

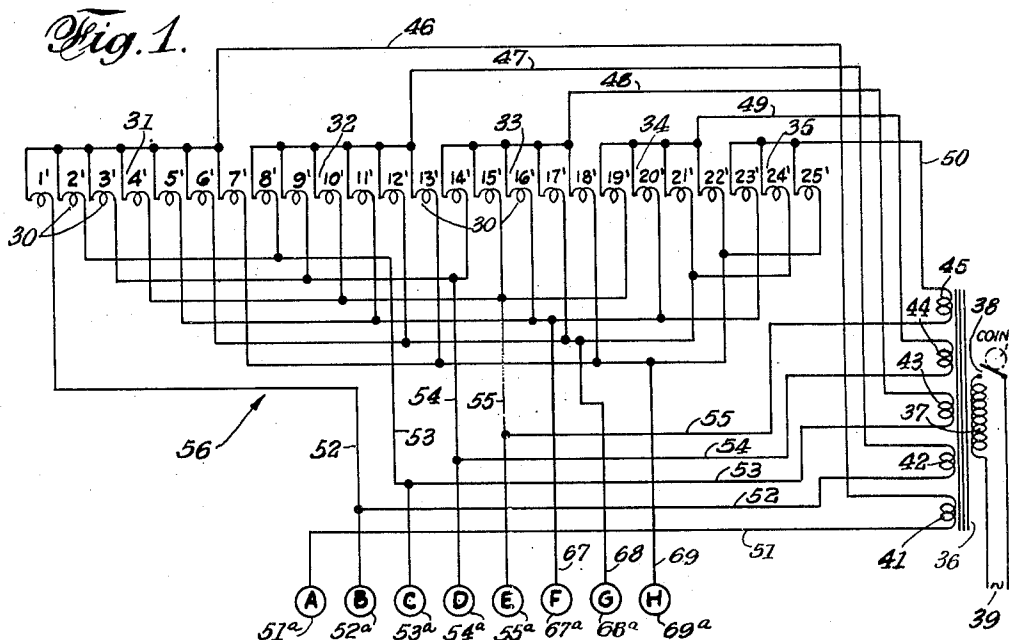
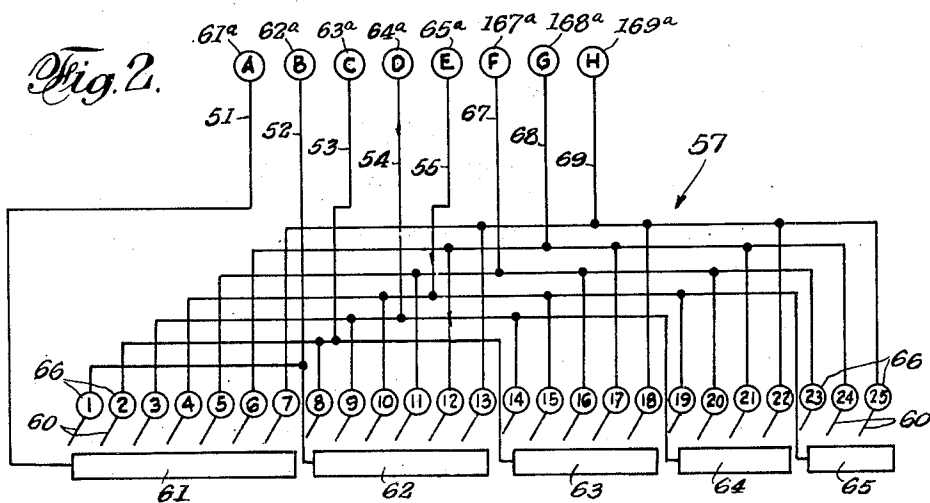
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SELECTIVE REMOTE CONTROL DEVICE

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SELECTIVE REMOTE-CONTROL DEVICE

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This invention relates to electrical apparatus and more especially to a remote control device incorporating a plurality of control circuits.

An object of the invention is to provide a novel, improved operating and control mechanism and circuit wiring for the actuation of a large number of devices controlled from a remote point.

Another object of the invention is to provide novel, simplified circuit wiring for the control and actuation of a plurality of electrical devices wherein the required number of conductors is greatly reduced from that heretofore necessary in apparatus of this character.

A further object of the invention is to provide novel improvements in an electrical circuit and wiring for the operation and control of a multiple unit machine from a plurality of remote positions, resulting in substantial economies both as to material required for the circuit wiring and time necessary for installation of the apparatus.

The invention also comprises novel details of construction and novel combinations and arrangements of parts, which will more fully appear in the course of the following description.

These and other objects and advantages will be brought out more fully in the following specification, reference being had to the accompanying drawing forming a part thereof in which like parts are designated by like numerals, and wherein:

Fig. 1 is a diagrammatic view of an actuating mechanism incorporating my invention.

Fig. 2 is a diagrammatic view of one of the control devices for use in connection with the mechanism of Fig. 1.

The general purpose and objective of this invention is to simplify the number and complexity of the conductors and circuit wiring between a mechanism such as an automatic record playing machine, the operation and control of which are incorporated in one or more coin actuated selector stations usually located remotely from the record player and requiring, according to previous practice, a cable or plurality of conductors having at least as many separate wires or circuits as the number of separate records to be selected and played. In the present invention the interconnecting wires and circuits are simplified and greatly reduced in number to substantially one-third of the number usually required in apparatus as heretofore known and constructed.

Referring more particularly to the drawing I show diagrammatically in Fig. 1 an automatic record selecting and playing mechanism having a plurality of motors 30. The term motor as

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used herein refers to any device which is capable of moving a record into and out of playing position. Such motors may be of any desired or preferred form such as relays, electro-magnets, solenoids, or any other type of selector device having a circuit portion adapted to be energized by electric current to affect the desired movement. Motors 30 are designated by the numbers 1', 2', 3', etc., to and including 25', twenty-four of such motors being customarily incorporated in conventional, commercial automatic record players now widely used and well-known.

Motors 30 are disposed in a plurality of ordinarily arranged groups 31, 32, 33, 34 and 35 respectively. As may be clearly seen from the drawing, group 31 comprises the first seven motors 1' to 7', group 32 comprises six motors 8' to 13', group 33 comprises five motors 14' to 18', group 34 comprises four motors 19' to 22', and group 35 comprises three motors 23' to 25' inclusive.

Motors 30 are supplied with a power from a transformer 36 having primary winding 37 connected as by coin controlled switch 38 to a suitable source of alternating current 39.

Transformer 36 has a plurality of secondary windings 41, 42, 43, 44 and 45. The motors 30 of group 31, that is motors 1' to 7', have a common terminal thereof connected together and connected by a bus connector 46 to one terminal of transformer secondary 41, and the motors of groups 32, 33, 34 and 35 are similarly connected by bus connectors 47, 48, 49 and 50 to transformer secondaries 42, 43, 44 and 45. The other terminals of the transformer secondaries 41 to 45 are each connected by bus conductors 51, 52, 53, 54 and 55 to a terminal 51a, 52a, 53a, 54a, and 55a as shown, suitably located on a terminal block in the record player structure which may be designated 56, in which the record playing apparatus including motors 30 and transformer 36 are located.

In Fig. 2 is shown diagrammatically a control unit 57 which comprises a plurality of switches 60, there being twenty-five switches numbered 1 to 25 respectively, each switch corresponding to and adapted for actuating one of the motors 30 of the record player 56. Switches 60 are disclosed in ordinarily arranged groups, the first group comprising the first seven switches having a common terminal 61, the second group comprising switches numbered 8 to 13 having a common terminal 62, the third group numbered 14 to 18 having a common terminal 63, a fourth group numbered 19 to 22 having a common terminal 64, and the fifth

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group numbered 23 to 25 having a common terminal 65, the switches each having an independent terminal designated 66.

Terminal 61 is connected by a conductor to a terminal block 61a, terminal 62 connected to a terminal block 62a, and terminals 63, 64 and 65 are similarly each connected by a conductor to a terminal block 63a, 64a and 65a. It will be understood that terminals 51a and 61a are connected by suitable wiring run between the record player 56 and control unit 57, and may be included in a cable which also includes conductors interconnecting terminals 52a and 62a, 54a and 64a, and 55a and 65a, thus the conductors in Fig. 2 connected to common terminals 61 to 65 inclusive are seen to be connected to bus conductors 51 to 55 respectively.

As stated above, motors 30 each have a common terminal thereof connected to one of the bus conductors 46 to 50 respectively, and each of the motors 1' to 4' inclusive have their independent terminals connected to terminals 52a, 53a, 54a and 55a respectively, or to bus conductors 52, 53, 54 and 55, which are connected to the same terminals. The record player 56 is provided with auxiliary bus conductors 67, 68 and 69, connected to terminals 67a, 68a and 69a, and the control unit 57 is provided with terminals 167a, 168a and 169a, corresponding thereto, and respectively interconnected by conductors similarly to terminals 51a, 61a, etc. Motor #5' has its independent terminal connected to conductor 67, motor #6' similarly connected to conductor 68, and motor #7' connected to conductor 69. As can be clearly seen in Fig. 1, motors 3 to 25 have their independent terminals, each connected to selected bus conductors 53, 54, 55, 67, 68, and 69, it being clear that each of these bus conductors is connected to the independent terminal of one switch only in each of the respective groups 31 to 35.

The independent terminals of switches 60 numbered 1 to 4 are respectively connected to bus conductors 52 to 55 respectively by being connected to terminals 62a, 63a, 64a and 65a, while the independent terminals of switches numbered 5, 6 and 7 are respectively connected to bus conductors 67, 68 and 69.

Bus conductors 52, 53, 54, 55, 67, 68 and 69 are each connected to one of the independent switch terminals of one of the switches of one or more of the groups represented by common terminals 61 to 65 respectively, as shown. Thus it will be seen that each transformer secondary 41 to 45 has one side thereof connected to all of the motors 30 of one group, and the opposite side thereof connected to the common terminal of the switches 60 of the corresponding group. Therefore when any one of the switches is closed a circuit will be completed between the common terminal and the independent terminal of that switch, and two of the bus conductors through the transformer secondary of that group and the motor 30 corresponding to the same ordinally numbered motor as the closed switch.

As an example, when switch #1 is closed, the circuit includes bus conductor 51 through transformer secondary 41, bus connector 46, the common terminals of the group 31, motor #1', bus conductor 52 back to the independent terminal of switch #1.

As another example, switch #17 upon being closed, the circuit includes common terminal 63 thereof, bus conductor 53, bus connector 48, the common motor terminal of group 33, motor #17', auxiliary bus conductor 68 through terminals 68a,

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and 168a, back to the independent terminal of switch #17.

From the foregoing description it will be apparent that an electrical control and actuating circuit has been provided which effects a substantial reduction in the number of conductors necessary for connecting the control and actuating mechanisms and that economies in time necessary for connecting and installing such apparatus as well as savings in material result therefrom.

While there has been illustrated and described what is now regarded as the preferred embodiment of the invention, the construction is, of course, subject to modifications without departing from the spirit and scope of the invention. It is not wished that the invention be restricted to the particular form of construction illustrated and described, but it is desired to make available all modifications that may fall within the scope of the appended claims.

Having thus described the invention, what is claimed and desired to be secured by Letters Patent is:

1. In selective motor control apparatus, in combination, a plurality of motors disposed in ordinally arranged groups, each successive group having one less motor than the preceding group, a source of power for each of said groups, a plurality of switches for said motors arranged in corresponding groups, a motor bus and a switch bus for each group respectively connecting the motors and the switches of said group to opposite sides of the power source for that group, a first set of transverse buses each interconnecting corresponding motors of all groups, a second set of transverse buses each interconnecting corresponding switches of all groups, and a plurality of conductors each connecting the switch bus of one group to the one additional motor and one additional switch of the preceding group.

2. In selective motor control apparatus, in combination, a plurality of motors disposed in ordinally arranged groups, each successive group having one less motor than the preceding group, a source of power for each of said groups, a plurality of switches for said motors arranged in corresponding groups, a motor bus and a switch bus for each group respectively connecting the motors and the switches of said group to opposite sides of the power source for that group, a first set of transverse buses each interconnecting corresponding motors of all groups, a second set of transverse buses each interconnecting corresponding switches of all groups, a plurality of conductors each connecting the switch bus of one group to the one additional motor and one additional switch of the preceding group, and an auxiliary bus for each motor in the smallest of said groups, said auxiliary buses interconnecting corresponding transverse buses of said first and second sets connected to said smallest of said groups.

3. In selective motor control apparatus, in combination, a plurality of adjacent motors disposed in ordinally arranged groups, each successive group having one less motor than the preceding group, a source of power for each of said groups, said sources of power being located relatively close to said motors, a plurality of switches for said motors arranged in corresponding groups, said switches located relatively remote from said motors, a bus connecting the motors of each group with one of said sources of power, a bus connecting the switches of each group with the source of power for said group, and circuit means connecting each switch with its corresponding motor and

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including a connection to a switch bus of another group.

4. In selective motor control apparatus, in combination, a plurality of adjacent motors disposed in ordinally arranged groups, each successive group having one less motor than the preceding group, a source of power for each of said groups, said sources of power being located relatively close to said motors, a plurality of switches for said motors arranged in corresponding groups, said switches located relatively remote from said motors a bus connecting the motors of each group with one of said sources of power, a bus connecting the switches of each group with the source of power for said group, circuit means connecting each switch with its corresponding motor and including a connection to a switch bus of another group, and a plurality of auxiliary buses each

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connecting a plurality of switches with their corresponding motors.

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