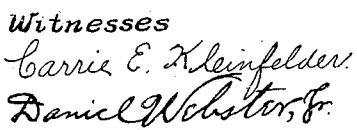


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938,027.



Attorney

UNITED STATES PATENT OFFICE.

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ELEVATOR.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, DE WITT C. SUPLEE, a citizen of the United States, residing in Philadelphia, county of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Elevators, of which the following is a specification.

My invention relates to an improvement in elevators, and it has for its object to provide an improved and simplified hoisting mechanism.

A convenient embodiment of my invention is illustrated in the accompanying drawings forming a part of this specification. The novel features of this and all other embodiments which come within the scope of my invention I have endeavored to point out with particularity in the appended claims.

In the drawings:—Figure 1 is a longitudinal section but which shows the drums in elevation; Fig. 2 is a transverse section on the line 2—2 of Fig. 1; and Fig. 3 is a side elevation of an elevator and its hoisting mechanism including my invention.

Referring to the drawings:—1 and 2 designate hoisting drums secured upon rotatable shafts 3 and 4 journaled in a support or standard 5 and in the gear casing 6. Gears 10 and 11 are located within the casing 6 and are secured upon the shafts 3 and 4. The gear 10 engages the gear 11 so that when either of said gears is driven it occasions rotation of the other. The gear 10 is in engagement with and is driven by a worm gear 15 mounted upon a shaft 16 which is journaled in bearings 17 in a pedestal 18 to which the gear casing is secured and on which it is supported. The support or standard 5 and pedestal 18 are mounted upon a base 19. The shaft 16 is coupled by means of a coupling 20 to the driving shaft 21 of a motor 22 of any desired known construction.

25 designates a hoisting cable secured at one end to and adapted to be wound upon the drum 1 in the usual manner, the opposite end thereof being connected to an elevator car 26 after having passed over a wheel or sheave 27 supported in any known manner upon the framework surrounding the elevator well.

30 designates a cable which is secured at one end to the drum 2 and is adapted to be wound thereon in the usual manner, the said cable extending over the wheels or

sheaves 31 (supported in a manner similar to the wheel or sheave 27), and having its opposite end connected to a weight 32 which travels in the elevator well to one side of the path of travel of the elevator 26. The weight 32 assists the motor 22 in the raising or lifting of the car in a manner well known. The circular bosses 35 secured to the drums 1 and 2 coöperate with a brake mechanism, not shown in the drawing.

Referring to Figs. 2 and 3 of the drawings, it will be observed that the axes of the shafts 3 and 4 and of the drums 1 and 2 are not in vertical alinement as is indicated by the parallel vertical dotted lines 35 and 36. It will also be observed that a vertical plane tangent to the lower drum 1 at its right hand side in Fig. 2 would pass to the right of the right hand side of the upper drum 2. The result of this arrangement of the drums 1 and 2 with relation to each other is that the ropes or cables 25 and 30 are separated from each other a sufficient distance to prevent them from interfering with each other, such result being effected or accomplished without the intervention of any mechanism or contrivance in addition to the drums themselves. It is well known that in elevators of this type some means must be provided to prevent the hoisting ropes or cables which extend to the elevator car and the ropes or cables which extend to the counterbalance weight 32 from interfering with each other. As will be seen, I have accomplished this result by providing means whereby one of the drums is offset or removed from a vertical plane tangent to the circumference of the other drum. In the construction shown, the diameters of the drums are equal and the desired result is accomplished by so supporting the drums in parallel relation, one above the other, that their axes lie in different vertical planes; but I desire it to be understood that other construction and arrangements which follow within the scope of my invention may be employed.

The term "car" employed herein, is intended to include passenger cars, elevator cars, or any movable platform or carrier which is adapted to be employed in the lifting of a load by the mechanism constituting my invention. The terms "ropes" and "cables" are intended to include chains or any

form of suitable flexible connection between the drums 1 and 2 and the elevator car 26 and the weight 32.

Having thus explained the nature of my invention, and described a way of constructing and using the same without attempting to set forth all of the forms in which it may be made, or all of the modes of its use, what I claim is:—

1. In an elevator, the combination of a plurality of drums located one above the other and the circumferences of the said drums being so related to each other that a vertical plane tangent to one of said drums does not touch or cut the other drum, hoisting means connected to said drums, gear wheels operatively connected to said drums and being in engagement with each other, and means for driving one of said gear wheels to thereby cause revolution of the other gear wheel and the said drums.

2. In an elevator, the combination of drums, shafts for supporting the said drums, gear wheels secured to the said shafts, the said wheels being in engagement with each other and the axes of the said shafts being in different vertical parallel planes, the said planes respectively passing through each of the said drums and gear wheels, and means in engagement with one of said gear wheels to occasion revolution of the said gear wheels and the said drums.

3. In an elevator, the combination of drums, gear wheels having connection with the said drums and adapted to occasion revolution thereof, the said gear wheels being situated one above the other in gear or mesh with each other and the axes of said wheels being out of vertical alinement, means for

driving one of the said gear wheels to occasion revolution of the other gear wheel and of the said drums, and ropes or cables adapted to be wound upon said drums.

4. In an elevator, the combination of two drums located one above the other, the axes of the said drums being in different vertical planes, an elevator car, a weight, a hoisting rope or cable connected to and adapted to be wound upon one of the said drums and connected to the said car, a rope or cable connected to and adapted to be wound upon the other of the said drums and connected to the said weight, gear wheels having connection with the said drums, the said wheels being in engagement or mesh with each other, and means for driving the said gear wheels to occasion revolution of the said drums.

5. In an elevator, the combination of an elevator car with means for operating said car, which means comprises a plurality of revoluble drums having their respective axes situated in different parallel vertical planes, the said planes respectively passing through each of said drums, hoisting means connected to said drums, a car connected to the hoisting means which is connected to one of the said drums, a counterbalance weight connected to the hoisting means which is connected to the other drum, and means for driving the said drums.

In testimony that I claim the foregoing as my invention, I have hereunto signed my name this 24th day of November, A. D. 1908.

DE WITT C. SUPLEE.

In the presence of—

CYRUS N. ANDERSON,
S. SALOME BROOKE.