No. 660,724. Patented Oct. 30, 1900.

G. K. FISCHER & F. KLEPETKO.

ELECTRIC CONVEYING AND ELEVATOR APPARATUS.

(No Model.) (Application filed Aug. 23, 1899.) 2 Sheets—Sheet 1.

Fig. 1.

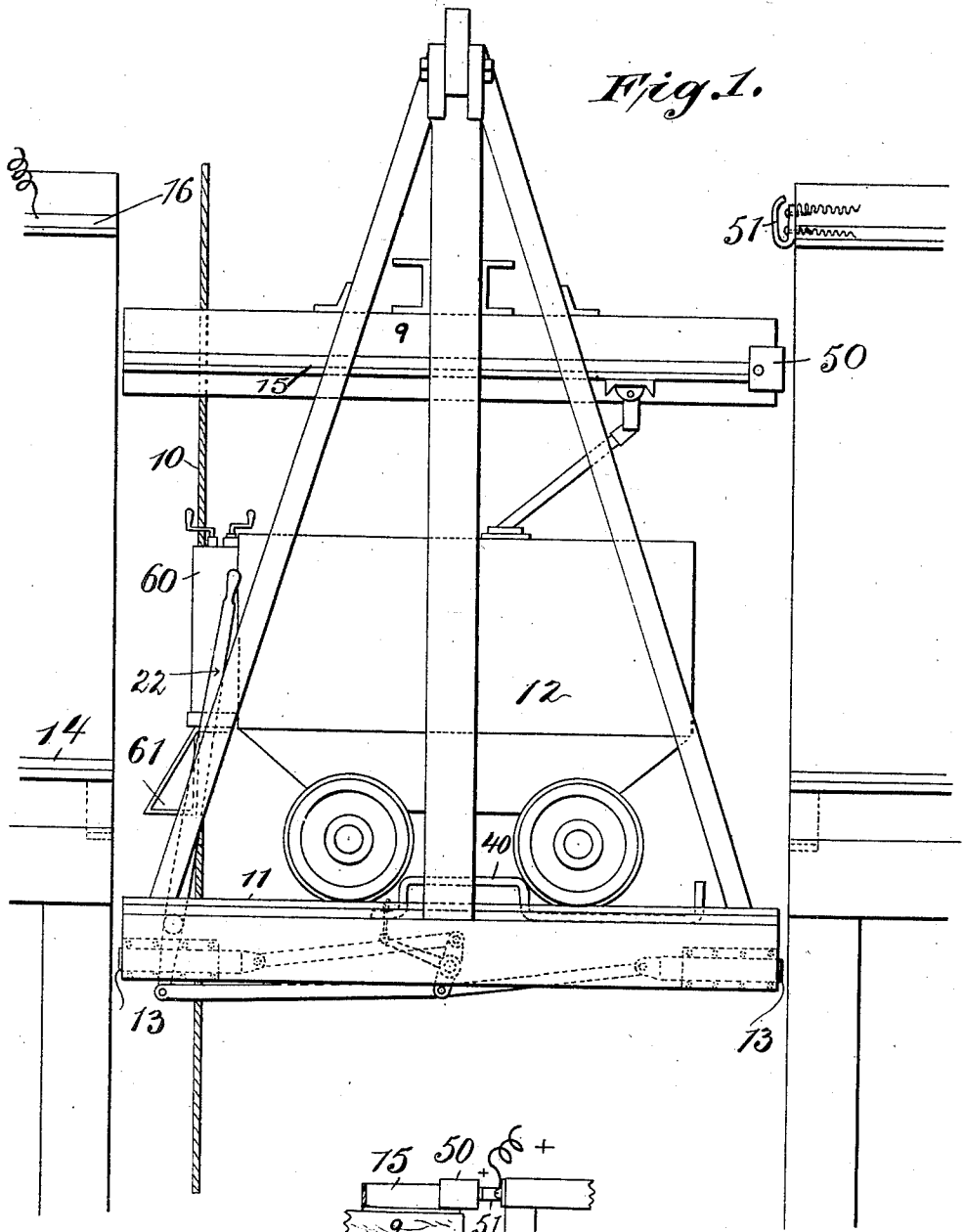


Fig. 6.

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Fig. 2.

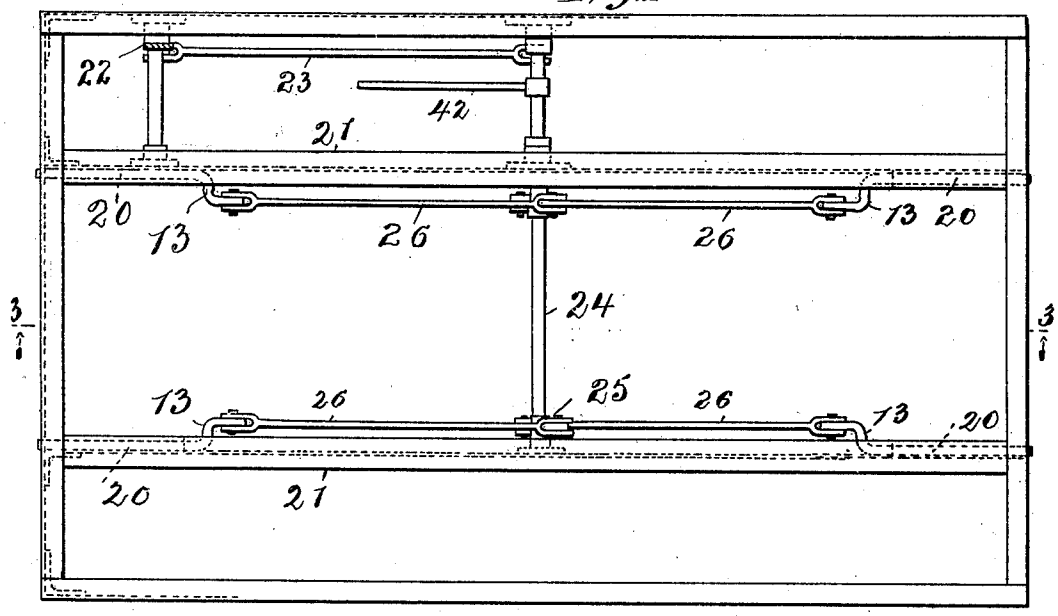


Fig. 3.

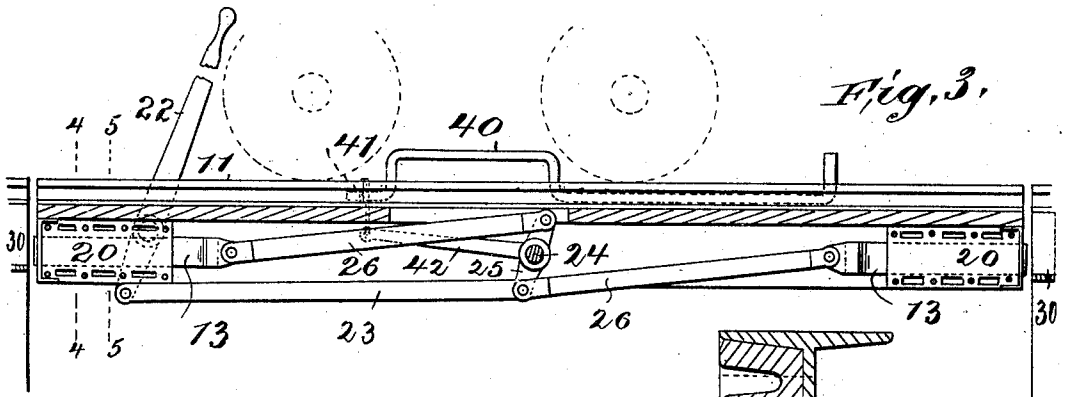


Fig. 4.

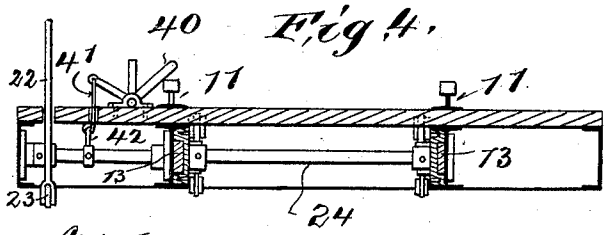
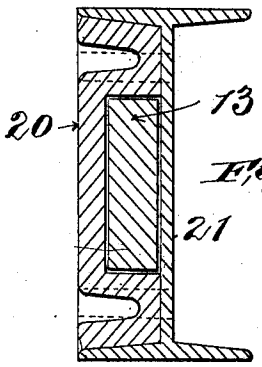


Fig. 5.



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UNITED STATES PATENT OFFICE.

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ELECTRIC CONVEYING AND ELEVATOR APPARATUS.

SPECIFICATION forming part of Letters Patent No. 660,724, dated October 30, 1900.

Application filed August 23, 1899. Serial No. 728,182. (No model.)

To all whom it may concern:

Be it known that we, GEORGE K. FISCHER, of Salt Lake City, Utah, and FRANK KLEPETKO, of Great Falls, Montana, have invented certain new and useful Improvements in Electric Conveying and Elevator Apparatus, of which the following is a description, referring to the accompanying drawings, which form a part of this specification.

The object of the invention is to enable an electric tram-car to be run from one level to an elevator-car and raised or lowered to a different level, and thence run off the elevator-car in a most convenient, economical, and certain manner.

The nature of the invention will be best understood by a description of the accompanying drawings, which show a preferred embodiment of it, though the details of the invention are not limited to those shown in the drawings.

Figure 1 shows in elevation the elevator-car carrying the electric tram-car and approaching one of the levels under which the tram-car is to be run. Fig. 2 shows in plan view certain features of the tram-car, the floor of the car being removed, certain details of the features being omitted for clearness. Fig. 3 is a vertical section on the plane 3 3 of Fig. 2. Fig. 4 is a vertical section through the plane 4 4 of Fig. 3, and Fig. 5 is a detail view in cross-section on the plane 5 5 of Fig. 3.

Throughout the drawings like reference-numerals indicate like parts.

The elevator may be of any desired type, and for the purpose of simple illustration we have supposed that the elevator is controlled by the usual lever or hand-rope 10. The elevator-car has rails 11, on which the tram-car runs. The elevator-car is also provided with landing-dogs 13, which lock the elevator-car in exact alinement with the stationary rails 14 at each level, onto which or off of which the car 12 is to be run. When so alined, the electric trolley rails or wires 15 on the car come into exact alinement with the stationary trolley rails or wires 16. Furthermore, means are provided by which the tram-car 12 is locked in position on the elevator-car when the landing-dogs are withdrawn, and also the current is cut off from the trolley-rails 15 when the elevator-car is moved a few inches up or down from alinement with the rails 14.

The landing-dogs 13 slide in cast-steel guide-pieces 20, which are fitted to the girders or I-beams 21 of the elevator-frame. The dogs are operated by lever 22, connecting-link 23, rock-shaft 24, cranks 25, and the four links 26, connected to the respective four dogs. The dogs or bolts 13 enter into landing-recesses 30 at each landing. These recesses 30 are provided with a steel plate to take the wear, and upon these the dogs 13 rest when the elevator-car is in position to have a tram-car run unto or off of it. In operating the elevator-car it is raised slightly above the level and the dogs then shot into the recesses 30 and the elevator car or cage then lowered, so that the dogs 13 rest in the sockets 30 and effect a perfect alinement between the rails 11 on the elevator-car and the stationary rails 14 at the landing.

In order to prevent any movement of the tram-car on the rails 11 while the elevator-car is moving, a wheel-blocking mechanism 40 is provided, which can be turned out of the way of the wheels or thrown over above one of the rails 11 directly between the wheels at the tram-car. We may, as shown in Figs. 3 and 4, connect this device by loose link 41 and crank-arm 42 to the rock-shaft 24. If this is done, the hand-lever 22 in withdrawing the dogs 30 will throw the blocking mechanism 40 in the position to block the wheels of the car, and when the elevator-car has reached its new level and the dogs 13 are shot into place the blocking mechanism 40 again releases the car-wheels.

The electric connections are so provided that current is supplied to the trolley-rails 14 on the elevator-car for the purpose of running the tram-car 12 onto and off of the elevator-car; but the circuit is interrupted when the elevator-car leaves the level of the landing, so that by no mischance can the tram-car be actuated during the movement of the elevator-car. The positive and negative conducting-rails 15 on the elevator-car are provided with contact-shoes 50, which rub against and make contact with the spring contact-brushes 51 at each landing. The positive and nega-

tive mains are conducted to supply current to the respective brushes 51. When, therefore, the elevator-car reaches a space at the proper level, the contact-shoes 50 coming in contact with the brushes 51, the respective trolley rails or conductors 15 are thrown in circuit and enable the operator to run the tram-car off the elevator-car. On the other hand, as soon as the elevator-car is raised or lowered away from the level of the landing the shoes 50 break contact with the brushes 51 and leave the trolley-rails 15 perfectly dead.

For the purpose of clearly illustrating our invention we have shown an electrical controller 60 on the tram-car of a well-known electric-railway type placed near the step 61 and seat for the carman. It will be seen that the elevator-controlling rope 10 and the landing-lever 22 are both located in the immediate vicinity of the controller 60 when the tram-car 12 is in place on the elevator-car. As the result of this combination the carman is able to run the tram-car onto the elevator-car when the elevator-car is in place and then without leaving his car to release the landing-dogs and operate the elevator-car upward or downward to whatever landing he wishes and there again stop the elevator-car, operate the landing-dogs, and run the tram-car off the elevator-car. The making and breaking of the electric connections which throw the trolley rails or conductors 15 on the elevator-car into and out of circuit are effected automatically, as already described.

The features which we claim as novel and characteristic of our invention are the following:

1. In combination with the rails and trolley-conductors of an electric railway, an elevator-car therefor, car-rails and one or more trolley-conductors carried by the elevator-car and means for locking a tram-car when in position on the elevator-car, consisting of a blocking device, a crank-shaft, a crank-arm on said shaft, and a link connecting said crank-arm and blocking device, substantially as set forth.

2. In combination with the rails and trolley-conductors of an electric railway, an elevator-car therefor, car-rails and one or more trolley-conductors carried by the elevator-car, mechanism for locking a tram-car in place on the elevator-car, and mechanism for locking the elevator-car when its rails and conductors are in proper alinement, said mechanism consisting of landing-dogs, a lever and links and cranks for operating said dogs, and a manual controlling device common to both said locking mechanisms, substantially as set forth.

3. In combination with the rails and trolley-conductors, of an electric railway, an elevator-car having corresponding rails and trolley conductor or conductors, locking mechanism for the elevator-car and an electric tram-car having a manual controller and adapted to be run onto said elevator-car, the manual controlling devices for the said locking mechanism and for operating the elevator-car being set in juxtaposition to the normal position of the controller of the tram-car when the tram-car is in place on the elevator-car, substantially as set forth.

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