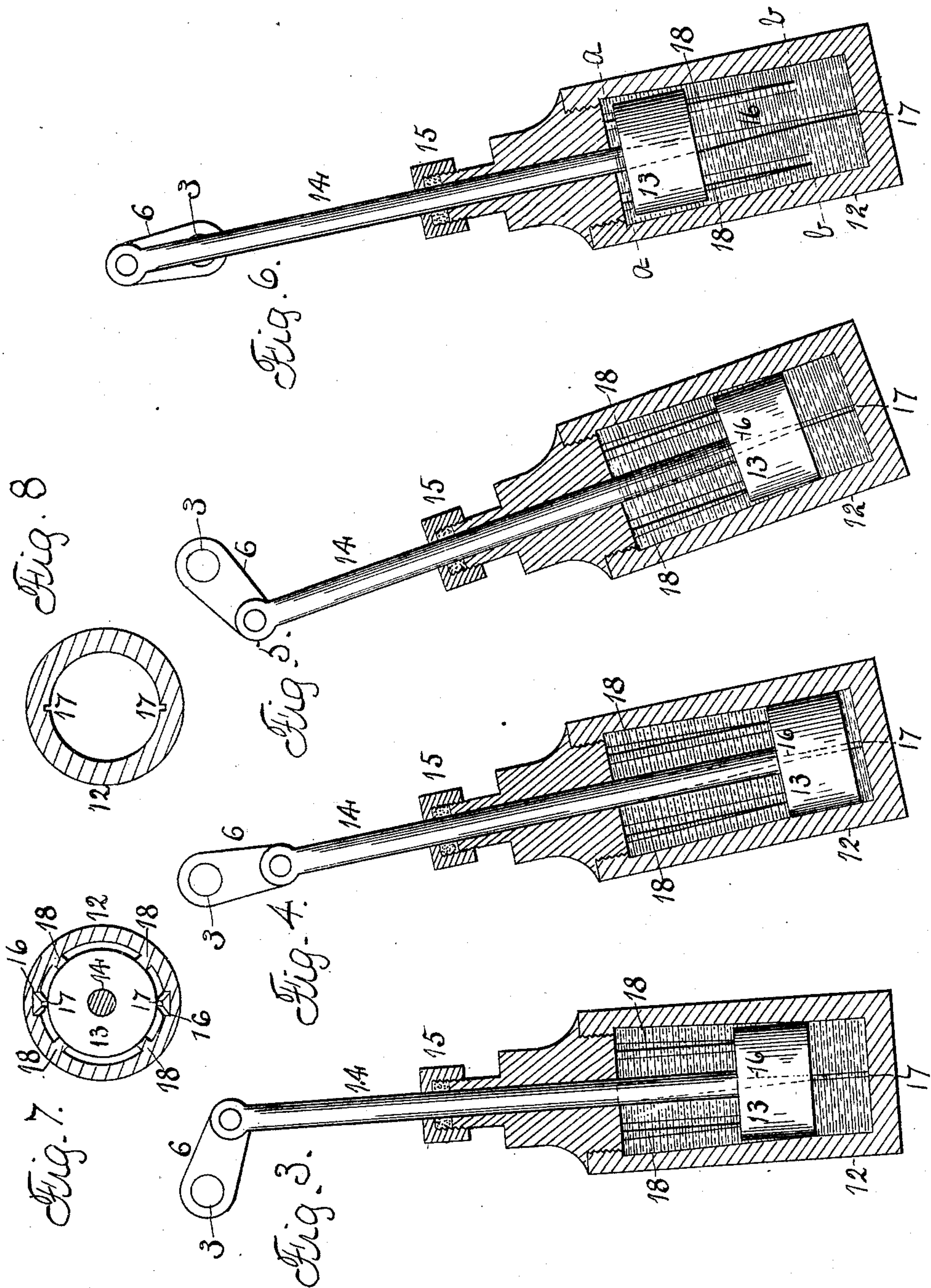
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# UNITED STATES PATENT OFFICE.

JOHN WILLIAMS, OF BELVIDERE, ILLINOIS.

## FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 695,775, dated March 18, 1902.

Application filed August 19, 1901. Serial No. 72,592. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN WILLIAMS, a citizen of the United States, residing at Belvidere, in the county of Boone and State of Illinois, have invented certain new and useful Improvements in Fire-Escapes, of which the following is a specification.

The object of this invention is to construct a fire-escape comprising a series of cars supported by endless chains and a cylinder provided with a piston which regulates the descent of the cars and allows them to move slowly when passing a window or other openings and increasing in speed between the openings.

In the accompanying drawings, Figure 1 is a face representation of my improved fire-escape. Fig. 2 is a side elevation. Figs. 3, 4, 5, and 6 are lengthwise sections through the cylinder and piston in their various positions. Fig. 7 is a horizontal section on dotted line *a*, Fig. 6. Fig. 8 is a horizontal section on dotted line *b*, Fig. 6.

From the face of the building extend two sets of brackets 1 and 2. The lower set support a shaft 3, to which are secured sprocket-wheels 4, and its ends are provided with cranks 5 and 6. The upper set of brackets support sprocket-wheels 7. Two endless chains 8 connect the upper and lower sprocket-wheels. These endless chains are connected by rods 9, from which swing cars 10.

Brackets 11 are secured to any convenient support and support cylinders 12 in a pivotal manner. These cylinders are provided with pistons 13, and piston-rods 14 connect the pistons with the cranks of the shaft 3 and pass through stuffing-boxes 15. The inner faces of the cylinders are provided with lengthwise grooves comprising the tapered section 16 and a section 17 of uniform size. The section 17 is of about one-third of the travel of the piston. The inner faces of the cylinders are tapered from the upper end of the lower section of the groove 17 and are provided with guides 18 for the piston. The cylinder is filled with some heavy liquid, like castor-oil.

When the cars are in the position shown in Figs. 1 and 2, the inner set of cars are opposite the lower edge of the window-openings,

and when the cars are in the upper dotted-line position the piston will be in the position shown in Fig. 3—that is, the lower edge of the piston will be at the upper end of section 17 of the lengthwise groove. If a person or persons should step to the car or cars, their weight will be sufficient to move the car downward, which will move the chains and revolve the sprocket-wheels and cranks secured to the shaft, which will move the piston-rods and pistons attached thereto downward, and as the liquid below the piston must pass up through the side opening so as to get above the piston the movement of the piston will necessarily be slow and will continue slow until the piston has moved to the end of its stroke and back or up into the position shown at Fig. 5, which will be equal to about one-third of the distance between the floors of the building.

By the time the piston has reached the position shown at Fig. 5 the cars will be in the position shown in the lower dotted lines—that is, the cars have moved very slowly in passing the windows, so as to give time for the occupants of the building to enter the cars.

The piston when in the position shown at Fig. 5 is in its upward movement, and at this point the tapered section of the lengthwise slot begins, also the tapered section of the cylinder, which will allow the liquid above the piston to pass more freely below the piston, and the speed of the piston will increase until it reaches the position shown in Fig. 6 and will decrease in speed until it reaches the position shown at Fig. 3, when the cars have moved from one window to another. The cars will move slowly in passing a window and move rapidly in passing from one window to another. When a car is directly opposite a window, a car will be at the lowest point, which will give the occupants time to get out of the car.

I claim as my invention—

1. In a fire-escape, the combination of two endless chains, sprocket-wheels for the chains, cars supported by the chains, a crank rotated by the chains, a cylinder provided with a lengthwise tapered groove and being larger at the crank end of the cylinder, a cylindrical

piston and piston-rod connecting the crank and piston.

2. In a fire-escape, the combination of two endless chains, sprocket-wheels for the chains,  
5 a crank rotated by the chains, a cylinder having a portion of its bore cylindrical and remainder tapered and a lengthwise groove in

the tapered portion of the bore, a cylindrical piston for the cylinder and a piston-rod connecting the crank and piston.

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