Sept. 23, 1924. 1,509,803

A. T. BROWN

COUNTERBALANCE FOR ELEVATORS

Filed Nov. 26, 1921

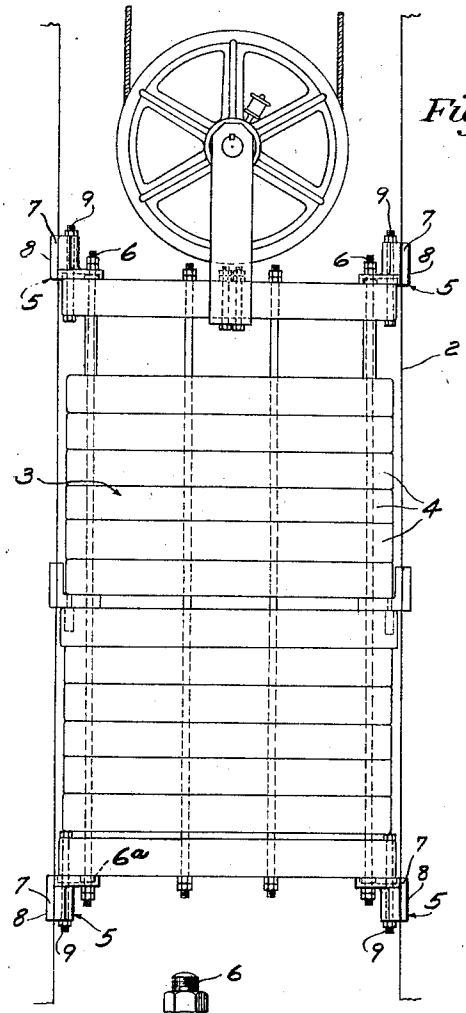


Fig.1

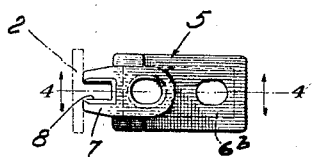


Fig.2

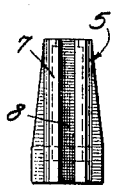


Fig.3

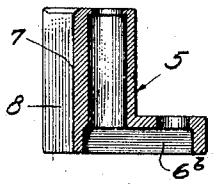


Fig.4

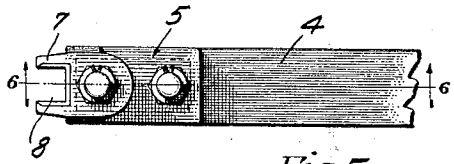


Fig.5

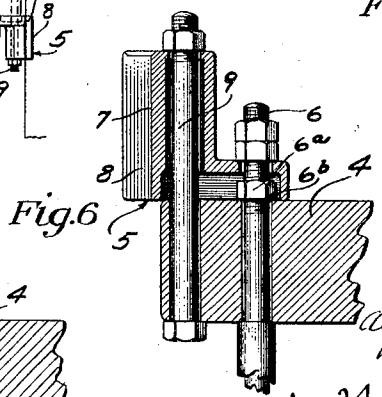


Fig.6

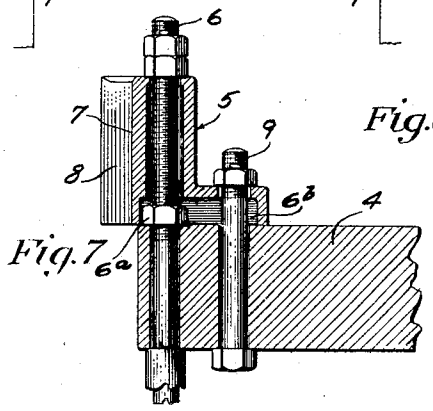


Fig.7

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UNITED STATES PATENT OFFICE.

ALFRED T. BROWN, OF CINCINNATI, OHIO, ASSIGNOR TO THE WARNER ELEVATOR MANUFACTURING COMPANY, OF CINCINNATI, OHIO, A CORPORATION OF OHIO.

COUNTERBALANCE FOR ELEVATORS.

Application filed November 26, 1921. Serial No. 513,041.

To all whom it may concern:

Be it known that I, ALFRED T. BROWN, a citizen of the United States, and residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and useful Improvement in Counterbalances for Elevators, of which the following specification is a full disclosure.

My invention relates to an improvement in elevator counterbalances and guide shoes therefor. It has been customary to use cast-iron weight blocks formed with marginal grooves for cooperation with the shaft guide, the surfaces of these grooves being babbitted for a sliding contact with the guides. Whenever the babbitt wore, the clearance between the weight and its guide was increased and soon became equal to the shaftway clearance, and the weight dragged the wall or headers. It was difficult and expensive to remove the blocks and to properly rebabbitt the slide grooves.

It is an object of my invention to provide guide shoes detachably secured to the weight blocks so that they can be removed and rebabbitted or replaced without the expense of disassembling the weight or losing the service of the elevator for a considerable time. The weight blocks are formed of scrap iron metal, very difficult to drill or to machine, and consequently the weight blocks cannot be economically machined to provide guiding means integral therewith.

It is a further object of my invention to provide the blocks with registering orifices cored in the castings to receive the tie-rods upon which the blocks are respectively strung, the top and bottom blocks of a series being additionally provided with cored orifices to receive bolts or ties to secure the slide devices or shoes to the blocks, so that the blocks do not have to be drilled or machined. This enables the provision of detachable slide shoes formed of material suitable for machining operations, and in consequence they can be provided with precision anti-friction bearings.

This improvement has resulted in marked economy, increased efficiency of the counterbalance travel, and in ready renewability or adjustment of the guide-way bearing members.

The features of my invention are set forth in the accompanying drawings, forming a part of this specification, in which:

Figure 1 is an elevation of the counterbalance, equipped with my improved brackets.

Figure 2 is a top plan view of one of the brackets.

Figure 3 is an end elevation of the bracket taken from the grooved side.

Figure 4 is a section on line 4—4, Fig. 2.

Figure 5 is a top plan view of the arrangement of Fig. 1, showing a bracket secured to a weight block.

Figure 6 is a section taken on line 6—6, Fig. 5.

Figure 7 is a view similar to Fig. 6, showing a modified arrangement of the fastening devices.

The elevator shaft shown in Fig. 1 is provided with the vertical guides 2, the counterbalance weight 3, formed of a series of cast-iron blocks 4, of less width than the distance between the vertical guides 2 and non-engaged with said guides, the bearing brackets or shoes 5, attached to the opposite end blocks of the series and to the opposite ends of each of said end blocks, in order to secure these brackets or guide shoes to the blocks, the latter are cored to form registering orifices for the vertical bolt rods 6, upon which the blocks are strung in superposed relation, the nuts 6^a being provided for the rods 6, to hold the blocks 4 together when the guide shoes are removed, said nuts being housed in depression 6^b at the under side of the guides. The upper and lower blocks are provided with additional cored orifices at opposite ends for the short connecting bolts of the bracket.

The brackets or guide shoes 5 are in the nature of L-posts, having vertical orifices for securance to weight blocks, the said brackets having forwardly projecting portions 7, formed with bearing grooves 8, engaging the T-guides. Preferably these bolt-holding orifices 8 are elongated for adjustment in relation to the guides and blocks. These posts are suitably placed on the ends of the top and bottom weight blocks with their bolt orifices properly registered with the corresponding orifices in the blocks.

In Fig. 6 the tie-rod for the blocks is shown as extended through the lap portion of the L-post, a short bolt 9 extending through the end of the block and through the stem portion of the post, whereas in Figure 7 this relationship is transposed.

The simplicity of this device, together with its utility, results in the substantial improvement in a rapidly wearing portion of the elevator apparatus, the expediency and shortness of repair facility thereof being of much practical consequence.

Having described my invention, I claim:

1. A slide-way device for an elevator counterbalance engageable with the shaft guide, comprising cast-iron weight blocks of less width than the distance between the members of the shaft guide, said blocks cored with registering orifices, said blocks being superposed, vertical bolt tie-rods passing through said orifices, the top and bottom blocks being formed with additional cored orifices for bolts at opposite end portions, detachable posts formed with bolt orifices placed in registry with the respective weight block orifices, tie-rod bolts and stud bolts securing said posts appropriately in relation to the guide members, the stem portions of said posts having lateral projections formed with bearing grooves engageable with the said shaft guides.

2. A slide-way device for an elevator counterbalance engageable with the shaft guide, comprising weight blocks of less width than the distance between the members of the shaft guide, said weight blocks non-engaged with said guide, stepped brackets on the ends of the weight blocks, tie-bolts passed through said blocks and said brackets, said brackets having laterally projecting portions formed with bearing grooves engaging the guides and tie-rods passing through cored orifices in the weight block castings and also passing through and constituting one of the holding members for said bearing brackets.

3. A counterbalance weight comprising a series of weight blocks, said weight-blocks non-engaged with the shaft-guides, and said weight blocks having cored orifices in registry, tie-rods connecting said blocks in superposed arrangement, and guide shoes detachably secured to the opposite ends of each of the opposite end blocks of the series.

4. A counterbalance weight comprising a series of weight blocks, said blocks non-engaged with the shaft guides, the said weight blocks having cored orifices in registry, tie-rods connecting said blocks in superposed arrangement, and guide shoes detachably secured to the opposite ends of each of the opposite end blocks of the series and to the opposite ends of an intermediate block of the series.

In witness whereof, I hereunto subscribe my name, as attested by the two subscribing witnesses.

ALFRED T. BROWN.

Witnesses:
L. A. Beck,
R. Kistner.