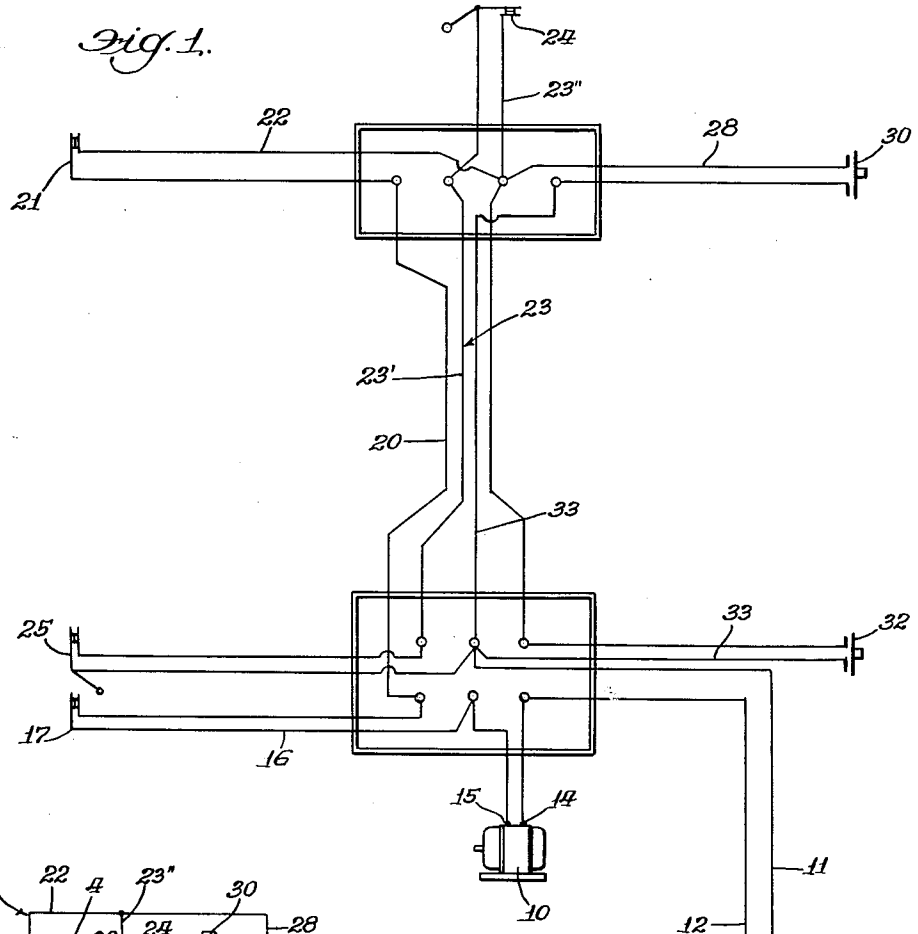
July 10, 1962 F. J. BLUME ET AL 3,043,400

MULTIPLE STATION CONVEYOR CIRCUIT

Filed Oct. 3, 1960

Fig. 1.



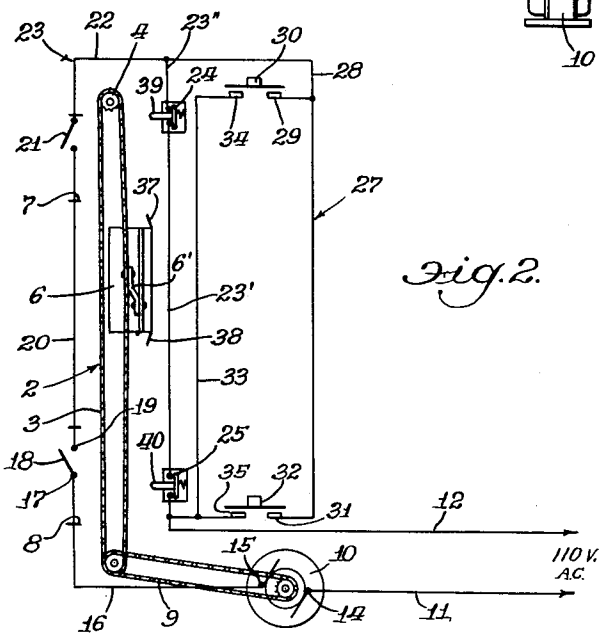


Fig. 2.

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MULTIPLE STATION CONVEYOR CIRCUIT

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3 Claims. (Cl. 187—3)

This invention apertains to a novel electrical circuit for a multiple station elevator.

In elevators of the type under consideration, complicated circuitry has always been used to effect movement of the carriage from station to station and this frequently involved relays, reversing circuits, and reversible motors.

The object of this invention is to provide a novel circuit which is extremely simple and efficient and which obviates all of the foregoing difficulties.

The invention particularly comprehends an application wherein a carriage is moved from station to station and at each station engages a limit switch for breaking the circuit and stopping the carriage or car at the station.

A further object is to provide a novel circuit comprising a primary circuit and a secondary circuit, the primary circuit including a limit switch for each station and the secondary circuit being in parallel with the primary and by-passing each of the limit switches and effective to operate the elevator to restart it and move the carriage thereof off the limit switch so that it may close and thus continue operation of the elevator.

These and other objects and advantages inherent in and encompassed by the application will become more readily apparent from the specification and the drawings wherein:

FIGURE 1 is a wiring diagram of the circuit invention;

FIGURE 2 is a diagrammatic illustration of the circuit with the elevator mechanism to which it is applicable.

Describing the invention in detail and having particular reference to the drawings, there is skeletally shown an elevator **2** which comprises an endless chain **3** trained over upper and lower sprockets **4** and **5** and supporting a carriage **6** by a tension link **6'**. The carriage is adapted to ascend and descend to the upper and lower stations **7** and **8** by the chain **3** which is actuated by a drive chain **9** from a motor **10**.

The circuit comprises a pair of power lines **11** and **12** which have a power line terminus herein shown for illustration only as 110 v. A.C. Line **11** connects with one terminal **14** of the motor which is in series with the circuit and connects at its terminal **15** to line **16** which connects to terminal **17** of a lower station door switch **18** which has a contact **19** connected through lead **20** to an upper door switch **21** which is connected to line **22** which is connected to the upper end of the primary circuit line **23**.

Line **23** has a pair of normally closed upper and lower switches **24** and **25** disposed respectively adjacent to stations **7** and **8** and series connected to each other through section **23'** of line **23**, the upper switch being connected to line **22** through line section **23''** and the lower switch being connected to line **12**.

A by-pass circuit **27** is connected in parallel with the main circuit line **23** and includes a lead **28** which connects at one end to line **22** intermediate its end to one contact **29** of an upper by-pass switch **30** and at its other

end to one contact **31** of a lower by-pass switch **32**. A line **33** interconnects the other contacts **34** and **35** with the line **12**.

The carriage **6** moves vertically and comprises upper and lower cams **37** and **38** which respectively engage the switch elements **39** and **40** of the upper and lower limit switches upon the carriage being disposed in overlapping relation thereto as it reaches its station. This causes a break in the main circuit which in turn stops the carriage at the respective station.

Assuming the carriage is at the lower station, depressing the button on the lower switch opening the main circuit and assuming that the lower and upper door switches are closed, in order to actuate the lower station we close the respective by-pass button. This will cause current to flow through part of the primary or main circuit and the by-pass circuit whereby actuating the motor causing it to move the carriage chain and moving it off the lower button whereupon the lower switch closes and the circuit is established through the main line **23**. The carriage is driven and the by-pass button is released by the operator until the upper cam engages and depresses the button of the upper switch whereupon again breaking the circuit. To descend the carriage, either by-pass button is again temporarily closed and after the carriage clears the upper button, the by-pass button is released. The carriage is driven until its lower cam engages and opens the main line lower switch.

Thus a novel arrangement has been provided for controlling the movements of the basket from station to station and although one embodiment has been disclosed various other forms of the invention will become readily apparent to those skilled in the art within the scope of the appended claims.

What is claimed is:

1. In a two station conveyor system, a carrier, means in guided engagement with the carrier for directing it between the stations, said carrier having cam means, a normally closed switch at each station in the path of movement of the cam means, means including an electrical motor for driving said carrier, a primary electrical circuit connecting said motor and switches in series, said carrier movable from one station to the other and upon arrival at a station camming the related switch to open position interrupting the circuit and stopping the carrier, and an overriding circuit connected in parallel with said primary circuit for temporarily advancing the carrier to a position off a switch.

2. The invention according to claim 1 and said overriding circuit including a switch at each station.

3. The invention according to claim 1 wherein said driving means includes an endless member, and means interconnecting said member with the carrier, and said endless member and last-mentioned means being unidirectionally driven and having a path from one station to the other and another path from said other to said one station.

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