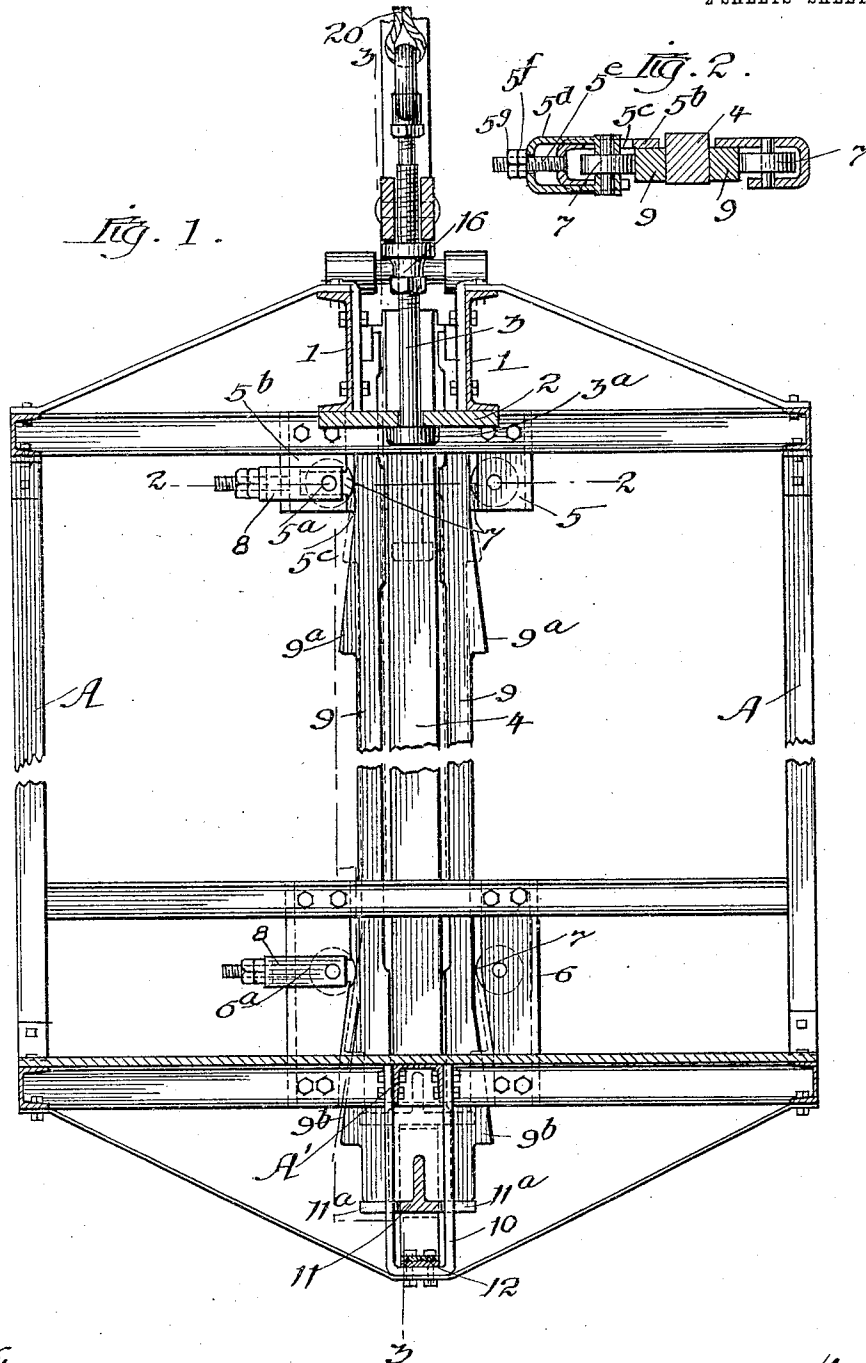


S. BISCEGLIA.
ELEVATOR SAFETY APPLIANCE.
APPLICATION FILED DEC. 12, 1908.

932,102.

Patented Aug. 24, 1909.

2 SHEETS—SHEET 1.



Witnesses:
Frank Blanchard
Lee H. Cullen

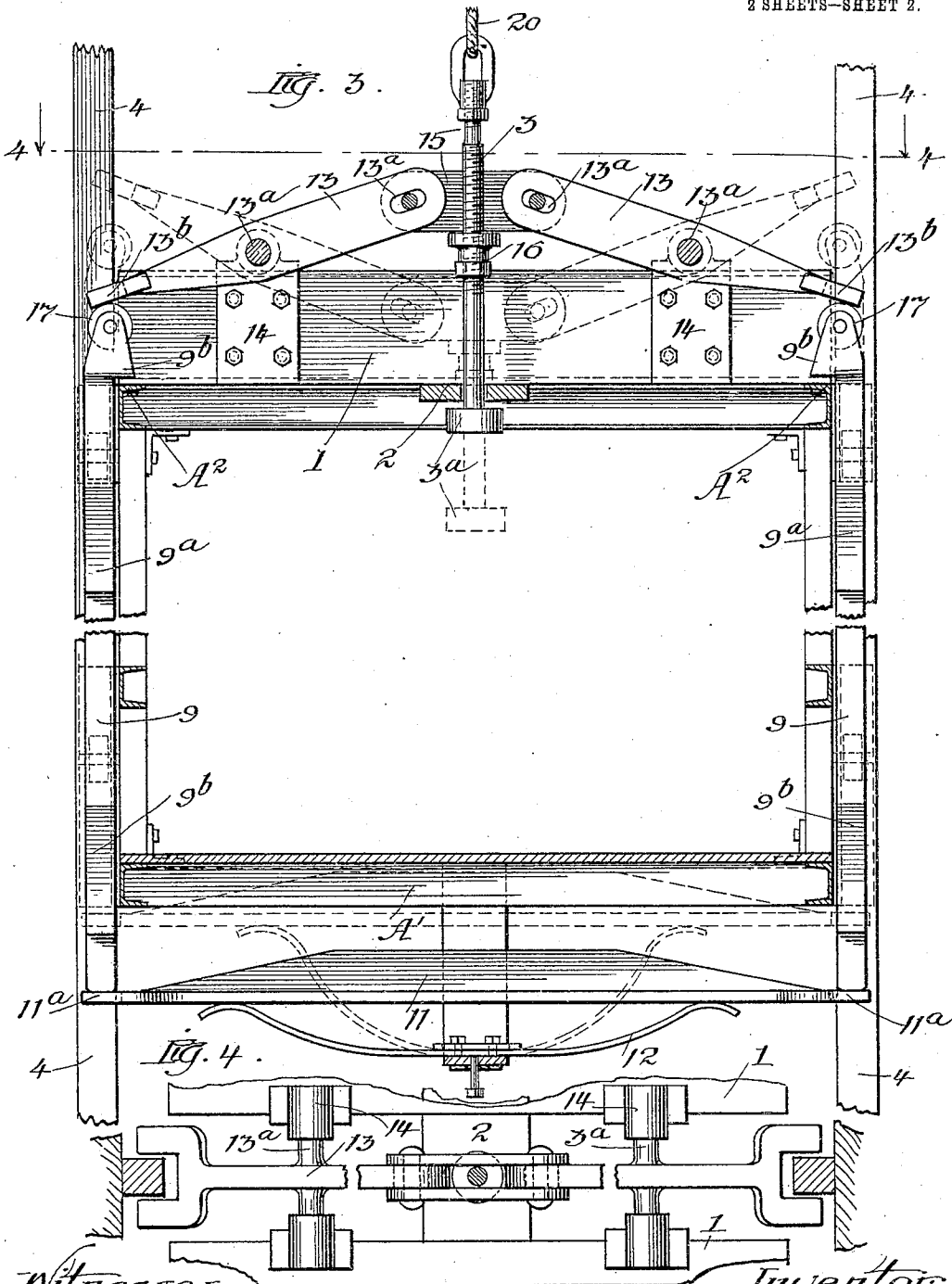
Inventor:
Salvatore Bisceglia
By Burton & Burton
Attorneys.

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UNITED STATES PATENT OFFICE.

SALVATORE BISCEGLIA, OF CHICAGO, ILLINOIS.

ELEVATOR SAFETY APPLIANCE.

932,102.

Specification of Letters Patent.

Patented Aug. 24, 1909.

Application filed December 12, 1908. Serial No. 467,294.

To all whom it may concern:

Be it known that I, SALVATORE BISCEGLIA, a citizen of the United States, residing at No. 128 Stave street, Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Elevator Safety Appliances, of which the following is a specification, reference being had to the drawings forming a part thereof.

The purpose of this invention is to provide an improved mechanism for automatically locking and arresting an elevator in case of breaking of the hoisting cable.

It consists of the features of construction and their combinations shown and described as indicated in the claims.

In the drawings:—Figure 1 is a vertical transverse medial section of an elevator embodying this invention. Fig. 2 is a detail section at the line 2—2 on Fig. 1. Fig. 3 is a section at the line 3—3 on Fig. 1. Fig. 4 is a detail section at the line 4—4 on Fig. 3.

The elevator cage is represented by the conventional frame structure comprising channel bars, A. A draft beam is represented as secured to the top of the elevator cage frame for hoisting it, said draft beam comprising channel bars, 1, 1, crossing and bolted to the top bars of the elevator cage frame, as seen in Figs. 1 and 3, said channel bars being connected by a cross block, 2, extended across their lower edges for receiving the draft rod, 3, which extends through and is stopped by its head 3^a below said cross block, 2. The elevator is represented as running on vertical guide posts, 4, 4, and for engagement of the elevator cage therewith there are mounted on the elevator cage frame, preferably at two points in the height thereof, one near the top and the other near the bottom, roller bearing blocks, 5, 5^a, and 6, 6^a. In the blocks, 5 and 6, there are journaled rollers, 7, 7, and in the blocks, 5^a and 6^a, there are mounted sliding adjustable journal bearings, 8, 8, for the rollers, 7. The rollers of each pair face each other at opposite sides of the post, 4, but spaced off therefrom sufficiently to admit between the post and the rollers wedge bars, 9, 9. These wedge bars bear, at their inner edges against the opposite sides of the post, 4, being formed at their outer edges with two outwardly projecting slopes, 9^a and 9^b, the first

in position to coöperate with the upper rollers and the second in position to coöperate with the lower rollers, 7.

To a middle fore-and-aft lower floor sill, A¹, of the elevator cage frame there is secured at the middle of the length of such sill a depending loop, 10, between whose side bars there is lodged a transverse bar, 11, which at its opposite ends has cross arms, 11^a, extending under and forming a step support for the lower ends of the wedge bars, 9. A bow spring, 12, bolted at its middle point to the loop, 10, bears at its ends upon the under side of the bar, 11, tending yieldingly to uphold it and thereby to uphold the wedge bars, 9, relatively to the elevator cage. Being thus bolted at its mid-point, the spring, 12, becomes, in effect, two springs, either one of which, in the event of the weakening or breaking of the other, would tend to uphold the wedge bars, 9, owing to the free mounting of the interposed bar, 11, which permits it to oscillate vertically about any point. Such free mounting of the bar, 11, allows the spring action, whether of one or more springs, to be distributed to the wedge bars as needed, the result being substantially the same as if a separate spring were used for each wedge bar. When thus upheld it will be observed that, considering each post and the adjacent parts, the wedge slopes or inclines, 9^a and 9^b, of the wedge bars are forced against the rollers, 7, and thereby the wedge bars are wedged toward and pressed against the opposite sides of the post, 4, which they thereby embrace with a firmness depending upon the tension of the spring, 12; and it will be observed that such initial frictional engagement as may thus be produced between the post and the wedge bars will tend to still further cause the bars to be wedged upward relatively to the elevator cage if the latter is descending, and that eventually the frictional engagement due to such wedging will arrest the descent of the elevator, such arrest being somewhat gradual as the frictional engagement increases with the progressing longitudinal movement of the wedge bars relatively to the cage and rollers, 7. The presence of the rollers, 7, by effecting a considerable difference between the friction of the cage on the wedge bars, 9, and that of the wedge bars, 9, on the post,

4, insures the above-described wedging action as soon as the least frictional engagement is secured between the wedge bars, 9, and the post, 4. The rollers being journaled on the cage so as to be carried positively with the latter in the accelerated descending movement which may result from breaking of the lifting cable, are caused to advance along the wedged slopes positively and in the most rapid manner possible so as to produce a clamping effect of the wedges upon the posts as promptly as possible after the accelerated descent of the cage commences.

To the draft beam there are pivoted levers, 13, 13, having pivots, 13^a, journaled in brackets, 14, bolted to the channel bars, 1, 1, respectively, so that the levers may swing between the channel bars, as seen in Fig. 1. At their inner or proximate ends the two levers, 13, are connected by an evenor or draft link, 15, through which the draft rod, 3, extends, a stop nut, 16, being provided on the rod, 3, below the draft link so that in the upward pull of the rod, 3, the stop nut engages the draft link and operates the levers, 13, thrusting them down at their outer ends. At said outer ends the levers, 13, have forks, 13^b, which loosely engage the posts, 4, the two fork terminals operating upon the upper ends of the wedge bars, 9, which at said upper ends are provided with anti-friction rollers, 17, to receive the impact and pressure of the said levers, 13.

The stop nut, 16, is a sufficient distance from the head, 3^a, on the lower end of the draft rod, 3, to allow the draft link and levers, 13, to move from full line to dotted line position shown in Fig. 3, the full line position being that assumed when the weight of the elevator cage is being supported by the rod, 3, to which the hoisting cable, 20, is attached, and the dotted line position being that to which the parts are moved by the reaction of the spring, 12, when the draft rod, 3, is released by the slacking or breaking of the cable, 20. At the full line position of the lever the wedge bars, 9, are thrust downward to the position shown in full line in Fig. 1, at which position they are substantially free from frictional engagement with the posts, 4, and do not retard the movement of the elevator cage either up or down. At the dotted line position to which they are thrust by the reaction of the spring, 12, when the cable breaks, the wedge bars are forced upward relatively to the elevator cage and rollers, 7, so that the wedge slopes of the wedge bars come into operation against the rollers, and the bars are thereby wedged tightly against the posts, with the frictional engagement increasing, as above described, so long as the elevator cage continues to descend after the cable breaks until it is stopped when such frictional engagement becomes sufficient. The

closeness of the engagement of the wedge bars with the posts at ordinary operative position,—that is, when the cable is sustaining the weight of the cage, may be regulated as conditions and experience may require by adjusting the bearings, 5^a, of the rollers, 7, at one side, and for the purpose of such adjustment these bearings are at that side mounted in hangers, 5^b, slotted at 5^c, for the roller bearings, which are connected by a yoke, 5^d, whose cross bar is penetrated by a threaded stem, 5^e, of the hanger, 5^b, adjusting and jam nuts, 5^f and 5^g, being provided on said stem outside the yoke and operating in a manner obvious without further description. In order that the grip of the wedge bars may be substantially the same upon the two posts, notwithstanding such slight variations as are liable to arise in the dimensions of the two posts and of the engaging parts respectively, the draft link, 15, is preferably mounted loosely on the rod, 3, so that it can tip slightly to accommodate any excess of longitudinal movement of one pair of wedge bars over that of the other.

It will be seen that if the spring, 12, should be stiff enough to resist the depression of the wedge bars so strongly as to prevent the head of the draft rod reaching and stopping on the cross block, 2,—that is, if the spring should be stiff enough to carry the load without sufficient flexure to bring the head of the bolt up to the lock,—the load would in fact be lifted at the pivots of the levers, 13, on the draft beam, and this is contemplated as a possible mode of operation of the device. Indeed, it is preferred that the load should be chiefly carried at the pivots, even though the head of the draft rod does reach the block, 2; and to insure that result, even when the spring is not stiff enough to carry the whole load, the wedge bars are preferably each provided with a shoulder, 9^b, which shoulders encounter and are stopped upon one of the frame bars at the top of the elevator cage Δ^2 , at substantially the same time that the head, 3^a, of the draft rod stops against the block, thus distributing somewhat the strain of carrying the load so that it is carried only in part on the head of the draft rod, and more largely on the pivots of the levers, 13, when the load exceeds the carrying capacity of the spring.

I claim:—

1. In combination with an elevator cage and vertical guide posts for the same, wedge bars mounted on the cage for vertical movement with respect thereto for engaging the guide posts; a spring which effects such engagement; means for transmitting the spring action similarly to both bars; levers fulcrumed on the cage for resisting the spring action; a draft rod having a limited

vertical movement with respect to the cage and connections for transmitting such movement to the levers.

2. In combination with an elevator cage
5 and vertical guide posts for the same, wedge bars mounted on the cage for vertical movement with respect thereto for engaging the guide posts; a spring which effects such engagement; a bar freely mounted for oscillation
10 tion vertically with respect to the cage for transmitting the spring action similarly to both wedge bars; levers fulcrumed on the

cage for resisting the spring action; a draft rod having a limited vertical movement with respect to the cage, and connections for
15 transmitting such movement to the levers.

In testimony whereof, I have hereunto set my hand, in the presence of two witnesses, at Chicago, Illinois, this 9th day of December, 1908.

SALVATORE BISCEGLIA.

In the presence of—

JULIA S. ABBOTT,
M. GERTRUDE ADY.