Feb. 28, 1928. 1,661,132

J. E. EVANS

DEVICE FOR TEMPORARILY CONNECTING ELEVATOR CARS TO THE HOISTING CABLES

Filed April 15, 1926 2 Sheets-Sheet 1

Fig. 1.

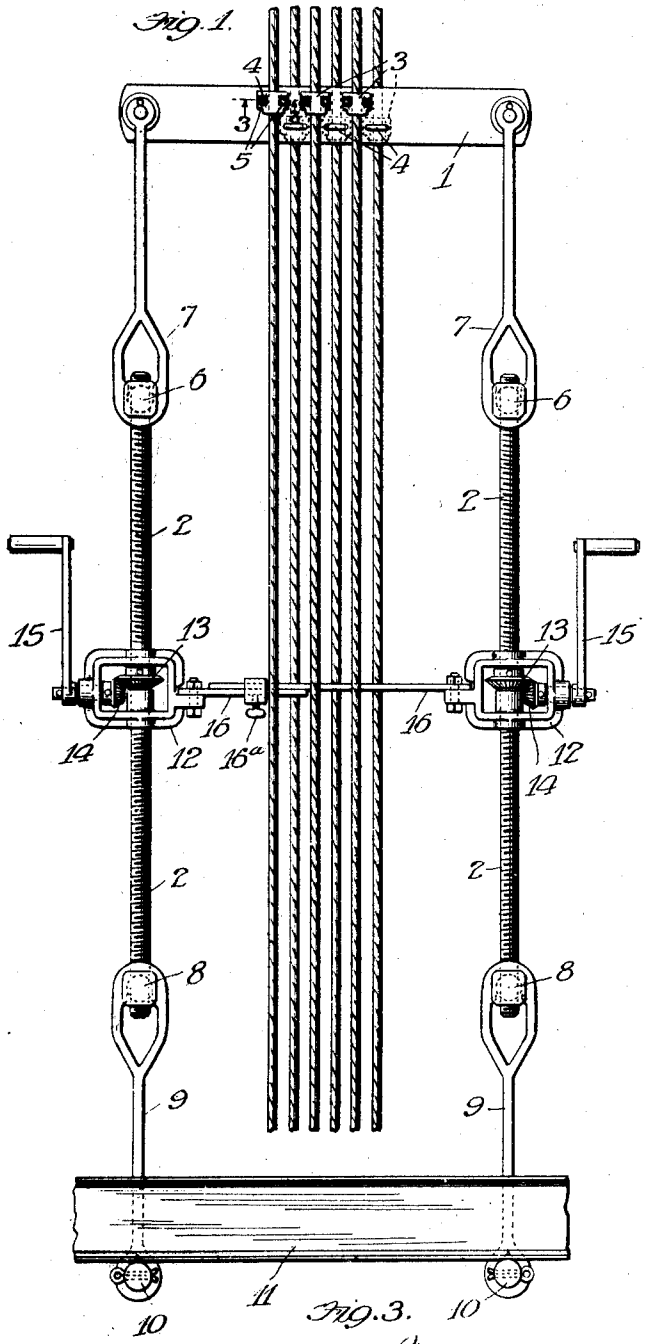



Fig. 2.

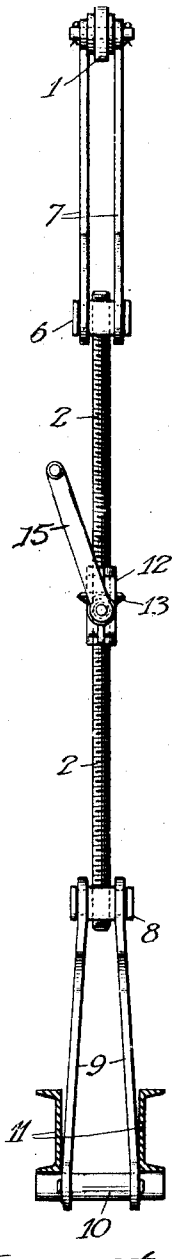
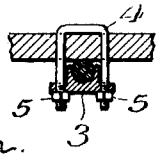



Fig. 3.




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Fig. 4.

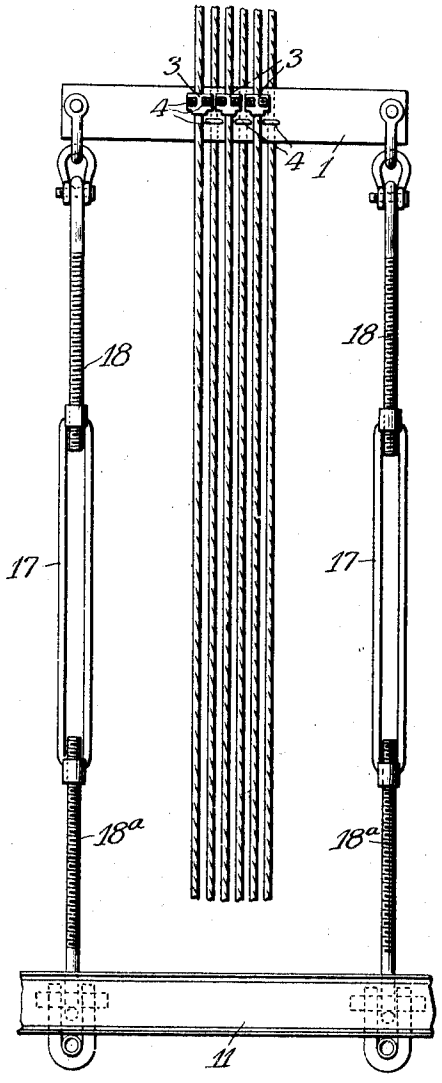
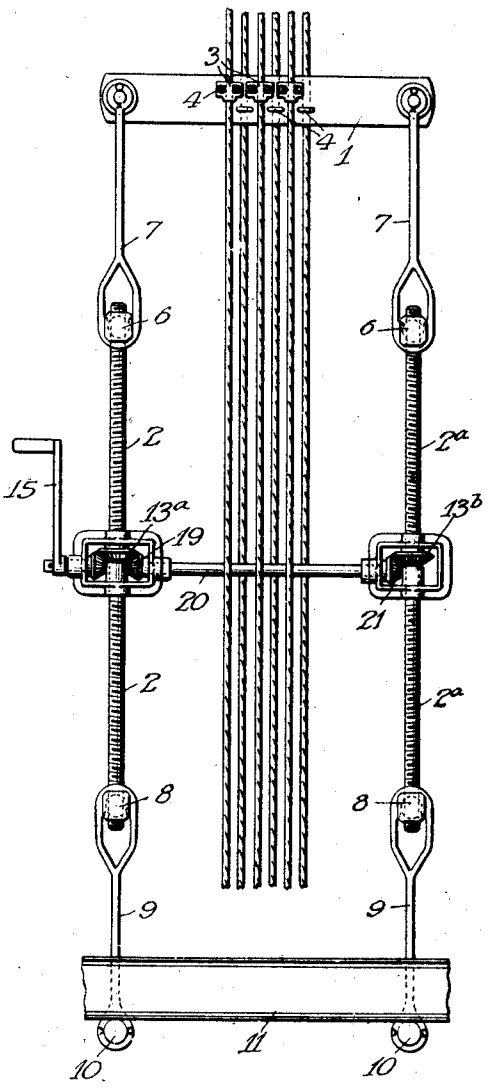



Fig. 5.




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# UNITED STATES PATENT OFFICE.

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## DEVICE FOR TEMPORARILY CONNECTING ELEVATOR CARS TO THE HOISTING CABLES.

Application filed April 15, 1926. Serial No. 102,103.

In the operation of elevator cars such as are used for transferring passengers and freight from one floor of a building to another, and of the type in which the car is suspended by a set of wire hoisting cables, usually about six in number, passing at the top of the elevator shaft over a grooved pulley, the car commonly being balanced by a counterweight and the cables attached to any suitable power-driven hoisting mechanism, it is occasionally necessary to install a new cable to replace one which is damaged or worn, or to install a new set of cables. It has heretofore been common practice, when installing a new cable, or set of cables, to hang the car with heavy chain blocks at the top of the elevator shaft and block the counterweights of the car at the bottom. This makes it impossible to move the car until the new installation has been completed. The suspension device to which my present invention relates is designed to facilitate such a replacement or installation of new cables, and to avoid the disadvantages of the old methods heretofore employed.

My invention consists in the novel arrangement and combination of associated parts and members of the device through which the objects of my invention are attained, the essential elements thereof being more particularly pointed out in the appended claims.

In the accompanying drawing, Figure 1 illustrates my novel connecting device in side elevation; Fig. 2 is an elevation of the same viewed at right angles to the position shown in Fig. 1; Fig. 3 is a detail, showing in plan the construction and arrangement of a clamping block used to clamp the elevator cables to a clamping bar forming a portion of the device; Fig. 4 is a side view of a simplified and modified form of my invention, and Fig. 5 is a side elevation of another modified form of my invention.

The same reference characters indicate the same parts in all the figures of the drawing.

My connecting device includes a clamping bar 1, to which the elevator cables are arranged to be individually clamped above their point of attachment to the car, and a pair of suspension screws 2—2 anchored to the car and arranged to be operated to suspend the car from the cables through the clamping bar. As illustrated the clamping bar is equipped with grooved clamping blocks 3 arranged to cooperate with U-shaped clamping bolts 4 which through nuts 5 may be tightened to clamp the cables tightly to the bar, three of the bolts being arranged in one plane and facing in one direction, and the other three being arranged in another plane and facing oppositely, so that three cables are clamped to the bar on one side and three on the other, this arrangement being employed to enable clamping members of ample size and strength to be used.

In the present instance the suspension screws 2 are formed with right and left threads which at the upper end of the bars cooperate with screw-threaded blocks 6 engaging the lower ends of pairs of links 7 which are pivoted to the ends of the bar 1. The lower ends of the suspension screws cooperate with similar screw-threaded blocks 8 engaging links 9 which are anchored in a suitable manner to the car, as by means of the cross-pins 10 passing through the orificed lower ends of the links and engaging the channel beams 11, or other structural members of the car.

The suspension screws are rotated, to cause the car to be drawn upwardly towards the bar or to lower it by means of a pair of similar operating devices, one associated with each screw. Each of these devices consists of a frame 12, orificed to receive the associated screw, between the upper and lower sides of which is arranged a bevel pinion 13 secured to the screw and engaged by a second bevel pinion 14 fixed to a shaft which is journaled in the side member of the frame and is equipped with an operating handle 15 by which it may be rotated. The proximate sides of the frame are connected by overlapping bars 16—16, severally attached to the two frames and arranged to be adjustably secured together as by means of the clamping screw $16^a$. Any tendency of the frames to rotate with the suspension screws 2 is thus overcome, while the adjustment of the connecting bars enables the devices as a whole to be turned (with the connected suspension screws) so that the axes of the operating handles will be parallel with the bars, as shown, or stand at right angles thereto, with the handles on whichever side may be

most convenient for operation in the particular case.

The manner in which my connecting device is employed will be easily understood from the description of their construction above given. The lower ends of the two suspension screws are anchored to the car, and the clamps carried by the clamping bar all applied and tightened to clamp the group of cables to the bar. The screws are then operated to take the weight of the car off their points of attachment to the car and slacken the portion of such cables below the clamping bar. The new cable to be installed is then attached to the cable to be removed, and the new cable then pulled into place and clamped to the clamping bar and also secured to the counterweight. This operation may be repeated to install another new cable, and so on until all are installed, if it is desired to install an entire set.

It will be observed that at all times the car is suspended by the cables and it may therefore safely be moved if convenience should require. Moreover the work of changing the cables may be done at any position of the car in the elevator shaft, and it has been found to be sometimes convenient to make a change while holding the car at such distance below a given floor that boards for the workmen to stand upon may be supported by the floor and the connecting bars 16.

In Fig. 4 I have shown a simplified form of my invention in which a pair of central turnbuckle members 17, each making screw-threaded engagement with a pair of right and left suspension screw members 18—18[a] connected respectively to the car and one end of the clamping bar, are used for the purpose of connecting the clamping bar to the car

In Fig. 5 I have shown another modified form of my invention in which a pair of operating devices are arranged to be simultaneously operated by a single operating handle. This construction is similar to that shown in Figs. 1 and 2, but differs in that the bevel pinion 13[a] secured to the suspension screw 2 which is associated with such particular device and rotated by connection with the handle, also meshes with another bevel pinion 19 secured to one end of a shaft 20 journaled in the frame of such device and extending across to a similar bearing in the frame of the other device, the other end of the shaft being equipped with a bevel pinion 21 arranged to mesh with a bevel pinion 13[b] secured to the other suspension screw 2[a], the pitch of the threads of this screw being reversed to provide for simultaneous raising, or lowering, action upon the opposite ends of the clamping bar.

I claim:

1. A connecting device for temporarily connecting elevator cars to a set of hoisting cables by which the car is suspended including a clamping bar equipped with a plurality of clamps arranged to individually be engaged with the members of said set of cables above their point of permanent connection with car connecting members connected to the ends of said clamping bar and arranged to be detachably anchored to the car, and means for changing the extension of said connecting members.

2. A connecting device for temporarily connecting elevator cars to a set of hoisting cables by which the car is suspended including a clamping bar equipped with a plurality of clamps arranged to individually be engaged with the members of said set of cables above their point of permanent connection with car and connecting means including suspension screws severally connected to opposite ends of said clamping bar and detachably connected to the car at their lower ends, said screws being arranged to vary the length of the suspension.

3. A connecting device for temporarily connecting elevator cars to a set of hoisting cables by which the car is suspended including a clamping bar equipped with a plurality of clamps arranged to individually be engaged with the members of said set of cables above their point of permanent connection with car, a pair of suspension screws having right and left threads, upper screw-threaded blocks engaged by said screws and connected with the opposite ends of said clamping bar, lower screw-threaded blocks engaged by said screws and arranged to be detachably connected with said car, and means for rotating said screws.

4. A connecting device according to claim 3 in which said upper and lower screw-threaded blocks are flexibly connected by link members to the clamping bar and car respectively.

5. A connecting device according to claim 3 in which the means for rotating each suspension screw comprises a frame, a pinion rotatably mounted in said frame and secured to the particular screw, and a second pinion meshing with said first mentioned pinion and secured to a shaft equipped with a crank handle.

6. A connecting device according to claim 3 in which the means for rotating each suspension screw comprises a frame, a pinion rotatably mounted in said frame and secured to the particular screw, and a second pinion meshing with said first mentioned pinion and secured to a shaft equipped with a crank handle, the two frames being connected together by a bar extending between them.

7. A connecting device according to claim 3 in which the means for rotating each suspension screw comprises a frame, a pinion

rotatably mounted in said frame and secured to the particular screw, and a second pinion meshing with said first-mentioned pinion and secured to a shaft equipped with a crank handle, the two frames being adjustably connected together by an extensible bar.

8. A connecting device according to claim 1 in which said clamps are arranged in two groups in different planes and in staggered arrangement.

9. A connecting device according to claim 1 in which said clamps each consist of a grooved block arranged to seat upon the particular cable and a U-shaped bolt passing through the clamping bar and equipped with nuts engaging said block.

10. A connecting device according to claim 1 in which said clamps each consist of a grooved block arranged to seat upon the particular cable and a U-shaped bolt passing through the clamping bar and equipped with nuts engaging said block, said clamps being arranged in two groups oppositely disposed in different planes and in staggered arrangement.

In testimony whereof, I have subscribed my name.

JOSEPH E. EVANS.