

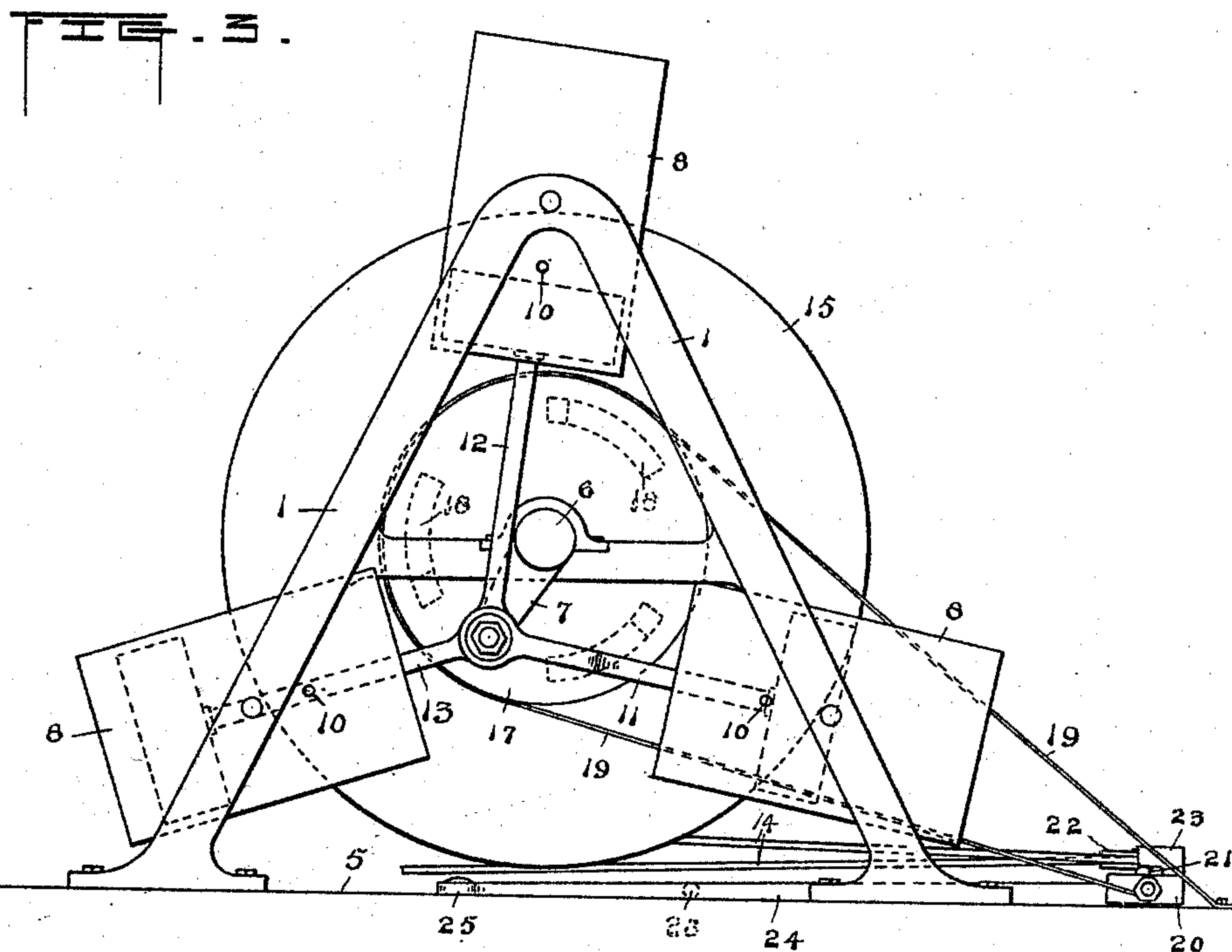
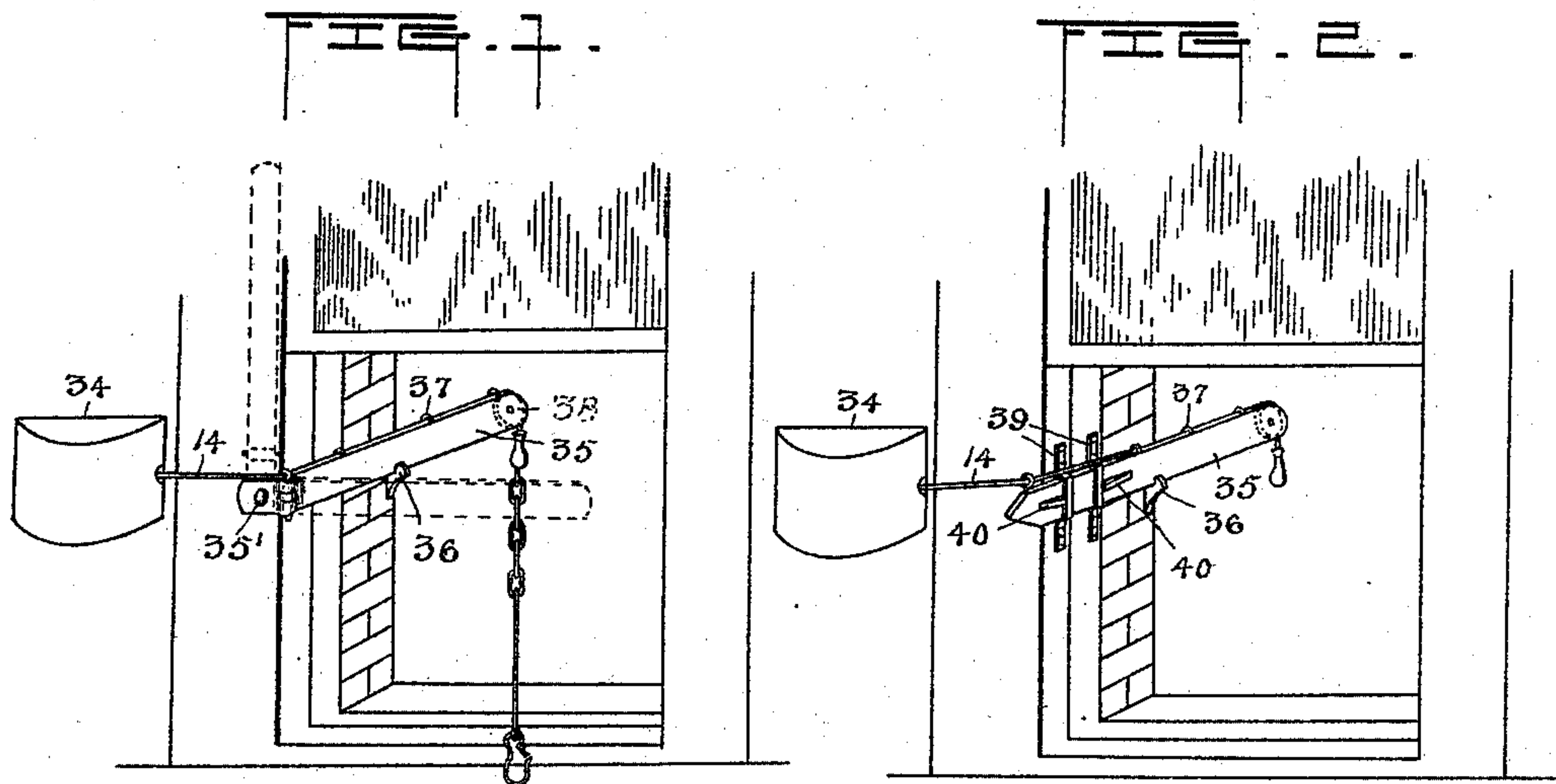
(No Model.)

2 Sheets—Sheet 1.

F. DYMACEK.
FIRE ESCAPE.

No. 526,385.

Patented Sept. 25, 1894.



Witnesses
Arch. M. Cathin.
Frances H. Cathin

Inventor
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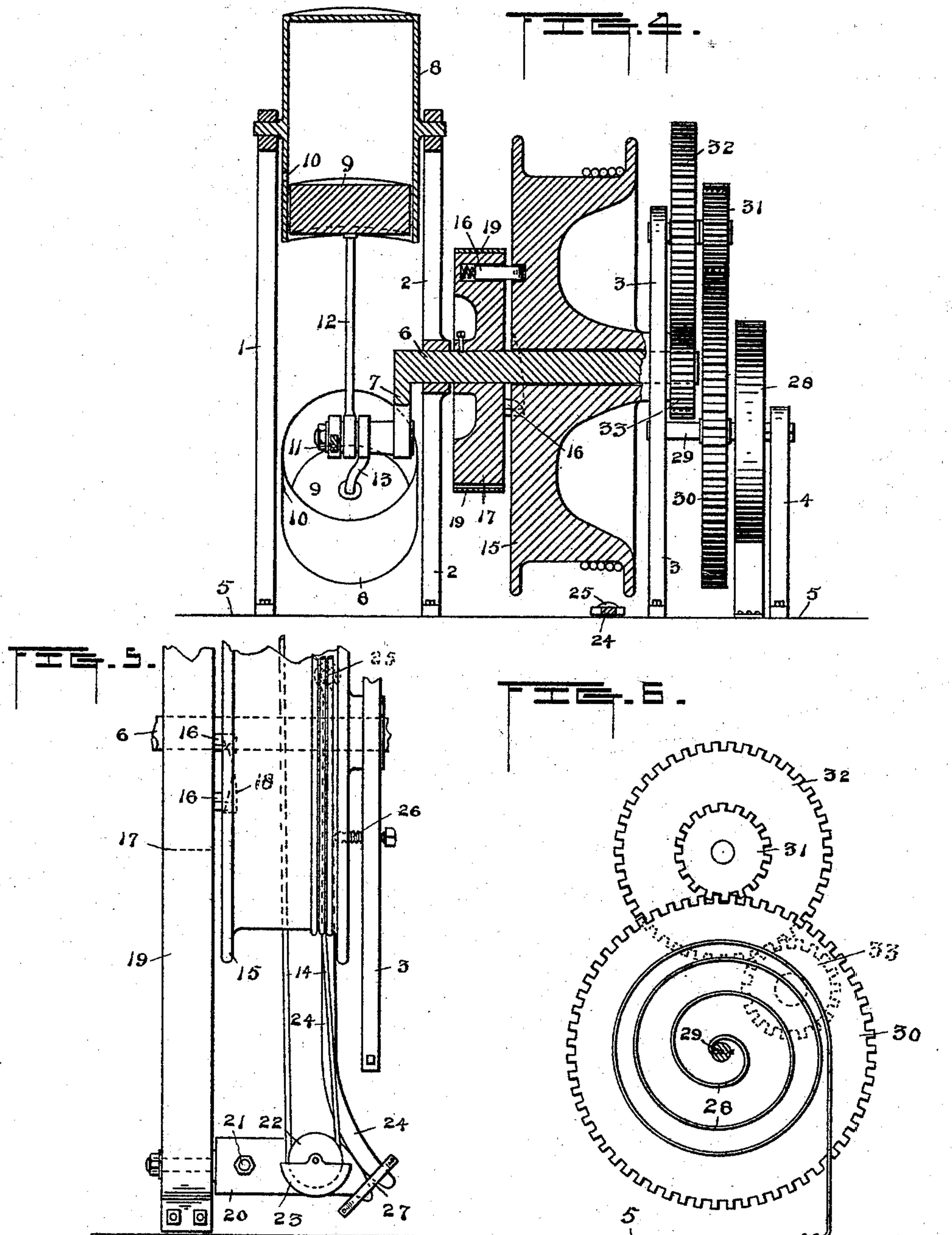
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UNITED STATES PATENT OFFICE.

FRANK DYMACEK, OF CHICAGO, ILLINOIS.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 526,385, dated September 25, 1894.

Application filed March 28, 1894. Serial No. 505,483. (No model.)

To all whom it may concern:

Be it known that I, FRANK DYMACEK, a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Fire-Escapes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

The invention relates to fire escapes, and has for its object to increase smoothness and certainty of action under various loads without unnecessary complication of structure or undue expense; and it consists in the construction hereinafter described and particularly pointed out.

In the accompanying drawings Figure 1 is an isometric view. Fig. 2 is a similar view including a modified detail. Fig. 3 is an elevation. Fig. 4 is a partial, vertical, central section. Fig. 5 is a partial plan. Fig. 6 is a rear elevation partly in section.

Numerals 1, 2, 3 and 4 denote posts, stands or brackets which may be fixed to the wall of a building in suitable manner as by means of a plate 5 to which the feet of the posts are made fast by casting or by bolts.

6 indicates a crank shaft having journals in the two inner posts 2 and 3 and 7 is a crank arm fixed thereon.

8 denotes air cylinders provided with trunnions supported to turn in the posts 1 and 2.

9 indicates pistons filling said cylinders loosely and 10 are air vents. These pistons have respectively rods 11, 12 and 13 loosely connected to crank arms 7. Rod 12 is straight and rods 11 and 13, one on each side of rod 12, are offset as shown to enable the several

rods to be connected centrally with their respective pistons and to work in practically the same plane. The cylinders are closed at their outer ends and preferably at both ends and the vents are provided to allow a retarded escape of air in front of the pistons and both in front and behind when both cylinder ends are closed. The pistons do not fit the cylinders closely but allow air to slowly escape around them. Air may also pass in and out a small space between the piston rods and inner cylinder heads if such be provided. The cylinders and pistons or pumps

thus constructed retard the rotation of the crank shaft and prevent the too rapid fall of a person using the fire escape by means of the intermediate mechanism to be described.

A drop or escape rope is denoted by 14. This is wound about a reel or drum 15 which is loosely supported to freely turn in one direction on the shaft 6. It is partially held against rotation in the opposite direction by spring pins 16 which are supported in the brake wheel 17 fixed on the shaft 6.

18 denotes grooves in the end of the drum having shoulders in the path of the pins 16, the parts being constructed and arranged as shown so that the drum may rotate independently on the shaft in one direction but is compelled by rotation in the other direction to engage the pins and turn the brake wheel and shaft 6 and operate the pumps. This operation is effected by the weight of a person using the fire escape who secures the end of the rope to his person in any convenient manner. If his weight does not exceed a predetermined limit, one hundred and eighty-five pounds for example, the retarding action of the pumps will be sufficient to insure a safe gradual descent; but to provide for weights exceeding the limit an additional retarding device is constructed and arranged to be automatically brought into action to prevent a too speedy fall. This supplemental device consists of a strap 19 preferably of leather, or leather and metal combined, which at one end is secured to the table 5 or other object and extended around the brake wheel 17 and at its other end secured to a lever 20 having a fulcrum at 21. Upon this lever is suitably supported a pulley 22 to receive the rope 14 extending from the drum.

23 is a shield to retain the rope in the pulley. 24 is a spring fastened at 25, and 26 is a device for increasing its tension. A stop to limit the movement of the free end of the spring and of the lever is denoted by 27. These devices are so constructed and adjusted that a pull exerted on the free end of the rope 14 will have no sufficient effect to overcome the spring and move the lever to tighten the brake strap unless said pull exceeds the limit for which the adjustment is made. If however that limit is exceeded the cord around the pulley 22 overcomes spring

24 and moves the lever and tightens strap 19 about wheel 17 fast on shaft 6, thus supplementing the retarding effect of the pumps.

The rope 14 after being unwound from the drum by the operation above indicated is re-wound by means of a spring coil 28, one end of which is fixed to the plate 5 or other object, the opposite end being secured to a shaft 29 supported to rotate freely in brackets or posts 3 and 4. Upon this shaft is fixed a gear wheel 30 which meshes with a pinion 31 fixed to a gear 32, both supported to rotate freely. Gear 32 meshes with a pinion 33 fixed to drum 15. By the medium of this shaft and the several gears and pinions the spring coil is wound upon the end of shaft 29 whenever said shaft 6 is turned by the descent of the rope, as in an escape from a burning building, and the spring is thereby put under sufficient tension to wind the rope when the latter is left free for the purpose.

In Fig. 1 is shown on a diminished scale an isometric view of the device applied to the inside of a wall near a window. 34 denotes a cover for the main part of the mechanism. 35 is a hinged bar secured to the window frame or to the wall at 35' and supported near its opposite end by a hook 36. Guiding staples are denoted by 37, and a pulley by 38. It is obvious that the bar may be pivotally supported at 35 to be turned up when not in use as indicated in dotted lines. In Fig. 2 is indicated a straight bar adapted to be readily removed and re-inserted in loops 39. Spring stops are denoted by 40. Details of this character may be varied without materially affecting other parts of the improvement. The

number and size of the pumps may also be varied as desired, and other details also, provided substantially the same principles of construction and operation are maintained.

Having thus described my invention, what I claim is—

1. In a fire escape the combination of the rope, the drum, the drum shaft, and the air pumps having tilting cylinders, with the brake wheel and strap, said strap surrounding the wheel and having one end fixed to an automatic strap tightening device, substantially as set forth.

2. In a fire escape the combination of the rope, the drum, the drum shaft, the brake wheel, the brake wheel strap, the lever 20 having the strap secured thereto, and a spring normally adapted to bear on the lever in position to the pull of the rope on the lever, substantially as set forth.

3. The combination with the rope, the drum, the drum shaft, the brake wheel, and brake wheel strap, of lever 20, pulley 23, and spring 24, substantially as set forth.

4. The combination with the rope, the drum, the drum shaft, the brake wheel, and brake wheel strap, of lever 20, pulley 23, and spring 24, and stop 27 adapted to limit the movements both of the spring and lever, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

FRANK DYMACEK.

Witnesses:

CHARLES B. PAVLICEK,
FRANK BASTA.