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ELECTRIC DUMB WAITER CONTROL.

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1,033,286.

Patented July 23, 1912.

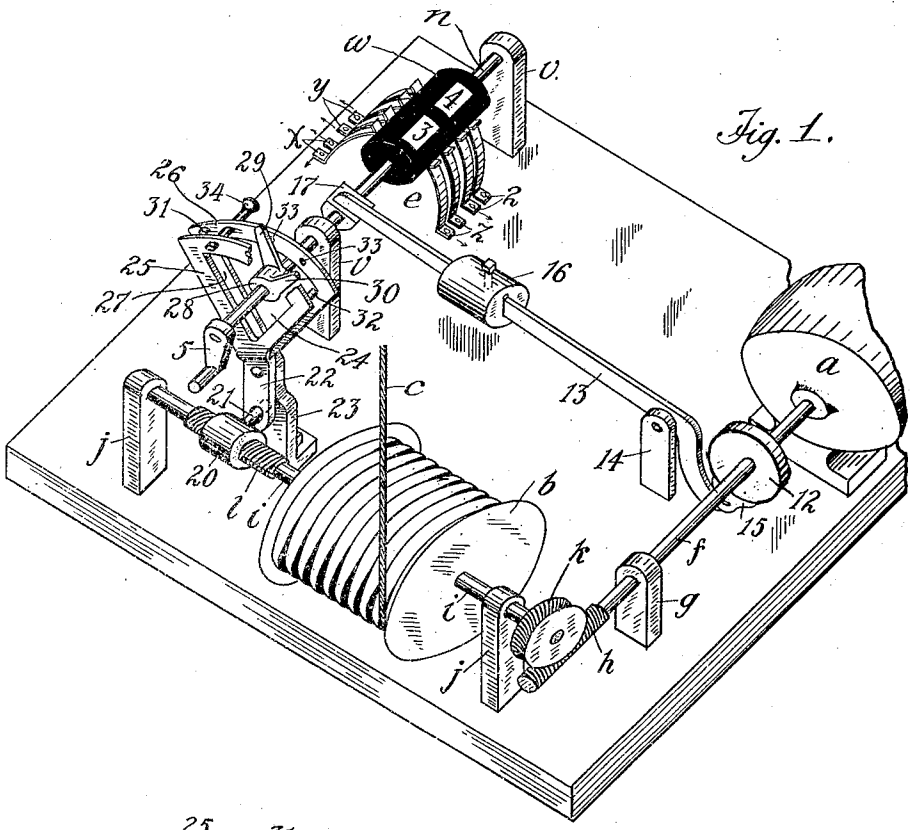

Fig. 1.

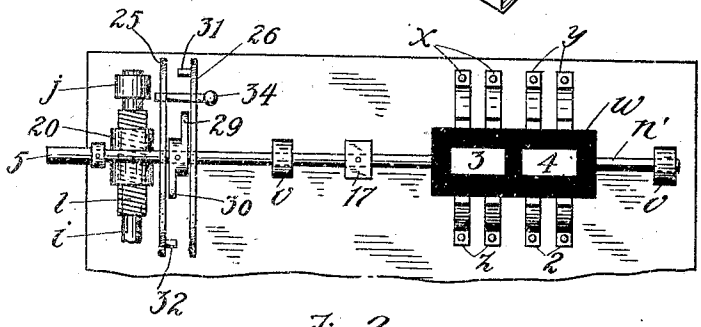

Fig. 2.

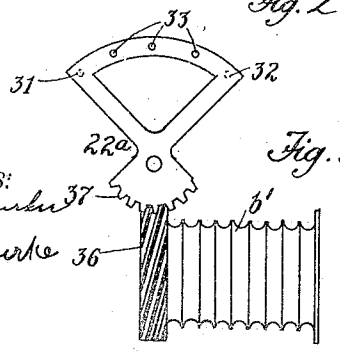

Fig. 3.

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ELECTRIC DUMB-WAITER CONTROL.

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To all whom it may concern:

Be it known that we, MICHAEL SPAHN and ISAAC CONCOFF, citizens of the United States, residing at Portland, in the county of Multnomah and State of Oregon, have invented certain new and useful Improvements in Electric Dumb-Waiter Control, of which the following is a specification.

Our invention relates to electric elevators or dumbwaiters, and has for its object to provide a dumbwaiter of simple, durable and inexpensive construction.

A further object is to devise means, whereby our dumbwaiter is controlled entirely from the basement or central station of the building which it supplies.

Our dumbwaiter is furthermore so constructed, that the operator, when the dumbwaiter is required at a certain floor, sets a stop corresponding to said floor and throws the starting switch, whereupon the dumbwaiter runs to the floor thus selected and automatically comes to a stop. In order then to start the dumbwaiter it is necessary for the operator to re-adjust said stop and to throw the starting switch.

The objects and advantages of our invention are clearly set forth in the following description and illustrated in the appended drawing, of which:

Figure 1 is a perspective plan-view of our controlling device. Fig. 2 is a plan-view of part of Fig. 1, and Fig. 3 shows a modified means of actuating our controlling mechanism.

Referring to Fig. 1, *a* is an electric motor, *b* the drum around which the cable *c* is wound. The means of suspending the dumbwaiter cage from cable *c* is not shown in the drawing, such means being commonly used and well known to those versed in the art.

From motor *a* extends a shaft *f*, the outer end of which is supported by a suitable bearing *g* and provided with worm-threads *h*. Drum *b* is rigidly secured to shaft *i*, which is mounted in bearings *j* at right angles to shaft *f*. Worm-wheel *k*, rigidly affixed to one end of shaft *i*, engages the worm-threads of shaft *f*, while the opposite end of shaft *i* is provided with worm threads *l*, on which we mount a threaded collar 20 provided with a pin 21, and the latter engages the lower end of a rock-frame 22, journaled in a suitable bearing 23. The upper end of said rock-frame forms a segment perforated as indicated by 24, and is divided by a slot 27 into two members 25 and 26.

Switch shaft *n* extends through perforation 24, and a bell-crank 28 is secured to said shaft in line with slot 27, whereby arms 29, 30 of said bell-crank are free to extend upward into said slot. Segment member 25 is provided with an inwardly projecting pin 31, and member 26 is in the same manner made with a pin 32. Between the two pins the segment is provided with a series of perforations 33 adapted to receive a detachable pin or key 34. It is to be noted that arm 29 is in the path of travel of pin 31, while arm 30 registers with pin 32, but the detachable pin extending entirely across slot 27 acts upon either arm when thrown into its path of travel.

Switch shaft *n* journals in bearings *v*, between which is suspended a drum *w* made of insulating material and rigidly secured to the shaft. A plurality of contact brushes *x*, *y*, *z*, 2, bearing against the periphery of said drum, are arranged in pairs diametrically opposite, and register with contact plates 3, 4 of the drum. Said contact brushes are electrically connected with the motor in any suitable manner to start the motor in forward or reverse direction, when the switch contacts 3, 4 are brought in contact with either of the pairs of brushes.

To operate the dumbwaiter, switch crank 5 is turned until a circuit is closed between contacts 3, 4 and brushes *x*, *y*, and the motor starts causing shaft *f* to revolve, which in its turn revolves shaft *i* with drum *b* and rock-frame 22, until pin 31 of the latter strikes arm 29 of bell-crank 28, whereby said bell-crank is pushed along causing switch shaft *n* to revolve, until the switch again assumes its central position, as shown in Fig. 1, and the circuit is opened. To start the dumbwaiter in the opposite direction, the switch is revolved until a circuit is closed between contacts 3, 4 and brushes *z*, 2, whereupon in the manner described rock-frame 22 is caused to oscillate until it strikes arm 30 of bell-crank 28, causing the switch to return to its central position and opening the circuit. If the dumbwaiter is required to stop at an intermediate station, the detachable pin 34 is inserted in the proper perforation 33, and the switch thrown, whereupon arm 29 or 30 in the course of the travel of

rock-frame 22 is struck by pin 31 or 32, and the whole mechanism is thus brought to a standstill at the desired point. To insure the dumbwaiter coming to a stop exactly at the required point, we provide a brake mechanism which comprises a brake disk 12 secured to shaft f, and a lever 13 journaled in a suitable bearing 14 in close proximity to said brake disk. A brake shoe 15 is hinged on lever 13 and is forced to bear against the periphery of disk 12 by the action of an adjustable weight 16, mounted on the free end of lever 13. To switch shaft n is secured a cam 17, on which the free end of lever 13 rests. By referring to Fig. 1 it is seen how said cam, when switch e is thrown in either direction to start the dumbwaiter, raises the end of said lever, and thus releases the brake. When the switch again returns to its central position weight 16 causes the brake to act instantly, and the dumbwaiter to stop suddenly.

Fig. 3 shows how the construction may be simplified by applying bell-crank 22^a directly to the flange of drum b', which in that case is provided with worm threads 36 engaging worm teeth 37 of bell-crank 22^a.

Having thus described our invention, we claim:

1. In an electric elevator control in combination: a motor, a cable drum, a switch shaft, an insulated switch drum on said shaft, contact plates on the periphery of said switch drum, contact brushes engaging said switch drum on opposite sides, means for manually rotating said switch drum, to close a circuit between said contact plates and either set of brushes, means for automatically returning said switch drum to its initial position, said means comprising, a driving member operatively connected with the motor, a switch controlling member operatively connected with the switch shaft, said driving member provided with a series of perforations representing the floor stops, and a detachable pin which, when placed in one of said perforations, causes the driving member to engage the controlling member, thereby returning the switch drum to its initial position.

2. In an electric elevator controlling mechanism in combination: a motor, a cable drum, a switch shaft, an insulated switch drum rigid on said shaft, contact plates on the periphery of said switch drum, contact brushes engaging said switch drum on opposite sides, means for manually rotating said switch drum to close a circuit between said contact plates and either set of brushes, a segmental, bifurcated rock frame rotated by the motor and provided with a series of perforations corresponding to the floor stops, a bell crank on the switch shaft and riding in the bifurcation of said rock frame, and a pin adapted to lodge in one of said perforations and engaging said bell crank, thereby returning the switch drum to its initial position.

In testimony whereof we affix our signatures in presence of two witnesses.

MICHAEL SPAHN.
ISAAC CONCOFF.

Witnesses:
L. M. EARL,
M. LUCAS.