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SIGNALING MECHANISM

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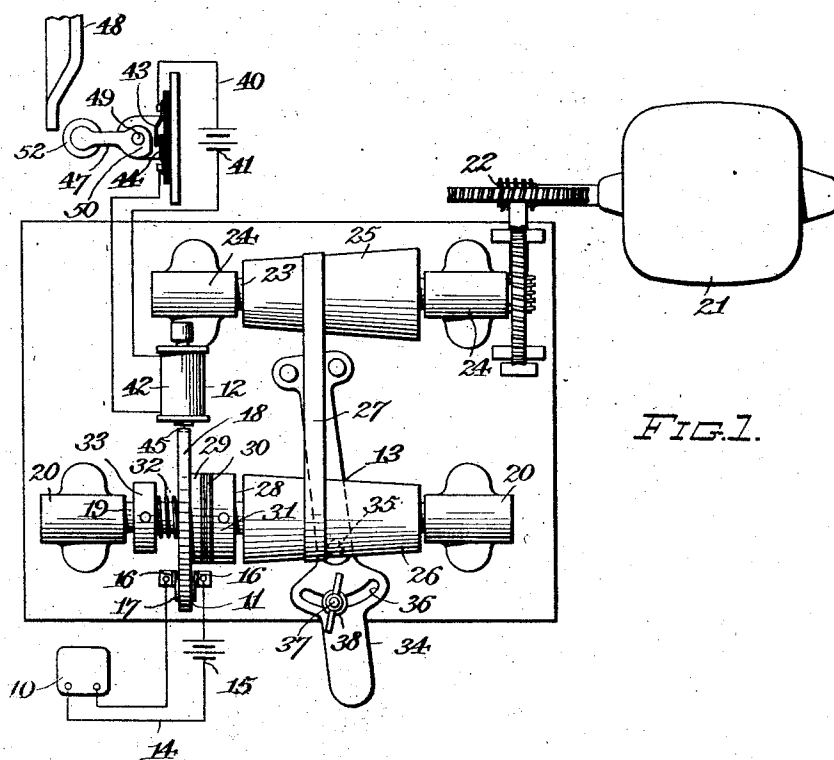


FIG. 1.

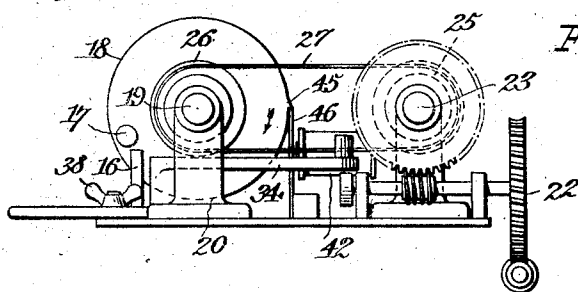


FIG. 2.

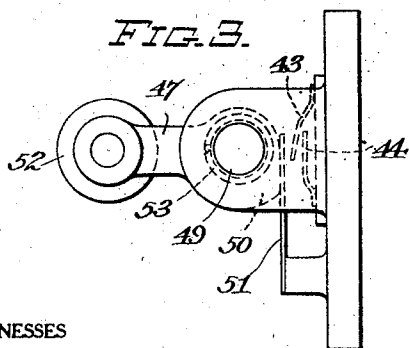


FIG. 3.

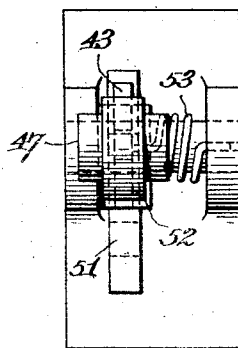


FIG. 4.

WITNESSES

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SIGNALING MECHANISM.

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This invention relates to the signaling mechanism and has especial reference to a type of signaling mechanism employed in conjunction with an elevator car for signaling the operator of the car at a predetermined time after the car has been brought to a landing place; the signal given indicating the time at which the operator is to again start the car.

The principal object of the present invention is to improve the elevator service in office buildings where numerous elevators are used by causing the operation of a signal after the laps of a certain interval of time from the time each elevator car is brought to a landing so that the operator may, according to a time schedule again start the car in response to the signal given to expedite the delivery of passengers.

Another object of the invention is to provide means in a signaling mechanism of the character mentioned for varying the time interval between signal operation and the arrival of the elevator car at a landing.

With the foregoing and other objects in view the invention resides in the particular provision and operation of the parts hereinafter fully described and illustrated in the accompanying drawing, in which;

Figure 1 is a diagrammatic plan view of the combination of elements involved in the practice of the present invention.

Fig. 2 is a side elevation.

Fig. 3 is a side elevation of the circuit breaker or switch of the controlling mechanism.

Fig. 4 is a front view of the circuit breaker or switch shown in Fig. 3.

Generally stated, the present invention consists of a signal 10 which may be of any preferred type either audible or visual, signal operating mechanism 11, control mechanism 12 for controlling the operation of the signal operating mechanism 11, and mechanism 13 for effecting the operation of the signal operating mechanism.

The signal 10 as stated may be of any preferred type and in the present instance is in the nature of a buzzer. The mechanism 11 utilized for operating the signal 10, in the present instance consists of an electric circuit 14, a source of electrical energy 15, spaced stationary contacts 16, and a make and break contact 17 which is movable into and out of engagement with the contacts 16 for the signal operation.

The mechanism 13 for operating the signal operating mechanism 11, in the present instance, includes a member 18 which carries the contact 17; the said contact 17 being insulated from the member 18. The member 18 is in the form of a disk and is loosely mounted for rotation on a shaft 19 rotatably supported by bearings 20. The shaft 19 is rotated continuously and this is accomplished by the use of an electric motor 21, gear set 22 between the motor shaft and a counter shaft 23 rotatably supported by bearings 24, a cone 25 secured to shaft 23, a cone 26 secured to shaft 19, a belt 27 encircling the cones 25 and 26, and a clutch 28. The clutch 28, in the present instance, consists of co-acting members 29 and 30 attached respectively to the member 18 and a collar 31 secured to the shaft 19, and a spring 32 which surrounds the shaft 19 with one end against the member 18 and the opposite end against a collar 33 secured to the shaft 19. The member 30 is in the form of a disk of leather in frictional engagement with the member 29 by virtue of the spring 32. The member 18 is temporarily held by the mechanism 12 against rotation and when the same is released said member 18 will be rotated by virtue of the action of the clutch 28 which sets up frictional contact between the member 29 and the member 30 sufficient to cause the rotation of the member 18 due to the fact that the collar 31 is secured to the shaft 19. A belt shift lever 34 pivotally mounted as at 35 is employed for shifting the belt 27 with respect to the cones 25 and 26 to vary the speed of rotation of the shaft 19. The lever 34 is slotted as at 36. A stud 37 is disposed in the slot 36 and has a winged nut 38 for holding the lever 34 in different positions. It follows therefore, that the member 18 may not only be rotated for causing the contact 17 to move into and out of engagement with the contacts 16, but the speed of rotation of the member 18 may be varied.

The control mechanism 12 for controlling the operation of the signal operating mechanism 11, in the present instance includes an electric circuit 40 comprising a source of electrical energy 41, electromagnet 42, and spring contacts 43 and 44. The member 18 is provided with a tooth or lug 45 with which a magnetizable flexible member 46 coacts. In one position of the member 46 its extremity is in engagement with the lug 45

and holds the member 18 against rotation. When the magnet 42 is energized, the member 46 will be attracted, and as a result the extremity of the member 46 will be disengaged from the lug 45, thus permitting the member 18 to rotate. The magnet 42 is energized and de-energized by virtue of the employment of a trip 47 and an actuator 48. The trip 47 is pivotally mounted as at 49 and has a cam 50. The trip 47 is held normally in a horizontally disposed position by a leaf spring 51 whose free end coacts with the flat surface of the cam 50. The trip 47 also includes a roller 52 which is engaged by the actuator 48. The actuator, it is to be understood, is attached to an elevator car (not shown). Upon the downward movement of the elevator car the actuator 48 moves the trip 47 on its pivot and thereby causes the cam to flex the spring 51 which in turn flexes the contact 44 to close the circuit 40. The closing of the circuit 40 energizes the magnet 42, whereupon the member 46 is moved out of engagement with the lug 45. The member 18 is then free to rotate, and in rotating, the contact 17 carried thereby after substantially one complete revolution of the member 18 moves into contact with the contacts 16, and closes the circuit 14 and renders the signal 10 active. Meanwhile the magnet 42 has been de-energized and the free extremity of the member 46 is in the path of movement of the lug 45, which latter encounters said extremity and as a result, the member 18 is held against rotation with its contact 17 out of engagement with the contacts 16 as shown in Fig. 2. In addition to the spring 51 a second spring 53 is employed for bringing the trip 47 to a horizontal position. The spring 53 encircles the pivot 49 and has one end engaged in a hole in the pivot bracket and the opposite end is attached to the trip, as shown most clearly in Fig. 4. It is to be understood that in the downward movement of the actuator 48 the trip 47 will be moved for closing the circuit 40, and by virtue of the construction of the trip cam the circuit 40 will not be closed when the trip moves in an opposite direction. Therefore, provision is made for the operation of the trip 47 by an actuator, such as the actuator 48 of one cam portion of the actuator may have two cam portions.

From the foregoing description it is thought that the operation has been fully explained, and it is to be understood that the invention is not restricted to the precise arrangement of parts shown and de-

scribed, as details of construction may be modified and re-arranged without departing from the spirit of the invention, the scope of which is limited only by the terms of the appended claims.

I claim:

1. In an elevator signaling device, an elevator operable between a plurality of floors, a signal at one or more of the floors, and means operated by the arrival of the elevator at a floor for actuating the signal for that floor at a predetermined time thereafter.

2. In an elevator signaling device, an elevator operable between a plurality of floors, a signal at one or more of the floors, and means operated by the arrival of the elevator at a floor by means carried by the elevator for actuating the signal for that floor at a predetermined time thereafter.

3. In an elevator signaling device, an elevator operable between a plurality of floors, a signal at each of the floors, co-operating means at each floor operated by the arrival of the elevator at each floor for actuating the signal for that floor at a predetermined time thereafter.

4. In an elevator signaling device, an elevator operable between a plurality of floors, a signal, and means at each floor operated by the arrival of the elevator at a floor for actuating the signal at a predetermined time thereafter.

5. In an elevator signaling device, an elevator operable between a plurality of floors, a signal at one or more of the floors, means operated by the arrival of the elevator at a floor for actuating the signal for that floor at a predetermined time thereafter, and means for changing the time limit of actuation of the signal by said first mentioned means.

6. In an elevator signaling device, an elevator operable between a plurality of floors, a signal at one or more of the floors, means operated by the arrival of the elevator at a floor by means carried by the elevator for actuating the signal for that floor at a predetermined time thereafter, and means for changing the time limit of actuation of the signal by said first mentioned means.

7. In an elevator signaling device, an elevator operable between a plurality of floors, a signal, means at each floor operated by the arrival of the elevator at a floor for actuating the signal at a predetermined time thereafter, and means for changing the time limit of actuation of the signal by said first mentioned means.

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