

No. 644,504.

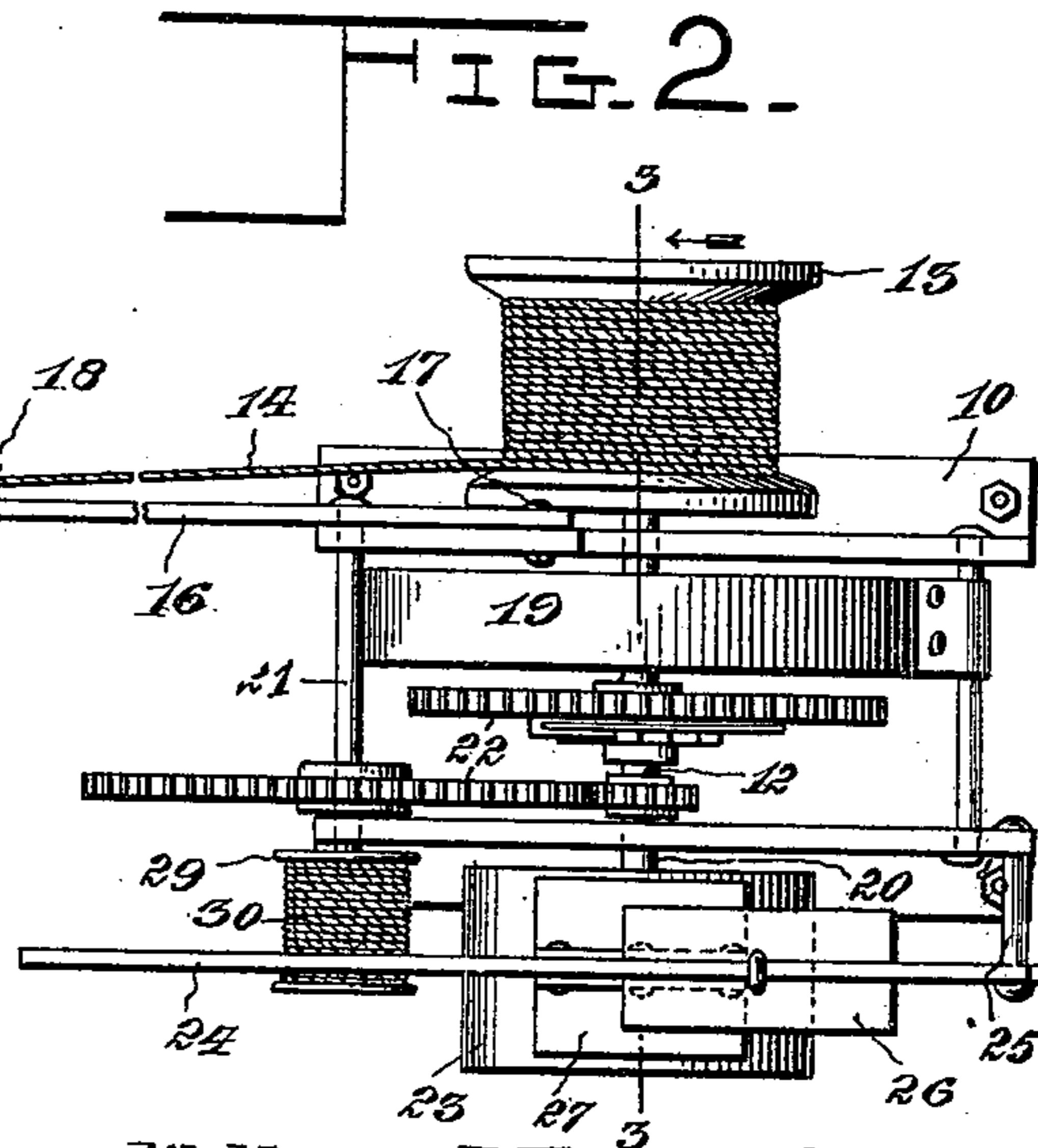
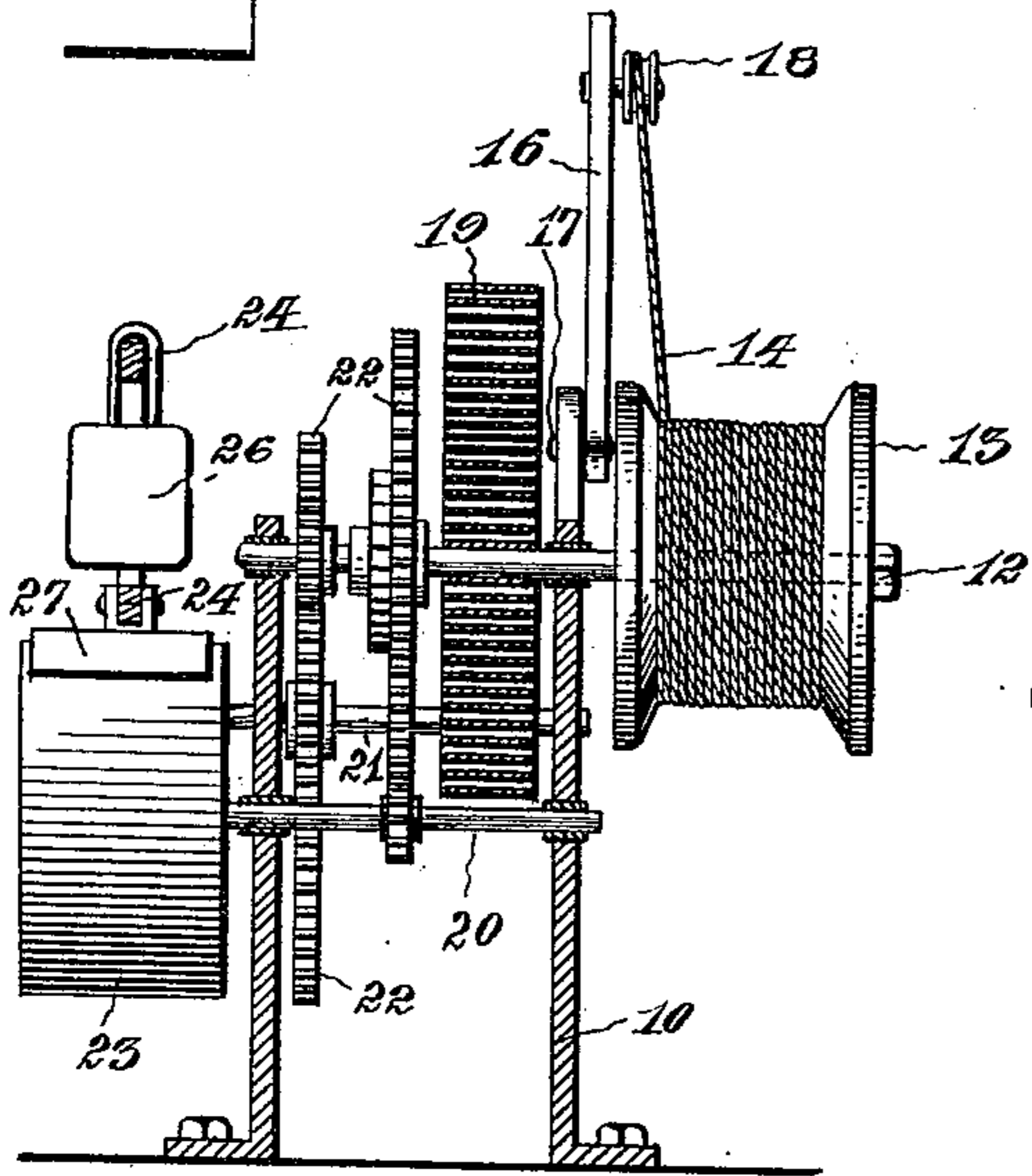
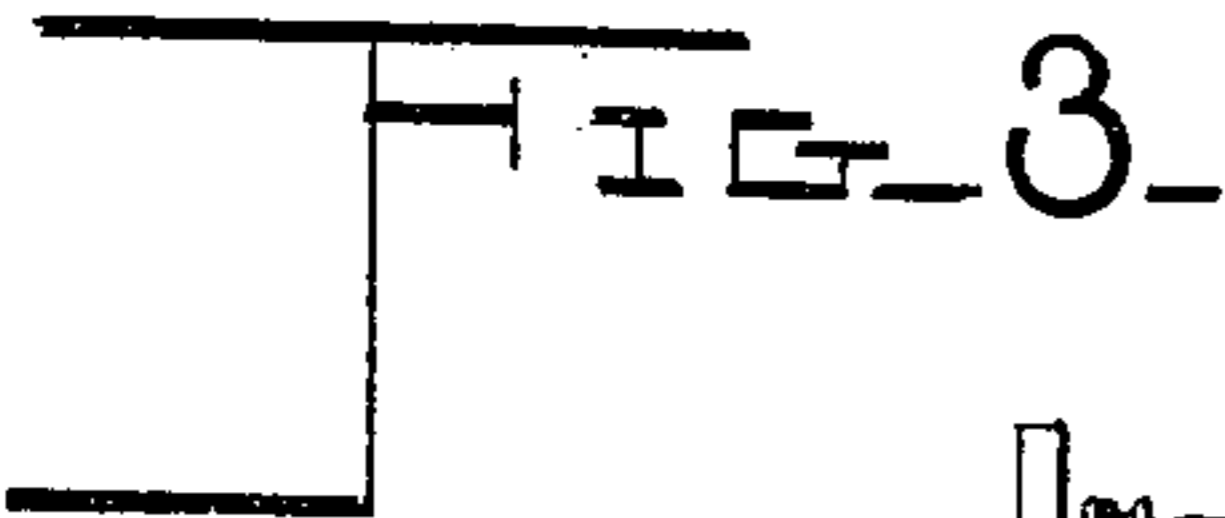
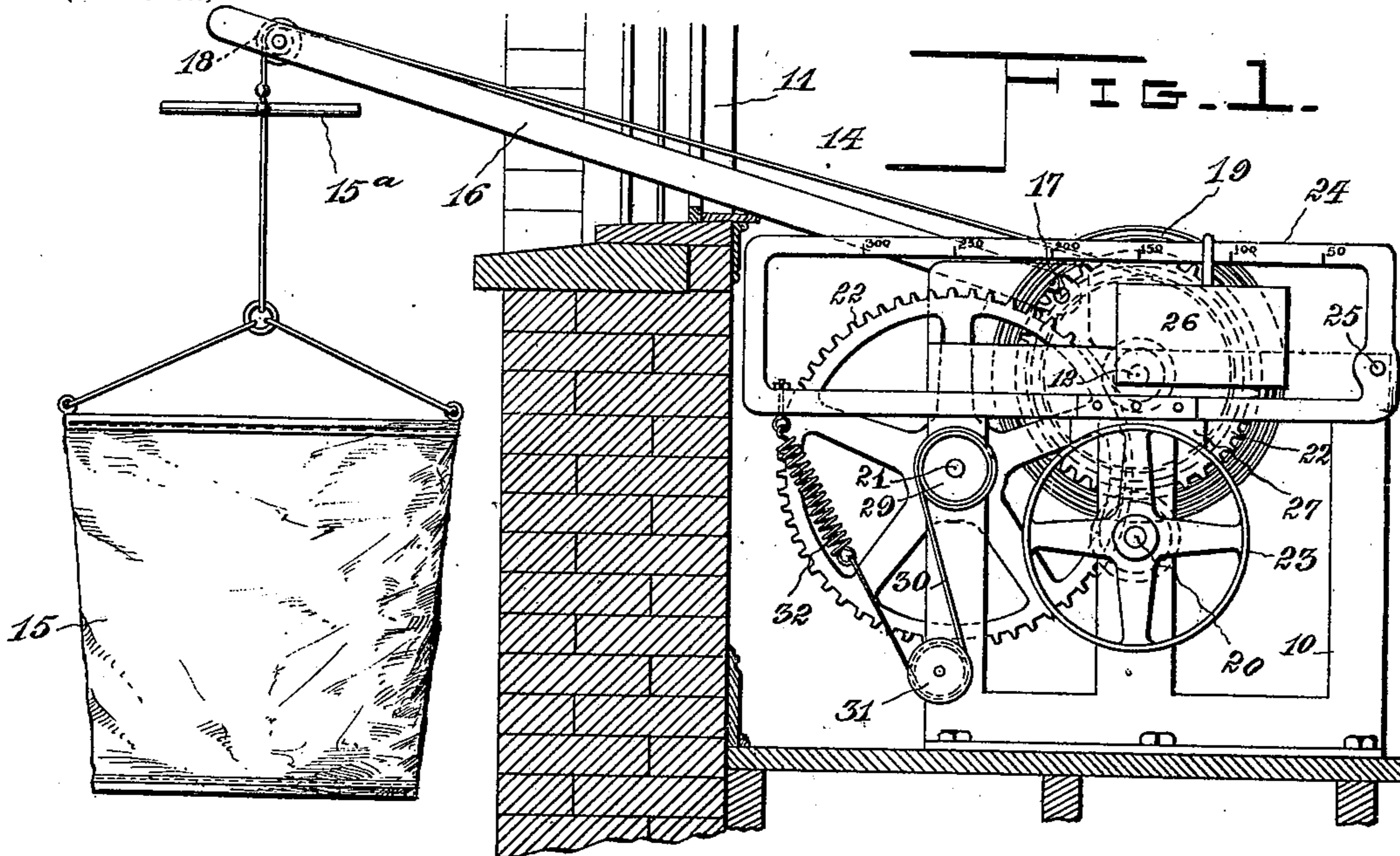
Patented Feb. 27, 1900.

W. J. DERMODY.

FIRE ESCAPE.

(Application filed June 29, 1899.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

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FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 644,504, dated February 27, 1900.

Application filed June 29, 1899. Serial No. 722,305. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM JOHN DERMODY, a citizen of the United States, residing at Omaha, in the county of Douglas and State of Nebraska, have invented a new and useful Fire-Escape, of which the following is a specification.

My invention relates to improvements in fire-escapes of that class which are sustained on the inside of a room or apartment in a position for convenient access when desired for use; and the prime object is to provide a simple, compact, and cheap construction which may be quickly adjusted to project the cage out of a window, thus enabling one of the escapes to be located in each room of a building.

Further objects are to provide for adjustment of the escape to persons of different weights, to automatically check and retard the descent of the cage to the end that the occupant may land in safety, and to provide for the automatic and quick return of the cage to the room.

With these ends in view the invention consists in the novel combination, construction, and arrangement of parts which will be hereinafter fully described and claimed.

In the drawings, Figure 1 is a sectional elevation representing my improved fire-escape in operative relation to a window, the adjustable arm being projected through the window for supporting the cage or basket away from the face of the wall. Fig. 2 is a plan view of the escape. Fig. 3 is a transverse sectional elevation on the plane indicated by the dotted line 3 3 of Fig. 2.

The same numerals of reference are used to indicate like and corresponding parts in each of the several figures of the drawings.

In carrying my invention into practice I employ a suitable framework 10, adapted to be fixed on a platform or bed which is supported within a room or apartment at a point adjacent to the window 11, as represented more clearly by Fig. 1. This framework may be of the construction shown by the drawings or of any other suitable style to enable the desired number of shaft-bearings to be mounted therein for supporting the various shafts employed in my improved fire-escape, and in this connection it is desired to observe that the frame-

work and the entire operating mechanism of the fire-escape may be housed or contained within a suitable casing adapted to afford a seat for a person. For the purpose of clearly illustrating the operating parts of the fire-escape I have omitted the casing or housing; but it is evident that a skilled mechanic may readily supply any suitable type of housing.

12 designates a horizontal spool-shaft which is journaled in suitable bearings on the frame 10 for one end of said shaft to project beyond a side of the frame, and to the protruding end of this shaft is rigidly secured a spool 13, which is adapted to rotate with the shaft. A cable 14, of rope, wire, or any other appropriate material, has one end attached to this spool and coiled compactly thereon, said cable having its other end connected in any suitable way to a lowering-cage 15. This cage is of closed construction to afford protection to the occupant thereof, said cage being equipped with a steadying-bar 15^a, adapted to be grasped by the person occupying the cage. This cage may be constructed of canvas or other appropriate material adapted to fold or collapse when the escape is not in use, thus enabling the cage to be folded within a small compass alongside of the operating apparatus of the fire-escape. An arm 16 is pivoted at one end, as at 17, to the framework 10, said pivot of the arm lying adjacent to the spool-shaft 12. A guide sheave or roller 18 is connected loosely to or journaled on the arm 16 at or near its free end, said sheave furnishing a guide for the lowering-cable 14 when the arm is projected through the window in the position shown by Fig. 1 for the purpose of suspending the cage 15 away from the face of the wall.

The coiled spring 19 is arranged on the spool-shaft 12 for the purpose of automatically winding the cable 14 on the spool 13 after the cage shall have been lowered and the occupant landed in safety on the ground, said spring serving to automatically return the empty cage to the room or apartment to receive another load and without requiring the persons remaining in the room to haul the cage up to the window. One end of this spring is attached to the shaft, while its other end is connected to the frame, said spring being placed

automatically under tension by the rotation of the spool due to the uncoiling of the cable 14 therefrom.

20 designates a brake-shaft which is journaled in proper bearings on the frame 10 to occupy a parallel relation to the spool-shaft 12, the brake-shaft being shown in Figs. 1 and 3 as located below the spool-shaft. An auxiliary brake-shaft 21 is also journaled in the frame 10 to occupy a parallel relation to the spool-shaft and the brake-shaft at one side of the latter, and these three shafts 12, 20, and 21 are all operatively connected together by a train of gears 22, which serve to make the two brake-shafts rotate in unison with the spool-shaft. The exact relation of the gear-frame to the several shafts is not important, but the shaft 21 should rotate in the same direction as the shaft 20. The brake-shaft 20 is extended beyond the opposite side of the frame from the spool 13 for the reception of a brake-wheel 23, and above this brake-wheel, on the same side of the frame, is arranged a scale-beam 24. Said scale-beam is fulcrumed at one end, as at 25, to the frame 10 for the purpose of occupying a position in the vertical plane of the brake-wheel 23, said scale-beam being movable in a vertical direction toward and from the brake-wheel, with its fulcrum 25 as its axis of motion. The scale-beam may be of any suitable construction for the reception of a counterpoise-weight 26, adapted to be loosely connected to the beam, so as to be shiftable thereon toward or from the fulcrum 25; but in Fig. 1 I have shown this scale-beam as provided with a longitudinal slot or opening, in which the weight is fitted to be movable back and forth with relation to the fulcrum, said weight being suspended from the upper part of the beam. Said beam should be graduated in the well-known manner to indicate the different adjustments which may be given to the counterpoise, according to the weights of the different persons who may desire to descend in the cage, and this counterweighted beam is provided with a brake-shoe 27, which is shown as made fast to the under side of the beam in a position to ride frictionally against the brake-wheel 23, whereby the weight, in connection with the leverage of the scale-beam, may exert pressure on the brake-wheel to retard the rotation thereof under the weight of the load in the cage, thus enabling the cage to descend with entire safety to the occupant, because the resistance offered by the beam and weight may be regulated according to the load sustained by the cage.

In connection with the brake appliances for retarding the rotation of the spool I employ auxiliary tension devices, which assist the action of the counterpoised brake-shoe on the disk, said auxiliary tension devices acting in unison with the auxiliary brake-shaft 21 and the beam 24. The shaft 21 is provided with a spool 29, on which is coiled a cable 30, said cable being led or guided

around a sheave 31, which is supported on the frame below the brake-shaft 21. A coiled spring 32 is arranged between this cable and the counterpoise-beam 24, one end of the spring being attached to the beam at or near the free end thereof, while the other end of said spring is connected to the cable 30.

The operation may be described as follows: To use the escape in the event of a fire, the occupant of the room should turn the arm 16 on its pivot 17 for said arm to project through the window and rest upon the sill thereof. This adjustment makes the sheave or roller 18 assume a position beyond the face of the wall, and the cable 14 extends from the spool 13 over the sheave 18, so as to suspend the cage 15 a proper distance beyond the wall of the building. Before the occupant of the room takes a position in the cage the counterpoise 26 should be shifted on the beam 24 to a position on one graduation thereof equal to the weight of the person, and the brake-shoe 27 is thus forced by the counterweighted beam upon the brake-wheel 23 to retard or check the rotation of the spool-shaft 12 under the weight of the occupant of the cage. The descent of the cage causes the shaft 12 and spool 13 to rotate by the uncoiling of the cable 14 from the spool, and this rotation of the shaft places the spring 19 under tension and causes the rotation of the brake-wheel and the shaft 21. The shaft 21 rotates in a direction to coil the cable 30 thereon and expand the spring 32, whereby the spring assists the counterpoise 26 in forcing the brake-shoe 27 upon the brake-wheel 23, so that the rotation of the spool 13 is retarded and the cage may descend slowly for the occupant thereof to land in safety. When a person steps out of the cage, the spring 19 reacts to wind the cable 14 on the spool 13, and as the shaft 21 rotates in the reverse direction the cable 30 is uncoiled and the tension of the spring 32 is slackened, thus elevating the cage 15 automatically and quickly to a place adjacent to the window.

Change may be made in the form and proportion of some of the parts, while their essential features are retained and the spirit of the invention embodied. Hence I do not desire to be limited to the precise form of all the parts as shown, reserving the right to vary therefrom.

Having thus described the invention, what I claim is—

1. In a fire-escape, the combination with a framework, of a spool-shaft mounted therein and carrying a spool, an arm pivoted to the frame and having a guide-sheave at its free end, a cable coiled on the spool and guided by the sheave of the arm, a cage attached to the cable, brake-shafts geared together for simultaneous rotation, one of said shafts carrying a brake-wheel and the other shaft provided with a spool, a counterpoise-lever provided with a shoe arranged to ride upon the brake-wheel, and a spring connected with said lever

and having a flexible connection with the spool of one brake-shaft.

2. A fire-escape consisting of a suitable frame, a spool-shaft mounted in said frame and provided with a winding-spool, an arm pivoted to the frame and carrying a sheave, a cage-cable coiled on the spool, a helical retracting-spring connected to the spool-shaft and to the frame, brake-shafts intergeared with the spool-shafts, one of said brake-shafts having a brake-wheel and the other brake-shaft carrying a winding-spool, a beam adapted to support a shiftable counterpoise and provided with a brake-shoe arranged to ride upon the brake-wheel, a coiled spring connected with the free end of the beam and a cable connected with the spool of one brake-shaft and to said coiled spring.

3. In a fire-escape, the combination with a spool-shaft, of the brake-shafts geared together for simultaneous rotation, one of said shafts carrying a brake-wheel and the other shaft provided with a spool, a counterpoise-lever provided with a shoe arranged to ride

upon the brake-wheel, and a spring connected with said lever and having a flexible connection with the spool of one brake-shaft, substantially as described.

4. In a fire-escape, the combination with a spool-shaft, and a cage-carrying cable, of brake-shafts intergeared with the spool-shaft, one of said brake-shafts having a brake-wheel and the other brake-shaft carrying a winding-spool, a beam adapted to support a shiftable counterpoise and provided with a brake-shoe arranged to ride upon the brake-wheel, a coiled spring connected with the free end of the beam, and a cable connected to the spool of one brake-shaft and to said coiled spring, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WILLIAM JOHN DERMODY.

Witnesses:

J. T. MCCARTHY,
Miss BIRD ANDERSEN.