

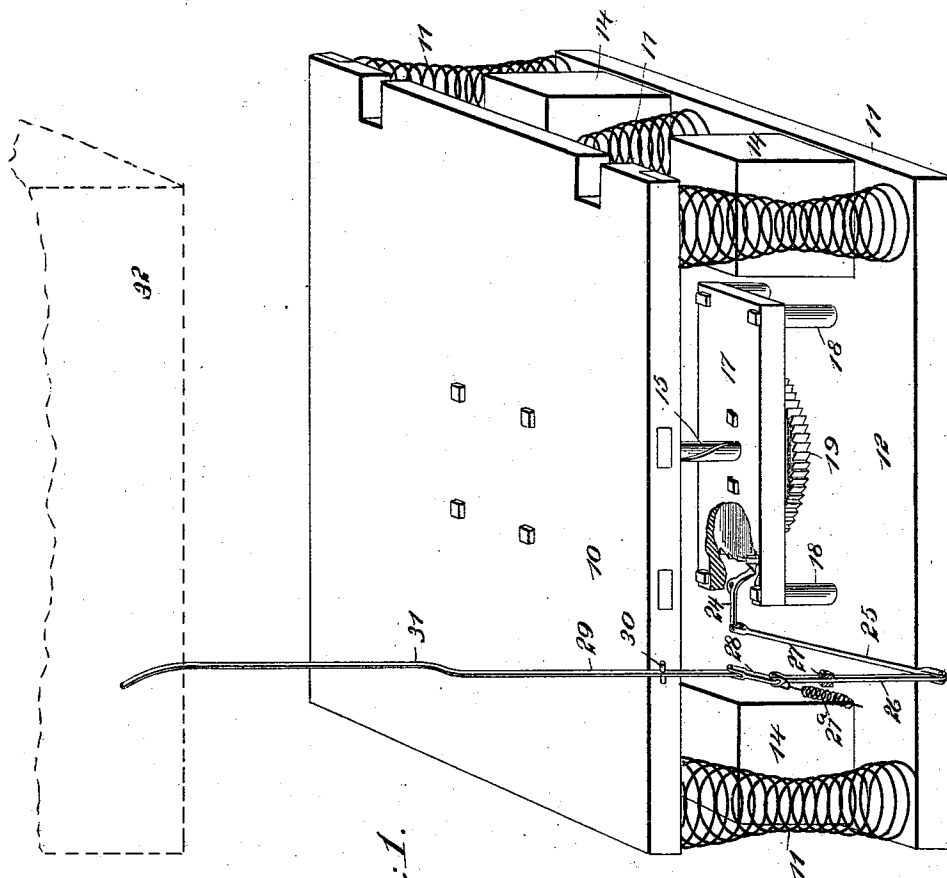
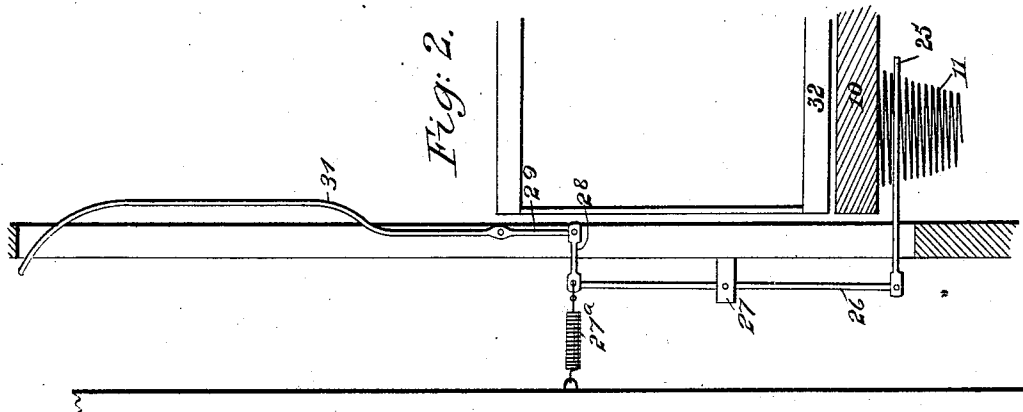
(No Model.)

2 Sheets—Sheet 1.

T. BELL & J. S. WILLIAMS.
STOP FOR ELEVATORS.

No. 545,764.

Patented Sept. 3, 1895.



WITNESSES:

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THOMAS BELL, OF McALESTER, AND JOHN S. WILLIAMS, OF KREBS, INDIAN TERRITORY.

STOP FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 545,764, dated September 3, 1895.

Application filed December 19, 1894. Serial No. 532,322. (No model.)

To all whom it may concern:

Be it known that we, THOMAS BELL, of McAlester, and JOHN S. WILLIAMS, of Krebs, Choctaw Nation, Indian Territory, have invented a new and Improved Stop for Elevator and other Cages, of which the following is a full, clear, and exact description.

Our invention relates to improvements in that class of devices which are adapted to stop the cages in elevator-wells, mining-shafts, and similar places; and the object of our invention is to produce a simple device which is adapted to be placed in the bottom of an elevator-well or mining-shaft, and which serves as a cushion to receive the descending cage, thus allowing the engineer to run the cage with greater speed and preventing the cage from receiving damage by striking the bottom suddenly. Our stop device is also adapted to be locked in its depressed position when struck by a cage and then be automatically released when the cage is lifted, so as to place itself in position to again receive the cage.

The object of locking the stop device in its depressed position is to hold the cage stationary while it is being unloaded, as otherwise the cushion would cause the cage to rise.

A further object of our invention is to produce a device which may be used to advantage in cages which are arranged to receive coal or similar cars, and which, being depressed by the weight of the cage and car, and being prevented from rising by the locking device, holds the car in position to be readily loaded.

To these ends our invention consists of certain features of construction and combinations of parts, which will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a perspective view of our improved stop. Fig. 2 is a detail view of the lever mechanism which is used for releasing the stop, so that it may rise again without being compressed; and Fig. 3 is a detail vertical section of the stop, showing its connection with the rails of an ordinary coal-track.

The stop is provided with a top striking plate or platform 10, which is supported on springs 11, resting on a base-plate 12, and this is preferably mounted on suitable supports 13; but it will be understood that instead of the spiral springs 11 shown other springs may be used or another form of cushion substituted for the springs without departing from the principle of the invention. The downward movement of the striking plate or platform is limited by blocks 14 on the base-plate 12. Depending from the under side of the striking plate or platform 10, and at a point near the center, is a screw 15, which connects with the striking-plate by a ball-joint 16, the ball being held by a pin 16^a; so that it cannot turn horizontally. The pin works in slots of the bearing, as shown in Fig. 3. The object of the ball-joint is to enable the screw to maintain its vertical position without being strained, even though the striking-plate 10 be considerably tilted.

The screw 15 extends downward through a plate 17, which is supported on legs 18, and through a ratchet-wheel 19, the thread of the screw being engaged by a key 20 in the said ratchet-wheel, so that the vertical movement of the screw turns the ratchet-wheel. The screw also extends downward through the base-plate 12 and the wear-plate 21, on which the ratchet-wheel turns. If desired, the screw may be provided with several grooves and the ratchet-wheel with corresponding keys, or the ratchet-wheel may be interiorly threaded to fit the screw.

The ratchet-wheel 19 is tapered on the under side, so that it will turn with little friction when the plate 10 and the screw 15 are being depressed; but the upper side of the ratchet-wheel is provided with a shoulder 22, which enters a plate 23, bolted to the under side of the plate 17, and thus the ratchet-wheel turns with considerable friction when the plate 10 is being lifted.

The ratchet-wheel is prevented from turning by a pawl 24, which, however, may be released by the levers connected with it, the pawl being fulcrumed on the under side of the plate 17 and having its outer end pivoted to a connecting-rod 25, which extends outward and is pivoted to the lower end of a lever 26,

which is fulcrumed on a support 27, and is at the upper end pulled outward by a spring 27^a. The upper end of the lever 26 connects by a rod 28 with the lower end of a lever 29, which is fulcrumed on a suitable support and has a long bend 31, adapted to be struck by a cage 32, so as to push the lever out when the cage is ascending, and thus release the pawl 24, so that the ratchet-wheel 19 may turn and the striking-plate 10 rise. When the elevator is used in connection with the rails 37 of a coal-track, as shown in Fig. 3, one edge of the striking-plate 10 is provided with a rod 33, which enters slots 34 in the vertically-swinging rails 35, which, therefore, are adapted to move up and down in unison with the striking-plate, and the rails are hinged at 36 at their outer ends to the ordinary track-rails 37, and when the striking-plate 10 is lifted the rails 37 are level with the rails 35 and are of a height to align with the rails on a cage which is adapted to receive the coal-cars running on the track 37 in the usual way.

The rails 35 are provided with flanges 35^a, secured to a movable floor portion 38, which is adapted to swing in a space 39. That edge of the platform 10 which is adjacent to the rails 35 is provided with two notches or open slots to receive the ends of said rails, as shown in Figs. 1 and 3. It will be seen that when the stop is arranged in the bottom of a mining-shaft it will cushion a descending cage, as specified, and when the striking-plate 10 is depressed it is locked by the pawl 24, so that the cage is in position to receive or discharge its car, and when the cage ascends it strikes the bend 31 of the lever 29, thus actuating the levers connected therewith and releasing the pawl 24 and ratchet-wheel 19, which permits the screw 15 to turn and the spring 11 to raise the striking-plate 10.

We have shown but one set of swinging rails 35 connected with the striking-plate; but it will be understood that the striking-plate will have a similar set of rails in the opposite side, so that when a cage is on the striking-plate it may receive or discharge cars from either side.

The object of locking the striking-plate in its lower position is to hold the cage stationary while it is being unloaded, as otherwise the springs would cause the cage to rise.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. A stop of the kind described, comprising a cushioned striking plate, a locking device to hold the striking plate in its lower position, and means for automatically releasing the striking plate, substantially as described.

2. A stop of the kind described, comprising a cushioned striking plate, a ratchet mechanism for locking the striking plate in its depressed position, and a lever mechanism actuated by the rise of the cage from the striking plate to release the ratchet mechanism, substantially as described.

3. A stop of the kind described, comprising a cushioned striking plate, a screw on the under side of the striking plate, a ratchet wheel turned by the vertical movement of the screw, a pawl to engage the ratchet wheel, and a lever mechanism to release the pawl, substantially as described.

4. A stop of the kind described, comprising a cushioned striking plate, a screw on the under side of the striking plate, a ball joint connecting the screw and striking plate, a ratchet wheel turned by the vertical movement of the screw, a pawl to lock the ratchet wheel, and a lever mechanism to release the pawl, substantially as described.

5. A stop of the kind described, comprising a cushioned striking plate, a screw on the under side of the striking plate, a ratchet wheel turned by the screw, a bearing plate for the upper side of the ratchet wheel, a pawl to lock the ratchet wheel, and a lever mechanism to release the pawl, substantially as described.

6. The combination, of the cushioned striking plate, the ratchet wheel turned by the rise and fall of the striking plate, a pawl for preventing said ratchet wheel from turning, a lever projecting above the striking plate to be engaged by a cage, and mechanism actuated by the lever to release the pawl, substantially as described.

7. The combination, with the cushioned striking plate and the stationary track rails adjacent thereto, of the swinging track rails hinged to the rigid rails and connected with the striking plate to rise and fall therewith, substantially as described.

8. A stop of the kind described, comprising a cushioned striking plate, a locking device to hold the striking plate in position when the cushion is compressed, and means for releasing the striking plate, substantially as described.

9. The combination of the cushioned striking plate, and the swinging floor section secured to a stationary support and also secured to the striking plate to rise and fall therewith, substantially as described.

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Witnesses:

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