

946,284.

4 SHEETS—SHEET 1.



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Joseph Stamp

By Victor J. Evans

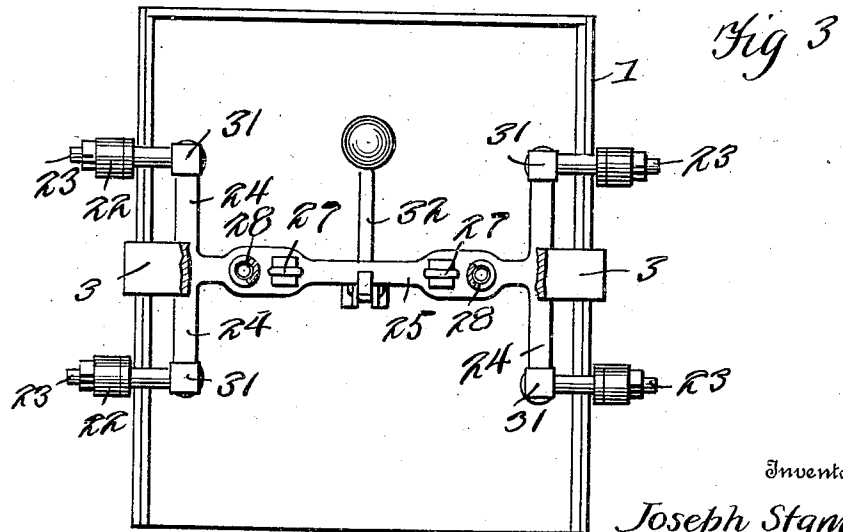
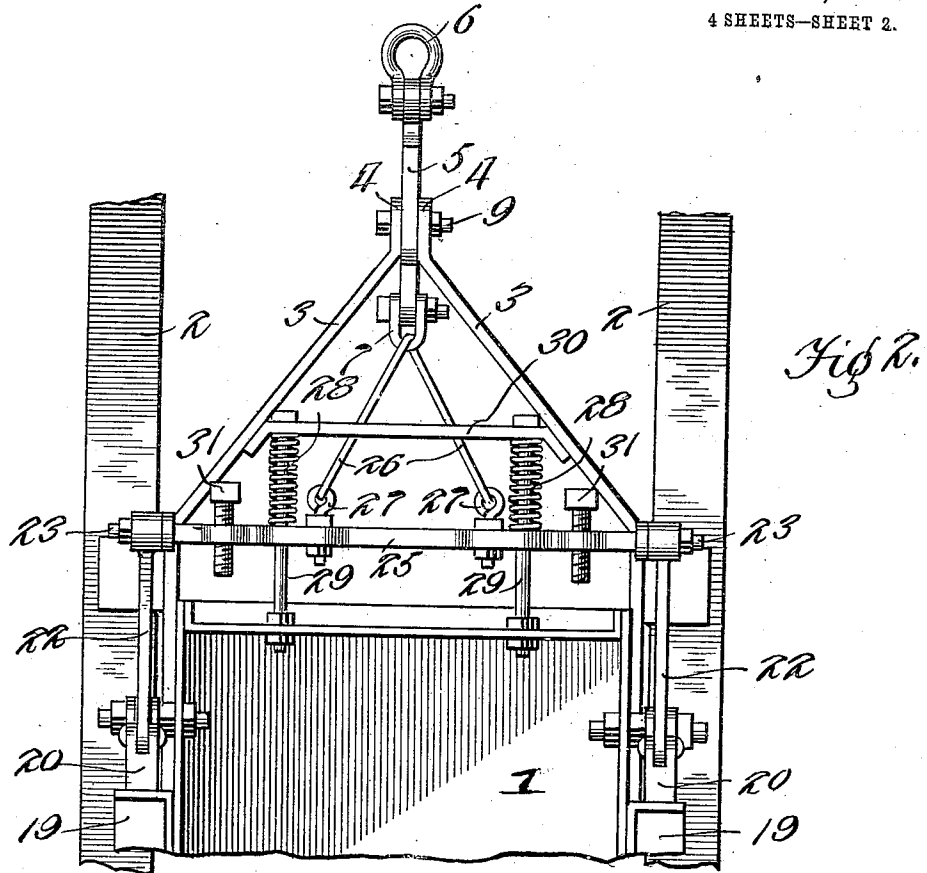
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Patented Jan. 11, 1910.

4 SHEETS—SHEET 2.

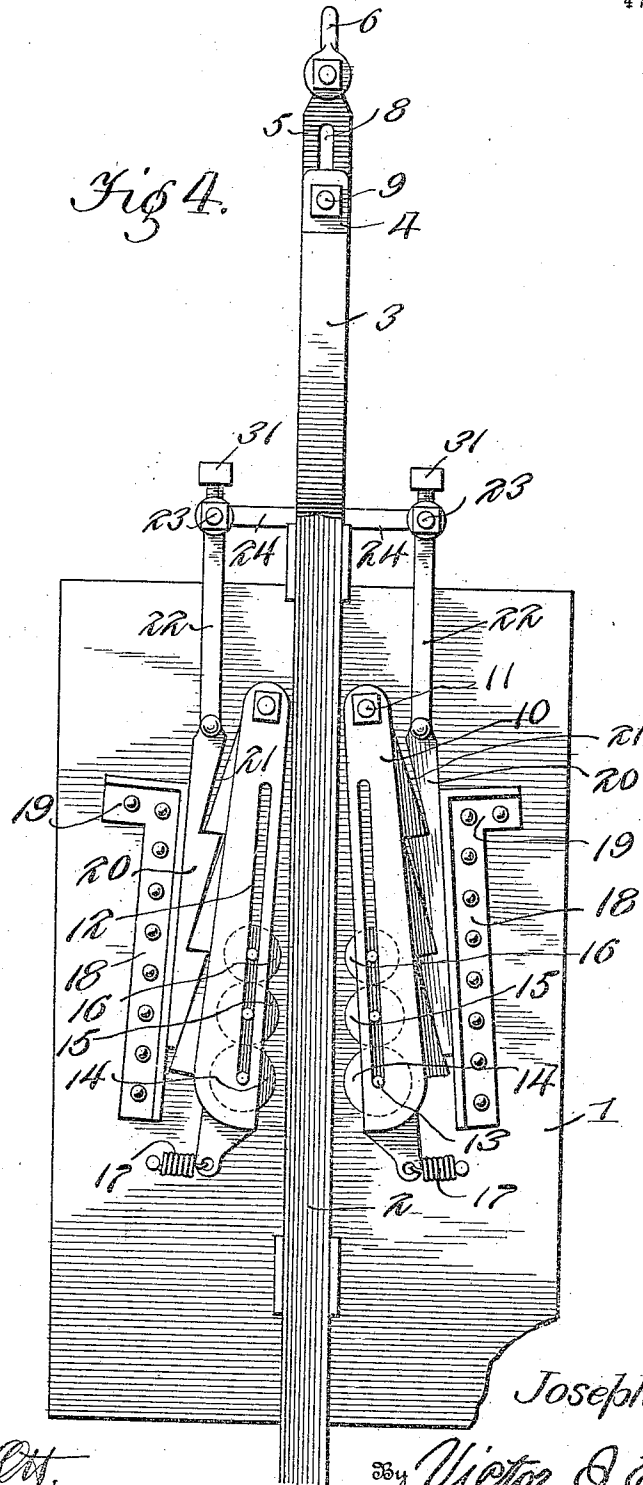


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4 SHEETS—SHEET 3.



Witnesses

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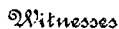
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4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

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SAFETY-CATCH.

946,284.

Specification of Letters Patent.

Patented Jan. 11, 1910.

Application filed March 19, 1909. Serial No. 484,488.

To all whom it may concern:

Be it known that I, JOSEPH STAMP, a subject of the King of Great Britain, residing at Waterval Boven, in Transvaal, South Africa, have invented new and useful Improvements in Safety-Catches, of which the following is a specification.

This invention relates to safety catches for elevators, the object in view being to provide a safety appliance adapted to be applied to any ordinary elevator cage, said appliance being carried by the cage and being adapted to be automatically thrown into operation by the parting of the hoisting cable by which the cage is suspended and operated, the safety appliance being designed to firmly grip or clamp the vertical guide rails by which the up and down movements of the cage are directed.

With the above and other objects in view, the invention consists in the novel construction, combination and arrangement of parts herein fully described and claimed.

In the accompanying drawings, Figure 1 is a front elevation partly in section showing the safety appliance connected to an elevator cage, the parts being shown in their operative positions. Fig. 2 is a similar view showing the normal position assumed by the parts before the cable breaks. Fig. 3 is a plan view of the cage, showing the head frame in section. Fig. 4 is a side elevation of the parts shown in Fig. 1, illustrating the elements of the safety appliance in normal or inoperative positions. Fig. 5 is a similar view showing the position assumed by the parts when released. Fig. 6 is a detail view illustrating the latch for holding the safety appliance in gripping relation to the guide rails.

Referring to the drawings, 1 designates the cage of an elevator and 2 the vertical guide rails which direct and govern the movements of the cage up and down.

In carrying out the present invention the cage is provided with an inverted V-shaped head frame 3 consisting of upwardly converging bars, the upper ends 4 of which are arranged parallel to each other to leave a space in which is arranged a vertically movable slide 5 which is provided at its upper end with a clevis 6 and provided at its lower end with a similar clevis 7. The slide 5 is longitudinally slotted as shown at 8 to receive a connecting bolt 9 which passes through the parallel portions 4 of the head

frame and admits of the up and down movement of the slide 5, said movement being necessary to effect the application of the gripping devices hereinafter described.

Arranged at opposite sides of each guide rail 2 is a pair of roll carriers 10 which are pivoted at their upper ends as shown at 11 to the cage 1 at opposite sides thereof, four of such carriers 10 being employed. Each of said carriers is vertically elongated as shown in Figs. 4 and 5 and comprises opposite side plates which are formed with oppositely located slots 12 extending lengthwise of the carriers and receiving the pintles 13 of a plurality or series of gripping rolls 14, 15 and 16. These rolls are preferably graduated in diameter or in other words the lowermost roll is of the largest diameter while the uppermost roll is of the least diameter, while the intermediate roll or rolls is of a diameter greater than the uppermost roll and less than the lowermost roll. The pintles of all the rolls rest and work loosely in the slots 12 to adapt said rollers to move upward when moved in contact with the guide 2. Normally the carriers 10 and the rolls carried thereby are held away from the adjacent surfaces of the guides 2 by means of hold off springs 17.

Arranged outside of each carrier 10 is an abutment 18 which extends in the same general direction as the carrier and is secured fixedly to the side of the cage 1. This abutment is preferably formed of angle iron as shown while the upper end thereof is offset to form a lateral extension 19 to give additional attaching strength at the upper end of the abutment where the greatest strain occurs.

Between each carrier and its respective abutment is a multiple wedge 20 or in other words, a wedge embodying a plurality of steps or inclined faces which cooperate with a corresponding set or series of inclined steps or faces 21 on the adjacent side of the carrier as clearly shown in Figs. 4 and 5. All of the wedges 20 are operated by means of links 22 connected to the upper ends of the wedges and extending upward therefrom, the upper extremities of said links being pivotally mounted on pintles 23 extending outward from the opposite ends of arms 24, said arms being located at the opposite extremities of a common cross head 25 which extends across the top of the cage as shown in Fig. 3. Thus when the cross head 25 is moved up-

ward or downward, corresponding movement is imparted to each and all of the multiple wedges 20 causing them to operate simultaneously on all of the roll carriers, to force the rolls in gripping contact with the guide rails. The cross head 25 is normally upheld in the position shown in Fig. 2 by means of a cross bar connection 26 interposed between eye bolts 27 on the cross head and the clevis 7 of the slide 5. Now when by reason of the weight of the cage and the suspending cable the cross head 25 is upheld as shown in Figs. 2 and 4, the wedges are held inoperative. When the cable breaks or becomes sufficiently slack to allow the cage to move rapidly downward the cross head 25 is quickly thrust downward by the action of wedge thrust springs 28 which encircle bolts 29 extending from the top of the cage upward to a cross bar 30 interposed between the upwardly projecting bars of the head frame secured terminally thereto as shown in Figs. 1 and 2. The downward movement of the cross head 25 may be limited and adjusted by means of set screws 31 threaded through the cross head 25 said screws being also useful for moving the wedges 20 upward to release the same after they have been jammed.

From the foregoing description it will be understood that when the cage supporting cable is broken or slack, all of the wedges are simultaneously and quickly thrust downward between the abutments and the roll carriers which has the effect of forcing the carriers toward the guide rails. When the rolls come in contact with said rails and engage the same frictionally the rolls are carried upward relatively to their carriers, the pintles moving upward in the slots 12 of said carriers. In this way a firm grip is obtained between the rolls and the guide rails thus effecting a gradual stoppage or arrest of the downwardly moving cage.

32 designates a catch for engaging and holding the cross head 25 when depressed, said catch being shown as mounted on the top of the cage.

I claim:—

1. The combination with an elevator cage, and a supporting cable and guide rails therefor, of roll carriers mounted thereon and located at opposite sides of one of the guide rails, rolls mounted on said carriers and adapted to contact with said guide rail, abutments on the cage, wedges movable between the roll carriers and abutments, and means for causing an active movement of said wedges upon the breakage or slackening of the supporting cable by which the cage is suspended.

2. The combination with an elevator cage, and a supporting cable and guide rails therefor, of roll carriers pivotally mounted on the cage at opposite sides of the guide rails,

gripping rolls mounted on said carriers, abutments on the cage, multiple faced wedges adapted to operate between the carriers and the abutments, and cable controlling means thrown into action by the breaking or slackening of the cable which supports the cage, operating to impart an active movement to said wedges, the latter operating to move the carriers and rolls toward the guide rails.

3. The combination with an elevator cage, and a supporting cable and guide rails therefor, of roll carriers arranged at opposite sides of the guide rails and having a connection with the cage, rolls mounted on said carriers and having their pintles arranged to slide lengthwise of the carriers, said carriers being provided with inclined faces, abutments secured to the cage and extending along side of the carriers, wedges arranged to operate between the carriers and abutments upon said inclined faces of the carriers, and means thrown into action by the parting or slackening of the cable for actuating said wedges and moving the rolls into gripping contact with the guide rails.

4. The combination with an elevator cage, and a supporting cable and guide rails therefor, of roll carriers mounted thereon, and arranged at opposite sides of the guide rails, abutments secured to the cage, wedges operating between the abutments and roll carriers, rolls mounted on said carriers and adapted to operate in gripping contact with the guide rails, a cross head connected with all of the wedges, means connecting said cross head with the supporting cable for holding the wedges inactive, means for imparting movement to the cross head relatively to the cage upon the parting or slackening of said cable, and means for varying the limit of movement of said cross head toward the cage.

5. The combination with an elevator cage, and a supporting cable and guide rails therefor, of roll carriers mounted thereon at opposite sides of the guide rails, rail gripping rolls mounted on said carriers, abutments secured to said cage, wedges movable between the said carriers and abutments, a common cross head operably connected with all of the wedges to impart simultaneous movement to the latter, means for actuating said cross head upon the breakage or slackening of the cage supporting cable, and a latch for engaging said cross head when the wedges are in their operative positions.

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

JOSEPH STAMP

Witnesses:

E. BOSMAN,
H. LOUDENS.