

Oct. 31, 1939.

V. A. HAMILTON

2,177,938

SWITCH

Filed Jan. 23, 1937

3 Sheets-Sheet 1

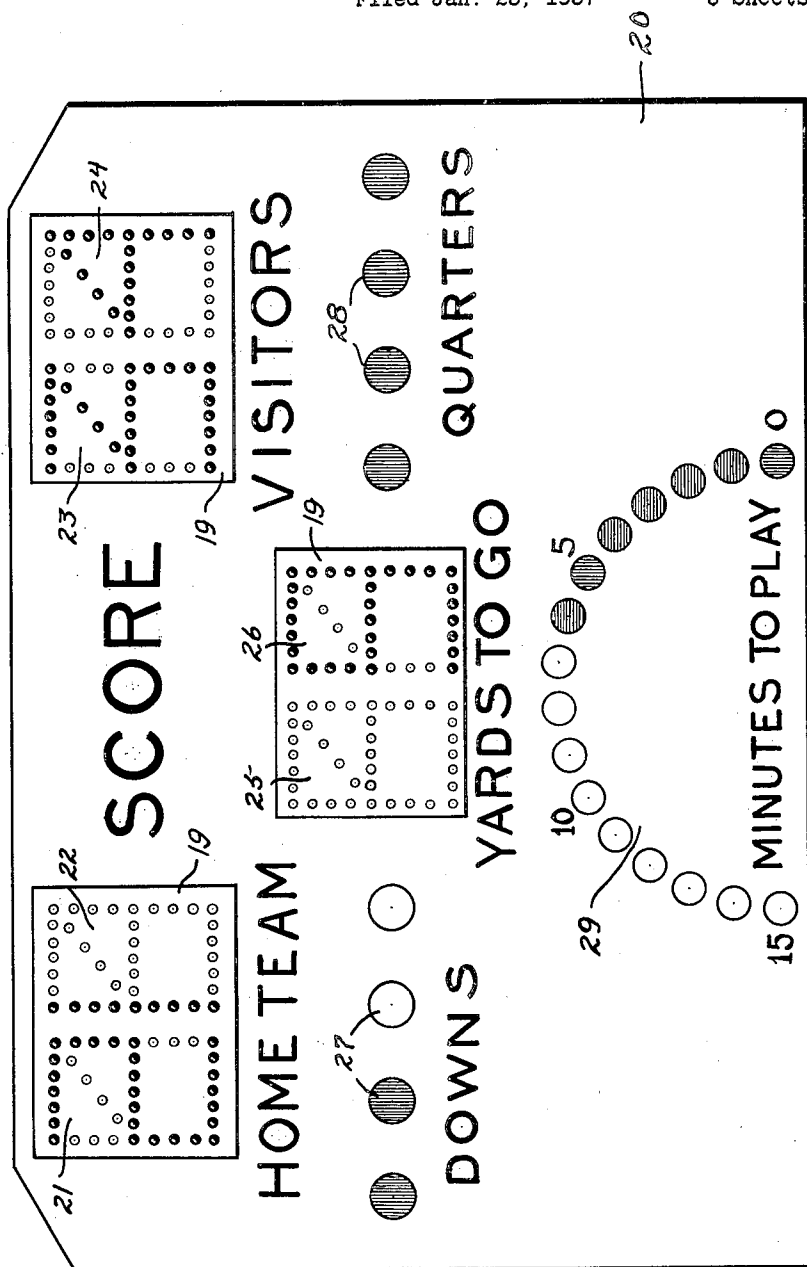


Fig. 1.

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3 Sheets-Sheet 2

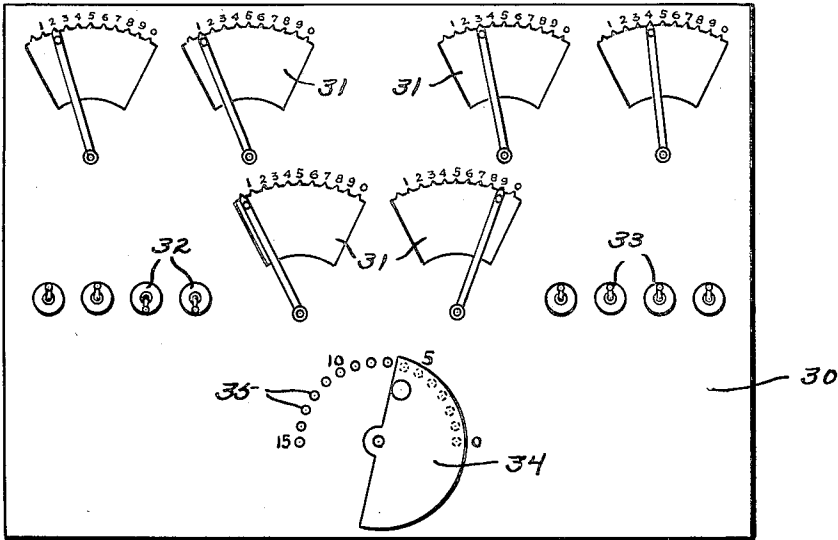


Fig. 2.

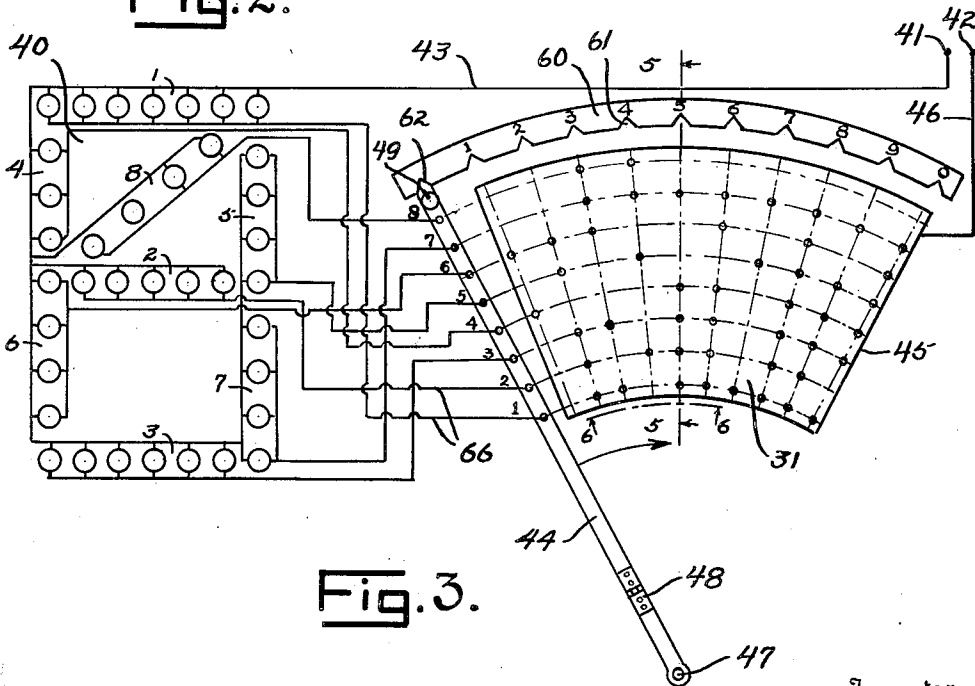


Fig. 3.

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3 Sheets-Sheet 3

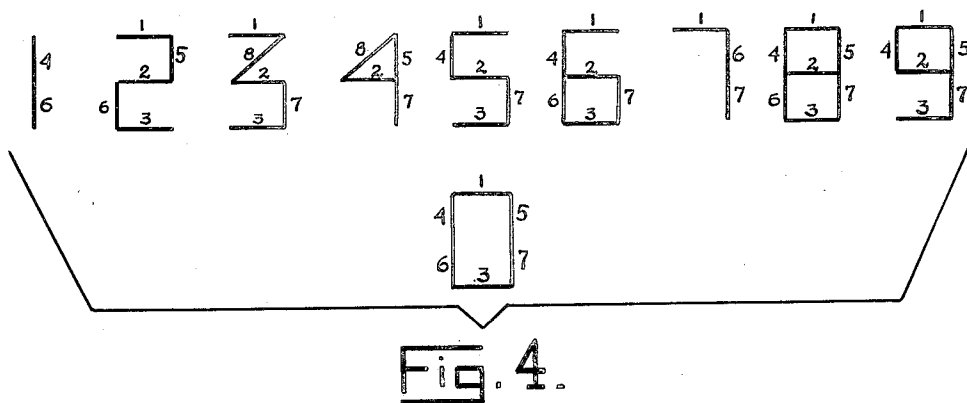
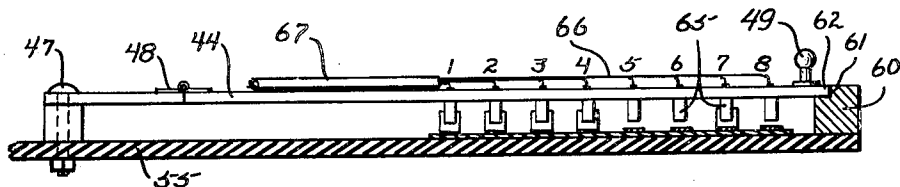


Fig. 5.

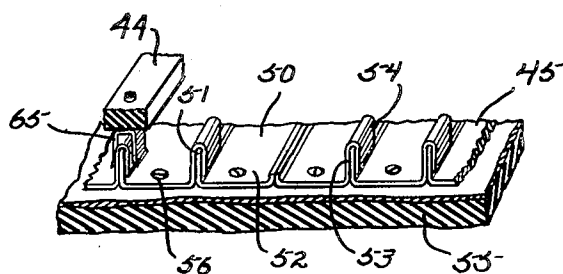


Fig. 6.

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SWITCH

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Application January 23, 1937, Serial No. 121,936

1 Claim. (Cl. 200—6)

The invention relates to improvements in score boards adapted at all times to indicate the status of a ball game. More particularly the invention relates to an electric score board in which electric lighting elements are so positioned as to represent portions of a character or symbol when lighted and means is provided to selectively light such elements whereby desired combinations of lights are energized to produce predetermined symbols.

It is an object of the invention to provide a novel switch construction which is of particular utility with electric score boards whereby the progress of a game may be clearly shown and changes in the displayed information may be instantly made.

A further object is to provide an electric switch adapted for use with an electric score board having lighting elements, each of which represents a portion of a character, the switch being so constructed that any desired grouping of such elements may be utilized to construct or build any desired character.

It is also an object to provide an electric switch, the construction of which is extremely simple and inexpensive to make, the number of moving parts is minimized, and changes in the circuits closed by the switch are facilitated.

The invention comprehends other objects, as will be more fully apparent from the following description of the preferred embodiment. The description is to be taken in connection with the drawings in which:

Fig. 1 illustrates a score board comprising a part of the invention with certain of the illuminated characters shown as lighted to illustrate an existing status of a game.

Fig. 2 is a plan view of a control panel and associated device for controlling the display on the score board illustrated in Fig. 1.

Fig. 3 is a detail showing a single lamp bank and control mechanism therefor.

Fig. 4 illustrates a font of numerals as displayed by the device of the invention.

Fig. 5 is a sectional view taken on line 5—5 of Fig. 3 with the control arm shown in the plane of the section.

Fig. 6 is a perspective section taken on line 6—6 of Fig. 3.

In the preferred embodiment shown in the drawings the invention is illustrated as used in connection with the display relative to the status of a foot ball game. It is to be understood, however, that the invention is not confined thereto but may be used at any time it is desired to

display characters by illumination. Attention is also directed to the fact that in this preferred embodiment the illuminating characters formed by the invention are referred to as "lighting elements". This term is used in a generic sense and it is understood that the character portions may comprise single illuminating units of desired configurations or they may be composite groups of illuminated elements as is shown for purposes of illustration in the drawings and as described in the specification.

Score board 20 is provided with composite banks of lights 21 to 26. Respective pairs 21, 22 and 23, 24 are designed to provide an indication of the scores of the respective teams. The state of play is indicated by banks 25, 26, which indicate yardage to be made, supplemented by lights 27, which indicate the number of downs. The interval of play is indicated by lights 28 and the portion of that interval remaining for play is indicated by a light bank generally designated as 29.

In order to enhance display of the characters from the respective lamp banks 21 to 26, it is intended that such banks be provided with translucent covers 19 so that the illuminating globes cannot be seen except when burning. The invention also contemplates the use of a shield about each of the globes in order to constrain the illumination where needed and to prevent reflection of light from unlighted globes and other objects.

The score board illustrated in Fig. 1 may be at the playing field or a point remote therefrom and in either event is controlled from a suitable point through a control board illustrated in Fig. 2, a suitable source of current being provided to operate the device and electric lighting connections being provided between the control board and the score board, as is hereinafter described.

A plurality of character control mechanisms, generally designated as 31, are provided to control the respective banks 21 to 26. Toggle switches 32 and 33 are conveniently positioned upon the control panel to control lights 27 and 28 to indicate the status of downs and interval of play while a switch 34 makes a wiping contact with contacts 35 to control the lights of bank 29 and constantly provide an indication upon score board 20 of the remaining time of play in the indicated period of play.

In Fig. 3 one of the banks of lights is generally illustrated as 40 and the control mechanism therefor is generally designated as 31. This figure shows the general connection between bank

40 and the control mechanism and their connection to a source of energy through terminals 41 and 42.

The composite bank of lights 40 comprises horizontal groups 1, 2 and 3 and vertical groups 4, 5, 6 and 7 and a diagonal group 8. Each of these groups is connected through a conductor 43 to terminal 41 of the source of electric current. The other terminals of these groups are connected to a plurality of contacts on a control arm 44 of control mechanism 31, similar identifying numerals being used at the control mechanism to indicate the respective groups. Fig. 4 clearly illustrates a pre-selection of light groups indicating all the digits whereby any number of combinations may be illuminated. The bank control mechanism 31 illustrated in Figs. 3, 5 and 6 comprises a composite terminal plate, generally designated as 45, and is connected through wire 46 to terminal 42 of the source of electric current. This plate is preferably connected to the grounded terminal of the electric circuit and hence presents a control device having no exposed live parts that will be dangerous to the operator. Plate 45 is a circular sector about a central pivot pin 47 which carries the contact carrying arm 44. This plate is formed from a plurality of sector-shaped channel sections 50 each comprising a flange portion 51, a web portion 52 and a second flange portion 53 having a recurved portion 54. The composite plate 45 is formed by successively positioning channel sections with recurved flange 53 embracing the straight flange 51 of the next adjacent channel. These channels are secured to a base 55 as by screws 56.

At the periphery of terminal plate 45 is provided a spacing block 60 having a plurality of recesses 61, each of which is in alignment with pivot 47 and one of the upwardly extending flanges on sector plate 45. These recesses are adapted to receive the complementary end 62 of arm 44 whereby connections are made from the plate to bank 40 as will now be described.

Arm 44 mounted upon pivot 47 is provided with a hinge 48 which permits the outer end of the arm to be lifted by knob 49 and moved with facility to any of the positions designated from 1 to 0 on block 60.

Mounted upon arm 44 are a plurality of contactors 65 (see Figs. 5 and 6) which are connected through conductors 66 in cable 67 to the respective lighting elements of the light bank 40. These contactors are adapted to engage the respective flange assemblies of plate 45 when the end of the arm is positioned in any of the recesses in block 60. It is apparent that if the flange assemblies on plate 45 are continuous, each group of lights in bank 40 will be lighted when the arm is lowered to bring contactors 65 in conductor relation with a flange assembly. In order to effect a predetermined selection of groups of lights that will be energized when arm 44 is placed within a selected recess in block 60 the flange assemblies are cut away except for those portions to which contact is desired. For example, if it is desired to provide an illuminated numeral "5" (see Fig. 4) it is necessary to light groups 1, 2, 3, 4 and 7. The conductors from these groups are connected to similarly numbered conductors on arm 44. Accordingly, for position 5 on the control mechanism 31 the underlying flange assembly is removed, as is clearly shown, except for those portions which engage contactors 65 for the designated groups of lights. With this illustration and reference to Fig. 4 it is apparent that any numeral may be illuminated by removing from the respective flange assemblies those portions for which contact is not desired.

From the foregoing description of the device of the invention it is apparent that an electric score board is provided that is simple and inexpensive and will enable the operator to make quick changes whereby the progress of the game may be closely followed.

What is claimed is:

In a device of the class described a composite sector terminal comprising a plurality of sector channels secured in side by side relation to form radial contact receiving flanges, an arm mounted for movement toward the sector in the plane of a preselected flange, and a plurality of contacts mounted on said arm, said flanges having portions thereof removed so that predetermined circuits may be closed through said contacts by movement of the arm toward the sector.

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