W. B. THOMAS.

SAFETY ATTACHMENT FOR ELEVATORS.

APPLICATION FILED MAR. 6, 1909.

995,500. Patented June 20, 1911.

Fig. 1.

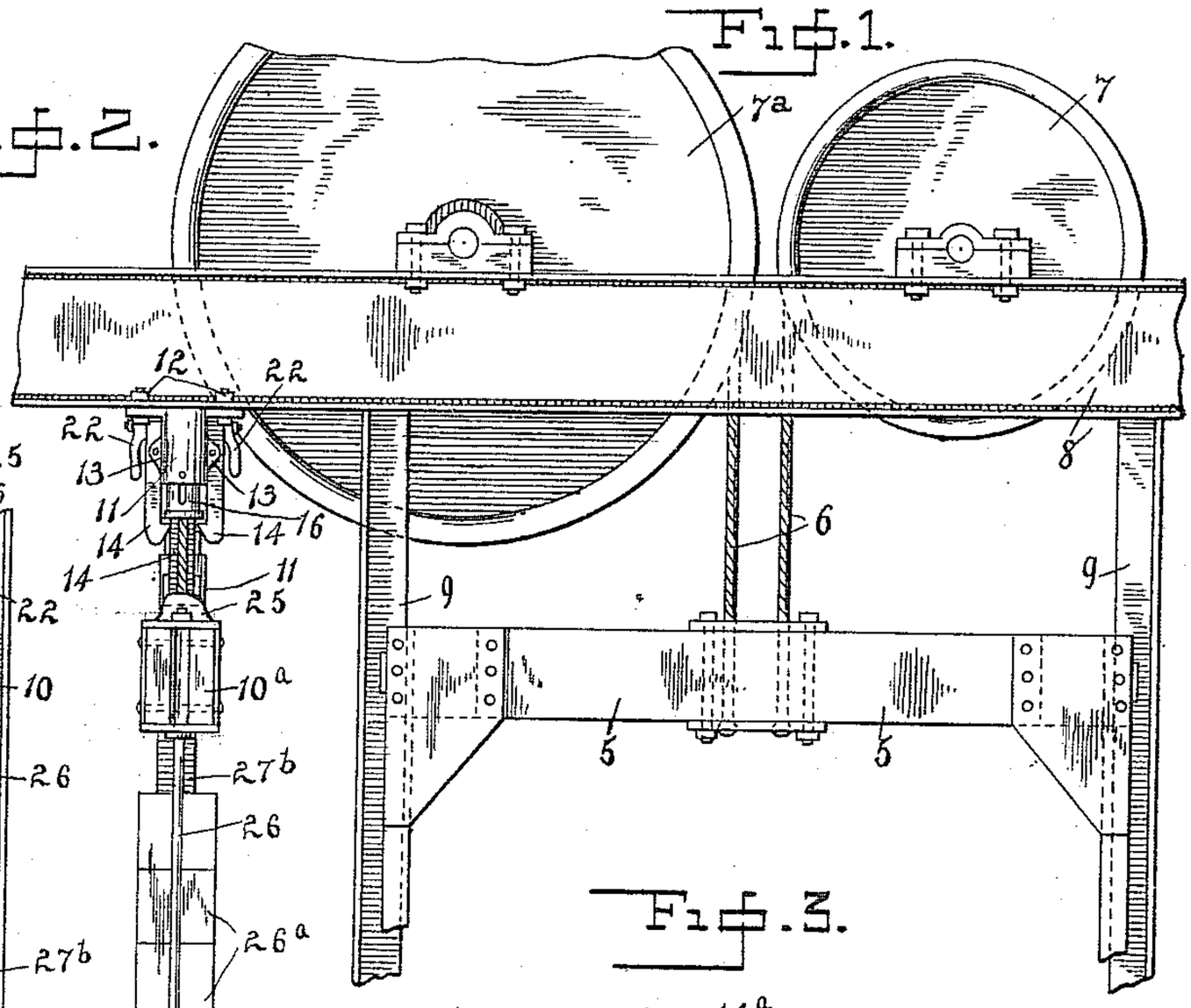


Fig. 2.

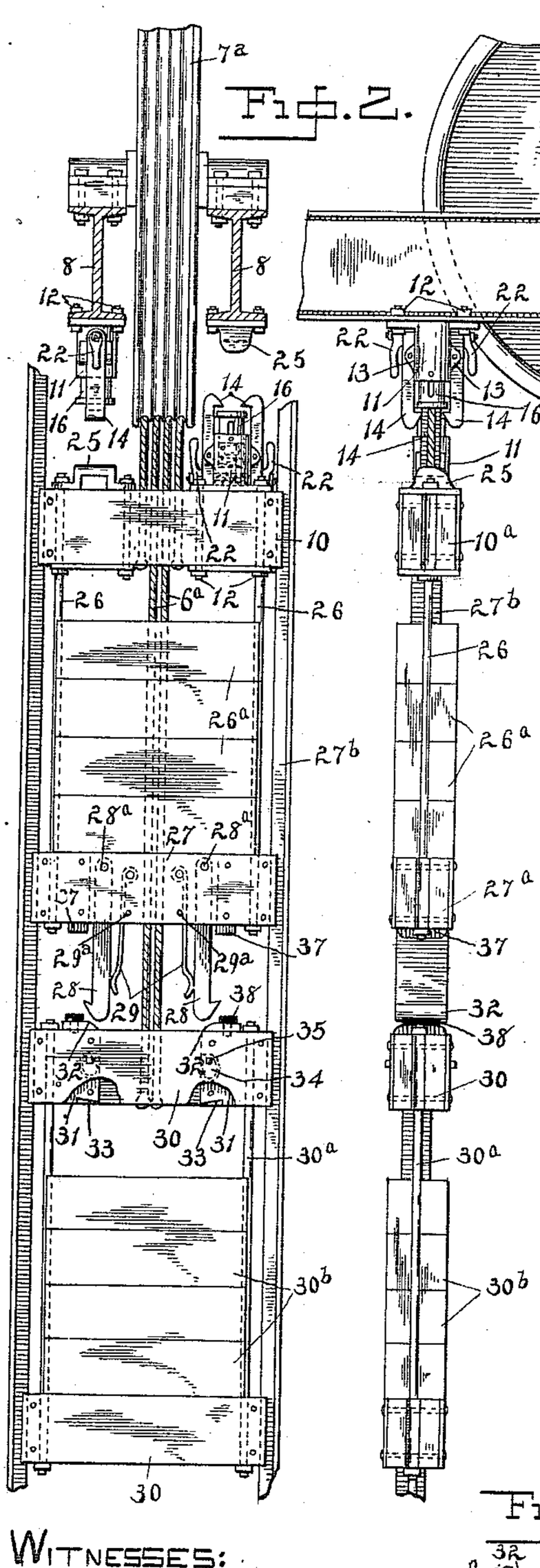


Fig. 3.

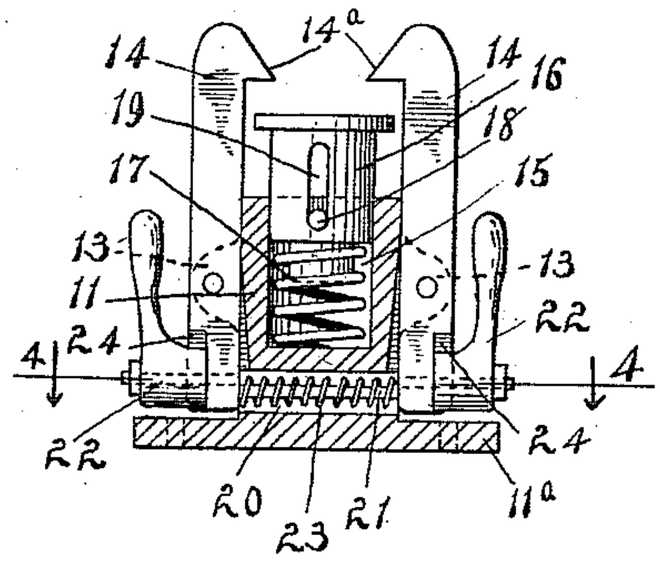


Fig. 4.

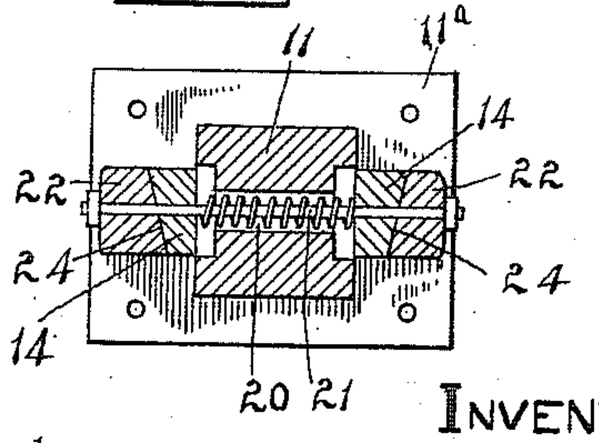
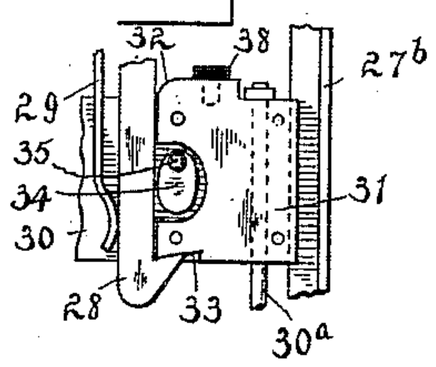


Fig. 5.



WITNESSES:

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UNITED STATES PATENT OFFICE.

WALTER B. THOMAS, OF CHICAGO, ILLINOIS.

SAFETY ATTACHMENT FOR ELEVATORS.

995,500. Specification of Letters Patent. Patented June 20, 1911.

Application filed March 6, 1909. Serial No. 481,606.

To all whom it may concern:

Be it known that I, WALTER B. THOMAS, citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Safety Attachments for Elevators, of which the following is a specification.

This invention relates to improvements in safety appliances applicable to passenger elevators, and more especially to the counterweights which are commonly used in connection with such elevators.

The especial object of the improvements upon which this application for patent is based, is to provide effective means for catching and holding the counterweights should any accident to the apparatus cause them to strike against the overhead supporting beams which are commonly used and also to provide means for catching and holding the drum weights which are usually arranged in the same slide-way with the counterweights and are therefore more or less affected by accidents to the latter.

In co-pending application, Serial No. 463,585, filed November 20, 1908, I have illustrated a modified form of the safety devices hereinafter described, as applied especially to an elevator car or cage, and in this application am claiming similar devices adapted especially to the counterweights and drum-weights used in connection with such cars or cages.

In the accompanying drawings:—Figure 1 is a partial elevational view of the hitch-beam of an elevator with drums, cables, counterweight and drum-weights in their normal operative relation; Fig. 2 is an elevation of the counterweight, drum-weight and supporting appliances; Fig. 3 is a detail on an enlarged scale partly in section of a form of catch which constitutes an important feature of my invention, and Fig. 4 is a cross-section on the line 4—4 of Fig. 3; Fig. 5 is a detail of a latch operating device.

Referring to the details of the drawing, 5 represents a hitch-beam of an elevator hoist which slides upon the vertical guide-rails 9 and is connected with supporting cables 6 passing over the sheaves 7, 7ª, which are journaled on the overhead I-beams 8.

10 represents the top or hitch-plates for the counterweight which are connected by bolts 26 with the bottom plates 27. These plates are spaced apart except at their ends where slide-blocks 10ª, 27ª, are inserted to engage the guide-rails 27ᵇ. The bolts 26 pass through suitable notches in the ends of the weights 26ª, thus holding the latter against lateral displacement.

11 represents a cast block preferably formed integral with a base 11ª which is secured to the plates 10 by bolts 12. On the opposite sides of this block are spaced lugs 13 between each pair of which is pivoted a latch 14 which terminates in a hook 14ª which projects inwardly. In the cup-shaped cavity 15 formed in the block 11 is slidably arranged a piston or buffer 16 which is supported in a projected position by a coiled spring 17 one end of which bears against the bottom wall of the cavity 15. A slot 19 extends through the buffer 16 and receives a pin 18 the ends of which are fixed in the side walls of the block near its upper edge, thus preventing the piston from falling out of the cavity. In the bottom of the block 11 is a horizontal recess 20 in which is placed an expansion spiral spring 23 which surrounds a rod 21 which passes through the adjacent ends of the latches 14 and is supplied with nuts on its threaded ends. The expansion of the spring 23 against the latches causes the hooked ends of the latter to bear inwardly and thereby maintaining them in operative position.

Between the nuts on the ends of the rod 21 and the adjacent ends of the latches cam levers 22 are so mounted on the rod 21 that the cam face on the hub of each lever bears against a reverse cam face 24 formed on the latch so that when a lever is turned on the rod the co-acting cams will cause the lower ends of the levers to move inwardly and give the hooked ends a corresponding outward movement, thus disengaging them from any object with which they may be in engagement, such for instance as the keeper 25 which is bolted to the I-beam or to the plates 10 as shown in Fig. 2.

By reason of peculiarities in the construction and arrangement of the plates 27 of the counterweight holder and the plates 30 of the drum-weight holder, the form of catching and releasing device above described as applicable to the counterweight and overhead supports cannot be utilized. I have therefore devised the mechanism which will now be described.

Latch-members 28 are pivotally mounted on bolts 28ª which pass through the plates

27 between which said latches work. The hooked ends of these latches extend outwardly and are held in operative position by springs 29 which are secured between the plates 27 and are held in contact with the latches by pins 29[a] fixed in said plates. Between the upper plates 30 which with the bolts 30[a] and lower plates 30, afford support for the drum weights 30[b], are secured blocks 31 formed with rounded corners 32, and in the lower face of each a recess 33. In a suitable recess in one face of each block is mounted a cam 34 formed with trunnions 35 one end of which projects through a suitable hole in one of the plates 30 to receive a wrench. This cam is of such shape and so mounted that when a latch 28 is in engagement with the notch 33, the partial rotation of the cam on its axis will push the latch head away from the notch and thus release the latch. Buffers 37 and 38 are so mounted on the plates 27 and 30 respectively that they will receive some of the shock incident to the said plates coming violently together, a condition that will take place should the cables 6 supporting the counterweights 26[a] break, or should the plates 10 strike the overhead beams 8 as a result of the accidental dropping of the hoist.

From the construction described it will be noted, if through any accident, the counterweights should be carried to the top of the slideway provided therefor so as to strike with force the overhead supports, the latches 14 will automatically engage the yokes or keepers 25, the pistons 16 will absorb some of the shock incident to the collision and the counterweight frame or holder composed of the plates 10, rods 26 and plates 27 will be held against dropping until the latches are released by the cam levers 22. It will also be noted that the springs 23 and 29 will restore the latches 14 and 28 respectively to their operative positions as soon as released from the action of the cams.

Having thus described my invention what I claim is:—

1. In combination with elevator counterweights and drum-weights, latches mounted on the counterweights, keepers on the drum-weights adapted to be engaged by said latches, and means for disengaging the latches from the keepers.

2. In combination with elevator counterweights and drum-weights, means for connecting the weights, said means operable by impact between the weights, in combination with manually operable means for disconnecting the weights.

3. In combination with elevator counterweights and overhead supports for same, means for catching and holding said weights, said means comprising yielding hooked latches pivotally mounted on the weights, a keeper adapted to be engaged by said latches and mounted on the overhead support, and cams for releasing the latches from the keeper.

4. In combination with elevator counterweights and drum-weights for same, means for catching and holding said weights, said means comprising yielding pivotally mounted hooked latches mounted on the counterweights, and a keeper adapted to be engaged by said latches and mounted on the drum-weights.

In testimony whereof I affix my signature in the presence of two witnesses.

WALTER B. THOMAS.

Witnesses:
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M. A. Milord.