B. R. GOGGIN.

ELEVATOR.

APPLICATION FILED MAY 16, 1912.

1,051,576.

Patented Jan. 28, 1913.

2 SHEETS—SHEET 1.

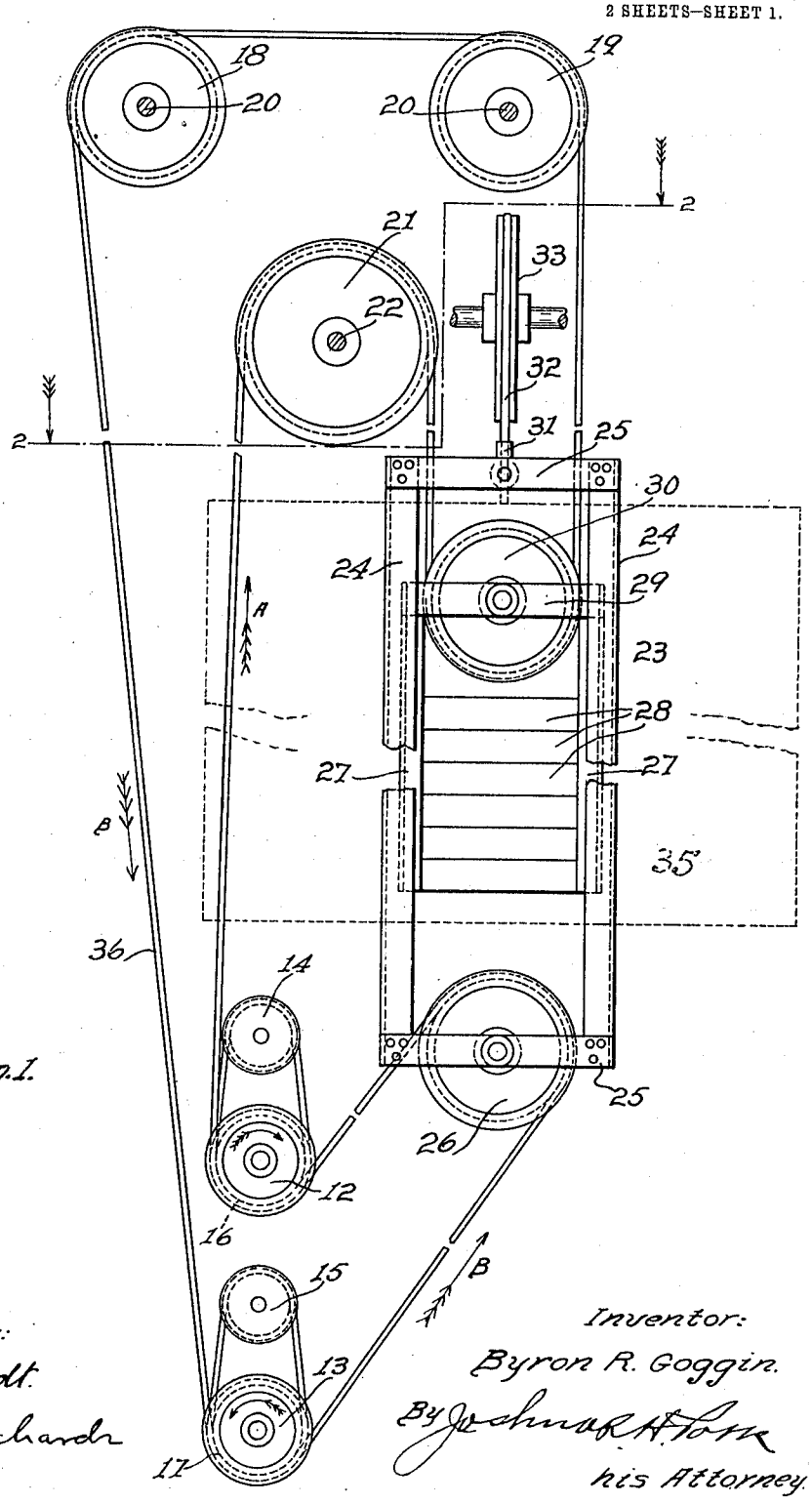


Fig. 1.

Witnesses:
N. Brandt
B. J. Richards

Inventor:
Byron R. Goggin.
By Joshua R. H. Potts
his Attorney.

B. R. GOGGIN.

ELEVATOR.

APPLICATION FILED MAY 16, 1912.

1,051,576.

Patented Jan. 28, 1913.

2 SHEETS—SHEET 2.

Fig. 2.

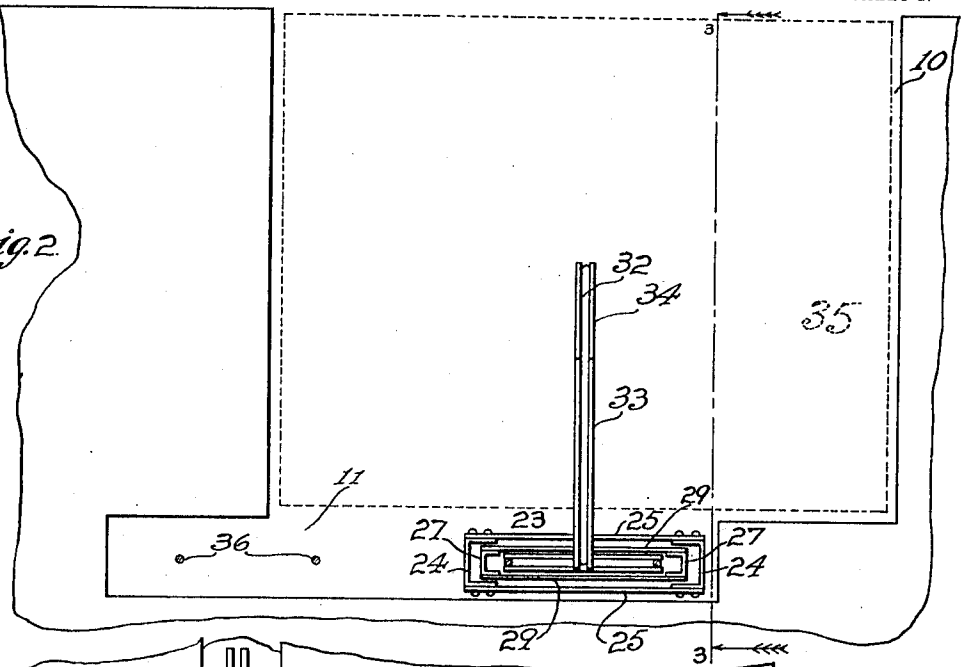
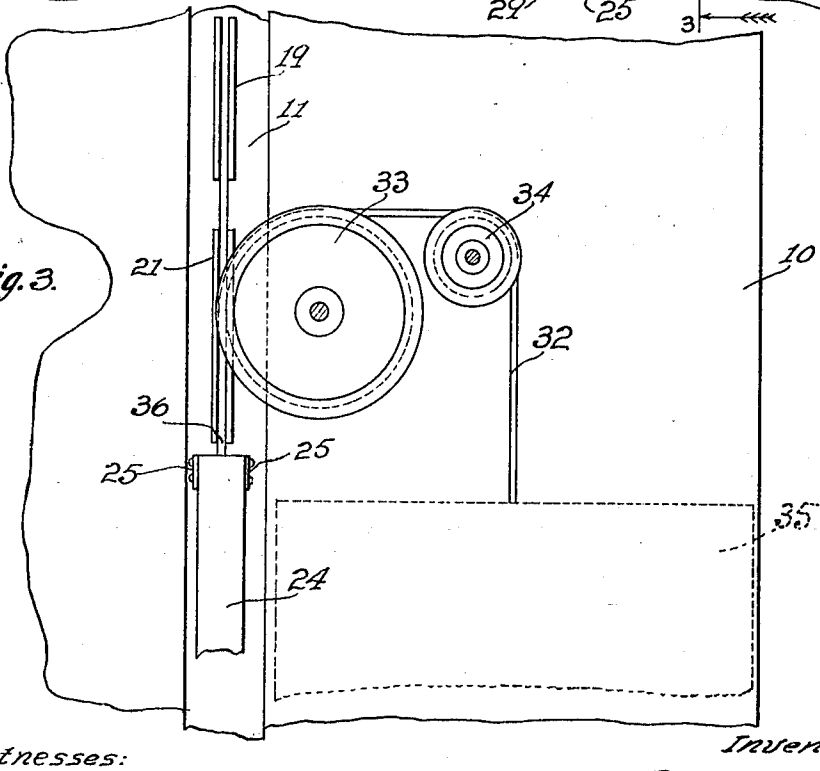


Fig. 3.



Witnesses:

N. Brandt.

B. J. Richards

Inventor:

Byron R. Goggin.

By Johnson & Howe

his Attorney.

UNITED STATES PATENT OFFICE.

BYRON ROSE GOGGIN, OF CHICAGO, ILLINOIS.

ELEVATOR.

1,051,576. Specification of Letters Patent. Patented Jan. 28, 1913.

Application filed May 16, 1912. Serial No. 697,620.

To all whom it may concern:

Be it known that I, BYRON R. GOGGIN, a citizen of the United States, and a resident of the city of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Elevators, of which the following is a specification.

This invention relates to elevators and is designed to provide a means for raising and lowering the car, eliminating the use of the cable drum and the complicated mechanisms and stops coöperating therewith.

With the above and other objects in view, this invention consists in the construction, combination, and arrangement of parts, all as hereinafter more fully described, claimed, and illustrated in the accompanying drawings, wherein:—

Figure 1 is a diagrammatic view illustrating the motors, cable, car, and lift rope forming the subject matter of the present invention, Fig. 2 is a section taken along line 2—2 of Fig. 1, illustrating the arrangement of the present invention in an elevator shaft, Fig. 3 is a view of the upper portion of Fig. 1 looking from the right hand of the page.

Reference being had more particularly to the drawings, 10 indicates an elevator shaft provided with a depression 11 in one wall thereof, in which is mounted the mechanism forming the subject matter of the present invention. Arranged at the bottom of the shaft 10 and in the base of the depression 11, is a pair of motors 12 and 13, the upper motor 12 operating in a clockwise direction, while the lower motor 13 operates in an anti-clockwise direction, as illustrated by the arrows in Fig. 1. An idle sheave 14 is disposed above the motor 12 as is also an idle sheave 15 disposed above the motor 13. The motors 12 and 13 are provided with the sheaves 16 and 17, the utility of which will be hereinafter more fully described.

At the upper terminal of the depression 11 is mounted a pair of sheaves 18 and 19, said sheaves being mounted upon the shafts 20 arranged in direct horizontal alinement, as illustrated in Fig. 1, at the upper terminal of this depression 11. A somewhat enlarged sheave 21 is mounted in the depression 11 in substantially a medial position with respect to the distance between the centers of the sheaves 18 and 19 and at a somewhat lower elevation, said sheave being mounted upon the shaft 22 arranged in said depression, as illustrated.

A frame, designated generally as 23, is mounted for reciprocation within the depression 11, as illustrated in Figs. 1 and 2, and is constructed of a pair of vertically arranged channel bars 24 connected at their upper and lower terminals by the transversely arranged straps 25 bolted or riveted to the channel bars 24. A sheave 26 is rotatably mounted between the lower straps 25 and is adapted to move with the frame 23 as the same reciprocates in the depression 11. A weight frame constructed of the channel irons or bars 27 is mounted for reciprocation in the channel bars 24 and carries the weights 28. The upper terminals of the channel bars 27 are connected by the straps 29 which project into the channels of the bars or irons 24 and complete the structure of the weight frame. A sheave or pulley 30 is rotatably mounted between the straps 29 and above the weights 28.

The upper straps 25 of the frame 23 have the eye 31 interposed medially therebetween, to which is attached a cable 32. This cable operates over the sheaves 33 and 34 arranged at right angles to the plane of the depression 11 to the car 35, illustrated in dotted lines, where it is secured. Thus it will be seen that as the frame 23 operates vertically, the car 35 will be raised and lowered dependent upon the direction in which the same operates.

A continuous cable 36 operates over the sheaves 14, 15, 16, 17, 18, 19, 21, 26 and 30. This cable, starting at the motor 13, is wound about the sheave 17 of this motor, extends to and passes over the sheave 26, thence over the sheave 16 of the motor 12, over the idle sheave 14, back to the sheave 16 and then to the sheave 21, from which it extends to the sheave 30 carrying the weights, and over the sheaves 19 and 18 down to the sheave 17 of the motor 13, over the idle sheave 15 back to the sheave 17.

The motors 12 and 13 are constantly rotated in opposite directions, and it will be seen that should these motors be rotated at identical speeds, no movement will be imparted to the frame 23 and car 35. But, assuming that the motor 12 operates at an increased speed over the motor 13, the cable 36 will operate in the direction of the arrows in Fig. 1, creating a pull upon the

frame 23. This pull upon the frame 23 is created by reason of the fact that for the purposes of the operation of the device, the motor 13 can be considered as remaining stationary and the frame 23 operates downwardly at a speed corresponding to the difference in speeds between the motors 12 and 13. By reason of the fact that the frame 23 is connected to the lift rope 32, it will be seen that, as the motor 12 operates at an increased speed over the motor 13, the car 35 will be raised. The slack created above the motor 12 will be taken up by the weight frame slidable within the frame 23 and carrying the weights 28.

Assuming that the motor 13 operates at an increased speed over the motor 12, the cable 36 will operate in the same direction but be fed from the pulley on motor 13 to pulley 26 faster than it will be taken up by the pulley on motor 12, consequently frame 23 will be raised at a speed corresponding to the difference in the speeds of said motors.

Though the present invention has been described as utilizing a single cable 36, it will be understood that this cable may be multiplied or duplicated, dependent upon the size and the load of the elevator. In ordinary use, six or more cables will be employed.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I, therefore, do not wish to be limited to the exact details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claim.

Having described my invention, what I claim as new and desire to secure by Letters Patent, is:

In combination, a frame mounted for vertical movement; a second frame mounted to slide in said first frame; a pulley journaled in the lower part of said first frame; a second pulley journaled in the upper part of said second frame; two driving pulleys adapted to move at relatively different speeds; and an endless cable on all of said pulleys, substantially as described.

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

BYRON ROSE GOGGIN.

Witnesses:
JOSHUA R. H. POTTS,
ARTHUR A. OLSON.