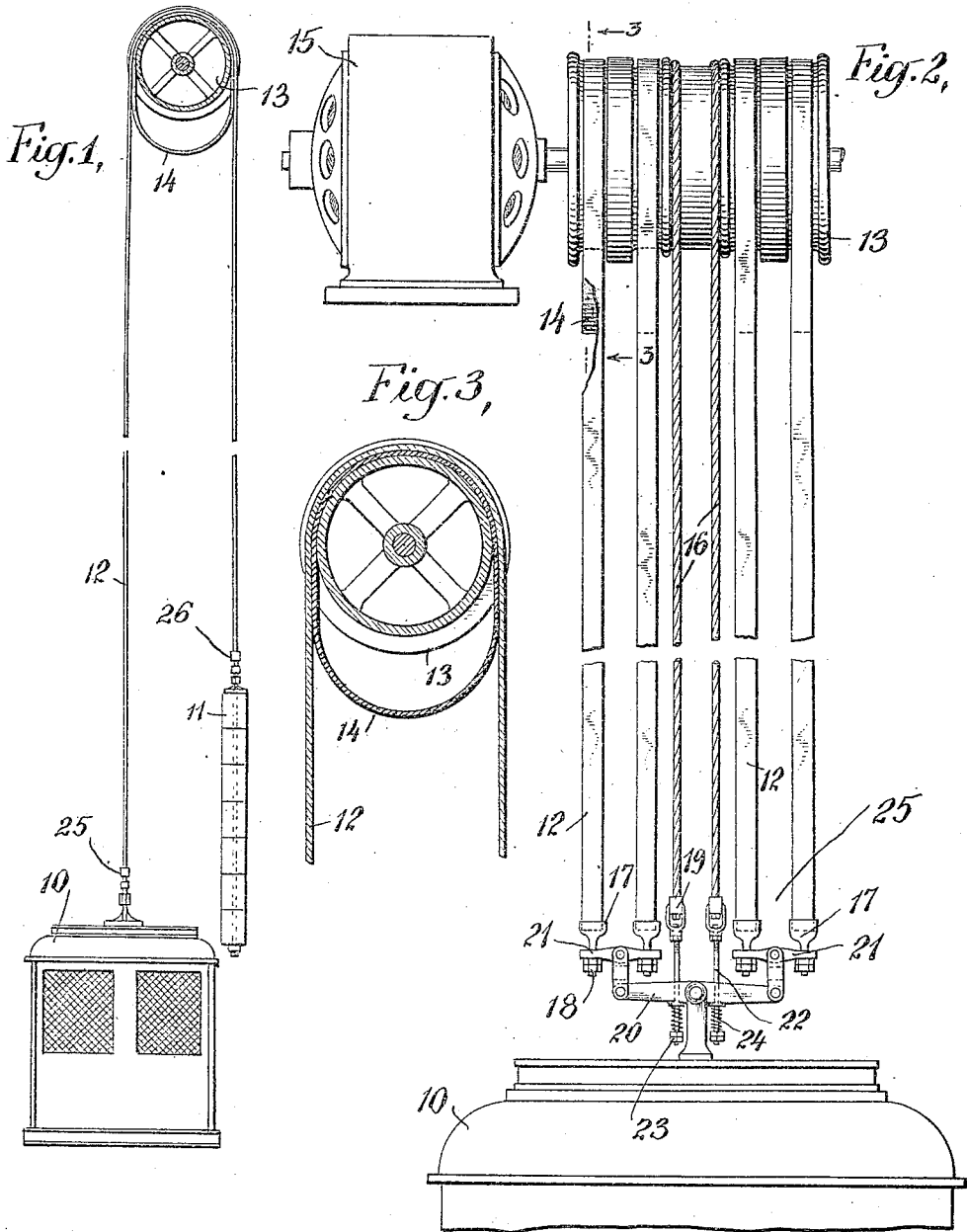


C. O. PEARSON.
TRACTION ELEVATOR.
APPLICATION FILED OCT. 24, 1911.

1,035,230.

Patented Aug. 13, 1912.



WITNESSES:

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CHARLES O. PEARSON, OF NEW YORK, N. Y.

TRACTION-ELEVATOR.

1,035,230.

Specification of Letters Patent.

Patented Aug. 13, 1912.

Application filed October 24, 1911. Serial No. 656,465.

To all whom it may concern:

Be it known that I, CHARLES O. PEARSON, a citizen of the United States, and a resident of the borough of Brooklyn, in the county of Kings, city and State of New York, United States of America, have invented certain new and useful Improvements in Traction-Elevators, of which the following is a specification.

My invention relates to traction elevators and its object is to improve upon elevators of this type, and to provide a simple, efficient and safe apparatus.

I will describe my invention in the following specification and point out the novel features thereof in the appended claims.

Referring to the drawings, Figure 1 is a side elevation, more or less diagrammatic, of an elevator car and counterweight, and a part of the driving mechanism therefor made according to my invention. Fig. 2 is a view, at right angles to that of Fig. 1, of certain parts of the same apparatus but drawn on a larger scale. In Fig. 3 a detail of construction is shown. This figure is a sectional side elevation of the driving sheave and some of its cooperating parts, the section being taken on the line 3—3 of Fig. 2.

Like characters of reference designate corresponding parts in all of the figures.

10 designates an elevator car, and 11 its counterweight. These are connected by one or more flat metallic strips 12 which run up over a driving sheave 13. A plurality of these strips are preferably provided, placed side by side upon the driving sheave, which may be provided, as shown, with a separate peripheral channel for each of the strips. The faces of these channels may be leather-faced, but I prefer to interpose between the sheave and each of the strips an endless belt 14 of leather or other suitable material somewhat longer than the circumference of the sheave.

15 is a motor for imparting rotation to the sheave 13.

The sheave 13 is also provided with grooves in which run safety cables 16.

Referring to Fig. 2, it may be seen that to the car 10 is pivotally connected a yoke 20, to the opposite ends of which are connected secondary pivoted yokes 21, 21. The

ends of the strips 12 are provided with suitable anchorage members 17, a portion of each of which projects through one of the ends of one of the secondary yokes 21. The lower ends of these anchorage members are threaded and are provided with nuts 18 which hold them in place and also provide means for adjusting the tension of the strips. The ends of the safety cables 16 are provided with thimbles 19, from which depend, through the yoke 20, rods 22, the lower ends of which are threaded and provided with nuts 23. Between the nuts 23 and the lower edge of yoke 20 are interposed light springs 24 which are under compression. The safety cables 16 are not used to raise the car or the counterweight, and the springs are only of sufficient strength to keep them in place and to cause them to run with the strips over the grooves in the driving sheave which are provided for them. This arrangement on the car is designated as a whole by the reference numeral 25. The other ends of the strips are connected with the counterweight by a similar mechanism 26 but the safety ropes need have the springs only on one end. By these devices the strains on the strips are automatically equalized so that they are all kept under a like amount of tension.

It may be seen that the combined weight of the car and the counterweight is sustained by the strips 12 and the driving sheave 13. When the latter is rotated in one direction or the other the car will move up or down as the case may be. Flat metallic strips of suitable thinness to be flexible present a broad friction surface to a cylindrically faced driving sheave, and a great tractive effect is obtained by the use of such constructions, especially when the driving surface of the sheave is provided with a facing of some such material as leather. It has been found that most excellent tractive results are obtained by interposing between the driving surface of a sheave and a cable, a loose belt such as 14. This idea is disclosed in Letters Patent No. 761,401 issued to George H. Reynolds under date of May 31, 1904. But it was found in practice that the cables soon cut through such belts. In the present instance, however, the

advantages of this construction and arrangement are retained without their attendant disadvantages, for there is but little wear either on the metallic strips or on the belts, and the cutting effect is entirely eliminated.

5 The automatic equalizer not only divides the tensional strains upon the strips equally, but also causes the driving sheave to do the same amount of driving on each of them.

10 I have pointed out that the cables 16 run practically idly over the sheave 13. In other words, they are not used to move the car and counterweight, but this function is performed by the strips 12. But if the strips
15 break, the cables then sustain the weight of the car and the counterweight and keep them from falling. In such a case the springs 24 are simply forced together and the nuts 23 keep the rods 22 from being
20 pulled through the yoke 20.

What I claim is.—

1. A car, a counterweight, a flat metallic strip connecting and sustaining the car and
25 the counterweight, a driving sheave for said strip, and a safety cable also connecting the car and the counterweight and running over said sheave.

2. A car, a counterweight, a flat metallic
30 strip connecting the car and the counterweight, a driving sheave, said strip running over a portion of said sheave, and a safety cable connecting the car and counterweight and also running over said sheave.

35 3. A car, a counterweight, a flat metallic strip connecting the car and the counterweight, a driving sheave supporting the car and the counterweight by said strip, a safety cable connecting the car and the counterweight, and means for maintaining said
40 cable in light contact with said sheave.

4. A car, a counterweight, a flat metallic strip connecting the car and the counterweight, a sheave having a cylindrical driving
45 surface over which the strip passes and a peripheral groove, and a safety cable running over said groove, and connected with the car and counterweight.

5. A car, a counterweight, a flat metallic
50 strip connecting the car and the counterweight, a sheave having a cylindrical driving surface over which the strip passes and a peripheral groove, a safety cable running over said groove and connected with the car
55 and counterweight, and a spring arranged to keep said cable in light contact with the sheave.

6. A car, a counterweight, a flat metallic
60 strip connecting the car and the counterweight, a sheave having a cylindrical driving surface over which the strip passes, and a loose belt interposed between the sheave and said strip.

7. A car, a counterweight, a flat metallic
65 strip connecting the car and the counterweight,

a sheave having a cylindrical driving surface over which the strip passes and flanges, a loose belt interposed between the sheave and said strip, said flanges being adapted to retain the belt and the metallic
70 strip in place.

8. A car, a counterweight, a flat metallic strip connecting the car and the counterweight, a sheave having a cylindrical driving surface over which the strip passes, a
75 loose belt interposed between the sheave and said strip, said flanges being adapted to retain the belt and the metallic strip in place, said sheave being also provided with a peripheral groove; a safety cable running over
80 said groove and connected with the car and counterweight, and a spring arranged to keep said cable in light contact with the sheave.

9. A car, a counterweight, a plurality of
85 flat metallic strips connecting the car and the counterweight, a driving sheave supporting the car and counterweight by said strips, and a safety cable also connecting the car and the counterweight.

10. A car, a counterweight, a plurality of
90 flat metallic strips arranged side by side connecting the car and the counterweight, a driving sheave supporting the car and counterweight by said strips, means for equalizing
95 the tension of said strips, and a safety cable connecting the car and counterweight and running over the sheave, and means for maintaining the cable in light contact with said sheave.

11. A car, a counterweight, a plurality of
100 flat metallic strips arranged side by side connecting the car and counterweight, a sheave having cylindrical driving portions over which said strips run, said sheave having
105 flanges, and intermediate rope grooves between said driving portions; a motor for driving the sheave, means for equalizing the tension of said strips, safety ropes running over the rope grooves and connecting the
110 car and the counterweight, and springs arranged to maintain said ropes in light contact with said grooves.

12. A car, a counterweight, a plurality of
115 flat metallic strips arranged side by side connecting the car and the counterweight, a sheave having cylindrical portions over which said strips run, said sheave having flanges between said portions, and a loose belt interposed between each strip and its
120 respective driving portion of the sheave.

13. A car, a counterweight, a plurality of
125 flat metallic strips arranged side by side connecting the car and the counterweight, a sheave having cylindrical driving portions over which said strips run, said sheave having flanges and intermediate rope grooves between said driving portions; a motor for driving the sheave in either direction, a
130 loose belt interposed between each strip and

its respective driving portion of the sheave,
means for equalizing the tension of said
strips, safety ropes running over the rope
grooves and connecting the car and counter-
5 weight, and a spring for each rope arranged
to maintain it in light contact with one of
said grooves.

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

CHARLES O. PEARSON.

Witnesses:

EMIL BACK,
S. J. HORVAT.