May 14, 1929. A. C. BRIDGE 1,713,165

ROLLER GUIDE SHOE FOR ELEVATORS

Filed Sept. 17, 1927

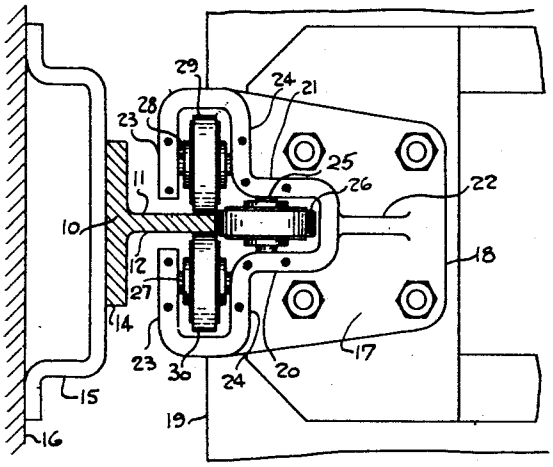


FIG. 1.

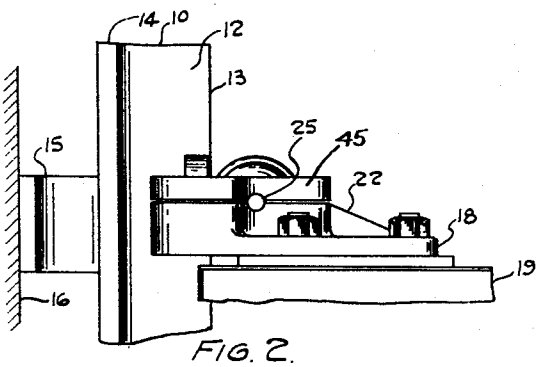


FIG. 2.

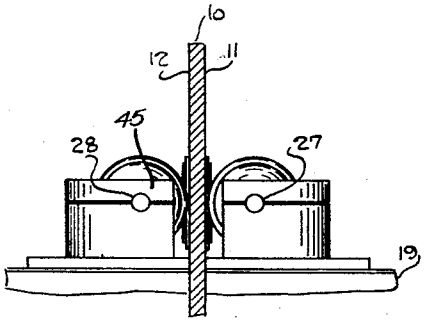


FIG. 4.

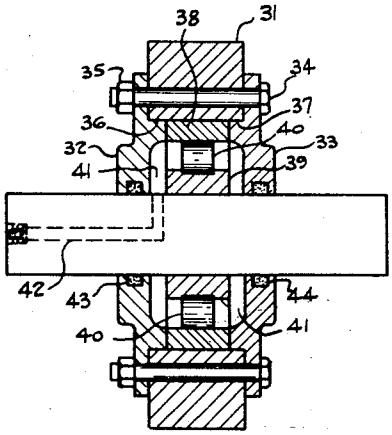


FIG. 3.

Inventor
A. C. Bridge
by: E. G. Fetherstonhaugh.
Attorney.

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UNITED STATES PATENT OFFICE.

ALEXANDER CHARLES BRIDGE, OF MONTREAL, QUEBEC, CANADA.

ROLLER GUIDE SHOE FOR ELEVATORS.

Application filed September 17, 1927. Serial No. 220,170.

The invention relates to a roller guide shoe for elevators, as described in the present specification and illustrated in the accompanying drawings that form part of the same.

The invention consists essentially of the novel features of construction pointed out in the claim for novelty following a description containing an explanation in detail of an acceptable form of the invention.

The objects of the invention are to eliminate rubbing friction on the guide rails of an elevator, as exemplified in the conventional slipper guide shoes, which are liable to bind and jam on the variation of location of the load on the elevator platform, thereby causing undue friction particularly at starting and stopping and necessitating heavy and continuous application of grease; to reduce the cost of maintenance in the greasing as aforesaid and in relieving the wear and tear on rails and shoes and the consequent injury to other parts intimately associated with the running gear; to facilitate the operation of the means for propulsion by the adoption of free running members; to avoid the accumulation of dust and dirt incident to a hatchway containing quantities of grease on the elevator parts; to apply a rolling movement free from end thrust and rocking motions; and generally to provide a mechanism of smoothly running parts for the safety and comfort of freight and passengers and for economy in the owners' interests.

In the drawings, Figure 1 is a cross sectional view of the guide rail on one side of the elevator hatchway showing the application of an elevator shoe of the type as described in the invention.

Figure 2 is a fragmentary view of a guide rail inside elevation showing the rolling shoe in engagement therewith.

Figure 3 is a sectional detail of a roller as used in the present invention.

Figure 4 is a front elevation of the rail broken away showing the roller bearing in engagement therewith.

Like numerals of reference indicate corresponding parts in the various figures.

Referring to the drawings, the numeral 10 indicates one of the guide rails of an elevator hatchway and formed in T-shape having the side track surfaces 11 and 12 and the end track surface 13 extending from the base 14.

The base 14 is secured to the wall bracket 15 rigidly attached to the hatchway wall 16.

The numeral 17 indicates a shoe formed of the base plate 18, adapted to be attached to the head frame 19 of the elevator car, and the bearing walls 20 and 21 reinforced by the rib 22, and the bearing walls 23 and 24 extending from the walls 20 and 21 in vis-à-vis arrangement and of U-shape on either side of the T-rail 10, while the walls 20 and 21 form a U-shape fronting the end of said T-rail.

The roller shaft 25 is secured in the walls 20 and 21 to form the front bearing and the roller 26 mounted thereon and the roller shafts 27 and 28 are secured in the walls 23 and walls 24 respectively and the side rollers 29 and 30 mounted thereon, therefore the roller 26 rolls on the end track surface 13 and the rollers 29 and 30 roll on the side track surfaces 11 and 12 respectively, the shafts 25, 27 and 28 being inserted between the upper and lower halves of the shoe casting 18 and 45.

The rollers are each made up of a roller ring 31 secured between the hub plates 32 and 33 by the bolts 34 and nuts 35 in a recess formed by the annular bosses 36 and 37 between which the roller bearing 38 is inserted.

The roller bearing race 39 is fitted on the roller shafts and said inner race 39 is recessed centrally to receive the rollers 40 acting between the outer race 38 and the inner race 39.

The inner roller bearing and rollers 40 are so arranged as to leave a grease space 41 into which grease is forced through the passage 42 in the roller shafts. The felt washers 43 and 44 are introduced in corresponding recesses in the hub plates and rub the roller shafts in rotation.

In the operation of this invention the roller shoes are secured to the car and run on the T-rails as explained on the ends and sides consequently in the travel of the car there is always a rolling engagement between the car and the guide rails. The result of this engagement is tantamount to the engagement of any running gear of the wheel type of rails, therefore no binding occurs and the elevator car actually runs on wheels and these wheels are actually kept on the track surfaces by the flanking wheels hereinbefore termed the side wheels. No grease is required and better running con-

ditions are assured by its absence with the result that the elevator hatchway is clean and other parts kept free of dust and dirt.

There are rolling engagements hertofore known in elevator work more than half a century ago and in these are formed end rollers both on a T-head and a T-base, also side rollers in dumb waiters, but to mount an elevator car on wheel runners and prevent side thrust and rocking by side rollers appears to be novel so far as can be seen in the state of the art.

What I claim is:—

In a roller guide shoe for elevators, a base plate extending into a three-way bearing and forming a shoe, rollers journalled in said bearings and having adjacent tread faces set right angularly and vis-à-vis and a T-rail projecting into the shoe at the bearing end and into engagement with the three rollers on its end and side faces.

Signed at Montreal, Canada, this 31st day of August, 1927.

ALEXANDER CHARLES BRIDGE.