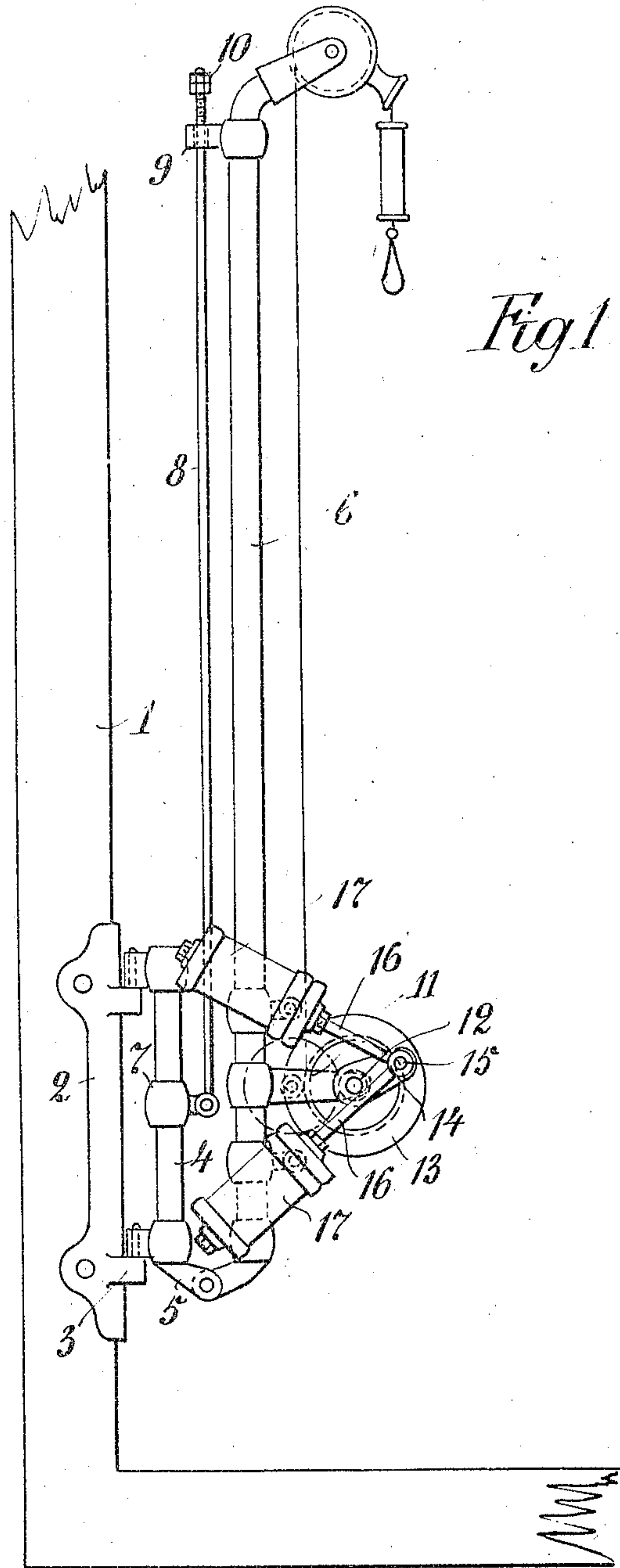


P. PETERSEN.  
FIRE ESCAPE.  
APPLICATION FILED NOV. 21, 1910.

990,770.

Patented Apr. 25, 1911.

3 SHEETS—SHEET 1.



*Fig. 1*

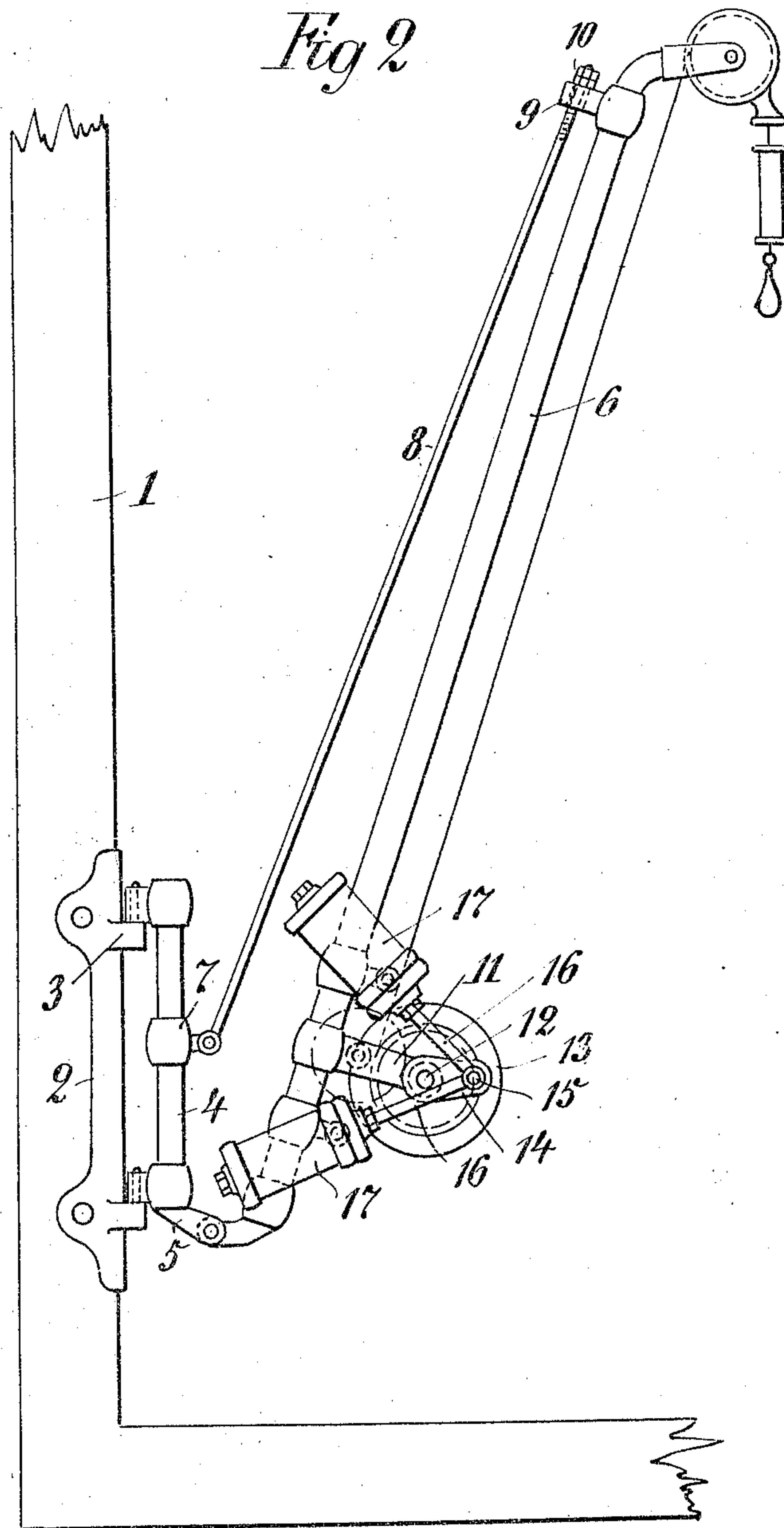
Witnesses  
M. E. Gray  
J. M. Meyer

Inventor  
by P. Petersen  
*Wm. M. Mue* A774

990,770.

Patented Apr. 25, 1911.

3 SHEETS—SHEET 2.



Witnesses  
M. E. Gray  
J. M. Meyer

Inventor  
P. Petersen

By  
J. M. Meyer atty.

P. PETERSEN.

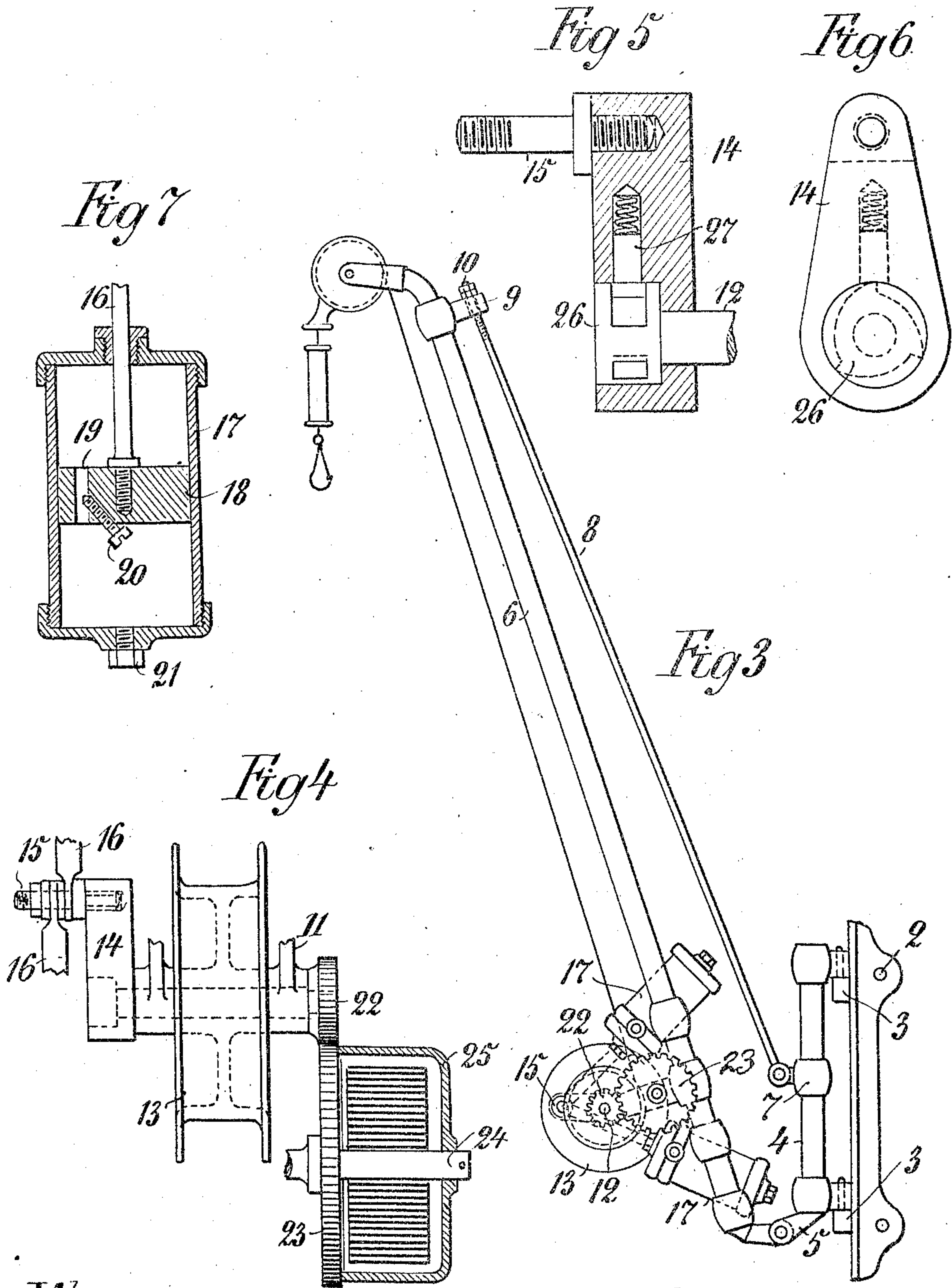
FIRE ESCAPE.

APPLICATION FILED NOV. 21, 1910.

990,770.

Patented Apr. 25, 1911.

3 SHEETS—SHEET 3.



Witnesses  
M. E. Shacy  
H. M. Meyer

Inventor  
P. Petersen

*[Signature]* Atty



# UNITED STATES PATENT OFFICE.

PETER PETERSEN, OF HORSSENS, DENMARK.

## FIRE-ESCAPE.

990,770.

Specification of Letters Patent.

Patented Apr. 25, 1911.

Application filed November 21, 1910. Serial No. 593,492.

*To all whom it may concern:*

Be it known that I, PETER PETERSEN, a citizen of the Kingdom of Denmark, and a resident of Søndergade 37, Horsens, Denmark, manufacturer, have invented new and useful Improvements in Fire-Escapes, of which the following is a specification.

My invention relates to a mechanism or device for lowering persons from buildings in case of fire.

The invention consists of a crane, which can be swung out and is arranged in such a way, that one person at a time can be lowered automatically and at suitable speed; it should be specially pointed out that the speed at which the lowering takes place is regulated quite automatically by means of a couple of brake cylinders filled with oil, while the hoisting of the rope takes place quickly by means of a spring. It should be added that the mechanism is arranged so that it can be fixed to any window whatever, so that it is not liable to be exposed to the influence of the weather, when to this is added, that the mechanism is always ready for use and must of necessity be in perfectly good working order, it may easily be seen that, as compared with what has been found hitherto, it offers obvious advantages.

The invention is shown on the accompanying drawing, where—

Figure 1 shows a side view of the mechanism folded. Fig. 2 the same extended. Fig. 3 the same as Fig. 2, but seen from the opposite side. Fig. 4 shows the spring mechanism for the automatic drawing up. Fig. 5 shows the pawl device for drawing up, in section. Fig. 6 a front view of same, and Fig. 7 shows a section of the brake cylinder.

On the various figures the same explanatory numerals denote the same parts.

At one or another convenient place in the window sash 1 there is fixed an angular piece 2 provided with hinges 3. On these hinges the crane proper is fixed. It consists of a piece 4 having a hinge joint 5 to which the arm 6 is connected in such a manner that it can move freely. A knob 7 fixed to the part 4 carries a supporting or stay rod 8 which can move in a hole in a knob 9, so that the motion is limited by a couple of nuts 10. By these means can the turning of the crane be arranged in such a position

that the persons to be lowered from the burning building can clear window sills and such like projections.

Normally the crane is in the position shown in Fig. 1, but in case of fire it can be extended to the position shown in Fig. 2. On the arm of the crane 6 is placed a fork 11 carrying the bearings for the shaft 12, upon which the drum 13 for the coil of rope is firmly fixed. The shaft 12 has at its one end a crank 14 which has a pivot 15 upon which the brake cylinders piston rods 16 can turn. These rods 16 run in stuffing-boxes in a couple of oscillating cylinders 17 filled with liquid and are connected with pistons 18 which have a channel 19 the flowing area of which can be regulated by a regulating screw 20 which can be turned when the stopper 21 is taken off. It will easily be seen, that by the arrangement here described one can beforehand approximately determine the speed at which the lowering shall take place, when the weight of the burden to be lowered is known, and this can be put at about 75 kilos. If the person be somewhat heavier, the lowering takes place quicker, and if the person is only a child, the lowering will of course take place somewhat slower. That end of the shaft 12 which is opposite to the crank arm 14 carries a cog-wheel 22 which engages a cog wheel 23 on the pivot 24, which moreover is inclosed by the spring box 25.

In order that the spring can roll up the drum 13 the brake cylinders must be thrown out of gear. This is done thus: The crank arm 14 is not firmly fixed to the shaft 12, but the shaft has a pawl wheel 26, which is inclosed by the crank 14, and this latter has a spring pawl 27 which presses against the pawl wheel. While the lowering is taking place, the pawl will grip behind one of the teeth on the wheel 26 and put the brake on the coil, while the pawl wheel during the twisting can liberate itself, as the pawl recedes. The working of the mechanism is thus easy to understand. In case of fire a person places a belt around his waist and fastens the hook to the belt, he then lets himself go; as the rope is tightened the uncoiling will take place at convenient speed, the speed of the descent being regulated by the brake cylinders; as soon as the person has reached the ground and taken off the belt the spiral spring, which has been



tightened during the uncoiling of the rope again coils it up automatically, as the brake cylinders are now stationary because the pawl glides over the pawl wheel.

5 What I claim, and desire to secure by Letters Patent, is:

1. In a fire escape, the combination of a support, a standard hinged to the support, an arm pivoted to the lower portion of the standard and provided with a perforated 10 lug, a rod pivoted to the standard and having its upper end passing through the perforation in the lug on the arm, stops on the rod to limit the tilting movement of the arm, brackets extending from the arm and 15 formed with bearings, a drum shaft supported in said bearings, a drum secured to the drum shaft, a second shaft supported by the brackets, gears between the latter shaft and the drum shaft, a spring on the second 20 mentioned shaft to normally wind the drum, a ratchet wheel on the drum shaft, a crank loosely mounted on the drum shaft, a spring pressed pawl mounted in the crank to engage the ratchet wheel, cylinders pivoted 25 to the arm, pistons mounted in the cylinders, piston rods on the pistons, said piston rods being pivotally connected to the crank, a roller mounted at the upper end of the arm, a cable 30 passing around the roller and the drum, and

means in the cylinders for regulating the speed of the unwinding of the drum.

2. In a fire escape, the combination of an arm, means for pivotally mounting the arm to permit it to turn horizontally, means for 35 pivotally mounting the arm to tilt it, a drum and drum shaft mounted on the arm, a ratchet wheel and a gear wheel secured to the drum shaft, a crank loosely mounted on the drum shaft, a spring pressed pawl slid- 40 ably mounted in the crank, pistons pivotally secured to the crank, cylinders pivotally mounted on the arm and in which the pistons operate, means on the pistons for controlling the flow of liquid in the cylinders whereby 45 to regulate the movement of the pistons, a second shaft mounted on the arm, a spring for normally winding the second shaft in one direction, a gear on the second shaft which meshes with the gear on the drum 50 shaft, a roller on the upper end of the arm, and a cable passing around the roller and the drum.

Signed by me at Copenhagen, Denmark this 1st day of November 1910.

PETER PETERSEN.

Witnesses:

CHARLES HJULDE,  
TISBRAN WOLSKING.