

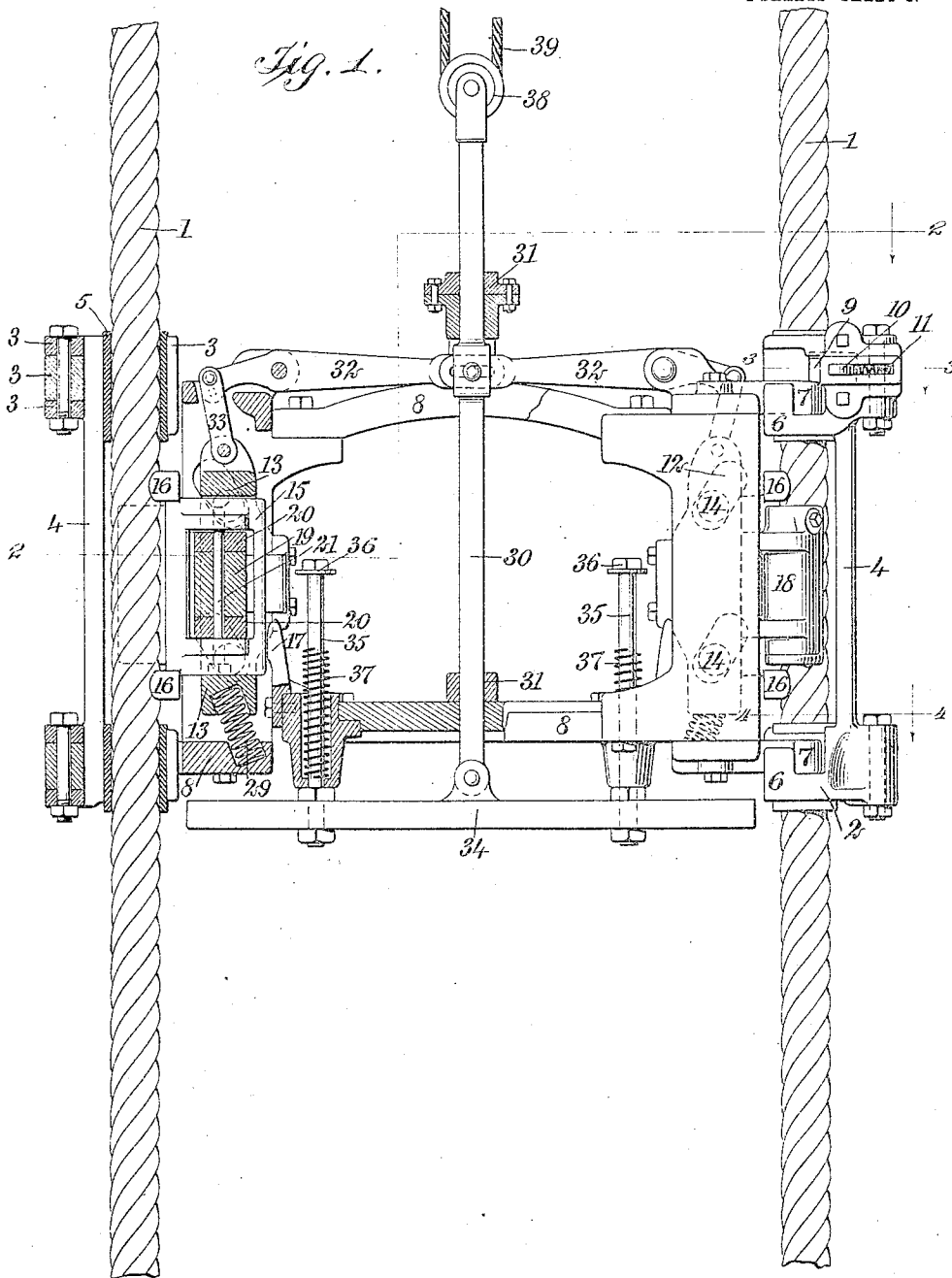
W. T. LONG.  
ELEVATOR.

APPLICATION FILED NOV. 27, 1908

Patented Sept. 28, 1909.

2 SHEETS—SHEET 1.

935,378.



WITNESSES

*L. Sanford Hande*  
*E. B. Marshall*

INVENTOR

*William T. Long*  
BY *Mumford*  
ATTORNEYS

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Fig. 2.

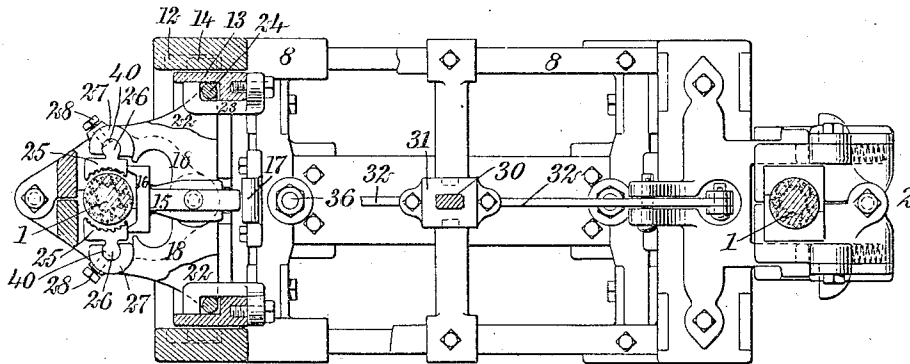


Fig. 3.

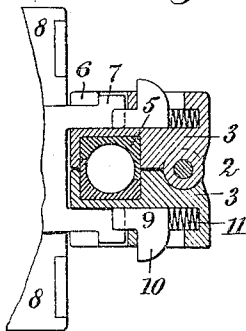
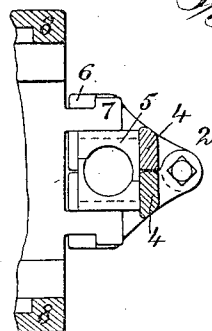


Fig. 4.



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ATTORNEYS

# UNITED STATES PATENT OFFICE.

WILLIAM T. LONG, OF SUMNER, WASHINGTON.

## ELEVATOR.

935,378.

Specification of Letters Patent. Patented Sept. 28, 1909.

Application filed November 27, 1908. Serial No. 464,697.

*To all whom it may concern:*

Be it known that I, WILLIAM T. LONG, a citizen of the United States, and a resident of Sumner, in the county of Pierce and State of Washington, have invented new and useful Improvements in Elevators, of which the following is a full, clear, and exact description.

My invention relates to elevators and it has for its object to provide improvements which may be used on elevators or for other purposes. In my elevator I provide a carriage, a frame being provided to travel in guides in the carriage, a yoke being disposed in the frame, two clamps being pivoted to the yoke, the clamps being also pivoted to the frame, and means being provided to limit the movement of the yoke and to move the frame relatively to the carriage.

Still other objects of the invention will appear in the following complete description of the invention.

In this specification I will describe the preferred form of my invention, but it will be understood that I do not limit myself thereto as I consider myself entitled to all forms and embodiments of the invention which may be held to fall within the scope of the appended claims.

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

Figure 1 an elevation of the invention, parts of the same being shown in section; Fig. 2 is a sectional view on the line 2—2 of Fig. 1; Fig. 3 is a sectional view on the line 3—3 of Fig. 1; and Fig. 4 is a sectional view on the line 4—4 of Fig. 1.

By referring to the drawings, it will be seen that standards 1 are provided, these standards 1 being preferably in the form of cables, but it will be understood that other forms of standards may be provided, without departing from the scope of the invention. The standards 1 are disposed in guides 2, the guides being composed of oppositely disposed guide members 3 which are pivoted together in pairs, there being web members 4 which unite the guide members 3 respectively. Bushings 5 are disposed between the oppositely disposed guide members 3 around the standards 1; the oppositely disposed guide members 3 having interlocking mem-

bers 6 which have a sliding vertical engagement with interlocking members 7 on the carriage 8. In the upper oppositely disposed guide members 3, there are locking members 9 which slide horizontally therein and have protruding surfaces 10 by which they may be operated. The locking members 9 are adapted to slide over the interlocking members 7 to hold the interlocking members 6 and 7 in normal position and prevent the detachment of one from the other. The locking members 9 have springs 11 which are provided to keep them disposed over the interlocking members 7.

The carriage 8 has inner obliquely disposed guides 12, there being guides in pairs at either side of the carriage, one pair being disposed above the other in each case. Two frames 13 are provided, each having studs 14 which are disposed in the obliquely disposed guides 12 respectively; the frames 13 being adapted to move relatively to the carriage obliquely with reference to the standards 1, but keeping substantially parallel therewith at all times. A yoke 15 is disposed in each of the frames 13, the yoke 15 being movable within the frame but being in close contact therewith at its lower and upper extremities. The yoke 15 has protruding members 16 which have guides at their terminals and are disposed in close proximity to the standards 1. In the rear of the yokes, there are stops 17 which prevent the abnormal rearward movement of the yokes.

To each of the yokes 15 are pivoted clamps 18, one at either side of the yoke, one of the clamps 18 having a portion 19 which is disposed between portions 20 of the other clamp, a pin 21 passing through the upper and lower portions of the yoke 15 and through the portions 19 and 20. Each of the clamps 18 has an extended lateral portion 22, which is pivoted to the frame 13 by means of a clamp 23, which engages a pivot 24, which is secured to the lateral portion 22, the clamp 23 holding the pivot in position. Hands 25 are disposed one at either side of the standards 1, each of the hands having a bead 26 which is disposed in a curved portion 27 of the clamp 18. The hands 25 being held to the clamps 18 by means of set screws 28 which pass through orifices in each of the curved portions 27 and fit in grooves 40 in the beads 26 of the

hands 25. The hands have their concave faces corrugated to enable them to obtain a firmer hold against the standards 1. Springs 29 are secured to the carriage 8, said springs being adapted to press the frames 13 upwardly toward the respective standards 1.

Through the carriage 8 is disposed a supporting bar 30, which passes through guides 31 in the carriage, the supporting bar 30 being pivoted to two levers 32, each lever 32 being pivoted to the carriage and commanding one of the frames 13, a link 33 connecting the other arm of the lever 32 with the top of the frame 13. The supporting bar 30 passes through the bottom of the carriage and to it is secured substantially at right-angles, a stop 34, having a plurality of rods 35 secured thereto, the rods passing through the bottom of the carriage 8 and having heads 36 at their free terminals and springs 37 are disposed on said rods, the springs 37 being provided to act as cushions when the rods 35 are pressed downwardly. To the supporting bar 30 is secured by a pulley 38, or by other means, a cable 39.

In using my invention, as for instance in an elevator, it will be seen that on any breakage of the cable 39, the frames 13 will be free to move upwardly and will be directed in this direction by the springs 29, and inasmuch as the frames 13 travel in the guides 12 which move upwardly toward the standards 1, the frames 13 will travel toward the standards, but they will be substantially parallel thereto during their movement, inasmuch as the frames travel in guides not only at their top but also near their bottoms. As the frames 13 move toward the standards 1, the yokes 15 carrying the clamps 18, will also move in that direction, but almost immediately the movement of the yokes will be checked by reason of the fact that the protruding members 16 will almost immediately come in contact with the standards 1. This will prevent the further movement of the yokes and the portions of the clamps which are pivoted by the pivots 21 will be held stationary, while the lateral surfaces 22 of the clamps will continue to move outwardly in the general direction of the standards 1, thereby causing the clamps 18 to swing on the pivots 21, which forces the hands 25, secured to the clamps, against the standards 1, thereby clutching the standards 1. During this movement of the frames 13, the supporting bar 30 has been moved downwardly, thereby causing the heads 36 of the rods 35 to move toward the lower surface of the carriage 8, which action as has been stated, compresses the springs 37 and prevents any rapid movement of the clamps 18 which might cause a shock to the operating mechanism or to the structure to which it may be secured.

Having thus described my invention, I

claim as new and desire to secure by Letters Patent:

1. In an elevator, a standard, a frame, a yoke disposed in the frame, clamps pivoted to the yoke, the clamps being also pivoted to the frame, means for moving the frame relatively to the standard, and means for checking the movement of the yoke.

2. In an elevator, a standard, a frame, a yoke, the yoke having a member which is adapted for pressing against the standard, clamps pivoted to the yoke, members mounted on the clamps disposed in close proximity to the standard, the clamps being also pivoted to the frame, and means for moving the frame relatively to the standard.

3. In an elevator, a standard, a frame, a yoke, the yoke having a member which is adapted for pressing against the standard, clamps pivoted to the yoke, members mounted on the clamps disposed in close proximity to the standard, the clamps being also pivoted to the frame, means for moving the frame relatively to the standard, and means for preventing the abnormal rearward movement of the yoke.

4. In an elevator, a standard, a frame, a yoke disposed in the frame, clamps pivoted to the yoke, the clamps having lateral members respectively which are pivoted to the frame, hands disposed in close proximity to the standard, means for preventing the movement of the yoke from the standard beyond a predetermined distance, and means for moving the frame toward the standard, the yoke being in alinement with the standard during this movement.

5. In an elevator, a standard, a frame, a yoke disposed in the frame, clamps pivoted to the yoke, the clamps having lateral members respectively which are pivoted to the frame, hands disposed in close proximity to the standard, and means for moving the frame toward the standard, the yoke being so disposed as to contact with the standard during this movement.

6. In an elevator, a standard, a frame, a yoke disposed in the frame and having a member disposed in close proximity to the standard, clamps pivoted to the yoke, the clamps having each a lateral member which is pivoted to the frame, and another member disposed in close proximity to the standard, and means for moving the frame toward the standard.

7. In an elevator, a carriage, there being guides in the carriage, a frame having studs which are disposed in the guides, a yoke disposed in the frame, clamps pivoted to the yoke, the clamps each having a lateral member which is pivoted to the frame, means for moving the frame in the carriage, and means for checking the movement of the yoke.

8. In an elevator, a standard, a carriage, there being guides in the carriage, a frame

having guide members which are disposed in the guides, a yoke disposed in the frame, the yoke having a member in close proximity to the standard, clamps pivoted to the yoke, the clamps each having a lateral member which is pivoted to the frame, hands on the clamps which are disposed at either side of the standard and in close proximity thereto, and means for moving the frame.

9. In an elevator, a standard, a carriage having obliquely disposed guides, a frame mounted in the guides, a yoke disposed in the frame, the yoke having a member disposed in close proximity to the standard, a clamp, and a hand mounted thereon disposed in close proximity to the standard, the clamp being pivoted to the frame.

10. In an elevator, a standard, a carriage having obliquely disposed guides, a frame mounted in the guides, a yoke disposed in the frame, the yoke having a member disposed in close proximity to the standard, a clamp pivoted to the yoke, a hand mounted on the clamp disposed in close proximity to the standard, the clamp being pivoted to the frame, and means for preventing an abnormal movement of the yoke away from the standard.

11. In an elevator, a standard, a carriage having obliquely disposed guides, a frame mounted in the guides, a yoke disposed in the frame, the yoke having a member disposed in close proximity to the standard, a clamp fulcrumed in the yoke, a hand mounted on the clamp disposed in close proximity to the standard, the clamp being pivoted to the frame, and a spring which is adapted for moving the frame relatively to the carriage.

12. In an elevator, a standard, a carriage having guides, a frame mounted in the guides, a yoke disposed in the frame, the yoke having a member disposed in close proximity to the standard, two clamps pivoted to the frame at either side of the yoke respectively, the clamps being fulcrumed in the yoke, and hands mounted on the clamps disposed in close proximity to the standard.

13. In an elevator, a standard, a carriage, a cable supporting the carriage, the carriage having guides, a frame mounted in the guides, a yoke disposed in the frame, two clamps pivoted at either side of the yoke respectively, a hand on each of the clamps respectively disposed in close proximity to the standard, means adapted for moving the frame yieldingly in one direction relatively to the standard, means connected with the cable which are adapted for moving the frame in the opposite direction, and means for checking the movement of the yoke in the direction of the standard.

14. In an elevator, a standard, a cable, a frame, a yoke disposed in the frame, clamps pivoted to the yoke, the clamps being also pivoted to the frame, means con-

nected with the cable which are adapted for moving the frame relatively to the standard, and means for checking the movement of the yoke in the direction of the standard.

15. In an elevator, a standard, a cable, a frame, a yoke disposed in the frame, a clamp pivoted to the yoke, the clamp having a lateral member which is pivoted to the frame, a hand disposed in close proximity to the cable, means for moving the frame toward the standard, and means connected with the cable which are adapted to operate the means for moving the frame toward the standard.

16. In an elevator, a carriage, there being guides in the carriage, a frame disposed to move in the said guides, a yoke disposed in the frame, means for checking the movement of the yoke before the frame reaches the limit of its travel in the guides, clamps pivoted to the yoke, hands mounted on the clamps, the clamps being pivoted to the frame, a lever pivoted to the carriage, a link connecting the lever with the frame, a cable, and means connecting the lever with the cable.

17. In an elevator, a carriage having guides, a frame disposed for moving in the said guides, a yoke disposed in the frame, means for checking the movement of the yoke before the frame reaches the limit of its travel in the guides, clamps pivoted to the yoke, hands mounted on the clamps, the clamps being also pivoted to the frame, a lever pivoted to the carriage, a link connecting the lever with the frame, a guide in the carriage, a supporting bar disposed in the guide, the supporting bar being pivoted to the lever, and means for limiting the movement of the bar relatively to the carriage.

18. In an elevator, a carriage having guides, a frame disposed for moving in the said guides, a yoke disposed in the frame, means for checking the movement of the yoke before the frame reaches the limit of its travel in the guides, clamps fulcrumed in the yoke, hands mounted on the clamps, the clamps being pivoted to the frame, a lever pivoted to the carriage, a link connecting one arm of the lever with the frame, a guide in the carriage, a supporting bar disposed in the guide, means for limiting the movement of the supporting bar in the guide, the other arm of the lever being pivoted to the supporting bar, and means for cushioning the downward movement of the supporting bar.

19. In an elevator, a carriage having guides, a frame disposed for moving in the said guides, a yoke disposed in the frame, means for checking the movement of the yoke before the frame reaches the limit of its travel in the guides, clamps fulcrumed in the said yoke, hands mounted on the clamps, the clamps being pivoted to the frame, a

lever pivoted to the carriage, a link connecting one arm of the lever to the frame, a guide in the carriage, a supporting bar disposed in the guide, the other arm of the lever being pivoted to the supporting bar, a stop disposed below a part of the carriage at an angle to the supporting bar and which is secured thereto, and a rod which is disposed in an orifice in the carriage and which is secured to the stop, there being a head on the rod and a cushioning member disposed beneath the head.

20. In an elevator, a carriage having guides, a frame mounted to travel in the guides, a yoke disposed in the frame, clamps fulcrumed in the yoke, the clamps having lateral members which are pivoted to the frame, there being a projecting surface on the yoke in a plane substantially between the clamps, a cable, and means for moving the frame relatively to the carriage on the breaking of the cable.

21. In an elevator, a carriage having guides, a frame mounted to travel in the guides, a yoke disposed in the frame, clamps fulcrumed in the yoke, the clamps having lateral members which are pivoted to the frame, there being a projecting surface on the yoke in a plane substantially between the clamps, a lever pivoted to the carriage, a link connecting one arm of the lever with the frame, and means for operating the lever.

22. In an elevator, a guide, a standard disposed in the guide, a frame, a yoke disposed in the frame, clamps fulcrumed in the yoke, said clamps being pivoted to the frame, and means for moving the frame relatively to the standard.

23. In an elevator, a guide, a standard disposed in the guide, a frame, a yoke disposed in the frame, clamps fulcrumed in the yoke, the clamps having lateral members respectively which are pivoted to the frame, hands mounted on the clamps disposed in close proximity to the standard, means for preventing the movement of the yoke from the standard beyond a predetermined distance, and means for moving the frame from the standard.

24. In an elevator, a guide, a standard disposed in the guide, a frame, a yoke disposed in the frame having a member disposed in close proximity to the standard, a clamp fulcrumed in the yoke, the clamp being pivoted to the frame, a hand mounted on the clamp which is adapted to press against the standard, and means for moving the frame toward the standard.

25. In an elevator, a guide composed of members pivoted together, a bushing for the guide, a carriage having guides, a frame having guide members which are disposed in the guides, a yoke disposed in the frame, clamps pivoted to the yoke, the clamps each

having a lateral member which is pivoted to the frame, and means for moving the frame in the carriage, the yoke having a projecting member which is disposed in a plane substantially at equal distances between the clamps.

26. In an elevator, a guide composed of a plurality of members pivoted together, web members connecting the said pivoted members respectively, a carriage, means for detachably securing the guide to the carriage, a standard disposed in the guide, there being guides in the carriage, a frame mounted to travel in the guides, a yoke disposed in the frame, two clamps pivoted to the frame which are also fulcrumed in the yoke, hands mounted on the clamps respectively which are disposed in close proximity to the standard, and means which are adapted for moving the frame in the direction of the standard.

27. In an elevator, a guide composed of a plurality of oppositely disposed members, web members connecting the oppositely disposed members respectively, a standard disposed in the guide, a carriage having guides, interlocking members on the guide and carriage respectively by which they are secured together, a frame mounted to travel in the guides in the carriage, a yoke disposed in the frame, clamps pivoted to the yoke which contact with the frame, and hands mounted on the clamps disposed in close proximity to the standard.

28. In an elevator, a guide composed of a plurality of oppositely disposed members, web members connecting the oppositely disposed members respectively, a standard disposed in the guide, a carriage having guides, interlocking members on the guide and carriage respectively by which they are secured together, a frame which is adapted for traveling in the guides in the carriage, a yoke disposed in the frame, clamps pivoted to the yoke, the clamps each having a lateral member which is pivoted to the frame, and means for moving the frame in the carriage.

29. In an elevator, a guide composed of a plurality of oppositely disposed members, web members connecting the oppositely disposed members respectively, a carriage having guides, interlocking members on the guide and carriage respectively by which they are secured together, movable members each connecting one set of interlocking members to prevent them from becoming detached, a frame mounted for traveling in the guides in the carriage, a yoke disposed in the frame, clamps pivoted to the yoke, the clamps each having a lateral member which is pivoted to the frame, hands mounted on the clamps, and means for moving the frame in the carriage.

30. In an elevator, a carriage having

guides, a frame disposed for moving in the  
said guides, clamps pivoted to the frame, op-  
positely disposed hands mounted on the  
clamps, means for moving the frame in the  
5 guides in the carriage, and means at a dis-  
tance from their said pivoted connections  
for checking the movement of the clamps.

In testimony whereof I have signed my  
name to this specification in the presence of  
two subscribing witnesses.

WILLIAM T. LONG.

Witnesses:

W. E. SHRADER,  
J. M. CURTS.