

March 2, 1948.

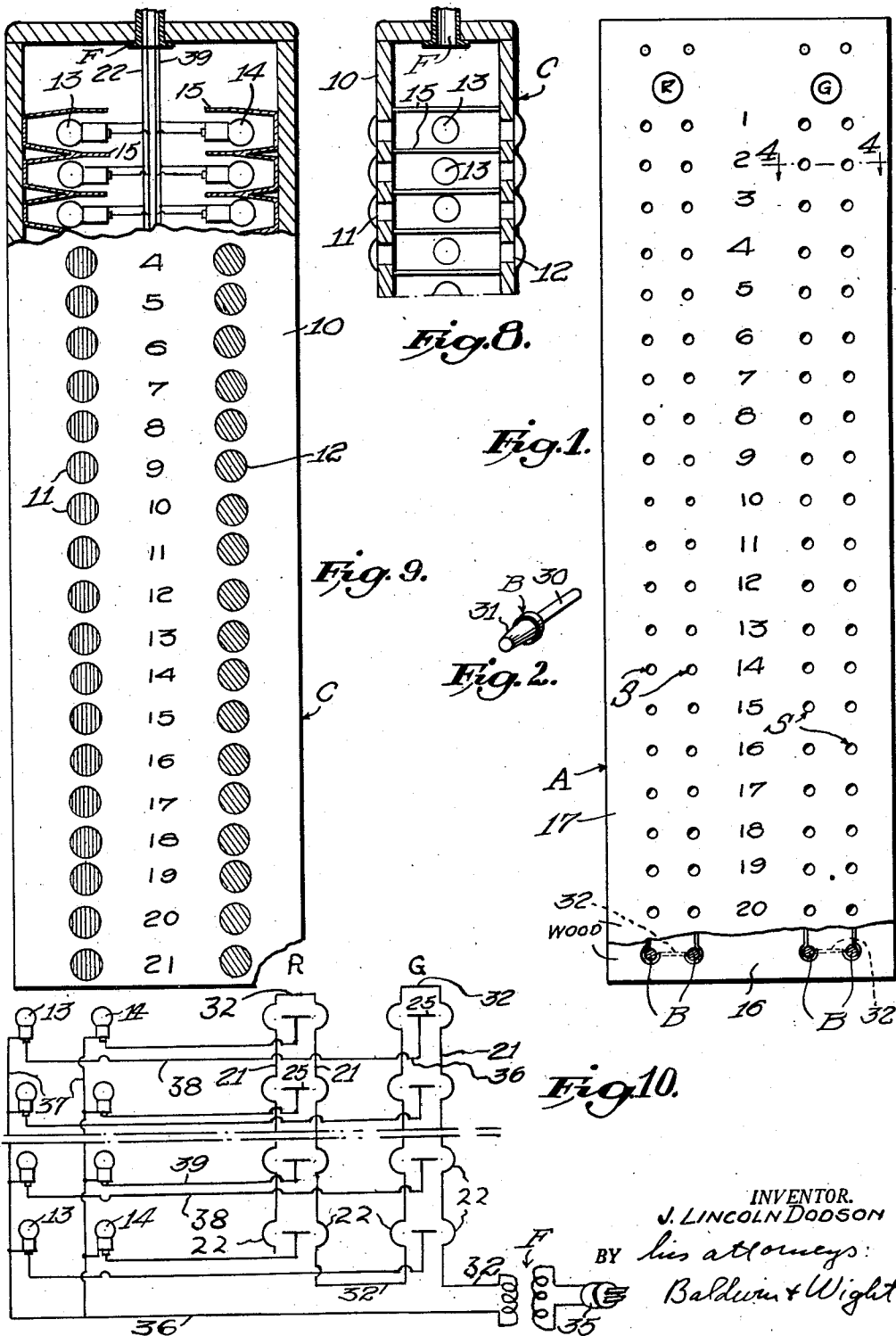
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CIRCUIT CLOSER FOR ELECTRICAL INDICATING APPARATUS OR THE LIKE

Filed Aug. 13, 1945

2 Sheets-Sheet 1



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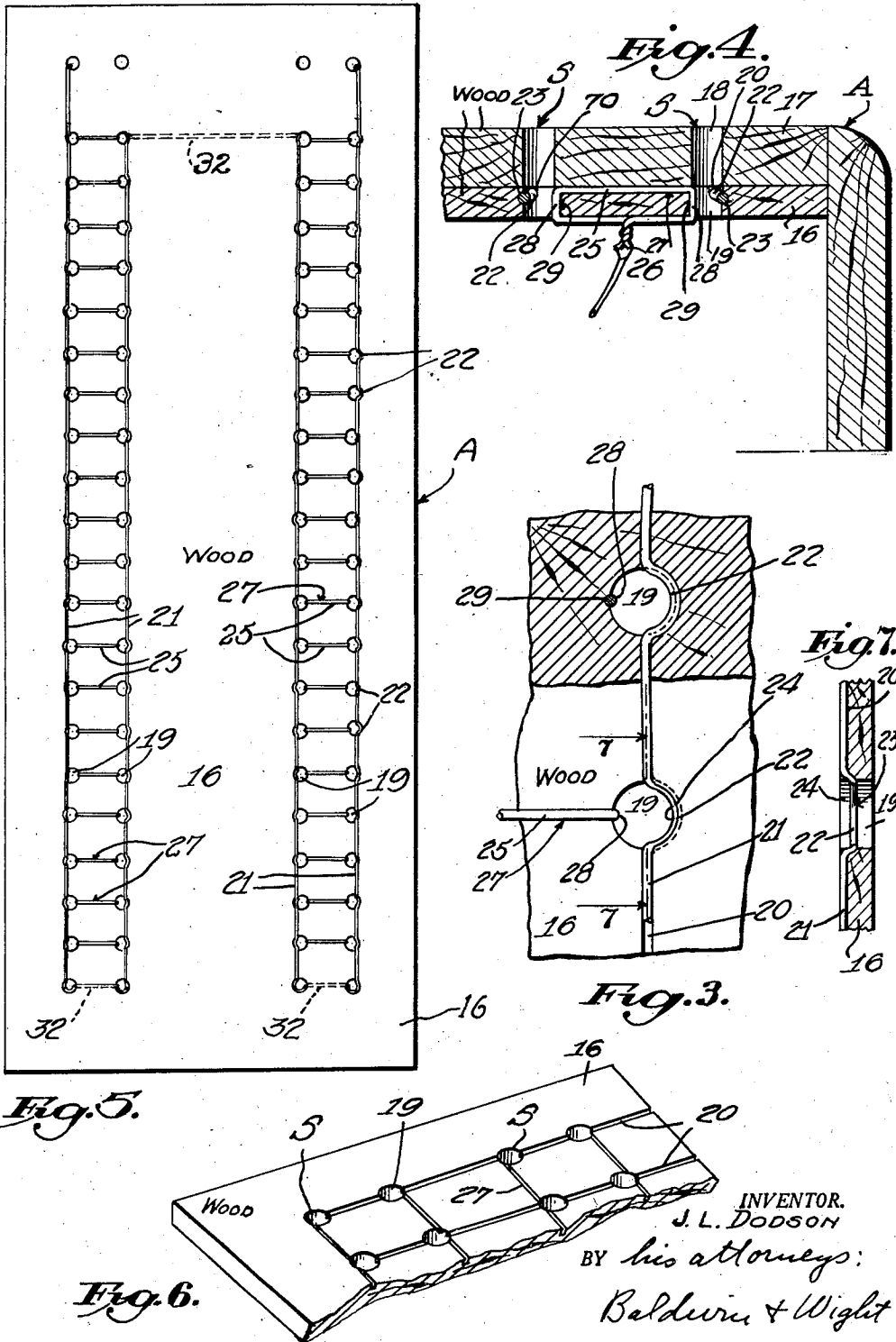
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CIRCUIT CLOSER FOR ELECTRICAL INDICATING APPARATUS OR THE LIKE

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3 Claims. (Cl. 173—328)

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This invention relates to circuit closers for electrical indicating apparatus, and particularly, indicating apparatus for use as part of a game score board or the like.

An object of the invention is to provide a simple and inexpensive switchboard or plug-board construction for controlling an electrical circuit or electrical circuits with a view to eliminating a multiplicity of relatively expensive individual parts such as switches or socket elements and their fastenings.

Another object is to provide an electrical control panel or board wherein the circuit making contacts at different locations comprise elements in the nature of wires or the equivalent, preferably self-secured to the panel, board or the like.

Another object is to provide such a panel or board wherein a conductor wire is common to a plurality of socket openings in the panel or board in association with angularly disposed conductor wires, one for each opening, to form the requisite contacts, the angularly disposed conductors preferably being looped through and common to a lateral pair of socket openings.

Another object is to provide such a panel wherein the conductor wires are disposed in grooves in the panel, and the wires at the socket openings are partially pressed or set into the panel to minimize danger of displacement and to conform better to a coacting circuit-closing peg or plug.

Another object is to provide a novel structure wherein the panel referred to may have a plurality of plies with the conductors or wires mounted on one ply and covered by the other ply or plies as a safeguard against displacement of the conductors.

A further object is to provide a circuit closer which is readily adaptable for use in connection with electrical score boards employed in games which require frequent visual changing of the score indicator.

Other objects and advantages will become apparent from a consideration of the following description taken in connection with the appended claims and the accompanying drawings.

In the drawings:

Figure 1 is a detail elevation, partly broken away to illustrate details of the switch or peg board;

Figure 2 is a perspective view of one of the pegs;

Figure 3 is a fragmentary detail view drawn on a large scale, partly in section and showing the

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conductor-carrying ply of the switch board and associated conductors;

Figure 4 is an enlarged detailed section taken approximately on line 4—4 of Figure 1;

Figure 5 is an enlarged elevation of the conductor-carrying ply of the switch or peg board;

Figure 6 is a fragmentary perspective view of the conductor-carrying ply of the switch board;

Figure 7 is a detail section taken on line 7—7 of Figure 3;

Figure 8 is a detail fragmentary section of the top portion of the score board for which my improved switch board was primarily designed.

Figure 9 is an elevation, partly broken away to illustrate certain details of said score board, said figure being taken at right angles to Figure 8; and

Figure 10 is an electrical diagram showing the method of connecting my improved switch board to the score board.

Referring to the drawings illustrating a preferred embodiment of the invention, a switch board is shown at A as being provided with manually shiftable pegs or plugs B to control an electrical score board or the like C. Apparatus embodying the invention is adapted for various uses, for example, in connection with the playing of shuffle board or other games or contests which require frequent visual changing of the score as the game progresses. The switch or peg board A may conveniently be mounted on a side wall in the room where the game is to be played although it may be supported otherwise if preferred, and the score board C used in association therewith may be suspended in any manner so as to be viewed readily by both contestants or players.

The score board C is shown as an example of one type of device with which my circuit closer may be advantageously employed. This board may be in the form of a case or box of desired size, shape and ornamentation, having on opposite faces or sides, namely those faces or sides in the lines of view of the contestants or players, rows of registering or score windows, preferably covered by glass or other translucent discs 11, and also rows of registering openings or score windows preferably covered by glass or other translucent discs 12. The discs 11 and 12 are of contrasting colors, for example, red and green respectively, to distinguish the scores of the contestants or players, and the horizontal rows of the score board are numbered as shown in numerical order from the top.

Disposed in casing 10 in line respectively with

the discs 11 and 12 are electric lamps or bulbs 13 and 14 adapted to be illuminated individually through operation of the pegs B. Each lamp or bulb 13 or 14 will illuminate only the opening aligned with it because its light is confined by a reflector or hood 15 secured within the casing 10.

The switch or peg board A comprising my invention, may be built up or composed of any desirable number of plies, for instance, two as shown at 16 and 17. For economy, both plies 16 and 17 preferably are made of "plywood," but it is to be understood that I may substitute other suitable materials for one or both of the plies, especially the ply 16. Among other suitable materials are indurated fiber, rubber, a plastic or other insulation, and ordinary wood.

The plies 16 and 17 are superimposed and secured together in any suitable manner as by means of an adhesive or fastenings. Before the plies are secured together, registering openings are drilled or otherwise provided therethrough as at 18 and 19, respectively, which will be hereinafter referred to together as socket openings S. The socket openings S are arranged in four vertical or longitudinal columns or rows, consisting of two pairs of rows relatively close together and with the socket openings of all lateral rows in alignment. Before assembly of the plies 16 and 17 into unitary form, longitudinal grooves or kerfs 20 are provided in one face of the ply 16, one for each longitudinal column of sockets S, and communicating with the openings 19. Disposed in such grooves 20 are conductors 21. The grooves 20 are of a depth greater than the diameters of the conductors 21 so that the latter will be disposed below the adjacent surface of ply 16. The conductors 21 have arcuate contact portions 22 which are formed after the conductors have been inserted in the grooves 20. The portions 22 are pressed or forced so that they will be interfitted or set partly into grooves 23 formed in the walls of the openings 19 by such pressing or setting. Thus, the arcuate or contact portions 22 will project a distance into the openings 19 for engagement with the pegs B. This construction and assembly provides an overhanging wall 24 at each socket opening 19 engaging the associated contact 22 and effectively guarding against displacement or movement of the conductors 21 out of the grooves 20.

Conductor wires 25 which pass through respective pairs of laterally aligned openings 19 in the ply 16 and surround intervening parts of the ply 16 have their ends twisted together as at 26 to constitute efficient binding posts or terminals. At the inner face of ply 16 the wires 25 occupy transverse grooves or kerfs 27 of a depth enabling the wires to be disposed below or level with the ply inner face. The conductors 25 provide contacts 28, one in each opening 19, and partly inset or interfitted in grooves as at 29 into the walls constituting the openings 19. The contacts 28 extend partly into the openings 19 and collectively with the contacts 22 form pairs of contacts for engagement by a peg B for closing an electrical circuit.

The pegs B may be of any desired construction, for instance, they may have conducting portions for direct frictional engagement with and retention by the contacts 28 and 22, and knobs or grips 31 of plastic, or other suitable insulating material.

The conductors 21 are formed of a single continuous wire and the portions 32 of the wire which connect the conductors 21 pass through terminal

openings 19 and across the back or inner face of the ply 16.

The sockets S are numbered downwardly as shown and each horizontal pair of sockets to the left of an associated one of the longitudinal rows of numerals controls the lamps 13 through the insertion of a peg B in the appropriate socket. The two associated rows of sockets at the left of the peg board are designated "R" for the player whose score is represented by the lamps 13 and in red by discs 11. Each pair of sockets S under the designation "R" is wired in circuit with a different one of the lamps 13. Each horizontal pair of the sockets S to the right of the numerals controls the lamps 14 and above these sockets is the designation "G" for the player whose score is represented by the lamps 14 and in Green by the discs 12. Each horizontal pair of sockets S under the designation "G" is wired in circuit with a different one of the lamps 14.

As shown in the wiring diagram in Figure 10 one end of the continuous wire forming the conductors 21 extends to the secondary winding of the transformer F. The transformer primary winding is adapted to be connected to a power supply by means of a plug 35. The other side of the secondary winding is connected to the outer terminals of all the lamps 13 and 14 by a conductor 36 and branch conductors 37.

Conductors 38 lead respectively from the peg board contact conductors 25 aligned vertically under the designation "G" to the center terminals of the lamps 13, each conductor 38 leading from a conductor 25 to the lamp 13 numbered correspondingly to the sockets S associated with that particular conductor 25. Similarly, conductors 39 lead respectively from the conductors 25 aligned under the designation "R" to the central terminals of correspondingly numbered lamps 14. Preferably the conductors 38 and 39 are connected, as by soldering, to the twisted portions 26 of the peg board conductors 25.

As before stated, my improved circuit closer is primarily designed to facilitate the easy and rapid pegging of a score on a score board used in connection with games which require frequent visual changing of the score, and although apparatus embodying the invention may be used for various purposes it is particularly useful and advantageous in scoring the game of shuffle board. When the game starts, the players assigned "Green" and "Red" respectively for scoring place pegs B in the unnumbered holes or sockets at the tops of the four vertical rows of sockets S. When "Green" makes, say, four points the peg B in either row of sockets S under "G" is removed from the associated unnumbered socket and is inserted in the socket numbered "4" in the same vertical row of sockets. This will bridge the contacts 22 and 28 in that socket and close a circuit to illuminate the "Green" lamp numbered "4." When "Green" plays again and makes another score, say three, the peg B in the other row of sockets S under "G" is removed from the associated unnumbered socket and is placed in the socket in that row three in number higher than the socket occupied by the peg which was moved first, that is, the secondary moved peg is placed in the socket numbered "7." This will light the "Green" indicator numbered "7." When "Green" scores again, say four points, the first moved peg is withdrawn from the socket "4" and is inserted in the socket "11" in the same row. By advancing the pegs in the two rows of sockets under "G" alternately, the indication of the old score

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will remain until the new score has been indicated and errors which otherwise could result from forgetting the old score while moving a peg to effect indication of the new score are eliminated.

Of course, the manipulation of the pegs in the rows of sockets under "R" is carried out similarly for effecting indications of the "Red" scoring.

The apparatus disclosed embodies the invention in the form now preferred, but changes may be made without departing from the invention as defined in the claims.

I claim:

1. In a mounting for electrical devices, a mounting having openings arranged in a plurality of rows, said mounting having communicating grooves in one face thereof intersecting said openings, a conductor disposed in said grooves and crossing said openings, said conductor at each opening having an arcuate portion firmly pressed into and interfitted with the defining wall of the opening below said face to form an arcuate retaining groove, conductors looped through an opening of each row partially interfitted in the adjacent walls of the openings and occupying grooves in said face.

2. In a mounting for electrical devices, a mounting having openings arranged in a plurality of rows, said mounting having communicating grooves in one face thereof intersecting said openings, a conductor disposed in said grooves and crossing said openings, said conductor at each opening having an arcuate portion firmly pressed into and interfitted with the defining wall of the opening below said face to form an arcuate retaining groove, conductors looped through an opening of each row and being partially interfitted in the adjacent walls of the openings and occupying grooves in said face, and means closing the said grooves.

3. In a mounting for electrical devices, a mounting having openings arranged in a plu-

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rality of rows, said mounting having communicating grooves in one face thereof intersecting said openings, a conductor disposed in said grooves and crossing said openings, said conductor at each opening having an arcuate portion firmly pressed into and interfitted with the defining wall of the opening below said face to form an arcuate retaining groove, conductors looped through an opening of each row and being partially interfitted in the adjacent walls of the openings and occupying grooves in said face, the ends of the second mentioned conductors being joined to form terminals, and a ply superimposed on said face of the mounting in closing relation to said grooves, said ply having openings in registration with the openings of the mounting.

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