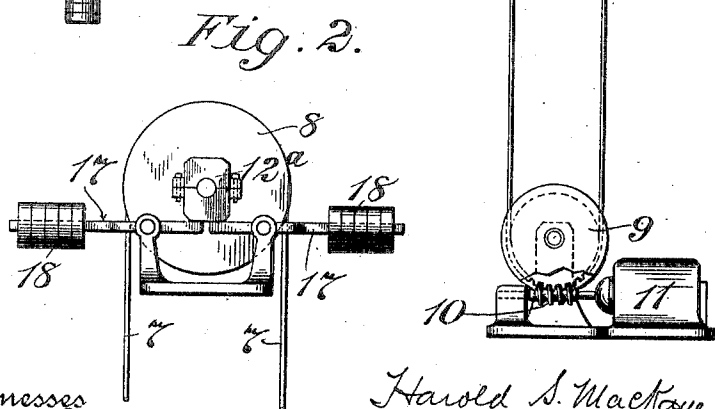
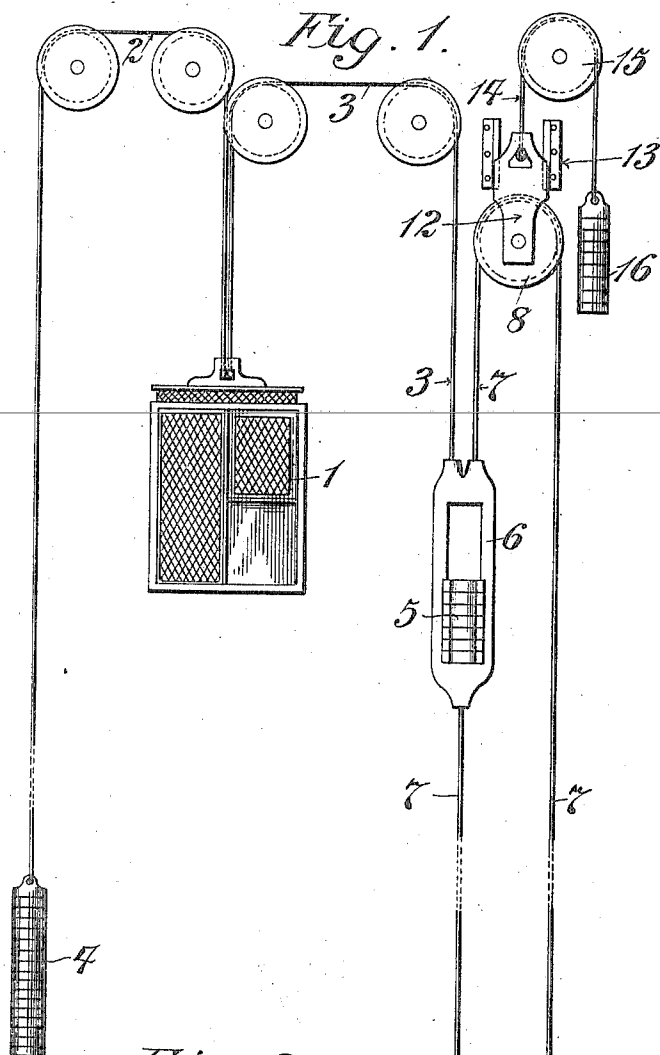


No. 811,513.

PATENTED JAN. 30, 1906.

H. S. MACKAYE.
ELEVATOR.

APPLICATION FILED JUNE 23, 1902.



Witnesses
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UNITED STATES PATENT OFFICE.

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ELEVATOR.

No. 811,513.

Specification of Letters Patent.

Patented Jan. 30, 1906.

Application filed June 23, 1902. Serial No. 112,786.

To all whom it may concern:

Be it known that I, HAROLD S. MAC KAYE, a citizen of the United States, residing in Yonkers, in the county of Westchester and State of New York, have invented a certain new and useful Improvement in Elevators, of which the following is a specification.

My present invention has relation to that class of elevators wherein a driving pulley, drum, or sheave operates a cable by friction. In apparatus of this class it is necessary either to supply adequate means for exerting such a tension upon the driving-cable where it passes over the driving sheave or drum as will cause adequate tractive friction at the sheave-surface or to provide means for increasing the friction by winding the cable several times upon a proper sheave or drum or combination of sheaves or drums while taking up the slack of the cable by any appropriate means. In elevators of the former type it has been usual to carry the driving-cable from the car over the driving sheave or drum and thence to a heavy counterbalance-weight moving when the car moves. In this arrangement one principal difficulty seems unavoidable. In swiftly-moving elevators on a sudden start the inertia of the counterbalance is so great that its tractive effect is immensely decreased, while in a sudden stop this same inertia produces a heavy blow upon the whole apparatus, and consequently a diminished life in the cable and other parts.

The principal object of my present invention is the provision of a form of elevator of the former of the two types above enumerated wherein the necessary tractive tension is produced equally on both sides of the driving-sheave independently of the condition of rest or motion of the car and wherein the amount of tractive effort produced is not affected by considerations of inertia in any part.

In the accompanying drawings, Figure 1 shows a preferred arrangement of parts for the purposes above mentioned, and Fig. 2 shows a modified form of tension device for the cable-suspension pulley.

I prefer to provide the car 1 with two cables 2 3, respectively, for counterbalance and driving purposes. The counterweights 4 act through the cable 2 to counterbalance the dead-weight of the car, the average load being preferably provided for by the weights 5

in the operating-carrier 6, attached to the opposite end of the cable 3.

It is to be understood, of course, that while I have shown a single cable for each function in my illustrations of this system this invention covers the use of sets of cables in each situation, as desired, this being a well-known feature of elevator practice.

The carrier 6 is operated by means of the driving-cable 7 moving up when the car descends, and vice versa. The cable 7 is carried by two main sheaves, the tension-sheave 8 above the carrier and the driving-sheave 9 below it. The driving-sheave 9 may be run by any desired prime mover, and in the drawings I have shown it operated by a worm on the armature-shaft of an electric motor 11. The two ends of the cable 7 are attached, respectively, to the top and bottom of the carrier 6. It will of course be understood that my invention covers the attachment of the driving-cable directly to the car 1 without the intermediate carrier 6, and in my claim the word "carrier" is to be understood as applying broadly either to the main car or to the device 6, except where both are named. The requisite tension for producing friction between the semicircumference of the sheave 9 and the cable 7 is supplied by producing a lifting pressure upon the tension-sheave 8.

In Fig. 1 is shown a bearing or hanging block 12, wherein the sheave 8 revolves, said block moving in guides 13 and being supported by a cable 14, passing over a pulley 15 and attached to a weight 16. The weight 16 lifts the sheave 8 in the upper bight of the cable 7, and thus transmits through both sides of said cable an equal tension to the two sides of the pulley 9. This tension depends only upon the amount of the weight 16, and since said weight does not move with the car or with the carrier 6 there is no addition or diminution of tension due to inertia on the stop or start. Another form of tension device, producing the same effect upon the entire apparatus, but requiring less room, is shown in Fig. 2. Here the bearing-blocks 12^a are supported on the shorter arms of two pivoted levers 17, and the lifting-weights 18 are carried on the longer arms of the same. Smaller weights can thus be used and less head-room is required.

Many modifications may be made in the arrangement, adaptation, and construction

of the various parts of my device by the skill of the calling without departing from the scope of my invention, and I am not to be understood as limiting myself to the details
5 herein shown and described.

What I claim is—

In an elevator, a car, a carrier for operating the car, a driving-cable for said carrier attached at its ends above and below said carrier, a tension-sheave and a driving-sheave
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for said cable, a movable block in which said tension-sheave is pivoted, a weight and means operated by said weight for pressing said tension-sheave away from said driving-sheave.

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