Feb. 7, 1933. L. H. KIESLING 1,896,900

ELEVATOR GUIDE MEANS

Filed June 15, 1931

Fig.1.

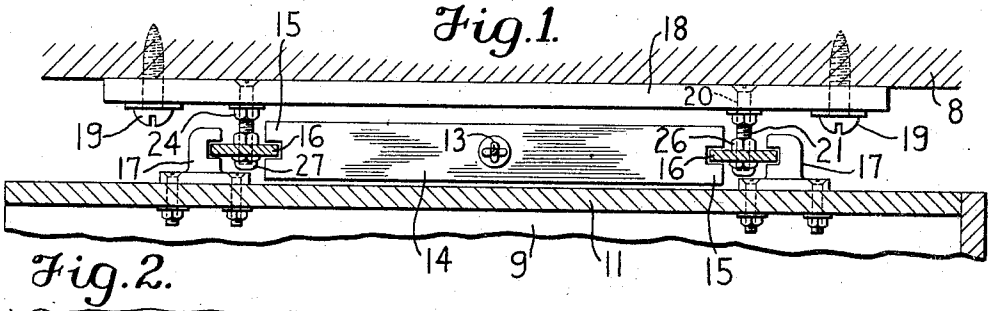


Fig.2.

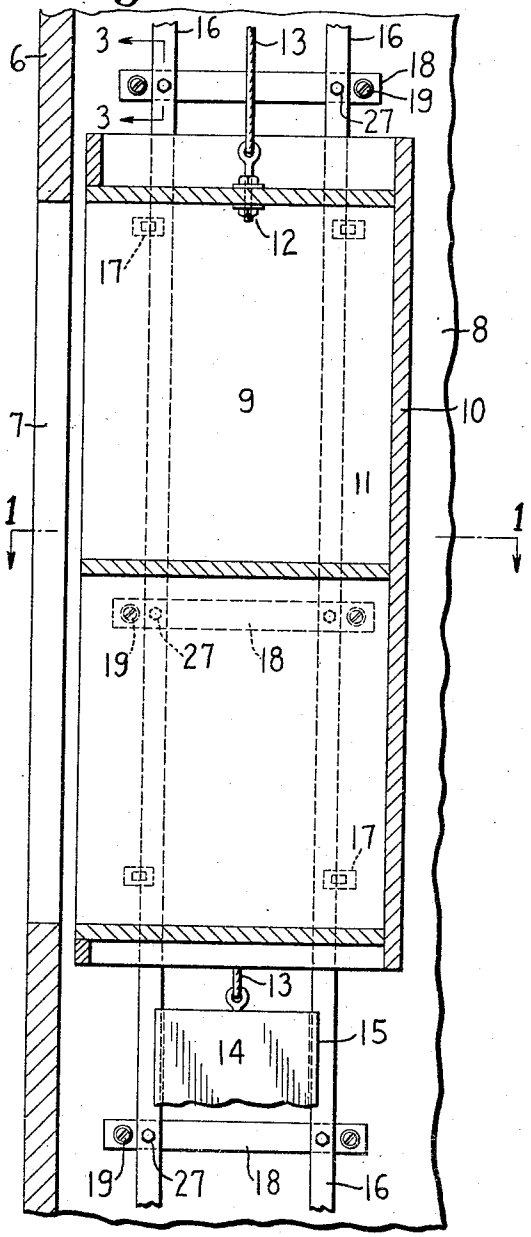


Fig.3.

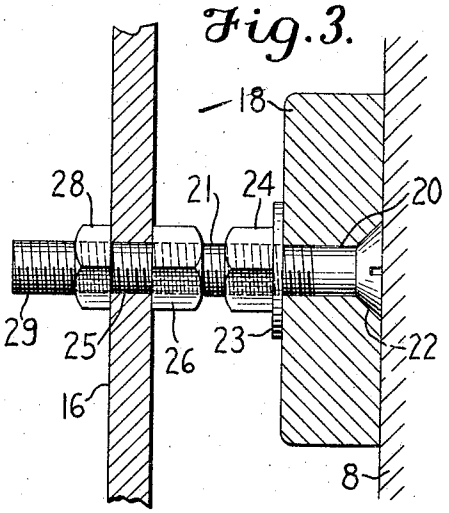
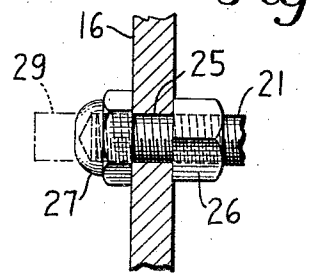


Fig.4.



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UNITED STATES PATENT OFFICE

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ELEVATOR GUIDE MEANS

Application filed June 15, 1931. Serial No. 544,333.

This invention is a novel elevator guide means, and relates more especially to a guiding track construction for dumbwaiters, lifts or similar elevators, and the counterweights thereof.

The general object of the present invention is to improve and simplify known elevator guiding means and to cheapen the cost of manufacture of the parts thereof, and to render easier and quicker the labor of erecting and installing the elevator, all without impairing the efficiency, working qualities and durability of the construction.

A particular object is to afford an elevator guide means wherein the tracks for the car and weight are readily and effectively mounted, adjusted and secured at the place of use by the constructor and without the need of drilling or other machining operations and with minimum difficulty in properly spacing, alining and fixing the tracks in place. The nearest prior art of which I am aware is my own prior Patent No. 1,702,783 granted February 19, 1929, for elevator guide means, and while the patented construction secures to some extent the advantages referred to it has been found desirable to simplify, cheapen and quicken to a greater extent the construction therein disclosed, which is one of the purposes of the present invention.

Other and further objects and advantages of the invention will be apparent to those conversant with the subject matter to which the invention relates. To the attainment of such objects and advantages the present invention consists in the novel elevator guide means, and the novel features of combination, arrangement, construction and detail herein described or illustrated.

In the accompanying drawing Figure 1 is a top plan view of a portion of an elevator and its shaft and counterweight, to which the present invention has been applied, certain vertically extending parts being indicated in horizontal section, for example substantially upon the section line 1—1 of Fig. 2.

Fig. 2 is a side elevation of the parts shown in Fig. 1 with certain parts broken away and shown in section.

Fig. 3 is a vertical section of a portion of the construction, taken on the line 3—3 of Fig. 2.

Fig. 4 is a section similar to Fig. 3 showing a detail of the preferred completed structure.

In the drawing corresponding numbers designate the same parts in the several figures.

In Figs. 1 and 2 is represented any usual elevator or dumbwaiter shaft comprising a front wall 6 with a hatch opening 7 for access to the car, and with side walls 8, which may be composed of wood, plaster, metal, cement or other materials.

The dumbwaiter or car 9 is shown as open at the front, being the left side of Fig. 2, but closed by a back wall 10, although in a double facing dumbwaiter this wall may be omitted. One or both sides may be enclosed by a side wall 11.

At the top of the car by an attaching device 12 is secured the usual cable or rope 13 which will be understood to extend around overhead sheaves, not shown, and thence down to a counterweight 14 of usual character. The counterweight may have endwise extending ribs 15 enclosing between them a groove adapted to embrace a guide track or rail 16 at each edge of the counterweight, for the smooth running or sliding of the counterweight in its vertical movements. The side wall of the car also may be provided with means engaging the track 16, shown as comprising a ribbed shoe 17 at each side. The two sides of the counterweight engage the inner edges of the two tracks, while the two shoes 17 engage the outer edges thereof. This construction of guiding means wherein is used a pair of tracks in spaced relation, at the same side of the car, is preferable, but in some cases there may be other or complementary guide means at other sides of the car.

As already stated the present invention has to do more particularly with the proper mounting, spacing and securing of the guide rails or tracks 16, and an illustrative embodiment of the improvement will now be described in detail.

The new construction comprises first a series of horizontal or cross bars 18, which may be attached to one side of the elevator

shaft at the time of installing the elevator. These bars may be composed of wood or in some cases metal, and are to be set in vertical alinement, each bar when alined being secured to the shaft side by a screw or bolt 19. Before erection each cross bar 18 will be bored with two perforations 20 horizontally spaced apart according to the desired spacing of the guide rails.

Engaged in each perforation of each cross bar is shown a threaded post 21 extending rigidly outwardly from the bar into the shaft. The head of the post may be accommodated within a countersink recess 22 at the back or outer side of the bar, so that the bar may be attached flatly against the shaft wall. Each threaded post may be rigidly secured to its bar by means of a washer 23 and nut 24. The bar, the post, the washer and the nut may be previously assembled in readiness for erection.

Each vertical guide rail 16, at correspondingly spaced points, is formed with a perforation 25. The rails taken together thus have a series of perforations corresponding to and at the levels of the bars 18. By these perforations the rails are engaged upon the corresponding threaded posts 21. By this the horizontal spacing of the rails is secured, while the rail perforations determine the vertical spacing of the bars, which latter however will not be attached finally to the shaft wall until both of the rails have been found to be in true vertical alinement.

Each of the rails may be rigidly and permanently secured, in an adjustable manner, upon the corresponding vertical series of posts 21, as follows. Each post is shown as having a nut 26 between the bar and the rail, and a second nut 27 beyond or at the inner side of the rail. This combination of threaded post, rail, and two nuts, affords a quick and ready means of in and out adjustment, so as to set each rail vertical, notwithstanding any irregularities in the shaft wall. By loosening either nut 26 or 27 and tightening the other the rail at each level may be adjusted inwardly and outwardly.

To make a shipshape and permanent mounting I may employ in lieu of the nut 27 a temporary nut 28 as seen in Fig. 3, which is used for adjusting purposes. When adjusted the projecting extremity 29 of the threaded post may be sawed off, the temporary nut 28 removed, and the permanent nut 27, which may be a cap nut, applied and tightened to clamp the rail in its adjusted position.

By the described arrangement every desirable adjustment is readily and effectively made. The perforations in the guide rails may be for example four feet apart, thus determining the vertical spacing of the cross bars. On the other hand the horizontal spacing of the two perforations in each bar may be for example 15 inches, and this accurately predetermines the horizontal spacing apart of the two rails. During erection the vertical alinement of the rails in a lateral direction may be effected by shifting the bars horizontally, and securing each bar as its proper position is ascertained. The final step is the vertical alining inwardly and outwardly of each rail, which is accomplished by loosening and tightening the nuts 26 and 28, following which the threaded post may be severed and the nut 28 replaced by cap nut 27.

Other than the car itself, the counterweight, and the shoes on the car, the materials used are readily obtainable commodities. Thus the rails may consist of strips of ordinary steel of dimension 2″ x ¼″, with their perforations at 4 foot spacing drilled in advance. The cross bars may consist of wooden strips, for example 2½ inches wide and ¾ inch thick and 2 feet in length, each with its perforations drilled at the correct spacing taking into account the width of the counterweight and the width of each rail; the rail being for example as stated, and the counterweight for example 14 inches wide and 1½ inches thick. The threaded posts may be ordinary bolts of the proper length and diameter. When the cross bars and rails have been properly mounted, adjusted, attached and clamped it remains only to engage the counterweight with the rails and apply the shoes to the car, two at an upper level and two at a lower level, and the elevator is ready for the application of the cable.

There has thus been described an elevator or dumbwaiter guiding means embodying the principles and attaining the objects and advantages of the present invention. Since various matters of combination, arrangement, construction and detail may be modified without departing from the principles of the invention it is not intended to limit the invention to such matters except so far as set forth in the appended claims.

What is claimed is:

1. In combination with an elevator car and its counterweight movable in a shaft, a pair of vertical guide rails, a series of horizontal cross bars attached in the shaft, threaded posts outstanding from the cross bars, and nuts adjustable on each post holding a guide rail between them; the car and counterweight each having running means engaging both guide rails.

2. An elevator guiding construction having vertical guide rails spaced apart at one side of the shaft, and means adjustably mounting and spacing such rails, comprising a series of horizontal bars attached to one side of the shaft in vertical alinement, each bar having horizontally spaced perforations therein spaced according to the desired spacing of the guide rails, and for each bar a pair of threaded posts engaging such perforations

and extending rigidly outwardly from the bar, and for each threaded post a pair of nuts adjustable thereon, the rails each having a series of perforations corresponding to and at the levels of the bars and engaged on the corresponding threaded posts, respectively, and each rail clamped and held at each level upon the post between the nuts thereon.

3. An elevator guiding construction having vertical guide rails spaced apart at one side of the shaft, and means adjustably mounting and spacing such rails, comprising a series of cross bars attached to one side of the shaft in vertical alinement, each bar having horizontally spaced perforations therein prespaced according to the desired spacing of the guide rails, and for each bar a pair of threaded posts engaging such perforations and extending rigidly outwardly from the bar, and for each threaded post a pair of nuts adjustable thereon, said bars and posts being assembled before erection, and the rails having a series of preformed perforations corresponding to and at the levels of the bars and said rail perforations engaged on the corresponding threaded posts, respectively, and each rail clamped and held at each level upon the post between the nuts thereon; whereby the preformed perforations in the cross bars determine the spacing of the guide rails; while the preformed perforations in the rails determine the spacing of the bars as attached at the side of the shaft and the nuts adjustable on the post during erection to set and fix the rails in correct vertical alinement.

In testimony whereof, this specification has been duly signed by:

LEROY H. KIESLING.