

No. 810,941.

PATENTED JAN. 30, 1906.

N. HISS & H. G. DE BUREN.

TRACTION APPARATUS.

APPLICATION FILED MAY 7, 1903.

Fig. 1.

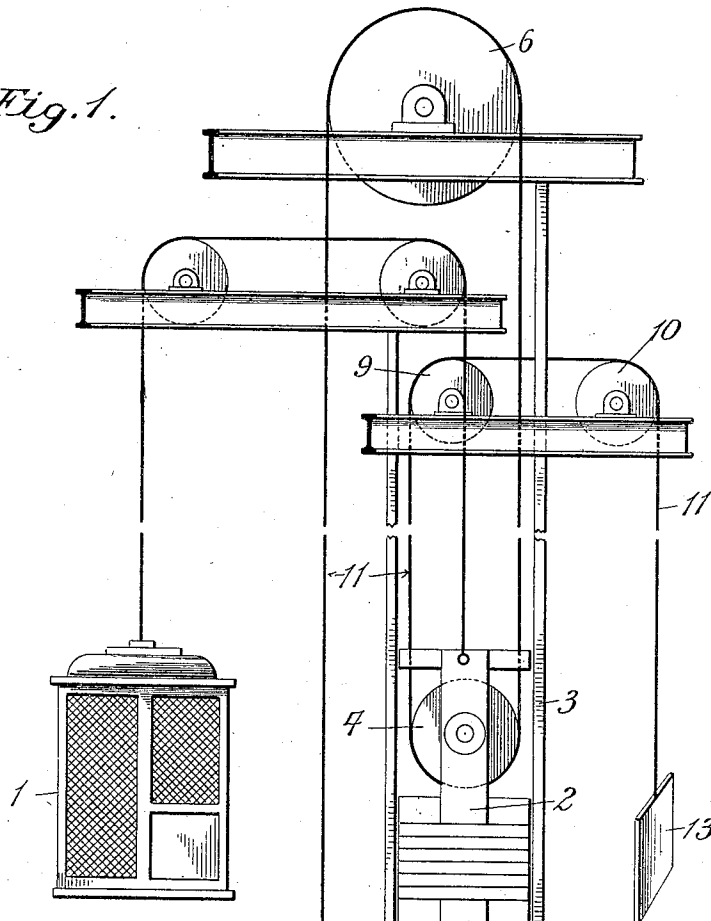


Fig. 2.

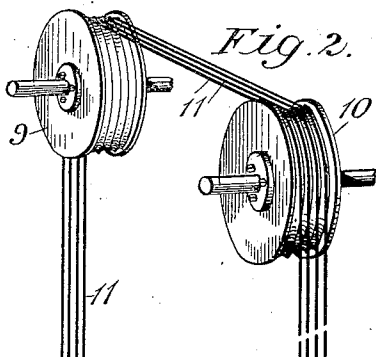
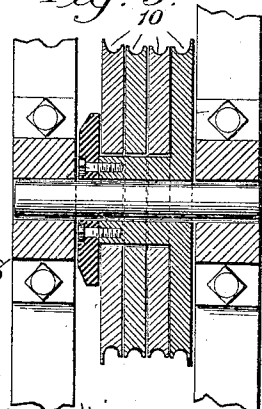


Fig. 3.



Witnesses
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By their Attorney H. M. Mackay

UNITED STATES PATENT OFFICE.

NELSON HISS AND HENRI G. DE BUREN, OF NEW YORK, N. Y., ASSIGNORS,
BY DIRECT AND MESNE ASSIGNMENTS, TO ELEVATOR SECURITIES COM-
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TRACTION APPARATUS.

No. 810,941.

Specification of Letters Patent.

Patented Jan. 30, 1906.

Application filed May 7, 1903. Serial No. 156,045.

To all whom it may concern:

Be it known that we, NELSON HISS and HENRI G. DE BUREN, citizens of the United States, residing in the city, county, and State of New York, have invented a certain new and useful Improvement in Traction Apparatus, of which the following is a specification.

This invention has particular relation to high-speed passenger-elevators of the traction type wherein one or more driving-cables are taken up by a fixed driving pulley or drum and paid off of the same on the opposite side thereof.

This device is an improvement in the form of elevator described in the patent to Nelson Hiss for traction apparatus dated January 20, 1903, No. 718,762.

In the accompanying drawings, Figure 1 shows the preferred arrangement in side elevation. Fig. 2 is a detail in perspective, and Fig. 3 a detail in section.

In the drawings the elevator-car is shown at 1, and at 2 is shown a carrier adapted to move up and down in guides 3, either in the same elevator-shaft with the carrier, as shown in the drawings, or in a separate shaft. The carrier 2 may support some or all the counterweights for balancing the weight of the car 1; but this is not essential to this invention.

At 4 and 5 are shown two movable pulleys, having their axes substantially parallel to each other and carried on the carrier 2. At the top of the shaft in which the carrier moves is a fixed pulley 6, having its axis substantially parallel to those of the pulleys 4 and 5. A like pulley 7, also having its axis substantially parallel to those of 4 and 5, is placed directly below the lowest point reached by these latter pulleys. An electric motor 8 or equivalent reversible motive means is employed for driving the pulley 7. The pulleys 9 and 10 are fixed near the top of the shaft of the carrier 2, and these may or may not have axes parallel to those of 4 and 5, as they do not necessarily turn during operation of the elevator.

The driving cable or cables 11 should be arranged as shown in the drawings, one end being anchored, as at 12, and the other end of each cable supporting the tension-weight 13, preferably made flat, so that where a group of weights is used they may occupy less room.

We prefer to use multiple cables 11, as

plainly shown in Fig. 2, the side view in Fig. 1 permitting only the foremost of the group to be seen. Each of said cables is provided, as shown, with a separate weight 13, and in order that the cables may be perfectly free to stretch independently the one of the other we prefer to make the pulleys 9 and 10 in independently-rotatable sections. The preferred construction for this purpose is shown in section in Fig. 3. Each cable passes from its anchorage 12 up over the pulley 5 and thence down and under the pulley 7, up and over pulley 6, down and under pulley 4, over the pulleys 9 and 10, then finally to the weight 13. It will be observed that this arrangement provides for bending of the cable always in one direction. Inspection of the drawings shows that proceeding from the anchorage to the weight the cable passes around all the pulleys in the direction of movement of the hands of a watch. Of course their reverse direction is entirely admissible, provided that the same reversal of direction is applied through all the pulleys. The advantage of this arrangement is that the cables, which in practice are almost always made of steel or iron, will be bent at no point in opposite directions, and thus the tendency to bend the fibers beyond their elastic limit will be lessened and the life of the cables greatly advanced.

What we claim is—

1. In an elevator, a car, a carrier, a track for said carrier a cable connection between the car and carrier and two movable pulleys on said carrier; in combination with a fixed pulley near each extremity of the carrier-track, a reversible motor arranged to impel one of said pulleys, and a driving-cable anchored at one end and carrying a weight at the other end, said cable passing from its anchorage around one movable pulley, thence in the same direction around one of the fixed pulleys, thence in the same direction around the second fixed pulley and thence in the same direction around the second movable pulley to the weight, substantially as described.

2. In an elevator, a car, a carrier, a track for said carrier a cable connection between the car and carrier and movable pulleys with parallel axes on the top and bottom of said carrier respectively in combination with a fixed pulley having its axis parallel to those of said movable pulleys directly beneath the

lowest point of travel of said carrier, a reversible motor for driving the same, two fixed pulleys directly above the highest point of travel of said carrier, one of which has its
5 axis parallel to those of said movable pulleys and a driving-cable anchored below said carrier-track at one end and bearing a weight at its other end, said cable passing from its anchorage around one movable pulley, thence in
10 the same direction around one of the fixed

pulleys, thence in the same direction around the second fixed pulley, thence in the same direction around the second movable pulley and thence around the third fixed pulley to the weight, substantially as described.

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Witnesses:

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