

Feb. 5, 1957

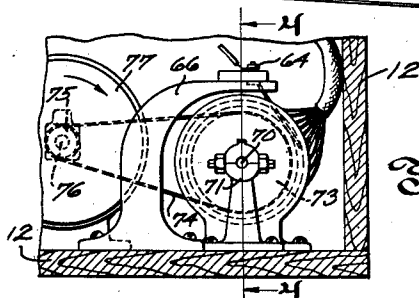
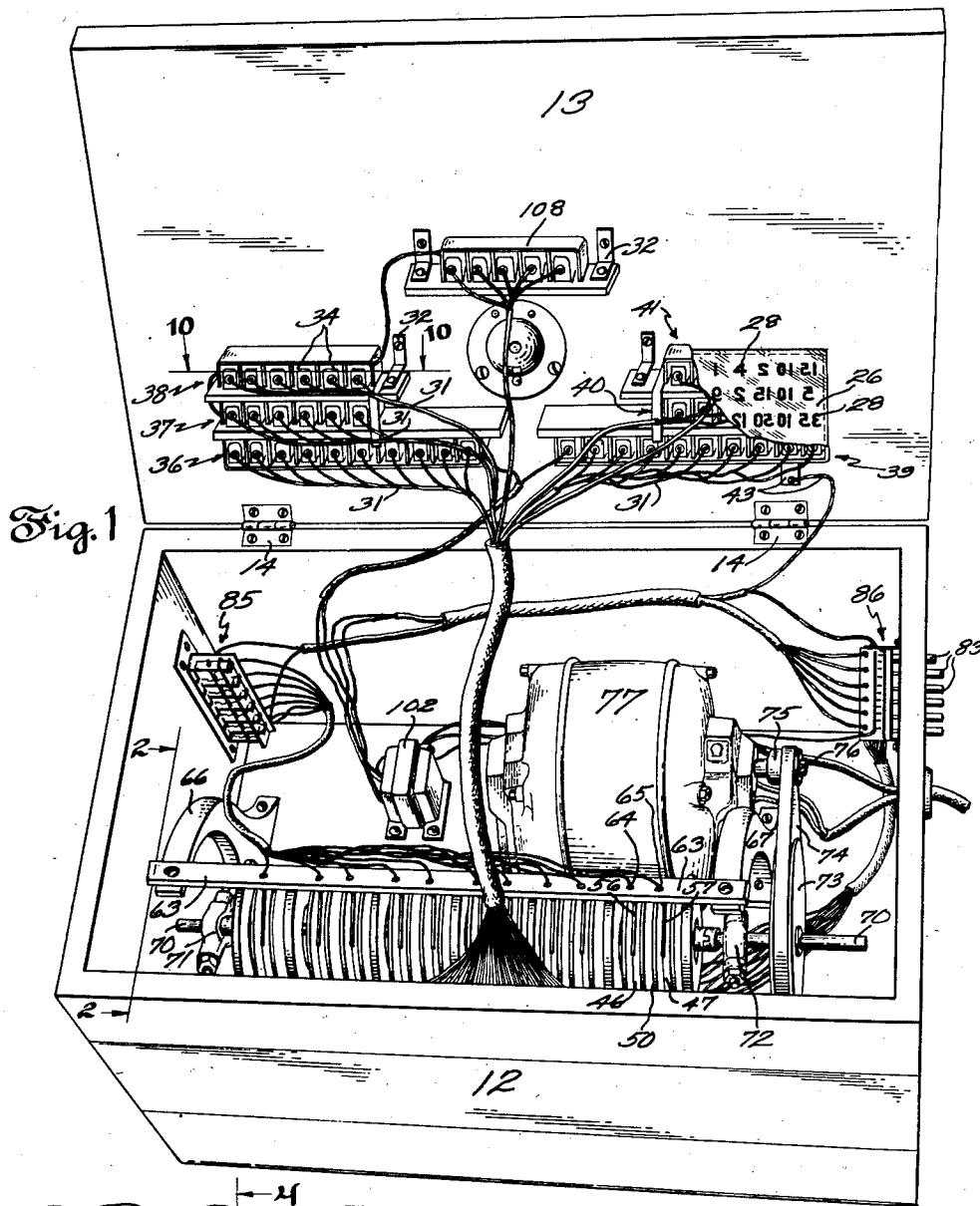
F. J. RYAN

2,780,461

AUTOMATIC PLAYER-DIVERSIFIED SCORING GAME

Filed Nov. 27, 1951

3 Sheets-Sheet 1



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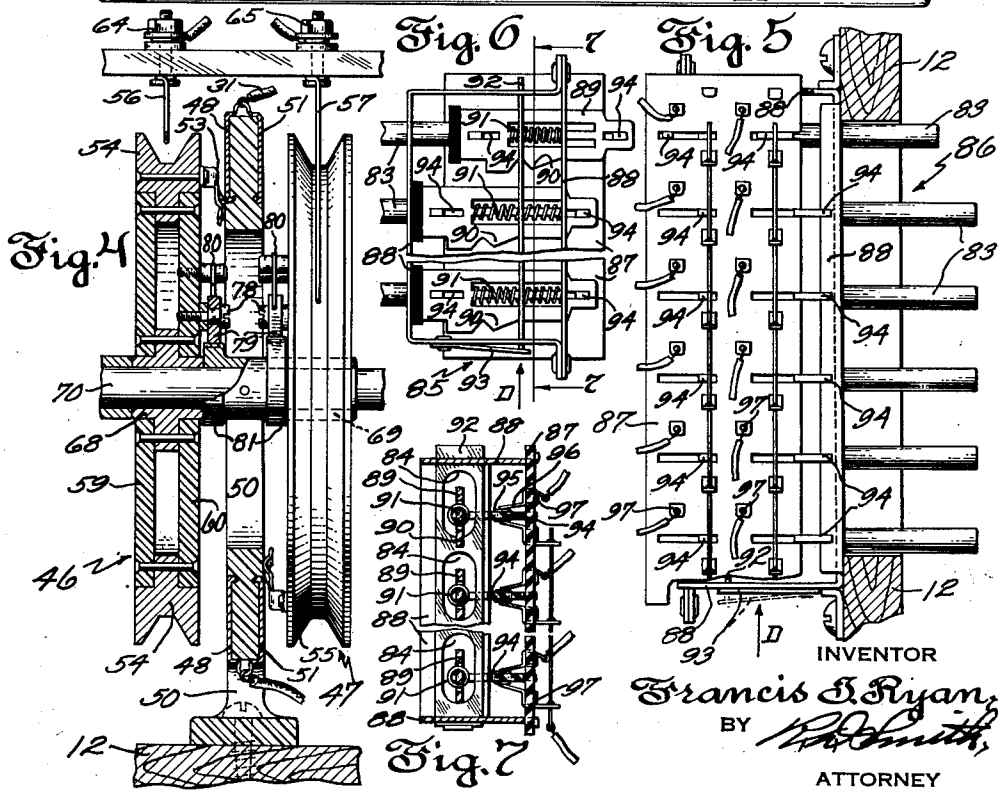
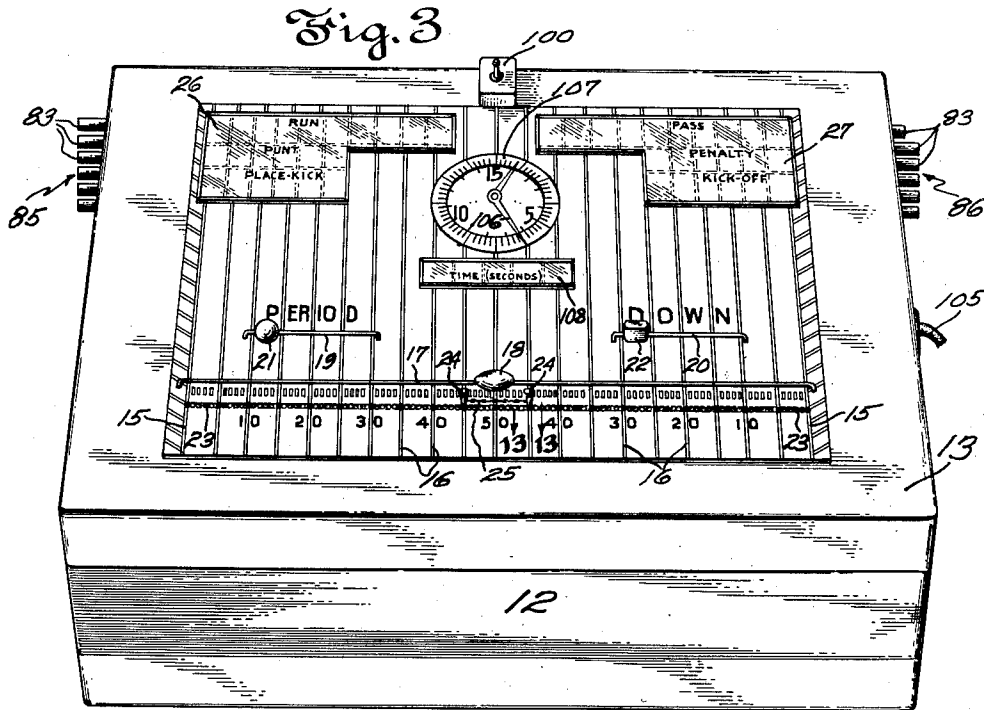
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Fig. 8

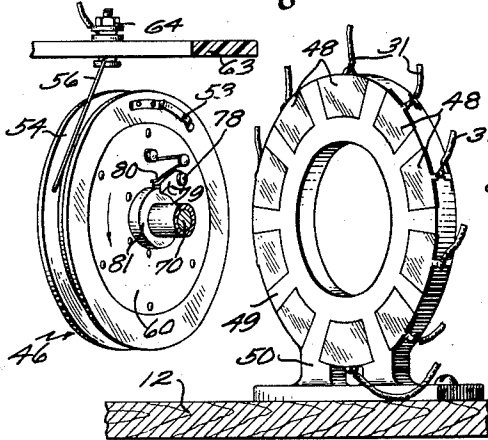


Fig. 9

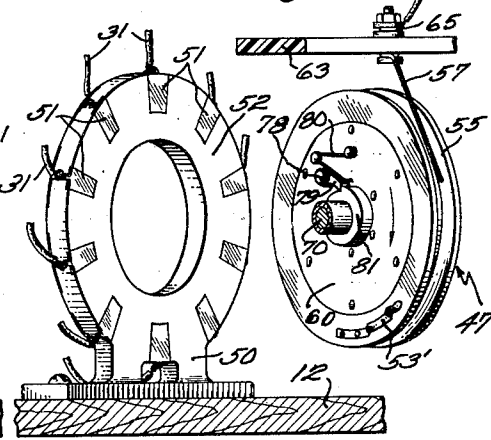


Fig. 10

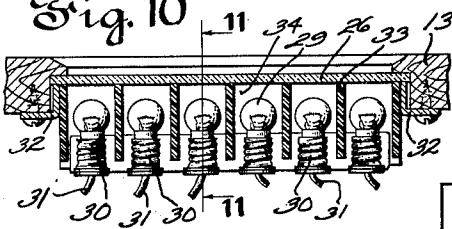


Fig. 11

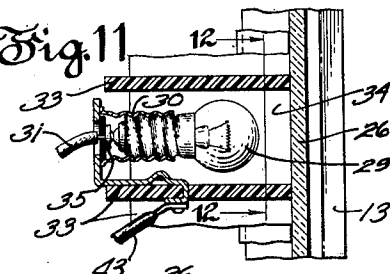


Fig. 12

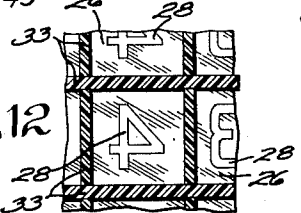


Fig. 13

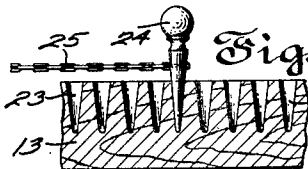
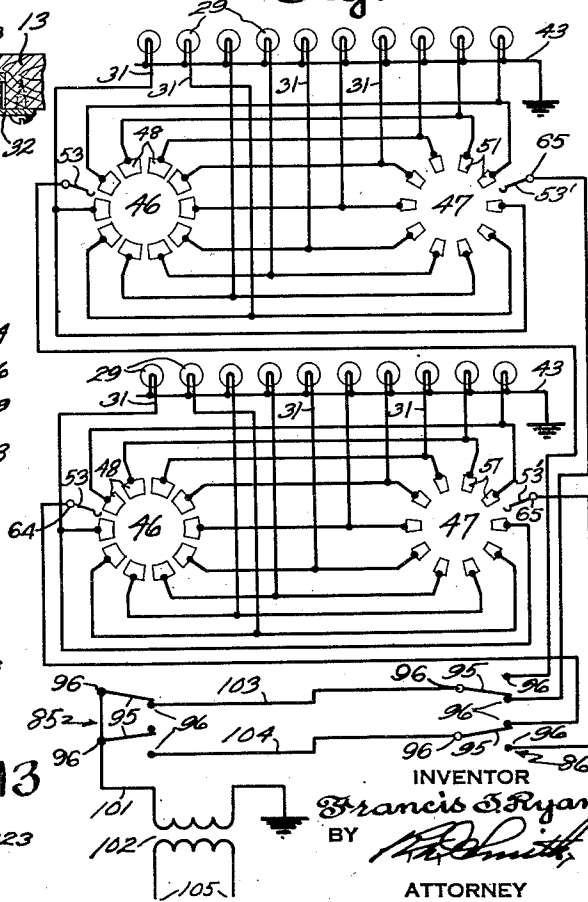


Fig. 14



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2,780,461

AUTOMATIC PLAYER-DIVERSIFIED SCORING GAME

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15 Claims. (Cl. 273—94)

This invention relates to an electromechanically operated indoor game intended to be played by two contestants and incorporating apparatus which automatically registers score values corresponding to successive plays in the game, the values that are registered resulting in part from selective manual conditioning of the apparatus independently by each of the two players before the automatic scoring action of the apparatus begins. The scored plays may correspond to plays familiar in the games of football, baseball, basketball or other popular contestant sport.

One object of the improvements is to enable a contestant, representing, say, the offensive team, to choose from a variety of possible plays and put into effect a selected play that he thinks to be good strategy in an existing situation on the playing field by preconditioning electric circuits in the apparatus. The gain or loss of score resulting from the chosen play will be carried out and registered or exhibited automatically by the apparatus. But before the apparatus performs its cycle of automatic scoring operation, the defensive player is given an opportunity, if he can outguess his opponent, to modify the electrical relationship of circuits that have secretly been preconditioned by the aggressor and in a way to influence in favor of the defensive player the automatic action of the apparatus that will result.

Another object is to institute elements of chance in the automatic registering of the score by the apparatus so that after being jointly preconditioned by both of the opposing players electrically the apparatus cannot further be influenced by the players in its automatic carrying out and scoring of the result of the chosen play. But initially the players' relative expertness and knowledge of the strategy of the game can be given effect by means of their respective choices in electrically preconditioning the apparatus. Both chance and skill thus become cooperative factors which determine the winning of the game, as is the case in actual ball games.

The foregoing features maintain interest in the progress of the game at a high pitch and constantly call upon the players to match wits as each play comes up for automatic execution by the apparatus.

A related object in the case of simulating football plays is to make it necessary for the defensive player, in order to reduce the likelihood of scoring by the offensive player, to guess correctly which of a plurality of possible kinds of play has been chosen secretly by the offensive player. This involves experience, skill and judgment as is called for in actual team management.

A still further object is to display on a miniature representation of a playing field mechanical devices and markings realistically imitative of actual equipment of a playing field and its surroundings familiar to "fans" of the game being played. Some of such devices are constructed to be movable so as to be usable to record step-by-step the cumulative score result of the successive plays. The progress of each team toward victory or defeat can thus at all times be observed by spectators.

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This improved game apparatus aims also to produce suspense in its automatic score registering action by means of a rapid intermittent flashing of successive number signals before it exhibits the ultimate score effect of each play. This contributes animation and suspense to the playing of the game.

The foregoing and other objects of the invention will appear in greater particular from the following description of a successful embodiment of the improvements in which description reference is had to the accompanying drawings wherein:

Fig. 1 shows a boxed electromechanical game apparatus embodying the invention, the box cover being lifted to expose interior parts.

Fig. 2 is a fragmentary endwise view of the interior mechanism looking toward the left from the section plane 2—2 in Fig. 1.

Fig. 3 shows the box of the apparatus with its cover closed to exhibit on its top surface an imitation football playing field.

Fig. 4 is a fragmentary enlarged view taken partly in section on the plane 4—4 in Fig. 2.

Fig. 5 is an enlarged elevation of one of the gangs of mechanically interrelated circuit conditioning switches shown in Fig. 1.

Fig. 6 is a contracted view of the interior mechanism of some of the switches shown in Fig. 5 looking in the reverse direction.

Fig. 7 is a view taken in section on the plane 7—7 in Fig. 6, looking in the direction of the arrows.

Fig. 8 is an exploded perspective view of one of the flywheels of Fig. 4 and an associated standard carrying circuit terminal segments to which current is distributed thereby.

Fig. 9 is an exploded view of the associated flywheel in Fig. 4 and a different series of circuit terminal segments on the opposite face of the standard shown in Fig. 8.

Fig. 10 is an enlarged view taken in section at the level 10—10 in Fig. 1 on a plane perpendicular to the box cover looking toward a bank of signal lamps.

Fig. 11 is a fragmentary view taken in section on the plane 11—11 in Fig. 10.

Fig. 12 is a view in section on the plane 12—12 in Fig. 11 looking in the direction of the arrows.

Fig. 13 is a fragmentary view taken in section at plane 13—13 in Fig. 3 through the row of sockets for the yardage measuring linesman pegs.

Fig. 14 is an explanative diagram of electric circuit relationships established by the system of wiring shown in Fig. 1.

In aspects which are visible to contestants while playing the game, the apparatus embodies a box or housing 12 containing the automatic operating mechanism shown generally in Fig. 1. Box 12 has a cover 13 hinged thereon at 14. The cover is equipped on its visible top surface with painted markings and equipment representative of a football playing field. There are prominent parallel straight lines, of which the end lines 15 are the goal lines. Spaced at regular intervals between these there are the usual five-yard lines 16. Crosswise of the yardage lines there extends the whole length of the playing field a slightly elevated horizontal wire rail 17 along which there is free to slide a marker 18 in the nature of a miniature football whose position lengthwise of the field designates the position of the ball between successive plays. Somewhat similar relatively short elevated rails 19 and 20 afford sliding support for markers 21 and 22, respectively. Marker 21 can slide along rail 19 to any of four positions representing the four periods of a football game, and marker 22 can slide along rail 20 to any one of four positions representing the "downs" of a football game. Thus together the football 18 and the markers

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21 and 22 serve as conveniently manipulated devices for registering the progress of a game at any given time in terms of the position of the ball on the field, the period of play, and the number of downs." A row of holes 23 receives pegs 24 representing line men as in a cribbage board which pegs are connected by a measuring tape 25 so that the "yardage to gain" can thus be kept "pegged up" and visible.

At each of the upper corners of the rectangle representing the playing field there is a cut-out in the box cover 13 screened by a translucent panel 26 and 27 of glass, stiff sheet plastic, or other material sufficiently transparent to transmit light. These panels form sight windows in which certain banks of score indicating numerals 28 are present but rendered visible only upon individual illumination of each numeral in a given bank, one at a time. The illumination is accomplished by separate miniature lamp bulbs 29 each removably mounted in a light isolating cell 34, the cells being separated by opaque partitions 33 that extend edgewise into contact with the translucent window panel. Each lamp is mounted in a separate holding socket 30, the shell of which may be electrically grounded as one pole through conductive elements 43 etc. in the box structure and the center contact 35 or other pole of which is provided with current individually through some one of separate electric wires 31 appearing in Fig. 1. The lamp sockets 30 are banked in straight rows and are supported at the inside surface of the box cover 13 by removable fastening brackets 32.

The numerals 28 to be illuminated respectively by the lamps 29 may be marked on the under surface of the translucent panels 26, 27 with opaque paint, or they may be delineated in stencil fashion wherein the numeral becomes visible in transmitted light against a background that is opaque. The panels 26 and 27 may be frosted or otherwise treated to prevent them from being wholly transparent.

While the score indicating symbols will vary appropriately for exhibiting game progress in different kinds of sports such as basketball or baseball, as well as football, it is proposed herein for sake of illustration that one bank 36 of the score signals consist of symbols such as 0—1—2—3—5 or 10 yards gain or loss "touchdown"—"fumble," etc. these being possible score consequences of the football play called a "run." Bank 37 may consist of symbols for registering various yardages or a "block" as may result from the play called a "punt." Bank 38 may contain symbols such as 13—20—25—40, designating the possible score results of a "place kick." Bank 39 consists of symbols such as "complete"—15—10—2—5—minus 5—"touchdown"—"intercepted," indicating possible score results of a "pass" play. Bank 40 may consist of symbols representing losses assessed for penalties such as defensive holding—pass interference—motion in backfield, etc. Bank 41 will register say 20, 30, 35, 40, 50, 55 as yardages possible to be gained from a "kick off."

The aforementioned score marker 18 will be manually adjusted step-by-step after each play in accordance with positions the ball has gained or lost as the cumulative results of the individual plays that are registered temporarily and successively on the panels 26 and 27.

The outcome of each manually chosen play is determined by automatic operation of the apparatus within box 12. Such operation is a function partly of the manual preconditioning by the players of electric circuits in part diagrammed in Fig. 14, and is a function partly of the chance place of stopping of rapidly spinning flywheels or wheels of chance such as 46 and 47 when their momentum dies. Either one but not both of some two flywheels such as 46 and 47, associated with a particular chosen play, will be instrumental in determining which lamp 29 of the particular bank of lamps for scoring such play shall finally remain lighted thereby to exhibit the ultimate score symbol whose result on the playing field

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is to be recorded by readjusting the football marker 18 along its rail 17 at the completion of each automatic cycle of operation of the apparatus.

For an understanding of the score determining function of flywheels such as 46, 47, the description will proceed with occasional reference to Fig. 14 wherein is shown a diagram of electric circuits involving the score signaling lamps 29 and their holding sockets 30. These need not be marked with individual reference numerals because their identity in the circuits will be evident in Fig. 14 from the individual electrical connection of each socket through lead wires 31 both to some one of a circular series of relatively long segments 48 embedded flush in one flat side face 49 of the stationary standard 50 of insulative material and to some one of another circular series of relatively short segments 51 embedded flush in the opposite flat face 52 of the same insulative standard 50.

The flywheels 46 and 47 act as current distributors and respectively carry laterally projecting resilient distributor brushes 53, 53' which conductively wipe against the circular series of segments sequentially. Current so distributed is derived by the conductive rims 54 and 55 of the flywheels respectively through current feeding spring arms 56 and 57 which extend from their anchored ends into constant conductive contact with the flywheel rims without sufficient pressure to exert any appreciable braking effect thereon. The anchored end of each spring arm is fixedly secured on a bridge bar 63 of insulative material and is in electrical connection with binding posts 64 and 65 which penetrate the bar 63. This bar is supported by stationary end brackets 66 and 67 which are fastened to and upstand fixedly from the floor wall of box 12.

As clearly shown in Fig. 4 the flywheel rims 54 and 55 are supported by and insulated from the flywheel hubs 68 and 69 by rigid webs or discal side walls of insulative material designated 59, 60. Hubs 68 and 69 are supported on and loosely rotatable in one direction relatively to a long power shaft 70 which extends from end to end of the box 12 and is journaled in bearings 71, 72. These bearings are shown in Fig. 2 to be secured to and upstand fixedly from the floor wall of box 12. Shaft 70 carries fixedly thereon a driven pulley 73 impelled by a belt 74 which derives its power at reduced speed from a smaller pulley 75 fixed on the shaft 76 of a prime mover shown herein as an electric motor 77 mounted on the floor wall of the box.

As best shown in Figs. 4, 8 and 9, the inner side wall 60 of wheel 46 and the inner side wall 60 of wheel 47 each carries pivoted at 78 a freely swingable pawl 79 that is constantly pressed by a spring 80 against a driving dog 81 fast on power shaft 70. As a result of clockwise rotation of shaft 70 in Fig. 2 dogs 81 will positively impel wheels 46 and 47 in unison in the same direction that the shaft rotates and will speed them up until they are rapidly spinning. When the shaft is brought to rest, the yielding of pawls 79 permits both wheels to overrun their dog impelled motion and continue spinning at high speed until their momentum gradually dies. The number of revolutions that will be performed by each flywheel in overrunning its dog driven movement is a variable determined solely by how far the momentum of each flywheel carries it, as is the case in many forms of so-called "Wheels of Chance." Each of the flywheels 46 and 47 may therefore be termed a "wheel of chance" and finally will come to rest at some arbitrary unpredetermined point in its revolution. This stopping of the wheel at unpredetermined points may leave the distributor brushes 53 or 53' either in or out of contact with some segment of the series 48 or 51 swept respectively thereby.

There is less space between the segments 48 than between the segments 51. Also segments 48 are wider than segments 51 in the arcuate direction they are traversed by the brushes. Consequently there is a greater

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probability that brush 53 on wheel 46 will come to rest in contact with one of the segments 48 than there is that brush 53' on the wheel 47 will come to rest in contact with one of the segments 51. Because of this difference in the probability of the two wheels of a given "play" finally coming to rest in a position to complete a circuit through some one of the segments to which the wheel distributes current, flywheel 46 and all corresponding flywheels of the "plays" that are respectively entitled run, punt, place-kick, pass, penalty and kick-off will hereinafter be referred to as the "favorable" wheel, while flywheel 47 and all corresponding flywheels of said other "plays" will be referred to as the "unfavorable" wheel. These terms imply that the action of one wheel is more favorable than the action of the other wheel in its probability of registering a score in behalf of the offensive player.

While the foregoing description is limited to a single pair of the so called favorable and unfavorable wheels with their intermediate stationary segment carrying standard, the entire apparatus as shown in Fig. 1 can embrace five or more such pairs of favorable and unfavorable wheels, all of which are supported on and freely rotatable in respect to the same shaft 70 and driven thereby in only one rotary direction by means of individual dogs and pawls like 81 and 79. Thus all of the wheels are individually free to overrun the driving motion of power shaft 70. Each wheel might if desired be constructed and arranged to wipe against faces of more than one stationary segment carrying standard such as 50 if the wheel be equipped with a current distributing brush such as 53 or 53' on both side faces of its rim 54 or 55. The ability of the distributor wheels 46, 47 to overrun their power drive is commonly referred to as free wheeling.

While all the current distributing flywheels are speeded up in unison by the single power shaft 70 and simultaneously go through the mechanical performance of overrunning their power drive and then finally coming to rest in various unpredictable rotary positions, it is designed that in the playing of the game only one pair of such wheels and only two segment-carrying faces of stationary standards such as 50 shall be electrically effective in the automatic scoring by the machine of any single play of the game. To make this possible the wiring diagram in Fig. 14 shows that each pair of current distributing wheels derives current from only some particular play circuit or trunk line and can furnish current to only a single bank of signal lamps 29. Also that only one wheel of such pair of wheels can on any given play cause the making and breaking of the circuits of the signal lamps in such bank. Only two of the several banks of lamps are represented in the diagram of Fig. 14 in order to demonstrate very simply the principle underlying the "hook up" of the play circuits or trunk lines, the favorable and unfavorable circuit branches and their subdivisions for separately lighting individual score signaling lamps.

Each lamp 29 in one of these banks is separately connected by a separate lead such as 31 both to a single segment 48 on one face 49 of standard 50 and also to a single segment 51 on the other face 52 of the same standard. While the electrical connection of such lamps to such segments is permanent, and while both series of segments are wiped simultaneously by revolutions of the brushes 53 and 53' carried respectively by the favorable wheel 46 and the unfavorable wheel 47, only one of such wheels is electrically energized at any given time through one or another of branch circuits to which current is directed from a trunk line such as 103 or 104 by some switch of gang 86 and thus capable of distributing current to its successively contacted segments, because only one of the binding posts 64 and 65 can be furnished with current at the same time.

The arrangement of circuits which accounts for this condition appears in the wiring diagram of Fig. 14. Con-

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trol of current supply to the binding posts 64, 65, as an example, is accomplished at the beginning of each play by the separate manual preconditioning of two gangs of mechanically interconnected switches by the contesting players respectively. One gang 85 of play circuit or trunk line selecting switches is accessible for secretive setting manipulation by the offensive player at the exterior of the box while concealed from the sight of the defensive player. The other gang 86 of distributor diverting circuit branch controlling switches is accessible for secretive setting manipulation by the defensive player at the exterior of the opposite end of the box in a position concealed from the sight of the offensive player.

Only one switch of the gang 85 can mechanically be set in circuit making position at any given time and thus serves to elect what single trunk line or "play" circuit shall be rendered operative. This condition is assured by a mechanical interlocking relationship of each switch to every other switch in the same gang. Each switch of gang 86, unless actuated by the defensive player, normally directs the current in its "play" circuit to a circuit branch that feeds only the "favorable" wheel and not the "unfavorable" wheel. The same mechanical interlocking relationship is present as in gang 85 so that only one of the switches of gang 86 on a given play can direct current to the branch of that trunk line that feeds current to the "unfavorable" wheel instead of normally to the "favorable" wheel. This interlocking relationship of all the switches in each gang is accomplished by mechanism more or less familiar in the art of selective push button control for tuning in various stations in a radio set an example of which is illustrated in detail in Figs. 5 to 7.

All of the switch mechanisms of each bank of switches are mounted on a common insulative base plate 87 with which there is rigidly assembled a skeleton metallic frame 88 affording slide bearings for contact actuating plungers 89 operated by push button handles 83 and each carrying a locking spur 90 on one edge thereof and each normally thrust toward the left in Fig. 6 (toward the right in Fig. 5) by an individual spring coil 91 that is under compression between the frame 88 and the plunger 89. Crosswise of all of the plungers 89 there extends a slidable latch bar 92 having clearance holes 84 to permit the plungers to extend therethrough. One edge of the bar at the end of each clearance hole acts as a detent because the latch bar as a whole is thrust constantly in the direction of arrow D in Figs. 5 and 6 by the resilient pressure of a leaf spring 93 anchored to the frame 88. Each time the latch bar 92 is forced in a direction opposite to arrow D by sliding of the inclined surface of spur 90 as any one of the plungers 89 is manually thrust toward the right in Fig. 6, the latch bar will release to the pressure of spring 91 whatever one of the plungers has theretofore been held displaced toward the right, such as the top plunger in Fig. 6. The result is that any chosen plunger other than one that is presently displaced toward the right may be pushed manually toward the right. The initial part of its movement toward the right releases the presently displaced plunger whereupon spring coil 91 returns it with a snap action to its normal position toward the left in Fig. 6. The subsequent part of the plunger movement toward the right causes it to be latched and detained in its manually displaced position by the latch bar 92.

As each plunger moves right or left in Fig. 6 it carries with it a movable switch member comprising a strip of insulation 94 which carries contact bridging conductive inserts or movable contacts 95 which slide into or out of position to bridge conductively two spaced and relatively insulated stationary switch contacts 96. The stationary contacts 96 are in electrical connection respectively with various terminals 97 for the attachment of various lead wires serving to connect the switches in the circuits as shown in the diagram of Fig. 14.

This diagram shows that each switch of gang 85 may

have its contacts 95, 96 arranged to serve as a simple make-and-break, single pole switch whose function is to furnish current to only some chosen one of the play circuits 103, 104 while all the other switches in gang 85 are positioned to cut off all the other play circuits from current supply. The source of current may be a voltage reducing transformer 102 from which current is always supplied to some one contact of each of the switches in gang 85 by a lead wire such as 101 in Fig. 14. Only a single chosen one of said switches in gang 85 is positionable at any one time to transmit the source current to a chosen one of the "play" circuits. Each of the several "play" circuits such as those represented by 103 and 104 herein contains one of the switches of gang 86. The switches of this gang have their contacts 95, 96 so arranged that each switch acts as a double-throw switch serving in its unset position to transmit current only to one of the "favorable" distributor wheels. In other words such is the condition so long as the switch handle projects fully toward the right in Figs. 1 and 5. When any switch handle of gang 86 is pushed toward the left, as is the handle of the top switch in Fig. 5, that switch will be thrown so as to divert the current of its play circuit from a "favorable" distributor wheel 46 to the "unfavorable" distributor wheel 47 of the same pair. This comes about in any selected switch of gang 86 that has its handle pushed to the left because, as diagrammed in Fig. 14, only one of a pair of stationary contacts 96 in each switch of gang 86 is connected to some one of the favorable wheels 46 while only a different one of the same pair of stationary contacts 96 in each switch of gang 86 is connected to some one of the unfavorable wheels 47. Both contacts of said pair of contacts lie within the path of shifting travel of the conductive insert or movable contact 95 of the switch which is always in electrical connection with its particular play circuit or trunk line such as 103 or 104. Movable contact 95 thereby shifts current derived from its play circuit alternately from one to the other of the aforesaid pair of stationary contacts 96 or in other words acts as a double-throw switch.

The electromechanical apparatus in box 12 is supplied with current through an attachment cord 105 that leads through the wall of the box and delivers ordinary 60 cycle alternating current at 110 volts to motor 77 and also to the primary of the transformer 102 whose secondary may furnish the scoring signal circuits with current at a reduced voltage say at 16 volts. The supply of current to motor 77 is controlled by a switch 100 that is manually accessible at the exterior of the box.

The playing time remaining in each 15 minute "quarter" or period of the game can be exhibited by manually moving the hands 106 of the familiar time "clock" 107.

An example of the execution of one play will serve to review and make clear the operation of the entire apparatus. Fig. 14 shows that as a preliminary to executing a play, the offensive player stationed at the left of box 12 has chosen to push a button 83 of the switch in gang 85 that delivers current to a play selecting circuit 103. This circuit includes only those signal lamps 29 and current distributors 46, 47 that appear in the top portion of Fig. 14. All the other play circuits, including 104 in the lower portion of said figure, remain cut out and incapable of producing any electrical effect upon the signals. The defensive player now attempts to guess which play has been chosen by the offensive player and proceeds to press what he guesses to be the corresponding switch button at his end of the box. The switches in each gang are similarly labelled to designate the same respective plays such as "run," "punt," "pass" etc. Fig. 14 shows that he has been successful in doing so and has pushed the button 83 of that switch in gang 86 that lies in the play circuit 103. This causes the current in play circuit 103 to be diverted from the "favorable" branch that feeds the "favorable" wheel 46 in the top portion of Fig. 14

to the "unfavorable" branch that feeds the "unfavorable" wheel 47 in the top portion of Fig. 14.

With the signal circuits so preconditioned, switch 100 is flipped to cause motor 77 to start and come up to full speed driving in unison with shaft 70 all of the favorable and unfavorable current distributing wheels 46 and 47. However, only the "unfavorable" distributor wheel 47 of play circuit 103 is energized to feed current successively to the lamps 29 in bank 36. Each of these lamps when energized illuminates one possible score result of a "run." While the distributor continues spinning there will be a rapidly shifting flashing of the numerals or symbols in bank 36, one by one, which gives a lively dazzling effect. When the spinning distributor wheels have attained full speed, motor control switch 100 is reversed and motor 77 with its driven shaft 70 stops fairly abruptly. The distributor wheel 47, however, continues spinning because its inertia causes it to overrun its power drive. As its momentum dies the flashing of signals in bank 36 gradually decreases in rapidity until the wheel finally comes to rest. It may come to rest with its distributor brush 53' either in contact with or out of contact with one of the segments 51. If it stops in contact with a segment 51, a score denoting numeral will remain lighted to be registered for the offensive player. If it stops out of contact with or between segments, no score symbol will remain lighted and there will be no score result exhibited to be registered for the offensive player. The next play is then chosen by the offensive player followed by attempted diversion of the signal current to an unfavorable distributor wheel, and so on.

There are many ways in which the arrangement of segments 48 and 51 may be varied to weight the probabilities of a good or bad score result for the offensive player. Neither the arcuate widths of nor the circumferential spaces separating all segments on a given face of the standard 50 need be alike, nor does every segment need to be connected by a lead 31 to some lamp in a bank of score signals. Thus the chance aspect of the operation of the apparatus may be adjusted in accordance with what are regarded to be the actual average probabilities of various plays in the actual kind of game that is simulated by the use of my improved apparatus.

The foregoing and many other variations in construction and arrangement of the parts will be suggested to those skilled in the art by this disclosure, wherefore the following claims comprehend all such variations as come within a broad interpretation of their terms.

I claim:

1. In game playing apparatus jointly preconditioned by opposing players for automatically registering a score, the combination of, electrically operable score registering signals disposed in electrically segregated groups, separate play selecting electric trunk lines leading current to respectively different groups of said signals, each of said trunk lines being divided into a favorable scoring circuit branch and an unfavorable scoring circuit branch, common subdivisions of both of said circuit branches leading to said signals respectively, a source of motive power, a source of signal energizing current feeding current to said trunk lines, a power driven favorable current distributor in said favorable circuit branch possessing sufficient mechanical inertia to prolong its own rotary motion automatically for a random length of time and electrically connected to direct current from said favorable circuit branch sequentially to said subdivisions thereof, a power driven unfavorable current distributor in said unfavorable circuit branch possessing mechanical inertia to prolong its own rotary motion automatically for a random period of time and connected to direct current from said unfavorable circuit branch sequentially to said subdivisions thereof, and current switching means including a trunk line selecting switch interposed between said current source and each of said trunk lines and a circuit branch controlling switch widely separated from said trunk line select-

ing switches interposed between each of said trunk lines and its said circuit branches, said trunk line selecting switches being settable manually by the offensive player secretly to predetermine which of said trunk lines shall be electrically energized, and said circuit branch controlling switches being settable secretly by the defensive player independently of the setting of the trunk line selecting switches in an attempt to choose for defensive setting a circuit branch controlling switch of the trunk line secretly selected by the offensive player, whereby to direct current from said trunk line to the unfavorable circuit branch thereof.

2. In game playing apparatus jointly preconditioned by opposing players for automatically registering a score, the combination defined in claim 1, in which the said current switching means comprises a gang of the said trunk line selecting switches and a separate gang of the said circuit branch controlling switches, said separate gangs of electric switches being independently operable by each of the opposing players, and means to conceal from the sight of each player the gang of switches operated by the opposing player.

3. In game playing apparatus jointly preconditioned by opposing players for automatically registering a score, the combination defined in claim 1, in which the said current switching means comprises a gang of the said trunk line selecting switches and a separate gang of the said circuit branch controlling switches, said separate gangs of electric switches being independently operable by each of the opposing players, the switches of at least one of said gangs being operatively interconnected in a manner to preclude current passing from the said source to more than one at a time of the said trunk lines.

4. In game playing apparatus jointly preconditioned by opposing players for automatically registering a score, the combination defined in claim 1, in which the said current switching means comprises a gang of the said trunk line selecting switches and a separate gang of the said circuit branch controlling switches, said separate gangs of electric switches being independently operable by each of the opposing players, the switches of at least one of said gangs being mechanically interconnected in a manner to preclude current passing from the said source to more than one at a time of the said trunk lines.

5. In game playing apparatus jointly preconditioned by opposing players for automatically registering a score, the combination defined in claim 1, in which the said current switching means comprises a gang of the said trunk line selecting switches and a separate gang of the said circuit branch controlling switches, said separate gangs of electric switches being independently operable by each of the opposing players, the switches of at least one of said gangs being operatively interconnected in a manner to preclude current passing from the said source to more than one at a time of the said trunk lines, and means to conceal from the sight of each player the gang of switches operated by the opposing player.

6. In game playing apparatus jointly preconditioned by opposing players for automatically registering a score, the combination defined in claim 1, in which each of the said current distributors includes a branch circuit making and breaking rotor possessing inertia, whereby said rotor comes to rest in a chance determined position when deprived of the power by which it is driven.

7. In game playing apparatus jointly preconditioned by opposing players for automatically registering a score, the combination defined in claim 1, in which the said current distributors comprise relatively movable rotors, together with a common power shaft supporting both of said rotors, and single directional driving connections between said shaft and said rotors enabling the rotors to overrun movement of the shaft in the direction the former are driven by the latter.

8. In game playing apparatus jointly preconditioned by opposing players for automatically registering a score, the

combination defined in claim 1, in which each of the said current distributors includes a rotor possessing inertia and carrying at least one branch circuit making and breaking contact, together with at least one electrical terminal of a branch circuit subdivision positioned to be conductively wiped and passed by said contact during free wheeling revolutions of said rotor, whereby momentum of said rotor will cause said contact to come to rest either in or out of contact with said terminal when said rotor comes to rest after free wheeling rotation thereof.

9. In game playing apparatus jointly preconditioned by opposing players for automatically registering a score, the combination defined in claim 8, in which there is a sequence of branch subdivision terminals positioned to be wiped by each of the said branch circuit making and breaking contacts of the said current distributors, said terminals in one of said sequences being separated by wider spaces than said terminals in the other of said sequences thereby to establish a difference between the probability of one of said contacts coming to rest on a circuit terminal and the probability of the other of said contacts coming to rest on a circuit terminal.

10. In game playing apparatus jointly preconditioned by opposing players for automatically registering a score, the combination defined in claim 8, in which there is a sequence of branch subdivision terminals positioned to be wiped by each of the said branch circuit making and breaking contacts of the said current distributor, the terminals in one of said sequences being of less length and more widely separated than terminals in the other of said sequences in the direction said contacts traverse said terminals thereby to establish a difference between the probability of one of said contacts coming to rest on a circuit terminal and the probability of the other of said contacts coming to rest on a circuit terminal.

11. In game playing apparatus jointly preconditioned by opposing players for automatically registering a score, the combination defined in claim 8, in which there are two branch subdivision terminals positioned to be wiped conductively by the said circuit making and breaking contacts of the said current distributors respectively, each of said terminals being electrically connected with a common one of the said score registering signals.

12. In game playing apparatus jointly preconditioned by opposing players for automatically registering a score, the combination defined in claim 11, in which the said two subdivision terminals of a favorable branch and of an unfavorable branch respectively are of respectively different lengths in the direction they are traversed by the said current distributing contacts, thereby to establish a difference between the probability of one of said contacts coming to rest on a circuit terminal and the probability of the other of said contacts coming to rest on a circuit terminal.

13. In apparatus jointly preconditioned by an offensive player and a defensive player for automatically registering the score of a football play, the combination of, electrically operable yardage exhibiting symbols disposed in segregated groups for the scoring of respectively different football plays, separate play selecting electric circuits containing respectively different groups of said symbols, each of said play selecting circuits being divided into a branch favorable to the registering of a score and into a branch unfavorable to the registering of a score, common subdivisions of both of said branches leading current to said symbols respectively, a source of motive power, a source of symbol exhibiting current, a power driven distributor electrically connected to direct current sequentially from said source to the subdivisions of said favorable branch, a power driven current distributor connected to direct current sequentially from said source to the subdivisions of said unfavorable branch, and a plurality of current switching means interposed between said current source and said play selecting circuit branches settable by an offensive player in a manner to predeter-

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mine which play selecting circuit shall be supplied with current and additional current switching means between said current source and said circuit branches settable independently by a defensive player in a manner to determine which of said circuit branches shall be supplied with current directable to said symbols by one of said current distributors.

14. In game apparatus for simulating the playing of football by contesting players, the combination of, separate groups of individually displayable score symbols according respectively with various plays of the game of football, automatically moving mechanism operatively related to said symbols in a manner to cause the exhibiting thereof sequentially including a portion of said mechanism relatively more inductive to the exhibiting of an ultimate score symbol and another portion of said mechanism relatively less inductive to the exhibiting of an ultimate score symbol, control means accessible to only one of the contesting players operative to isolate all but a chosen one of said groups of symbols from the exhibiting effect of said mechanism, and separate control means accessible to only another contesting player operative to determine which of said portions of said mechanism shall function in operative relation to said symbols.

15. In game playing apparatus jointly preconditioned by opposing players for automatically registering a score, the combination of, electrically operable score registering signals disposed in electrically segregated groups, separate play selecting electric circuits containing respectively dif-

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ferent groups of said signals, each of said play selecting circuits being divided into a favorable branch and an unfavorable branch, subdivisions of both of said branches including a subdivision of each branch leading to a common signal, a source of signal energizing current, a favorable current distributor in said favorable branch possessing mechanical inertia and electrically connected to direct current from said branch sequentially to different subdivisions thereof, an unfavorable current distributor in said unfavorable branch possessing mechanical inertia and connected to direct current from said unfavorable branch sequentially to different subdivisions thereof, means to motivate said current distributors, and a plurality of current switching means interposed in electrical series between said current source and said circuit branches settable independently and respectively by opposing players in a manner jointly to predetermine which of said play selecting circuits and which of said branches of the selected circuit shall be supplied with current directable to said signals by one of said current distributors.

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