

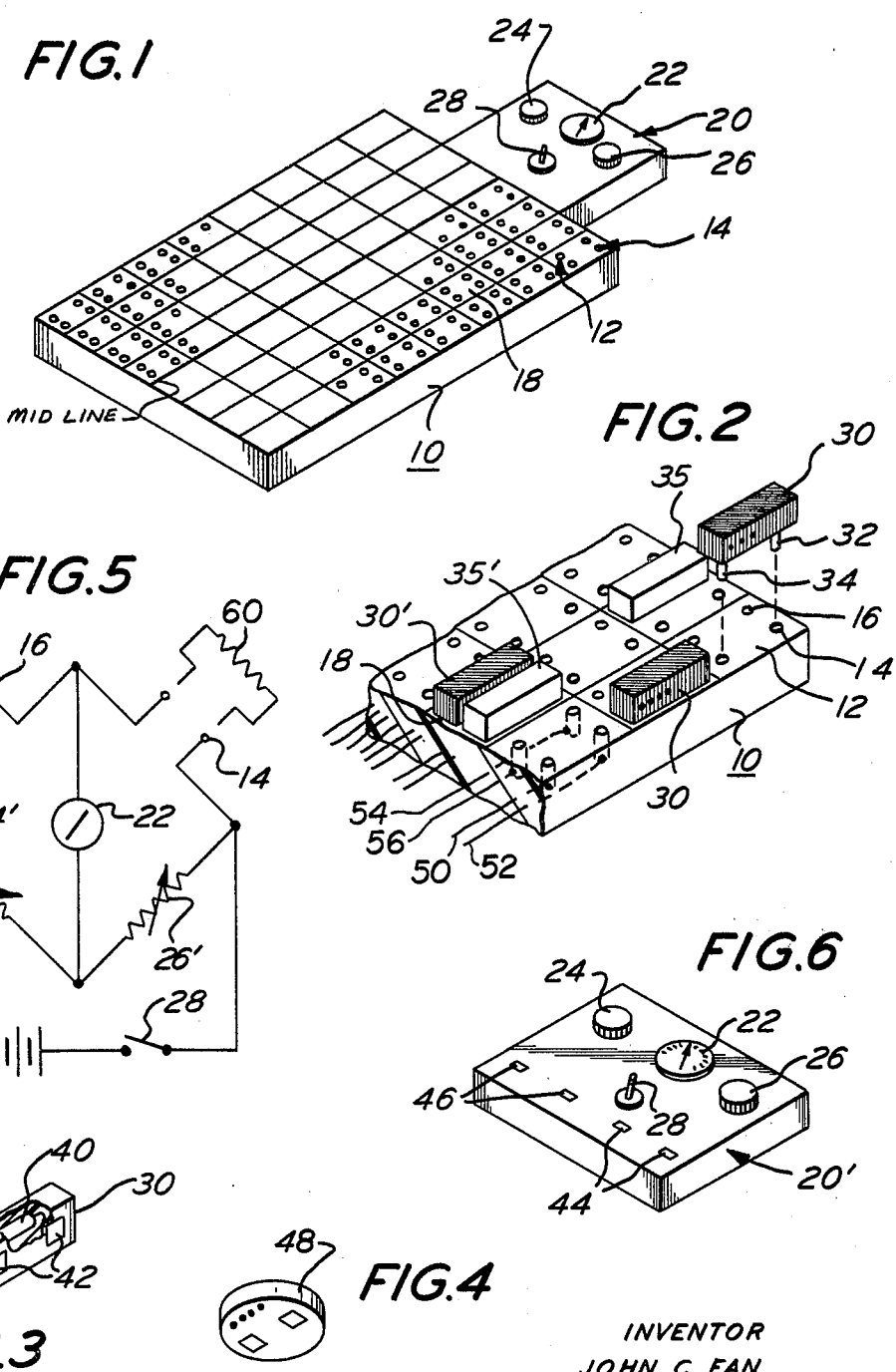
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GAME APPARATUS COMPRISING A GAME PIECE VALUE COMPARATOR

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**GAME APPARATUS COMPRISING A GAME
PIECE VALUE COMPARATOR**

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ABSTRACT OF THE DISCLOSURE

A game apparatus has game pieces of different value. The markings indicating the value of each game piece are placed so as to be hidden from the view of the opposing player. Each game piece has an electrical parameter indicative of its value. Two game pieces may be electrically compared to ascertain which piece has the higher marking without visually inspecting the markings. In one form of the apparatus, comparison is effected by means of electrically interconnected sets of contacts on the game board. In another form, the pieces are placed on contacts carried by a separate comparison instrument.

This invention relates to a game apparatus and more particularly an apparatus for electrically determining the relative values of competing game pieces.

It is an object of the present invention to provide a game format, susceptible of many variations, in which the competing game pieces have characteristic ranks or values which can be compared electrically without revealing the absolute rank or value of the game pieces.

It is a further object of this invention to provide a game apparatus having ranked game pieces as hereinafter described, together with a game board capable of being electrically connected to a comparator for determining the relative values of game pieces during game play, without revealing the absolute rank or value of the higher ranked game pieces.

It is a still further object of this invention to provide a game apparatus comprising game pieces having different resistance values, a game board with electrical connections connecting the game pieces to a comparator for comparing the electrical resistances of opposing game pieces during game play.

Another object of this invention is to provide a novel and interesting strategic type of game wherein uncertainty and therefore interest accompanies the game play.

Other objects and advantages accompanying the game apparatus of this invention will become apparent from the hereinafter contained description.

For the purpose of illustrating the invention, there is shown in the drawings a form which is presently preferred; it being understood, however, that this invention is not limited to the precise arrangements and instrumentalities shown.

FIGURE 1 is a perspective view of a preferred game board embodiment of the present invention, together with a comparator.

FIGURE 2 is a fragmentary exploded view of the game board of FIGURE 1 with game pieces.

FIGURE 3 is a partially broken-away perspective view of a game piece according to the present invention.

FIGURE 4 is a perspective view of an alternatively shaped game piece, according to this invention.

FIGURE 5 is a schematic electrical circuit diagram of a typical comparator circuit.

FIGURE 6 is a perspective view of an alternative game piece comparator with built-in electrical contacts.

Referring now to the drawings in detail, there is shown in FIGURE 1 a typical game board 10 used in the game apparatus of the present invention. The game board 10 is provided on its face with a grid pattern typical of many strategic-type games, such as checkers, chess, and the like. Each of the squares, of which square 12 is representative, is provided with two pairs of pin sockets, designated as sockets 14 and sockets 16.

A comparator 20 is shown attached to the game board 10. Comparator 20 includes an indicator 22 and circuit balancing adjustment knobs 24 and 26 together with switch 28. FIGURE 6 shows an alternative comparator 20' having contact pairs 44 and 46.

In the fragmentary exploded view of FIGURE 2, the game board square 12 is indicated with sockets 14 and 16. Sockets 14 are interconnected by conductors 50 and 52. Sockets 16 are interconnected by conductors 54 and 56. Game piece 30 is shown exploded above square 12 and constructed with depending pins 32 and 34 for engagement in sockets 14 or 16. The other game pieces illustrated on the game board 10 are generally identical in appearance. The darker game pieces will be referred to by the reference character 30 while the lighter game pieces will be referred to as 35. Game pieces 30' and 35' occupying square 18 will be fully discussed hereinafter.

FIGURES 3 and 4 illustrate two shapes that the game pieces used with the comparator of FIGURE 6 can take. In FIGURE 3, an electrical resistor 40 is shown disposed within a game piece 30 and connected to exposed electrical connectors 42 for contacting contacts 44 or 46. FIGURE 4 shows an alternative shape for a game piece 48.

The circuit diagram of FIGURE 5 shows schematically how the various components of the comparator are assembled in a Wheatstone bridge. Balancing knobs 24 and 26 on comparator 20 of FIGURE 1 respectively control variable resistances 24' and 26' in FIGURE 5. The indicator 22 is shown connecting the top and bottom of the bridge. The switch 28 completes the circuit through the battery. Fixed resistances 58 and 60 are attached at the positions indicated in FIGURE 5 and greater resistance at one position than at the other will cause an imbalance in the circuit which is immediately read on the indicator. The indicator can be calibrated to indicate the heavier piece as will be more fully described hereinafter.

The rules of movement for the game pieces may, of course, vary. However, for purposes of illustration we can assume rules similar to checkers where each game piece may move horizontally vertically or diagonally one space in any direction. Assuming for purposes of illustration that a dark game piece 30' is to be moved into square 18, and this square is occupied by lighter game piece 35', the following sequence would be employed. The comparator 20, with the switch 28 closed to complete the circuit, would be balanced by adjusting the resistances 24' and 26' by movement of the balancing knobs 24 and 26. Balance is effected by comparing all righthand sockets on the board with all lefthand sockets. Resistance 58 represents all righthand sockets

while resistance 60 represents all lefthand sockets. When the circuit is in balance and the indicator 22 is stable, lighter game piece 35' would be moved from the lefthand sockets in square 18 to the righthand sockets (the position shown in FIGURE 2). The darker game piece 30' competing for occupation of square 18 would then be moved from the previous square occupied to engage the lefthand pin sockets of square 18. If the darker game piece 30' has a different resistance than game piece 35' indicator 22 will be deflected. By balancing the comparator 20 before each move, it will make no difference how many pieces remain on the board during the play for the comparison to be valid. Likewise, since the comparison is gained by differences in resistance only, comparing a dark game piece with all the white game pieces and comparing a white game piece with all the dark game pieces, will still provide an indication of the relative difference between the two pieces competing for the single square 18. Adopting this method of play, the comparator 20 can be calibrated to indicate which game piece, dark or light, wins each contested square. This method of operation also avoids disclosing the absolute weights or resistance values of the individual pieces being compared.

Alternatively, the circuit connections under the socket pairs on the board can be arranged by sections instead of by the entire board. That is, one column or one row of squares could have common connections to terminals which could be connected to a comparator similar to comparator 20. In this manner, only the pieces occupying the given row or column are cumulatively measured. In play, the opposing game piece would be removed from the contested square and the comparator balanced. If the contesting game piece is located in the same column or row, it, too, would have to be removed from its original square before the comparator is balanced. After balancing, the competing pieces could be placed in the same square in their normally proper positions. The comparator indicator would then register directly which color game piece prevails. This method requires a different original calibration for the comparator than the previous method. This is because the opposing game pieces in a contested square will be in their normal socket positions rather than in reversed positions as in the previous method illustrated in FIGURE 2. Accordingly, calibration procedures for the two methods must take into account the polarity of the deflection. The polarity will depend upon whether the game pieces in the contested square are in their normal or reversed positions.

A further alternative is possible. An external comparator could be provided independent of the game board, as in FIG. 6. Such comparator would be provided with conducting plates for making electrical contact with the game pieces. Two game pieces to be compared would be brought into contact with the conducting plates after the comparator was balanced and the winner would be directly indicated. This embodiment avoids the necessity for providing a game board with a plurality of pin sockets and associated circuitry. Likewise, the game pieces could be constructed as shown in FIGURES 3 and 4. That is, flush electrical connections could be provided and a comparison accomplished by merely placing the electrical contacts on the pieces in contact with matching conducting plates or surfaces on the external comparator. If the comparison between two game pieces produces a very large or a very small deflection, the players will realize that there is a large difference or a small difference in value between the two pieces. Since each player knows the value of his own piece, he would be able to approximate the value of the opposing piece. To insure that the variable deflection of the indicator would not provide a clue as to the absolute value of the competing game pieces, the comparator can be provided with additional circuitry (not shown) to give a non-variable indication of the winner. Such indication can be provided by small neon lamps

or incandescent bulbs or the like, which would immediately indicate the imbalance in the bridge circuit. Such indicator could be labeled appropriately to signify the color of the winning game piece.

The game apparatus of the present invention can be designed by one skilled in the art to accommodate a wide variety of competitive games. Such games, generally of the strategic type, can be based on military, royal, sport, animal, or any other competitive activity involving strategies. Typically, the game pieces are identical in external shape, being distinguished by a difference in color or some other distinguishing feature of the set. Generally, two sets of game pieces indicating two different sides are employed, however, it will be readily apparent to one skilled in the art that a larger number of sets can be accommodated, providing for more than two opposing players.

The game apparatus of the present invention is capable of being adapted to game play under a wide variety of rules. For example, the pieces could represent military equipment and the game determined by the first player to successfully capture the opponent's flag piece. Likewise, a sports theme can be adopted, namely the number of pieces reaching the opponent's end line could be reckoned as goals, touchdowns, baskets, or the like.

The present invention may be embodied in other specific forms.

I claim:

1. A game apparatus for strategy games involving repetitive game piece movement by at least two opposing game players, comprising a game board, a plurality of game pieces and a game piece comparator, wherein the game board is provided with a horizontal surface for receiving game pieces thereon, said surface having a pattern thereon designating game piece positions on said game board and providing guidance for the distance and direction of movement of the game pieces during game play, said game pieces being divided into at least two sets of progressively ranked game pieces, said sets characterized in that when one set of said game pieces is in play on said game board, an opposing game player cannot identify the relative rank of some of said game pieces because such rank is hidden from the view of said opposing player; said game pieces being manipulated in accordance with game rules providing for elimination of one game piece from a contested position on said game board when challenged by an opposing piece of higher rank, said game pieces being provided with non-visually detectable electrical characteristics of different values whereby the relative electrical characteristics of said game pieces can be compared by said game piece comparator to determine the higher ranking game piece without disclosing the magnitude of such rank.

2. The game apparatus of claim 1 wherein said electrical characteristic comprises a resistor, said game pieces being provided with electrical contacts connected to said resistor, and said comparator including contacts to receive said electrical contacts on said game pieces.

3. The game apparatus of claim 2 wherein said game piece comparator is an electrical resistance comparison device directly reading the highest ranking game piece when at least two game pieces are compared.

4. The game apparatus of claim 1 wherein said game board further comprises two game piece receiving means at each position on said game board electrically connected with said comparator whereby the higher ranking game piece occupying a contested board position is indicated.

5. The game apparatus of claim 1 wherein said electrical characteristic is provided by a circuit component having an impedance value and said comparator comprises means for comparing impedance values.

6. A game apparatus for strategy games involving repetitive game piece movement by at least two opposing game players, comprising a plurality of game pieces and a game piece comparator, said game pieces being divided

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into at least two sets of progressively ranked game pieces, said sets characterized in that when one set of said game pieces is in play, an opposing game player cannot identify the relative rank of some of said game pieces because such rank is hidden from the view of said opposing player; said game pieces being manipulated in accordance with game rules providing for elimination of one game piece from a contested position when challenged by an opposing piece of higher rank, said game pieces being provided with nonvisually detectable electrical characteristics of different values whereby the relative electrical characteristics of said game pieces can be compared by said game

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piece comparator to determine the higher ranking game piece without disclosing the magnitude of such rank.

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References Cited**FOREIGN PATENTS**

788,155 7/193 France.

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