J. A. ROMER.

RAILWAY SYSTEM.

APPLICATION FILED MAY 19, 1915.

1,168,676.

Patented Jan. 18, 1916.

3 SHEETS—SHEET 1.

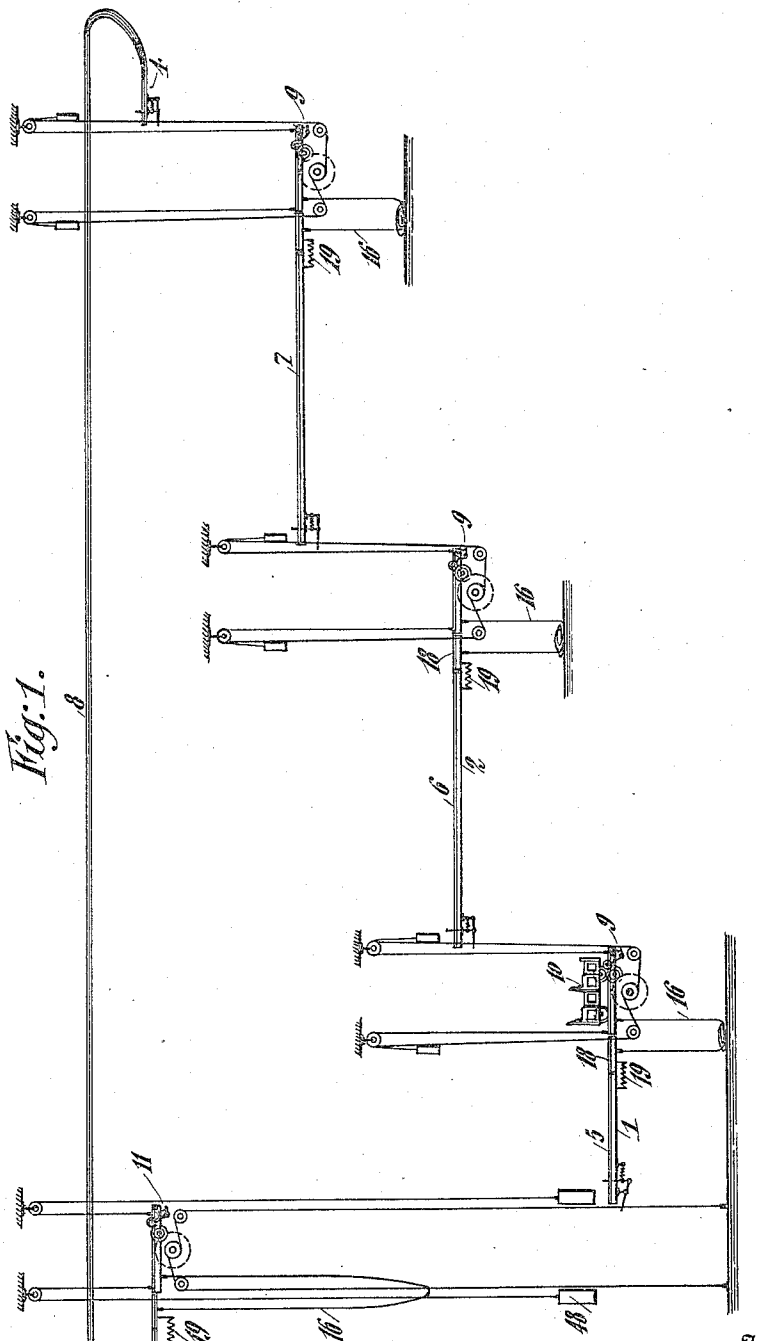


Fig. 1.

Witnesses:
Cornelius Hoving
John H. Hoving

Inventor
JOHN ALEXANDER ROMER
By his Attorney
H. VanOldenneel

THE COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

J. A. ROMER.

RAILWAY SYSTEM.

APPLICATION FILED MAY 19, 1915.

1,168,676.

Patented Jan. 18, 1916.

3 SHEETS—SHEET 2.

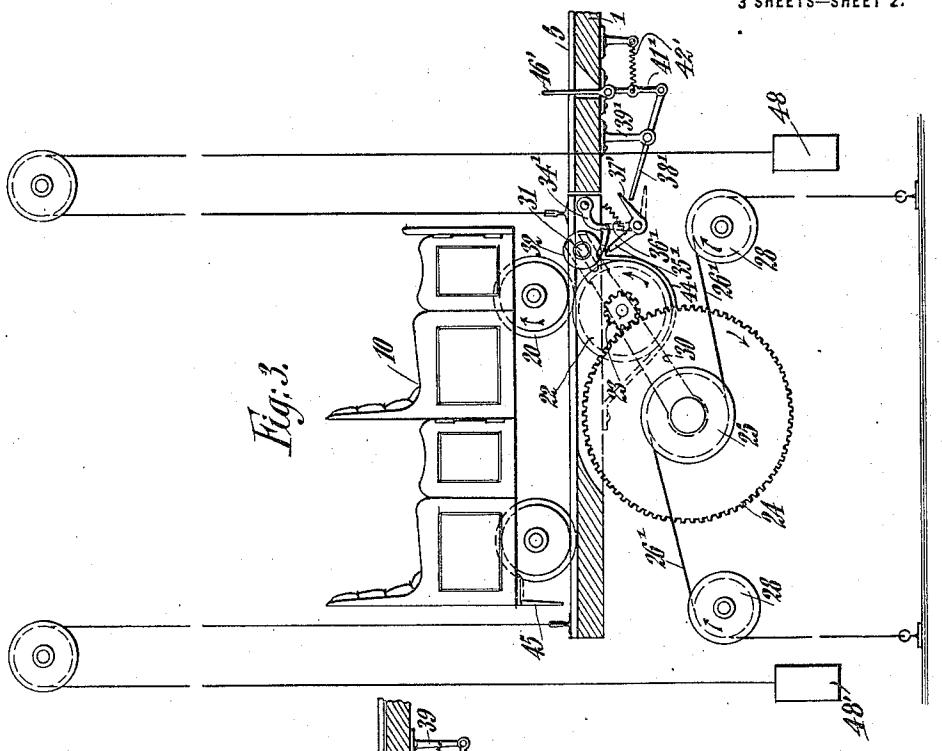


Fig. 3.

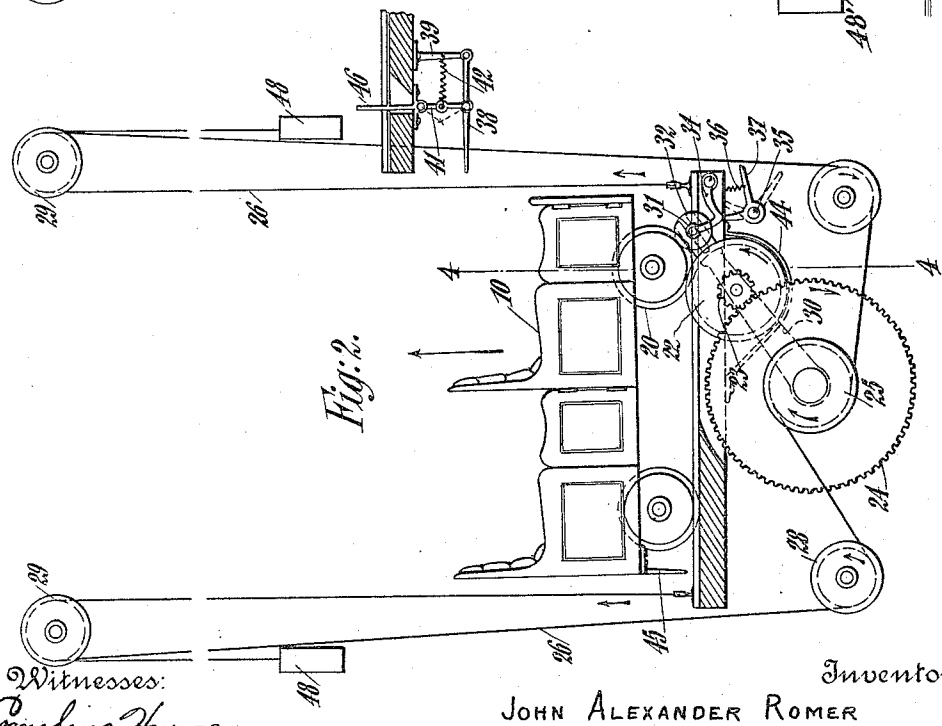


Fig. 2.

Witnesses:

Cornelius Young

John N. Young

Inventor

JOHN ALEXANDER ROMER

By his Attorney Frank Osteuneel

J. A. ROMER.

RAILWAY SYSTEM.

APPLICATION FILED MAY 19, 1915.

1,168,676.

Patented Jan. 18, 1916.

3 SHEETS—SHEET 3.

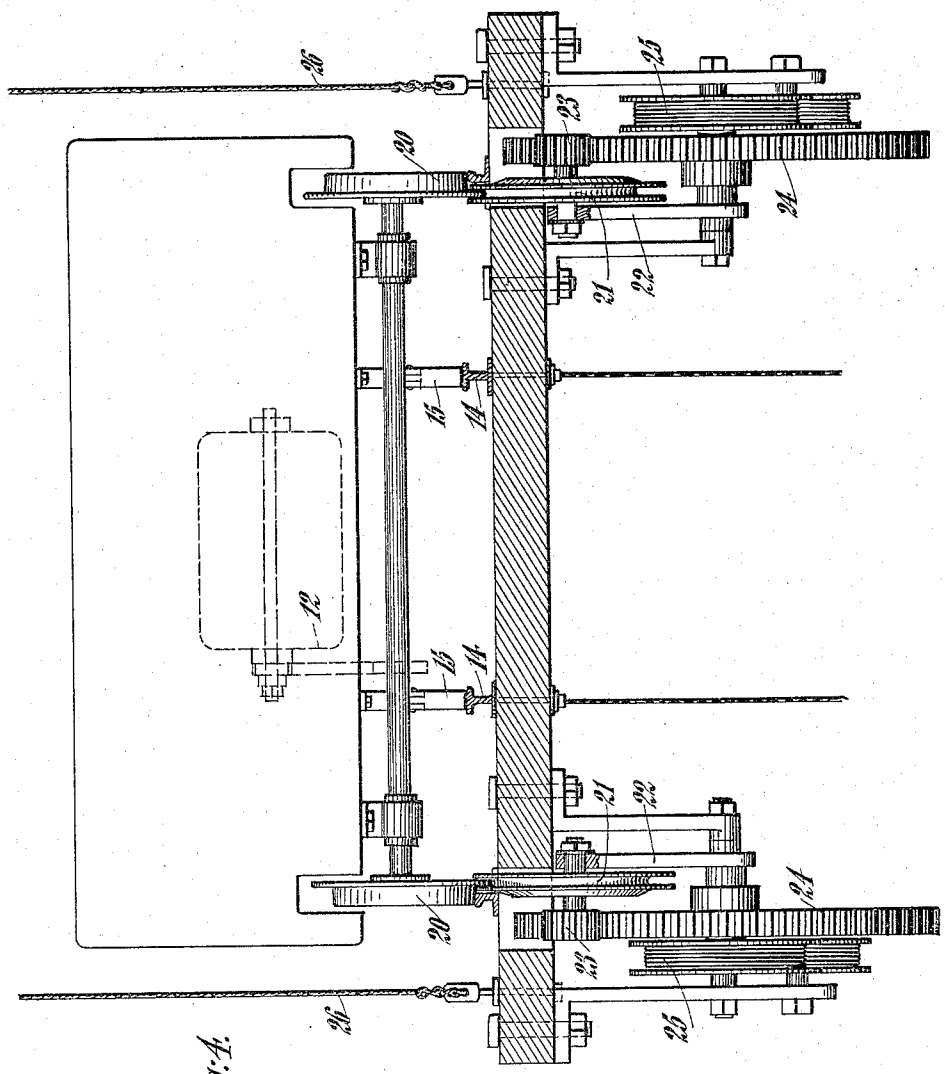


Fig. 4.

Witnesses:
Cornelius Haring
John H. Haring

Inventor
JOHN ALEXANDER ROMER
By his Attorney
Wm. Van Oldenneel

THE COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN ALEXANDER ROMER, OF LONDON, ENGLAND, ASSIGNOR TO BERNARR MACFADDEN, OF NEW YORK, N. Y.

RAILWAY SYSTEM.

1,168,676. Specification of Letters Patent. Patented Jan. 18, 1916.

Application filed May 19, 1915. Serial No. 29,072.

To all whom it may concern:

Be it known that I, JOHN ALEXANDER ROMER, subject of the King of Great Britain, residing at London, England, have invented a new and useful Improvement in Railway Systems; and I do hereby declare the following to be a full, clear, and exact description of the same.

This invention relates to a combined lift, or elevator, and railway system for buildings, emporiums, department stores, scenic railways and other purposes, for conveying passenger cars over the several floors and lift them from one floor to another without the passengers having to leave their seats.

The invention relates more particularly to means for automatically accomplishing the above mentioned purpose and has for its object to provide special means for automatically operating and controlling the cars when entering or leaving the lifts and for automatically operating the lifts.

For a better understanding of the invention it will now be described in connection with the accompanying drawings showing, by way of example, one of many possible embodiments of the invention and in which—

Figure 1 is a diagrammatic perspective view illustrating the arrangement of tracks and lifts in connection with a building of four floors; Fig. 2 is a sectional side elevation of one of the series of lifts for raising the cars from one floor to the next floor above; Fig. 3 is a similar view of a similar device for lowering the car from the top to the bottom floor after the whole trip has been completed. Fig. 4 is a sectional view taken on the line 4—4 of Fig. 2.

In Fig. 1 the system is shown in connection with a building having floors 1, 2, 3 and 4, having thereon respectively tracks 5, 6, 7 and 8. Lifts 9 serve to raise the cars 10 from the tracks of each one of the three lower floors to the track of the floor next above. The lowering device 11 serves to lower the car from the top to the bottom floor after the trip has been completed. The cars are driven by a motor 12 (Fig. 4) which may be of any desired form. If it is an electric motor, it may receive current, while on the lift, from conducting rails 14 through shoes 15. The conducting rails 14 on the lift receive current through flexible cables 16 (Fig. 1) connected to a short conducting section 18 which receive current from the main conducting rails through resistances 19. The object of these resistances is to slow down the car automatically as it goes on to the lift. The main conducting rails receive current from suitable feeders.

As the car goes on to the lift 9, the flange 20 of the car wheel (Figs. 2 and 4) engages in a friction groove 21 on a grooved wheel connected to a pinion 23 geared to a gear wheel 24 connected to a winding drum 25 on which is wound supporting cables passing about pulleys 28 secured to the platform of the lift, and pulleys 29 secured to the structure of the building. One end of the cables is secured to the drum, the other end being secured to the lift and thus when the driving wheel of the car engages and rotates the grooved wheel 22, the lift is drawn up.

The grooved wheel 22 and the pinion 23 are journaled to an arm 30 pivoted for slight angular movement and having a slot at its free end. A short shaft 31 carrying a roller 32 engages in said slot and is held therein by a bifurcated pivoted support 34 in which said short shaft is journaled. Said grooved wheel, arm, roller and pivoted member are held at their upper limit of movement by a key lever 35 engaging under said pivoted member and held in locking position by a spring 36. When said roller 32 is in said upper locked position and the drive wheel of the car resting thereon and in the groove 21, the car is held against further forward movement and is at the same time held up off of the track rail and is free to turn by the action of the motor and thus rotate the grooved wheel and consequently the winding drum thus winding up the cables 26 on the winding drum and drawing up the lift. Upward movement of the lift with the car thereon continues until the free end 37 of the lever 35 strikes the stop lever 38 fulcrumed on the support 39 on the floor next above. The stop lever is held against upward movement by the toggle levers 41 held on the dead center by the spring 42. This throws the key lever 35 to the position of the dotted lines and permits the roller 31 to drop below the head of the rail permitting the still rotating drive wheel 20 to engage the rail and move the car off the lift platform, at the same time the grooved

wheel 22 drops into engagement with a band brake 44 which holds the lift stationary while the car is moving off. When the car has entirely cleared the lift a finger 45 depending from the rear of the car engages the projecting end 46 of the toggle lever 41 and throws the latter off the dead center, thus raising the stop lever 38 and permitting the lever 35 to resume its normal position under the influence of the spring 36 thus forcing the roller 32 and the grooved wheel 22 to their upper position, releasing the wheel 22 from the action of the band brakes, permitting the lift to descend of its own weight retarded to an extent by the counterweight 48 or other suitable device. In like manner, the car is raised to each floor until the top floor is reached, when the car is propelled to the lowering device 11. The construction of the driving apparatus of the lowering device is similar to that of the lifts except that the cables 26′ passing over the pulleys 28 are anchored below the bottom floor so that the car pulls itself down, instead of up, against the action of the counterweights 48′. When the lowering device reaches the bottom floor the end 37′ of the key lever 35′ strikes the stop lever 38′ fulcrumed on the support 39′ mounted beneath the bottom floor. The stop lever 38′ is held against downward movement by the toggle levers 41′ held on the dead center by the spring 42′. This throws the key lever 35′ to the position of the full lines and permits the roller 31 to drop below the head of the rail, whereupon the car moves off the platform of the lowering device, the band brake 44 takes hold and the finger 45 comes into engagement with the projecting end 46′ of the toggle lever 41′ thus lowering the stop lever 38′ and permitting the key lever to assume the position of the dotted lines under the action of the spring 36′. This causes the wheel 22 to move out of engagement with the band brake permitting the lowering device to ascend under the action of the counterweights.

The operation may be briefly summarized as follows:—A car in the lift in the position shown in Fig. 1, with the power turned on operates the lift and draws itself and the lift to the next floor above where engagement of the key lever 35 with the stop lever 38 causes the lift to be held stationary while the car is released and passes to the next lift, passing over the section 18 whereby the amount of current to the motor is cut down and the car passes slowly on to the lift, whereupon the car is reached again and the operation repeated until the car reaches the lowering device 11, each lift descending to its lower position as soon as the finger 45 on the car trips the toggle levers 41. When the car reaches the lowering device 11 the same operation is repeated except that the car draws itself and the lowering device to the bottom floor whereupon the car is released and passes to the track 5.

The structure and operation illustrated may be greatly varied without departing from the scope of the invention as claimed. For instance, any number or arrangement of cars, floors, lifts and tracks may be used, and the details of each may be modified according to the conditions.

I claim as my invention:—

1. In a railway system, a pair of floors; a platform; coöperating tracks and contact rails on said floors and platform; a car adapted to receive current from said rails and to be propelled thereby on said tracks; and means associated with the platform and adapted to be operated by the car to move said platform from one floor to the other.

2. In a railway system, the combination of a structure having a plurality of floors; tracks on said floors; cars on said tracks; lifts having tracks thereon and adapted to carry cars from the tracks of one floor to the tracks of the floor next above; a lowering device adapted to transfer cars from the track of the top floor to the track of the bottom floor; a motor for driving said car; and means operated by the drive wheel of the car for operating the lift.

3. In a railway system, the combination of a structure having a plurality of floors; tracks on said floors; cars on said tracks; lifts having tracks thereon and adapted to carry cars from the tracks of one floor to the tracks of the floor next above; a lowering device adapted to transfer cars from the track of the top floor to the track of the bottom floor; a motor for driving said car; and means operated by the drive wheel of the car for operating the lift and the lowering device.

4. In a railway system, the combination of a structure having a plurality of floors; a car; tracks on said floors for said car; transferring means for transferring cars from the track of one floor to the track of the adjacent floor; means for transferring cars between the tracks of the floors most distant from each other; means for rotating a wheel of the car to drive the car; and means operated by said wheel to operate the transferring means.

5. In a railway system, the combination of sets of stationary tracks at different levels; a platform having a track adapted to cooperate with the stationary tracks; a car on said tracks; brake means for moving the platform from one level to the other; a friction wheel for operating said means and adapted to be rotated by the drive wheel of the car; holding means for holding the drive wheel off the track rail and in contact with the friction wheel; a brake for the moving means; means for automatically releasing

the holding means and applying the brake when a car is carried to a track onto which it is to pass; and means for rendering inoperative said last named means when the car leaves the platform.

6. In a railway system, the combination of a platform having track rails and contact rails thereon; sets of stationary track rails and contact rails at different levels and adapted to coöperate with the rails of the platform, certain of the contact rails having therein insulated sections connected by a resistance to the main part of the rail; a car for the tracks and adapted to receive current from said contact rails; a winding drum and a pivoted arm secured to the platform; a grooved wheel mounted on said arm and adapted to be frictionally engaged by the drive wheel of the car and having operative connection with said drum; cables secured to said drum for moving the platform as the drum is rotated; a roller adapted to engage the drive wheel; a band brake adapted to engage the grooved wheel; a pivoted support; a key lever adapted to engage said support; a spring adapted to cause said lever to press against said pivoted support to lift said grooved wheel away from the band brake and to cause said roller to lift the drive wheel off the track rail; a stop lever adapted to cause said key lever to release said support when the tracks of the platform move into coöperation with the stationary tracks; and means carried by the car for putting the stop lever into inoperative position when the car passed onto the stationary tracks.

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

JOHN ALEXANDER ROMER.

Witnesses:

GEORGE ANDREW HEATLEY,

O. J. WORTH.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."