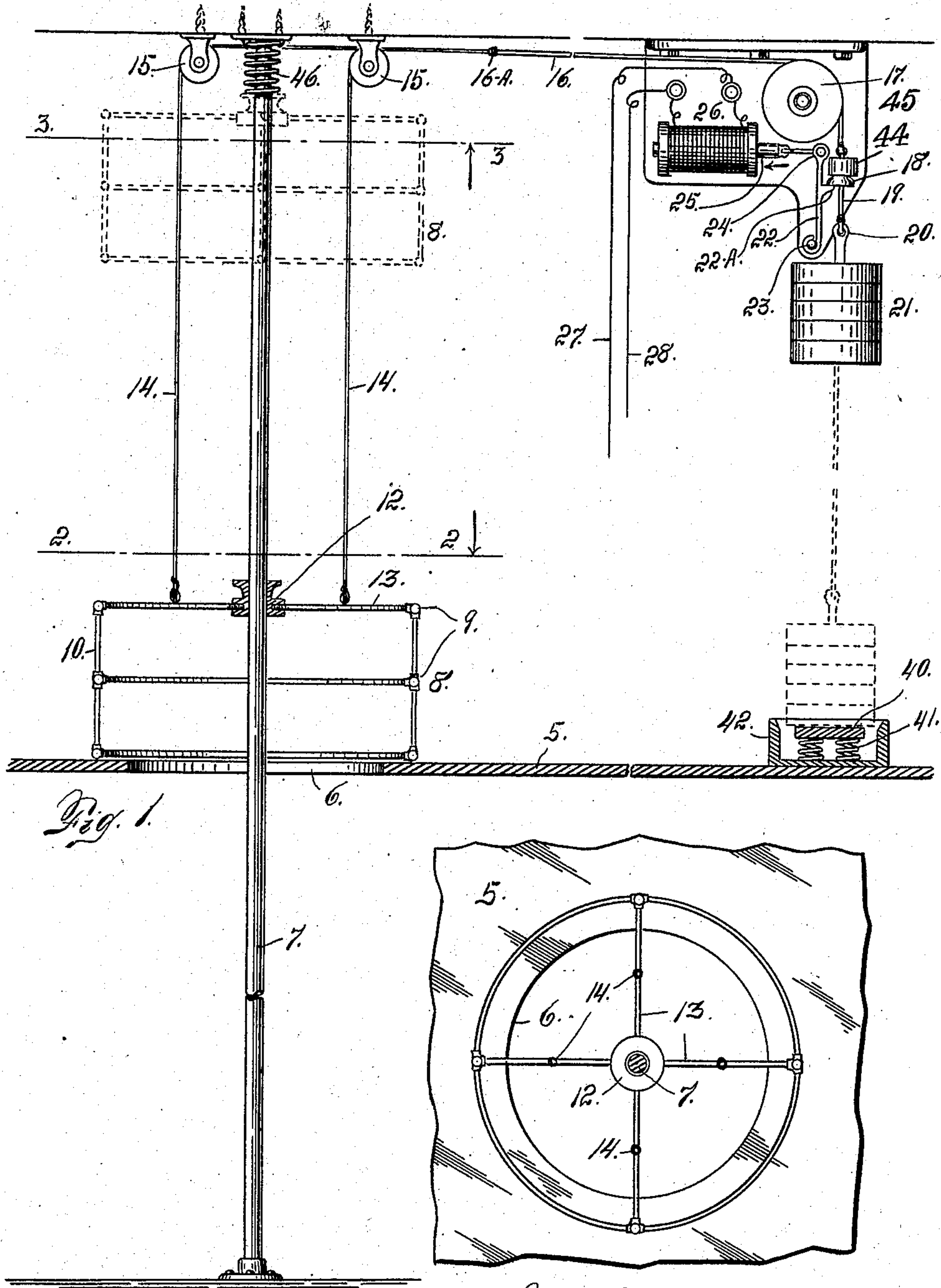


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APPLICATION FILED AUG. 5, 1907.

911,753.

Patented Feb. 9, 1909.
2 SHEETS—SHEET 1.



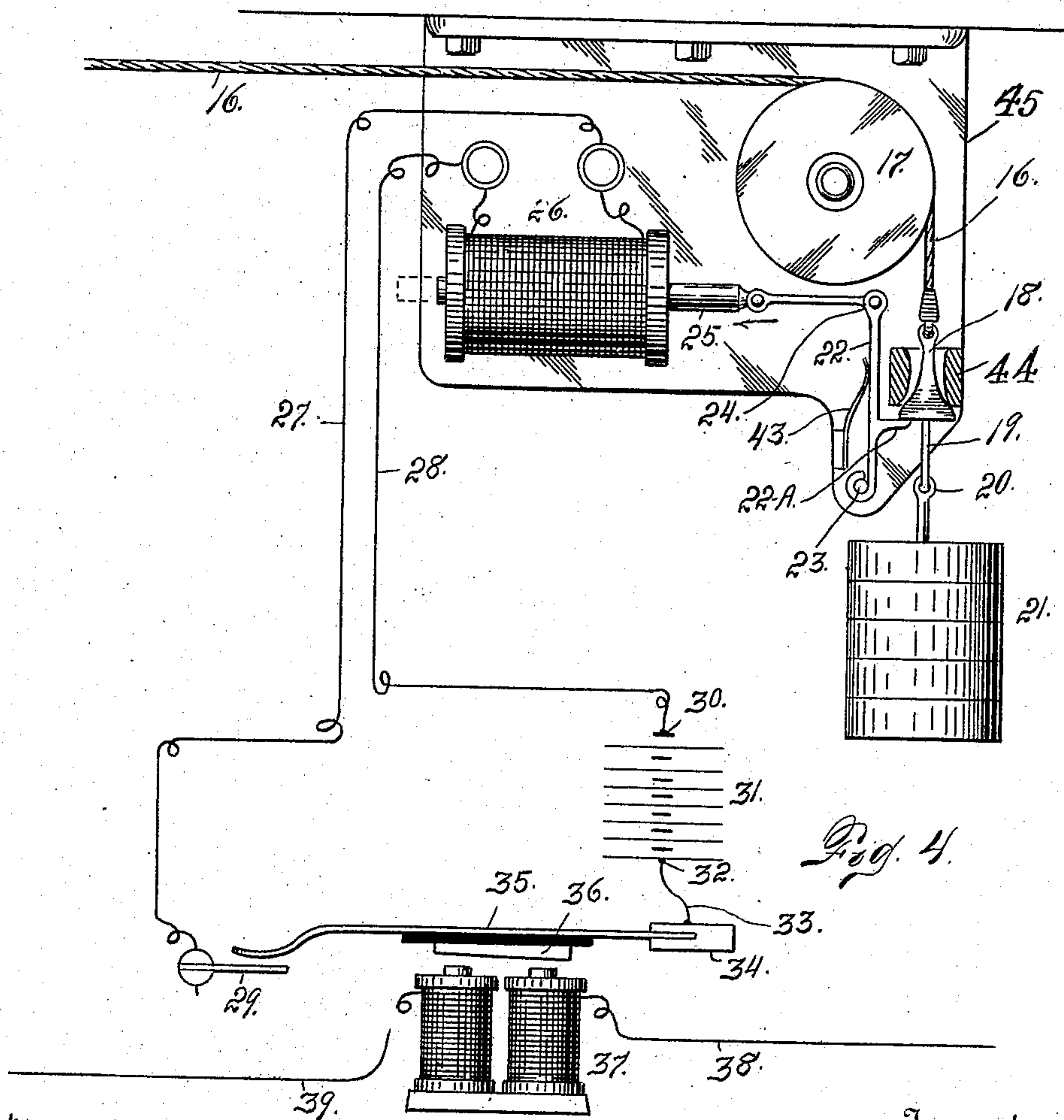
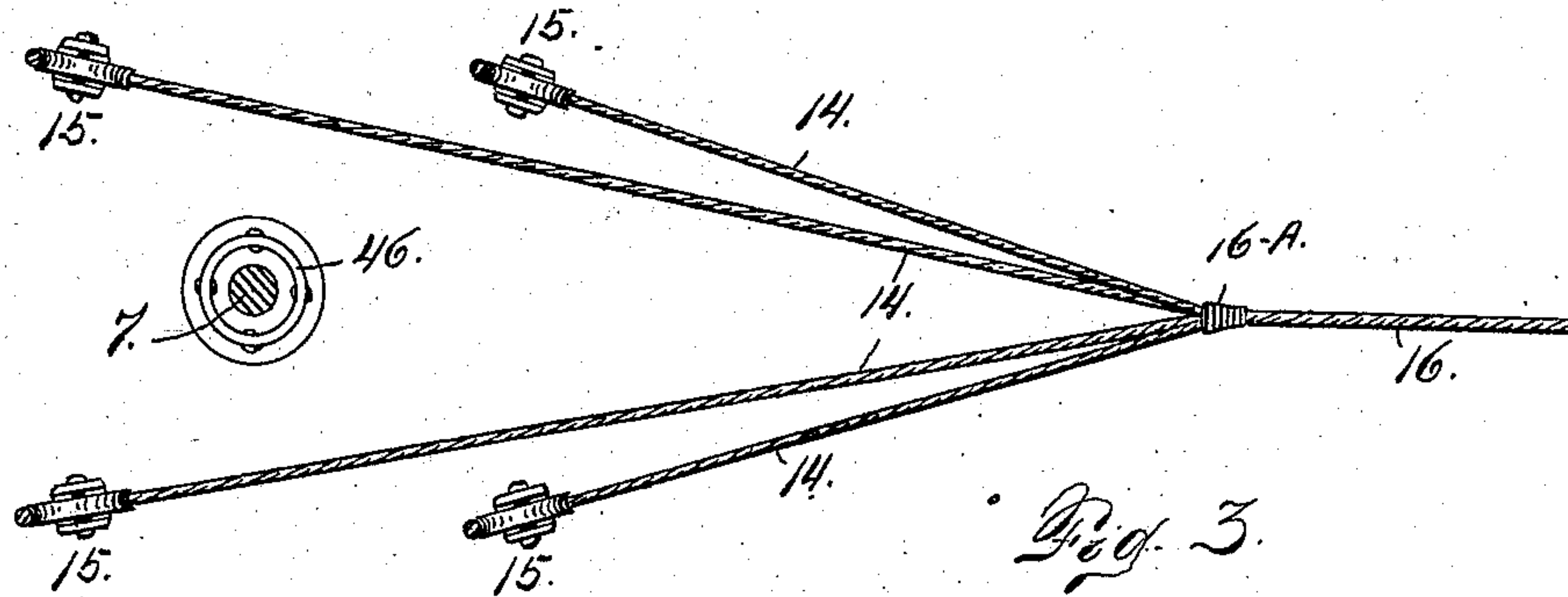
Witnesses
Otto E. Haddock.
Dena Nelson.

Fig. 2
Inventor
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By, *[Signature]* Attorney

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Robert Parks.
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UNITED STATES PATENT OFFICE.

ROBERT PARKS, OF DENVER, COLORADO.

DISAPPEARING MANHOLE-GUARD.

No. 911,753.

Specification of Letters Patent.

Patented Feb. 9, 1909.

Application filed August 5, 1907. Serial No. 387,039.

To all whom it may concern:

Be it known that I, ROBERT PARKS, a citizen of the United States, residing at the city and county of Denver and State of Colorado, have invented certain new and useful Improvements in Disappearing Manhole-Guards; and I do 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 appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to a guard for manholes in floors, being more especially intended for use in connection with a manhole in the upper floor of a fire engine house, through which passes the pole upon which the men slide from an upper story to the floor below in case an alarm is given. When this manhole is unguarded, the men are liable to step into it unawares with serious result.

The object of my improvement is to provide an effectual guard for this manhole or opening in the floor at all times, except when it is necessary to use the same. I further make provision for automatically removing the guard as soon as an alarm is given, through the medium of certain electrical connections whereby a weight is released which is operatively connected with the guard in such a manner that the latter is raised by the downward movement of the weight.

Having briefly outlined my improved construction, I will proceed to describe the same in detail reference being made to the accompanying drawing in which is illustrated an embodiment thereof.

In this drawing, Figure 1 is a sectional view of the floor of a fire engine house, the section being taken through the manhole. Fig. 2 is a section taken on the line 2—2 Fig. 1 looking downwardly. Fig. 3 is a section taken on the line 3—3 Fig. 1 viewed in the direction of the arrow. Fig. 4 is an enlarged detail view of the electrical connections for automatically releasing the weight which lifts the guard.

The same reference characters indicate the same parts in all the views.

Let the numeral 5 designate the upper floor of a fire engine house, the said floor being provided with an opening 6 large enough for the body of a man to pass there-

through freely. Through the center of this opening passes a pole 7 whose lower extremity is supported upon the lower floor of the building or that containing the fire engines and other equipment for extinguishing fires. Resting upon this floor and surrounding the manhole 6, is a guard 8 which may be of any desired construction. As shown in the drawing this guard is of skeleton construction, that is to say composed of a number of circular horizontally disposed rings 9 arranged one above another and connected by vertical members 10. Leading from the upper ring to a hub 12, are spokes or radial arms 13. This hub surrounds the pole 7 and is arranged to slide freely thereon. The rings 9 are of somewhat greater diameter than the opening 6.

Connected with the spokes 13 of the guard is a number of suspension ropes, cables or cords 14 which pass over pulleys 15 mounted upon the ceiling of the room. These cords 14 are connected together at 16^a from which leads a single flexible device 16 to a pulley 17 over which the device 16 passes, its extremity being provided with a stop 18 having a depending part 19 connected at 20 with a weight 21. When the guard is in the position to close or protect the opening 6 in the floor 5, the weight 21 is held in the raised position by means of a trigger 22 pivoted at its lower extremity as shown at 23 while its upper extremity is connected at 24 with a reciprocable core 25 of a solenoid 26 from the terminals of which lead conductors 27 and 28. The conductor 27 leads to a contact 29, while the conductor 28 leads to a pole 30 of an electrical source 31. From the opposite pole 32 of this electrical source leads a conductor 33 to a contact 34 with which is connected a spring 35 composed of conducting material. This spring 35 is normally separated from the contact 29. Mounted upon the spring 35 but insulated therefrom is a soft iron armature 36 located in suitable proximity to an electro-magnet 37 from the terminals of which lead conductors 38 and 39 which are located in the circuit which is closed when the fire alarm is given at the station.

Hence the operation of the apparatus is as follows: Assuming that the mechanism is in the position shown in full lines in Fig. 1 of the drawing, as soon as an alarm is turned in, the electro-magnet 37 is energized and acts through the armature 36 to draw the spring

35 into engagement with the contact 29 whereby the current passes by means of the conductors 27 and 28 to the terminals of the solenoid 26, the coils of which being energized, act to move the reciprocable core or bar 25 in the direction indicated by the arrow in Figs. 1 and 4, whereby the trigger 22 is actuated sufficiently to disengage its lug 22^A from the stop 18, allowing the weight 21 to move downwardly into engagement with a buffer plate 40, said plate being supported by springs 41. This buffer is surrounded by a casing 42. The downward movement of the weight to the position shown by dotted lines in Fig. 1, raises the guard 8 to the position shown by dotted lines in the same figure, whereby the guard is supported near the ceiling of the room leaving the manhole 6 entirely unobstructed as is necessary in order to allow the men to slide down the pole to the floor below.

The trigger 22 is normally held in position to engage the stop 18 on the rope, cord or other flexible device 16, by a spring 43. The stop 18 which is bell-shaped, engages a stationary sleeve 44 fast on a bracket 45, when the stop is at its upward limit of movement, thus limiting the upward movement of the stop when the guard is placed in operative position on the floor surrounding the manhole. When the guard moves upwardly to the position shown by dotted lines in Fig. 1, the hub 12 engages a buffer spring 46. The buffers for the guard and weight respectively, yield sufficiently when engaged by their respective elements, to prevent any undue concussion or jar incident to their reaching their limits of movement when the guard is raised.

40 Having thus described my invention, what I claim is:

1. The combination of a manhole guard, a lifting device for the guard provided with a weight, a trigger for supporting the lifting de-

vice in the inactive position, and an electrical apparatus for automatically actuating the trigger, substantially as described. 45

2. The combination of a manhole guard, means for lifting the same comprising ropes and pulleys, means for locking the lifting means against movement, an electrical circuit, an electro-magnet for releasing the locking means, the said magnet being connected to be energized by the closing of the said circuit. 50

3. The combination of a manhole guard, a weight for lifting said guard, a trigger for supporting the said weight, and electro-magnetic means for actuating the trigger to release the weight. 55

4. The combination of a manhole guard, a weight for actuating the guard, means for holding the said actuating means in the inactive position, and electro-magnetic means for releasing the holding means. 60

5. The combination of a manhole guard, a lifting weight connected in operative relation with the guard, means for supporting the said weight in the inactive position, electro-magnetic means for releasing the weight-supporting means. 65

6. The combination of a manhole guard, a lifting weight, an operative connection between the guard and the weight, a trigger for supporting the weight in the inactive position, an electro-magnet for actuating the trigger, a normally open circuit in which the said magnet is located, a main circuit, and an electro-magnet located in the main circuit and connected when energized to close the first named circuit. 70 75 80

In testimony whereof I affix my signature in presence of two witnesses.

ROBERT PARKS.

Witnesses:

A. J. O'BRIEN,
DENA NELSON.