

No. 653,526.

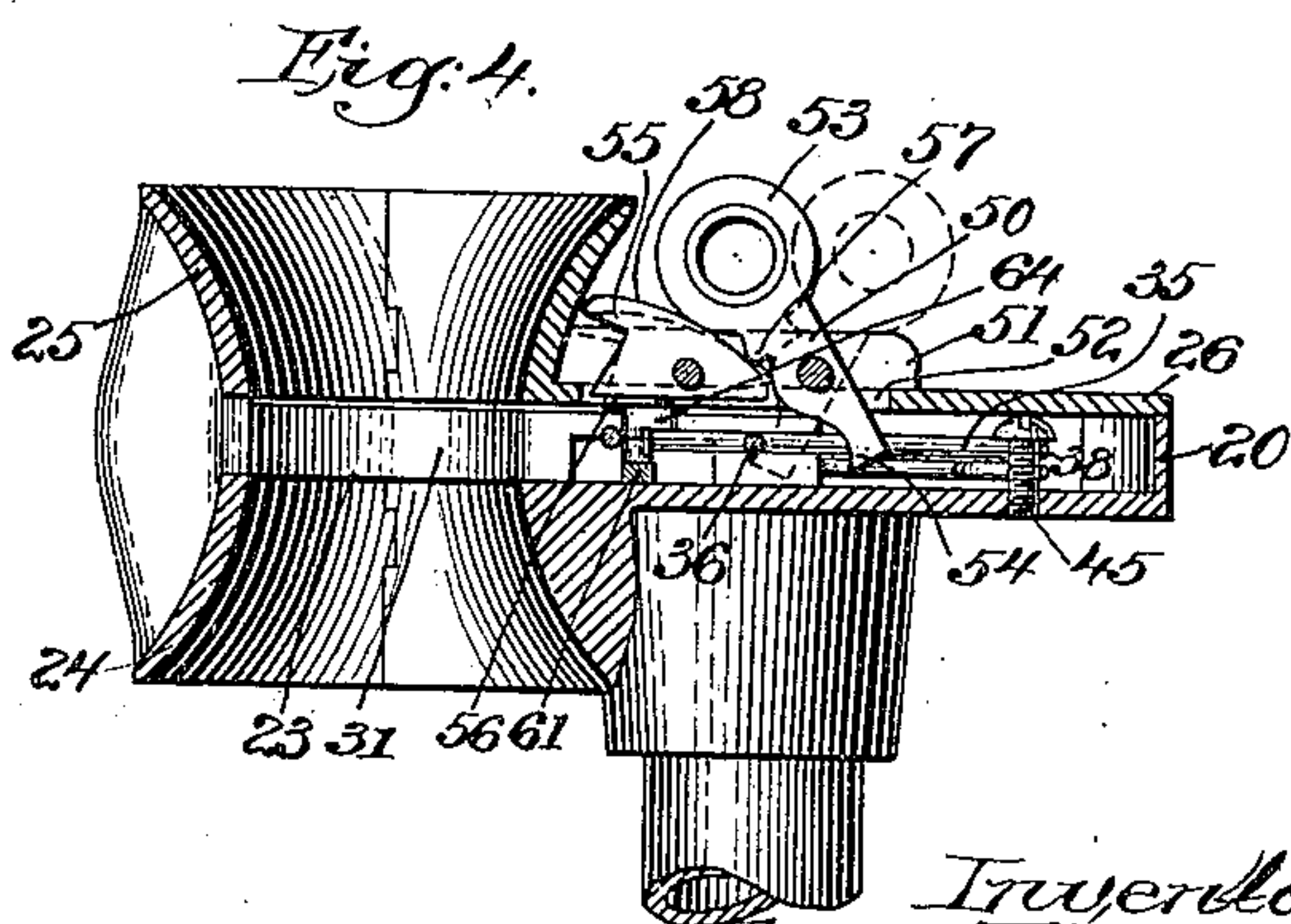
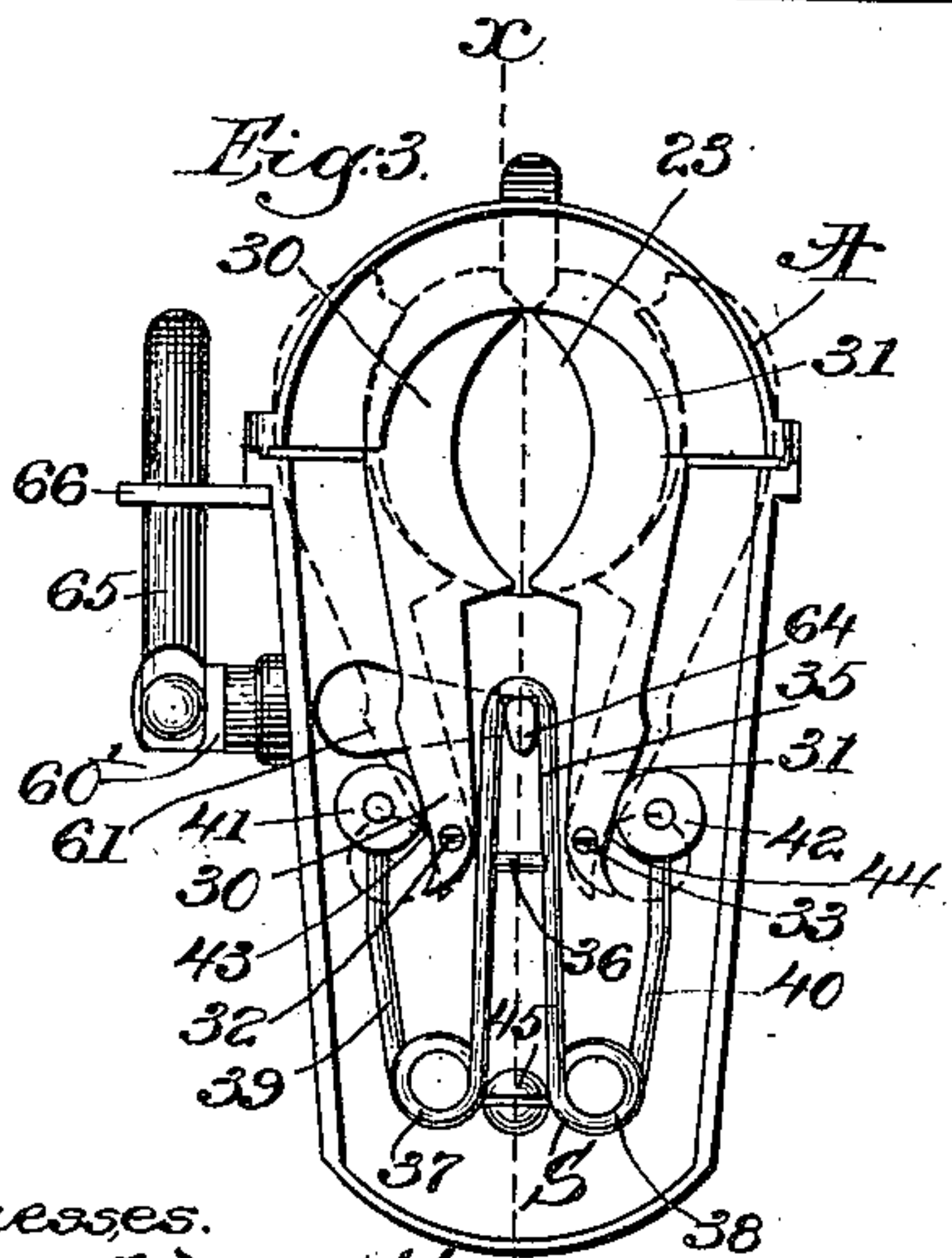
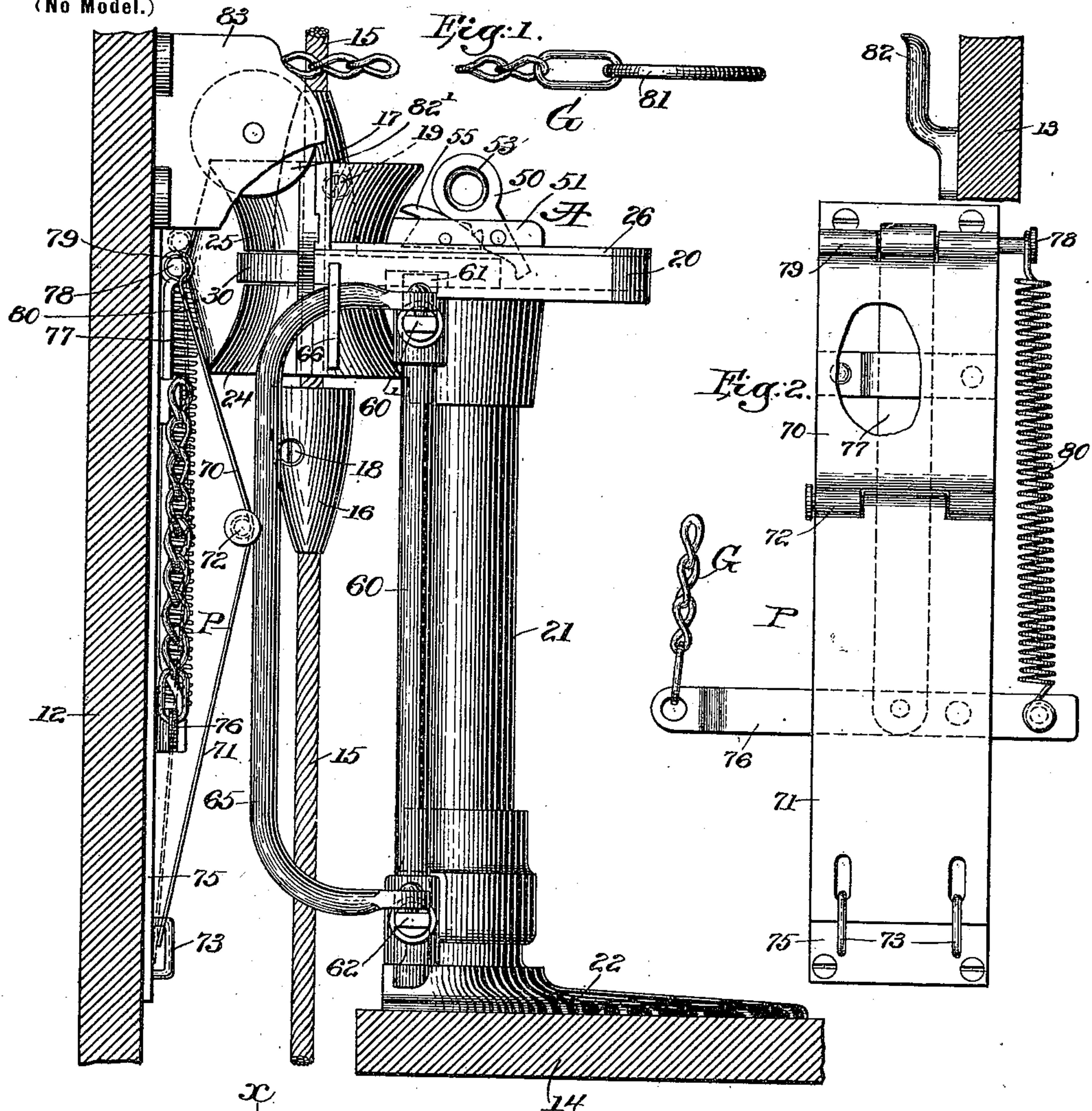
Patented July 10, 1900.

A. T. RAMSDELL.

ELEVATOR CAR.

(Application filed Oct. 7, 1899.)

(No Model.)



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ELEVATOR-CAR.

SPECIFICATION forming part of Letters Patent No. 653,526, dated July 10, 1900.

Application filed October 7, 1899. Serial No. 732,868. (No model.)

To all whom it may concern:

Be it known that I, ALVAH T. RAMSDELL, a citizen of the United States, residing at Dover, county of Strafford, State of New Hampshire, have invented an Improvement in Elevator-Cars, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

10 This invention relates to elevator-cars, and more especially to means for controlling the operation thereof, the construction being such that the elevator-car can be stopped either during its ascent or descent at any floor, 15 either from the elevator-car itself or from the floor, and the peculiar features of the invention in the embodiment thereof illustrated will be hereinafter particularly set forth.

20 In the drawings, which illustrate the invention in a simple and convenient embodiment thereof, Figure 1 is a sectional front view of a portion of an elevator car and shaft therefor, showing controlling mechanism constructed in accordance with the invention. Fig. 2 25 is a face view of a part of the mechanism employed for controlling the elevator-car from the floor. Fig. 3 is a sectional plan view of the actuator and parts of the independent mechanism for throwing the same into action, 30 and Fig. 4 is a sectional front elevation of the same.

In the drawings, Fig. 1, I have illustrated part of the side walls or timbers of an elevator-car shaft or casing, the same being denoted, respectively, by 12 and 13, and a fragment of the floor of the platform 14 of the car or cage which can be raised and lowered in the well or shaft by some suitable mechanism not illustrated herein.

40 My invention in the form thereof illustrated in the drawings includes in its construction an elevator-car, an elevator-car-stopping device, an actuator for the latter, and independent mechanisms operable to throw the actuator into working condition, and one of these mechanisms involves a controlling device supported independently of the elevator-car and which is preferably manually operable. This manually-operable controlling device I prefer 45 to utilize as a guard or protector for the elevator-car shaft or well, it being adapted when down to throw through suitable mechanism

the actuator into its working position, thereby to effect the stoppage of the elevator-car. By this construction it will be evident that as soon as the guard is taken down the movement of the elevator-car beyond the next adjacent floor, either up or down, will be stopped. So long as this guard is up and in position to close the well the movement of the elevator-car by the floor is permitted. 55 60

The different elements previously set forth may be of any suitable character; but for convenience and simplicity the elevator-car-stopping device will consist of the check rope or cable usually employed for shifting a clutch or for starting and stopping an electric motor. 65

The check-rope just mentioned is denoted by 15 and is located adjacent the floor or platform 14 of the car and is provided near the floor with superposed projections 16 and 17, of substantially-tubular form, slidable thereon to effect their adjustment. Said projections 16 and 17 are held in adjusted positions by means of screws 18 and 19, carried thereby and adapted to bind against the check rope or cable 15. The projections 16 and 17 are so disposed that upon the descent and ascent of the car 14 they will be engaged when it is desired to stop the car by an actuator upon the car, so that the rope can be shifted in the direction of its length for stopping or starting the power, said projections being so arranged that the car will be stopped directly opposite the floor at which a stop is to be made. 70 75 80 85

As previously set forth, the mechanism involves an actuator, and while the same may be supported in any convenient manner it is shown as slidable in the head 20 of the vertical standard or carrier 21, having a widened foot 22, adapted to be secured to the upper side of the platform 14. The head 20 is in the shape of a boxing or housing and incloses the actuator denoted by A. The boxing or housing 20 has an opening or aperture 23 upon its inner side, through which the check-rope 15 extends, said opening being of sufficient area to freely permit the projections 15 and 16 to normally pass therethrough. The actuator A, which in the present case consists of two substantially-duplicate jaws or members, is, however, movable across this opening when it is desired to stop the car, and said opening is surrounded above and be- 90 95 100

low the housing 20 with the annular and outwardly-tapered flanges 24 and 25, respectively. The top plate 26 of the casing is removable to obtain access to the interior thereof.

The actuator A is represented as consisting of two jaws or arms 30 and 31, pivoted at their extreme inner ends, as at 32 and 33, respectively, to the inside of the casing, said jaws being movable simultaneously, through the action of proper instrumentalities, across the opening 23 and into the path of the projections 16 and 17, so that one or the other can be operated in accordance, of course, with the direction in which the elevator car or platform is traveling. These jaws 30 and 31 (shown as occupying their shifted or working positions by full lines in Fig. 3) are slidable upon the floor of the housing 20. The normal or ineffective position of said jaws is indicated by dotted lines in said Fig. 3. In the present case the jaws are held open by a torsion-spring S, including in its construction a substantially U-shaped main portion 35, the branches of which are united by the cross-piece or catch 36. The legs or branches of said U-shaped portion 35 are disposed between the inner faces of the jaws 30 and 31 and are coiled, as at 37 and 38, respectively, and are provided with outwardly-extending arms 39 and 40, disposed approximately in parallelism with the adjacent branches of the main portion 35 of the spring, the purpose of the coils 37 and 38 being to hold said arms on the antifriction-rolls 41 and 42, carried thereby, in contact with the cam-faces 43 and 44 upon the jaws 30 and 31. Normally the antifriction-rolls 41 and 42 will be located behind the pivots of the two jaws, so that said jaws will be held open. When, however, the main portion of the spring is pushed forward, the operating-arms 39 and 40 will be carried therewith, causing the rolls thereon to run along the cam-faces 43 and 44 forward of the pivots, so as to simultaneously swing the jaws toward each other for closing the same. When the jaws are closed, they can engage either the upper flat face of the projection 16 or the correspondingly-shaped lower face of the projection 17 for stopping the car. The spring therefore serves to move the jaws into working position. It is guided against side-wise movement by the stud or screw 45, disposed between the branches of the main or U-shaped portion thereof. The operating device for the spring S is denoted by 50, and it is represented as consisting of a short lever pivoted between the side lugs 51 upon the cap-plate 26 and extending through the longitudinal slot 52 in said plate. The lever or operating device is provided with a finger-piece 53 of ring form, by which it can be readily operated. The operating-lever 50 has the toe 54 at its lower end, adapted to engage the catch or cross-piece 36 upon the spring S when it is desired to advance the latter from the car. The operating device 50 is shown as occupying its ineffect-

ive position by full lines. When, however, it is shifted by hand to the dotted-line position, the toe 54 thereof by engaging the cross-piece 36 will advance the spring S sufficiently far to effect the proper operation of the actuator A. When the operating-lever 50 is utilized to effect the action of the spring, said spring, and consequently the actuator, will be locked in their working positions, and for this purpose I provide a self-locking device, such as the gravity-detent 55, pivoted upon the housing 21 and adapted to project through the slot 52, said detent having a beveled face 56, the function of which will be hereinafter set forth. When the operating device 50 is employed to advance the spring S, the point of the detent 55 will automatically drop behind the closed outer end of the spring to hold the same advanced, said spring riding along the bevel-face 56 as it is moved forward and slightly lifting the detent or dog 55. The operating-lever 50 is provided adjacent to its fulcrum with the projection or nose 57, adapted to ride upon the curved upper face 58 of the detent when said operating device is returned from its shifted or normal position, thereby lifting the point or tooth of the detent clear of the closed end of the main portion 35 of the spring, whereby the rolls 41 and 42 in the ends of the torsion-arms 39 and 40 can ride along the cam-faces 43 and 44 to swing the jaws 30 and 31 simultaneously open.

The mechanism previously described is preferably mounted upon a car so that an attendant thereon can stop the same exactly in line with the floor, and I have represented and will now describe independent mechanism for stopping a car at the floor and by means primarily controlled at or near said floor.

The rock-shaft 60 is vertically disposed substantially in parallelism with the upright or standard 21 and works at its ends in suitably-located bearing-openings upon the base-piece 22 and the under side of the housing 20. Said rock-shaft is provided at its upper end with the oppositely-disposed crank-arms 60' and 61, respectively, and at its lower end with the crank-arm 62. The upper crank-arm 61, which extends in a direction opposite to that of the arm 60', is located within the housing 20 and is provided at its free end with the stud or projection 64, located between the branches of the main portion 35 of the spring and in adjacency to the closed end of said spring. The inturned arms of the bail or yoke 65 are pivoted to the crank-arms 60' and 62, and the upper one of said inturned arms extends through an opening or aperture in the guide lug or ear 66, projecting from the housing 20. The bail or yoke is in the nature of a projection adapted to be actuated by a suitable device mounted upon the wall of the elevator-car shaft for the purpose of throwing the jaws 30 and 31 into effective position. Normally the bail 65 will occupy a position to the left of that shown in Fig. 1. When, however,

it is struck by a suitable projection upon the elevator-car shaft, it will be forced to the right, thereby rocking the shaft 60 and moving the crank-arm 61 forward, so that said crank-arm
 5 can be shifted from its full-line position to its dotted-line position, and the stud 64 thereon by bearing against the closed end of the U-shaped portion of the spring S thereby advances said spring and effects closure of the
 10 two jaws. The projection for striking the bail 65 upon the ascent or descent of the car 14 may be of any suitable character. That represented is denoted by P and consists of two substantially-similar plates 70 and 71,
 15 jointed at their edges, as at 72. The lower plate is slotted near its lower corners to receive the staples or guides 73, driven into the wall 12. The plate 75 can be secured to the inner face of the wall 12, and the lever 76 is
 20 fulcrumed to said plate, (see Fig. 2,) and the link 77 is jointed to said lever at the left of its fulcrum and has an eye at its upper end to receive the pin 78, extending through aligned eyes 79 upon the upper side of the plate 70.
 25 The coiled spring 80 is connected, respectively, to said pin 78 and with the extreme right-hand end of the lever 76.

An elevator-car guard is shown at G, consisting of a chain the main portion of which is
 30 adapted to extend across the opening or doorway into the well normally, and said chain has at its free end the ring 81, adapted to engage over the hook 82 upon one side of the well. The chain or guard G runs over the
 35 antifriction or guide roll 82', the boxing 83 of which is secured to the wall 12 of the well, and said chain extends vertically downward and is connected at its lower end to the extreme left-hand end of the lever 76. Nor-
 40 mally the guard or chain will be tightly stretched across the opening to the shaft or well and the ring 81 thereon engaged over the hook 82, by reason of which what is shown in Fig. 2 as the left-hand arm of the lever 76
 45 will be elevated, so that said lever by acting against the link 77 can force the plate 70 upward as far as it will go, which results in moving said plate 70 and its companion 71 inward until they are practically in vertical
 50 alinement. When, however, the ring 81 is unhooked and the guard G released, the lever 76 will be also released, so that the spring 80 by pulling downward upon the plate 70 can force the same, and consequently its mate 71,
 55 outward, as indicated by full lines in Fig. 1, so that said plates can strike the bail 65 as the car moves upward for effecting the action of the actuator A to secure the stoppage of the car. The plates 70 and 71, constituting
 60 an elevator-car-stopping projection, are yieldingly mounted, and they have a comparatively-long engagement with the bail 65 as the car ascends or descends.

From the previous description it will be understood that the guard or chain G constitutes
 65 a manually-operable controlling device, and it serves when taken down or released by un-

hooking the ring 81 from the hook 82 to throw mechanism into action to engage the rope or the projections 16 and 17, carried thereby, to
 70 effect the stoppage of the car. When the chain is hooked up, the parts will be released in the manner previously indicated and returned to their original positions, thereby to permit the car to pass by a particular floor.
 75

From the preceding description it will be evident that the apparatus is simple and effective and that the elements are so organized that the car may be either stopped from the elevator-car or from the floor to bring its
 80 upper surface flush with the upper surface of the floor, and not only this, but the car will be locked against movement in either direction until both the elevator-car-controlling mechanisms are returned to their initial or
 85 effective positions.

The invention is not limited to the precise parts hereinbefore specified nor to their location in the manner described, for these features may be variously modified within the
 90 scope of the appended claims.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an apparatus of the class specified,
 95 the combination with an elevator-car, and with a check-rope having projections, of an actuator on the car, adapted to engage either of said projections, and mechanism, including a manually-operable controlling device
 100 shiftably supported independently of the elevator-car for shifting said actuator into its working position, whereby it will engage one of said projections to stop the car.

2. In an apparatus of the class specified,
 105 an elevator-car, a check-rope, having a plurality of projections, an actuator carried by said car and shiftable into position to engage either of said projections, thereby to effect, through the check-rope, the stoppage of the
 110 car, said mechanism including the following instrumentalities: two members, one supported by the car and the other supported independently of said car, the last-named member being movable into position to operate its
 115 companion, and a hand-controlled device connected with and serving to govern the action of said independently-supported member.

3. In an apparatus of the class specified,
 120 an elevator-car, a check-rope having a plurality of projections, an actuator mounted on the car and movable into position to engage either of said projections, thereby to effect through the check-rope the stoppage of the
 125 car, and means, including a controlling device supported independently of the elevator-car, for throwing said actuator into working position, said controlling device constituting a guard for the elevator shaft or well.

4. In an apparatus of the class specified,
 130 an elevator-car, a check-rope, having a plurality of projections, an actuator for the latter, consisting of two jaws, means for holding said jaws open, and mechanism for clos-

ing said jaws, whereby they will be caused to engage one of said projections, and mechanism for closing said jaws either from the car or from a floor.

5 5. In an apparatus of the class specified, an elevator-car, an elevator-car-stopping device, an actuator for the latter, and independent mechanisms each operable to throw the actuator into working position, and one of
10 said mechanisms including a manually-operable device supported independently of the elevator-car.

6. In an apparatus of the class specified, a car, a check-rope, having a plurality of pro-
15 jections, a shiftable actuator, and means operable either from the car or from the floor, to throw said actuator into working position to engage either one of the projections upon the check-rope.

20 7. In an apparatus of the class specified, an elevator-car, an elevator-car-stopping mem-

ber, two jaws constituting an actuator and shiftable into working position to cooperate with said stopping device to stop the elevator-car, a spring adapted to engage the jaws, 25 a lever for advancing said spring and a means for holding the jaws in their working position.

8. In an apparatus of the class specified, an elevator-car, an elevator-car-stopping de- 30 vice, an actuator, means including a lever for throwing the actuator into its working position, and a detent for holding the actuator in its advanced position, said detent being engageable by the lever to release the same. 35

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

ALVAH T. RAMSDELL.

Witnesses:

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LOUISE ROTHSTEIN.