

June 3, 1969

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BILLIARD PLAY TALLY SYSTEM

Filed Feb. 2, 1967

Sheet 1 of 2

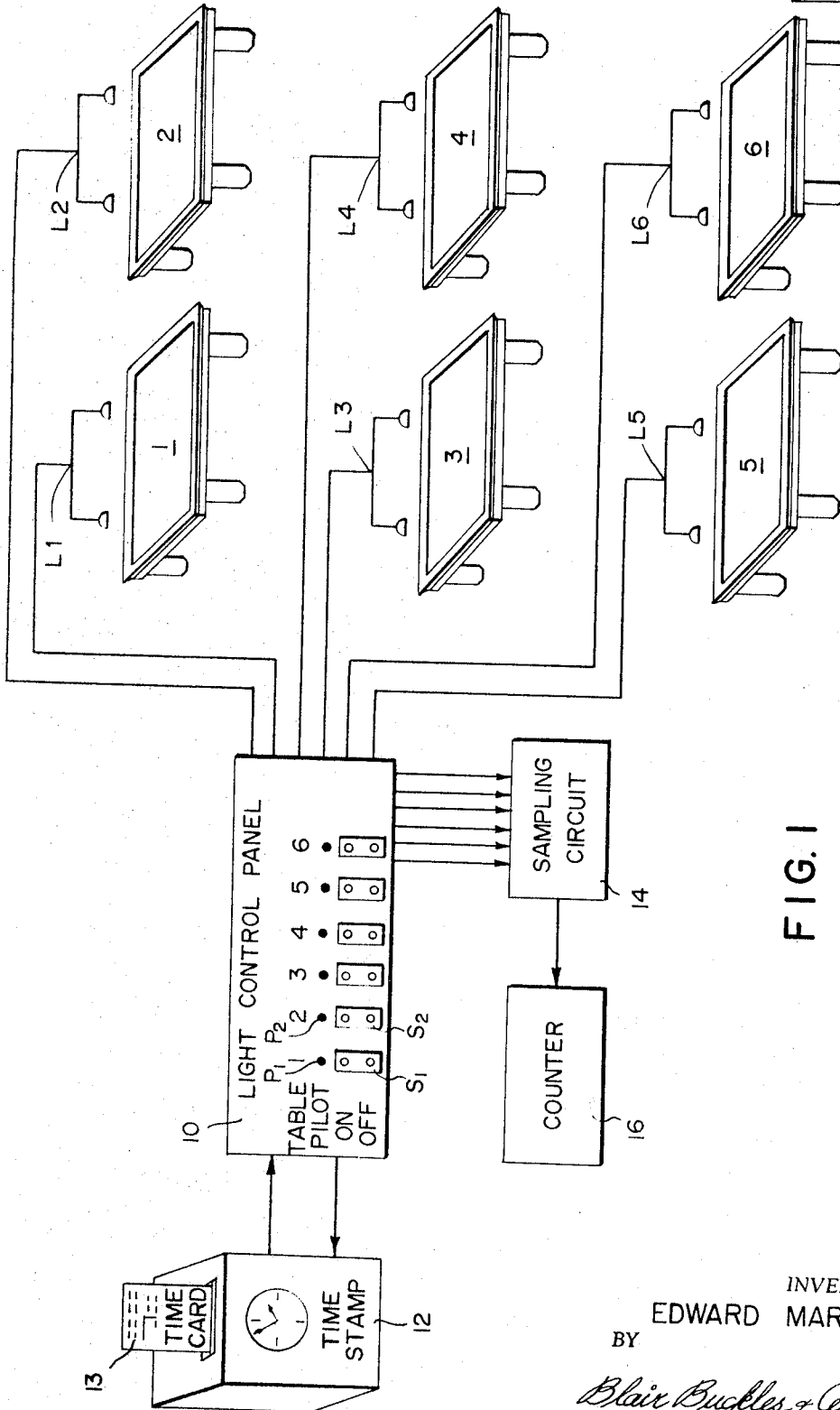


FIG. 1

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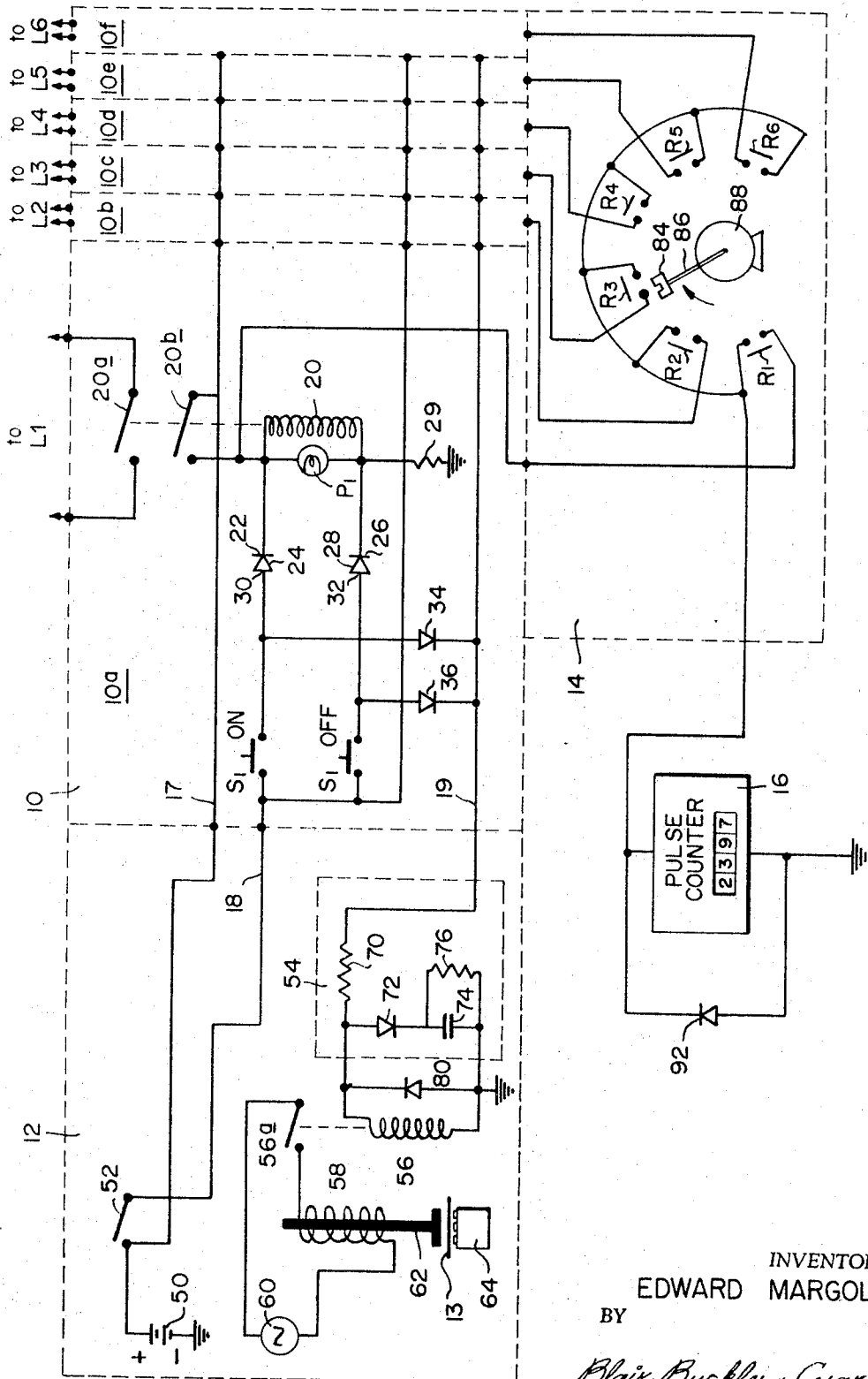


FIG. 2

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BILLIARD PLAY TALLY SYSTEM

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5 Claims

ABSTRACT OF THE DISCLOSURE

A system records the amount of hire of game equipment by tallying and totalizing the on-time of electrical fixtures required to be associated with the equipment.

Background of the invention

The present system has wide application in connection with businesses such as billiard and bridge parlors, bowling alleys, slot car parlors, indoor squash and tennis courts and the like establishments. These businesses have in common the fact that they must simultaneously keep track of the amount of play by patrons at many different play areas or pieces of play equipment. Consequently, they share many of the same problems.

More specifically, the operators of such establishments often encounter considerable difficulty determining the elapsed play time or rental period of each patron at each of the many game areas and computing the proper fee due from him. Also, in the confusion caused by the constant comings and goings of the players, the operator may not notice a change of players at a given area or see that some people have left without paying any fee at all. Consequently, the money taken in by the establishment is frequently less than it should be.

Another serious problem stems from the fact that the operators are very often not also the owners. Some employee operators have a tendency to report to the owner a shorter rental period at the various game areas than has actually occurred and to pocket the difference in the money received.

There have been a myriad of devices made for registering the time of hire of a piece of game equipment. Typically, these registers employ a timer or clock which is started by the player performing some operation required to start the game. For example, in the case of billiards (which should hereinafter be understood to include games such as "pocket pool"), the player may have to remove the billiard balls from a container, thereby tripping a lever which starts the clock. The clock stops when the patron replaces the balls in the container. The operator can then compute the play time at that table by subtracting the start and stop times as indicated by the clock.

These prior existing systems still do not completely solve the problems set forth above. In order to note down the start and stop times indicated by the clocks at the various tables and to see which areas are being used at any given time, the operator must continually patrol the floor of the establishment. If the business is a large one, this practice becomes impractical. Also, the player or players at a given area may simply leave the establishment without shutting off the clock by replacing the billiard balls, and also without paying the operator. Then, if another patron starts playing at the same table unbeknownst to the operator, a dispute may arise later as to whether he is chargeable for the total elapsed play time as indicated by the clock at that table.

In practical terms a major drawback of such prior systems is that each table or game area has its own completely separate register. Not only is this expensive, but

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also the operator has no overall picture of the equipment being used at any given time.

Finally, the prior registers do not curb the dishonest activities of the operators, vis-a-vis their employers. The operators can still record reduced play time or omit to record any time at all for a given table and then pocket part or all the money received from the patron for playing at that table.

Summary of invention

Accordingly, this invention aims to provide an improved game play tally system for recording the amount of hire of game equipment. Another object of the invention is to provide a game tally system for minimizing employee theft in game establishments. A further object of the invention is to provide a game play tally system which appraises the operator of a game establishment of which pieces of equipment are being used at any given time. A further object of the invention is to provide a billiard play tally system which provides a permanent record of and totalizes the rental periods of all the billiard tables in a billiard parlor.

Briefly, the system records the amount of hire of game equipment by totalizing the on-time of electrical fixtures required to be associated with the equipment. While the same principles and techniques disclosed herein are applicable to many different types of games, such as those recited above, for purposes of illustration we will describe the invention with particular reference to tallying the amount of play in a billiard parlor.

In the case of billiards, adequate table illumination is necessary for proper play of the game. Therefore, the illustrated system controls the operation of overhead lights associated with each billiard table. The system includes an operator's control panel with separate light switches controlling each set of lights. It incorporates also a time stamp to mark time cards. The operation of the stamp is tied to that of the lights, so that the lights cannot be turned on or turned off without recording the fact on a card.

Before play can begin at a given table, the operator must turn on the lights over that table. In order to do this, he must actuate the appropriate "on" switch on the control panel and simultaneously insert a numbered card into the time stamp. The coincidence of these two operations turns on the lights; it also causes the time stamp to automatically print the starting time on the card. The operator then stores the card until the patron requests that his table rental be ended. At this time, the operator again places the patron's card in the time stamp and simultaneously actuates the "off" switch in the panel controlling the lights over that party's table. Again, this causes the time stamp to print the ending time on the card and simultaneously shuts off the lights, preventing further play at that table.

Thus, each complete transaction produces a numbered card bearing the beginning and ending times of that particular rental period. The operator then uses these times to compute the proper fee due from the patron. The cards also provide a permanent record by which the owner of the establishment can tell if he is receiving all the money due him. He simply checks the total receipts against the total play time recorded on the numbered cards used up during that day.

The operator's control panel also has pilot lights associated with the various table lights. Thus, he can tell at a glance which tables are being used at any given time by observing which pilot lights are lit. Also, the system periodically senses which tables are illuminated and includes a totalizer whose count is increased by the number of illuminated tables per unit time. The increase in the totalizer count during a given period represents the total

number of minutes that all the various tables were illuminated during that period. This increase should be proportional to the receipts from that interval.

Brief description of the drawings

For a fuller understanding of the nature and objects of the invention, reference should be had to the following detailed description taken in connection with the accompanying drawings, in which:

FIGURE 1 is a block diagram of a game play tally system made in accordance with this invention, and

FIGURE 2 is a schematic diagram of the FIGURE 1 system.

Description of the preferred embodiment

The present system keeps a simultaneous tally of the rental time at each of several games areas, illustrated here by billiard tables 1-6 having active playing surfaces mounted on pedestals above a floor and isolated from normal foot traffic. These tables have corresponding numbered overhead lights L1 to L6. Each of tables 1-6 must be separately lighted in order for a player to be able to use it.

The operator in charge of the billiard parlor is situated near a control panel 10 which controls the lights L1 to L6. Panel 10 has a series of buttons S1 to S6, which turn on and turn off the correspondingly numbered lights L1 to L6. When any of the lights are on, this fact is indicated by the lighting of one of a series of correspondingly numbered pilot lights P1 to P6 in panel 10.

A time stamp 12, also located at the operator's station, is electrically connected to panel 10 so that its operation is tied to that of lights L1 to L6. More particularly, a given light, say light L1, can be turned on only if the operator simultaneously turns on switch S1 and inserts into stamp 12 a numbered time card 13. Upon the coincidence of these operations, light L1, as well as the corresponding pilot light P1, are lit and stamp 12 prints the time on card 13. The patron can now play on table 1. However, the remaining tables 2-6, still being dark, cannot be used. The operator then marks the appropriate table number, i.e. number 1, on the card or places it in a receptacle identified by the number 1.

Now, if another patron wishes to play, the operator takes the next numbered time card, looks at panel 10 to see which tables are available and follows the same procedure set forth above. Thus, he might assign a patron to table 2, in which case he would turn on switch S2 and insert the new card into time stamp 12. Lights L2 (and P2) would be lit, enabling the second patron to play at table 2. The operator then marks this card with the number 2 or stores it in a number 2 card receptacle. This process is repeated with the remaining tables in the billiard parlor. At any given time the operator can see easily which tables are being used simply by glancing at the pilot lights on panel 10.

When the patron finishes playing at table 1, he goes to the operator, who retrieves his time card 13 and again inserts it into stamp 12. At the same time, he turns off switch S1 on panel 10. The coincidence of these operations turns off lights L1, preventing further play at table 1 and also causes the time stamp to print the ending time on card 13. Card 13 now bears the beginning and ending times of that particular transaction at table 1. By subtracting these times the operator ascertains the amount of hire at table 1 and charges the patron accordingly. The darkened pilot light P1 also signals that table 1 is now available for use. In the same fashion, when the patron at table 2 stops playing, the same procedure is followed to turn off lights L2 over table 2 and stamp the appropriate ending time on that patron's card.

It is apparent that tables 1-6 are illuminated only when they are actually being used by the patrons of the establishment. Therefore, the on-times of the lights at each table give an accurate indication of the rental periods of

each table. Moreover, the beginning of each rental period requires the marking of a numbered card. Thus, as soon as play begins, the operator becomes accountable to the owner for the card corresponding to that period. He is also accountable for the money corresponding to the rental period bounded by the times stamped on the card. If no end of time is stamped on the card because a player has left the establishment without checking out with the operator, the owner may hold the operator responsible for the money due. Therefore, the employee is encouraged to guard against patrons leaving without paying and also to see that the stop-time is marked on each card promptly after he determines that play has ended at the corresponding table.

A sampling circuit 14 in panel 10 periodically samples the circuitry of lights L1 to L6 to "see" which of the lights are energized. During each sampling, for each light that is on, circuit 14 emits a pulse to a pulse counter 16. Counter 16 then counts the number of pulses received during each sampling and gives a digital display of the total count. The increase in the count displayed by counter 16 over a given period represents the total number of illuminated table minutes for that period. This figure should be proportional to the gross receipts for that period, assuming that rental fees are based on an equal charge per unit time for all tables 1-6.

Thus, the cards 13 give the parlor owner a permanent, accurate record of the rental periods at the various tables for the day. Using these or the indication on counter 16, he can compare the total play time with the cash receipts turned over to him by his employee to be sure that he is getting all the money that is due him.

Referring now to FIGURE 2, control panel 10 comprises six identical sections 10a-10f, one for each of lights L1 to L6. These sections are connected together and to time stamp 12 by means of three busses 17, 18 and 19. For ease of illustration we have shown in detail only one of these sections, namely section 10a.

Section 10a includes a relay coil 20 controlling a pair of normally open relay contacts 20a and 20b. The cathode 22 of a diode 24 is connected to one end of coil 20. The cathode 26 of a similar diode 28, is connected to the other end of coil 20 and also to ground via a resistor 29. Pilot light P1 is connected directly across coil 20 and is lit whenever the coil is energized.

The anodes 30 and 32 of diodes 24 and 28 are connected via normally open pushbutton switches S1 ON and S1 OFF, respectively, to buss 18. They are also coupled by way of isolating diodes 34 and 36, respectively, to buss 19, diodes 34 and 36 passing forward current to the buss.

Buss 17 leads to a D.C. source in time stamp 12, illustrated here by a battery 50. Buss 18 is also connected to battery 50, but by way of a normally open switch 52 in the time stamp. Switch 52 is closed when a card 13 (FIG. 1) is inserted into the stamp.

Relay coil 20 and pilot light P1 are energized by battery 50 only when switches 52 and S1 ON are closed simultaneously. When energized, the coil closes contacts 20a and 20b. The contacts 20a control the power for lights L1. The contacts 20b are holding contacts that keep the coil 20 energized when the operator releases the S1 ON button or the card 13 is removed from stamp 12.

To turn off the lights L1, switch 52 and switch button S1 OFF are closed simultaneously; the voltage from battery 50 is then also applied to the end of coil 20 connected to diode 28. With both ends of the coil 20 at the same potential, there is no longer any current flow through the coil and contacts 20a and 20b open, shutting off lights L1. The pilot light P1 goes off as well.

Buss 19 is connected via a delay network 54 in time stamp 12 to one end of a relay coil 56 whose other end is grounded. Coil 56 operates a normally open relay contact 56a which is connected to control the actuation of time stamp 12. More particularly, contact 56a is con-

nected in the line between the stamp's main solenoid 58 and an A.C. power source 60. When switch 52 is closed, together with either switch S1 ON or S1 OFF, coil 56 is energized by battery 50. This closes contacts 56a and solenoid 58 then impels a stamp plunger 62 against card 13. This presses card 13 against a conventional clock-controlled, inked stamp 64 having time and date wheels which print the correct time on card 13.

The main purpose of diodes 24 and 28 in section 10a is to block current flow from buss 17 by way of contact 20b to buss 19. In the absence of these, relay coil 56 would remain energized even after switch S1 ON is opened and stamp 12 would not release card 13. In addition, diodes 24 and 28 prevent the shorting out of coil 20 in the event switches S1 ON and S1 OFF are inadvertently closed simultaneously without a card 13 in stamp 12, which occurrence would shut off lights L1.

The diodes 34 and 36, on the other hand, prevent a signal on buss 19 generated in one section of panel 10 from closing the relay 20 in another section.

Delay network 54 is used if stamp 12 is a usual type which automatically opens the card sensing switch 52 when plunger 62 strikes the card. Otherwise, it may be dispensed with. Network 54 simply delays the energizing of coil 56 for a very short time until control panel 10 has completed turning the particular lights on or off, as the case may be. It includes a resistor 70 connected between buss 19 and coil 56. A diode 72 and series connected capacitor 74 are connected across coil 56 and a resistor 76 is connected across capacitor 74. Diode 72 is included to prevent a similar delay in the opening of contact 56a when switches 52 and S1 ON or S1 OFF are opened. It does this by preventing the capacitor 74 from discharging through coil 56. Another diode 80 is connected directly across coil 56 to protect diode 72 from current transients.

Similar elements in sections 10b to 10f are connected to busses 17, 18 and 19. They control their corresponding lights L2 to L6 upon the coincidence of the closing of switch 52 and one of switches S2 to S6 (ON or OFF) in exactly the same fashion described above.

Still referring to FIGURE 2, anode 22 of diode 24 in each section 10a to 10f is coupled to sampling circuit 14 which periodically samples the voltage across each coil 20. Circuit 14 comprises a circular array of normally open, quick-return reed switches R1 to R6. Each reed switch is connected between the counter 16 and the correspondingly numbered section of panel 10. A magnet 84 mounted on an arm 86 is rotated by a motor 88. The magnet is arranged to periodically close switches R1 to R6 in sequence. For example, if motor 88 rotates at one r.p.m., each switch would close briefly once each minute.

If the coil 20 in a given one of sections 10a to 10f is energized when the corresponding one of switches R1 to R6 is closed, a voltage pulse is coupled to counter 16. Otherwise, no such pulse appears at counter 16. Thus, the number of pulses emitted by circuit 14 each minute indicates how many of lights L1 to L6 are on during that interval. Counter 16 is a conventional pulse counter which gives a digital indication of the total number of pulses emitted by the sampling circuit. A diode 92 is connected across the counter to protect the reed switches from transients.

If, for example, tables 1-3 are illuminated, counter 16 increases its count by three numbers per minute. Then, if tables 4-6 are also illuminated, the count would increase by six numbers per minute. Thus, over a given time the count increase corresponds to the total number of "illuminated table minutes." From this the owner can compute what the establishment's gross receipts should be for that period. This assumes an equal charge per unit time for each table in the establishment.

With the system, a patron cannot commence playing unbeknownst to the operator. This is because all of the tables in the establishment are either being used or are

not illuminated, in which case proper play is not practicable. Before play can begin at a given table, the operator must first select and stamp a time card for that table. Similarly, when each transaction is completed, this fact is also permanently recorded on a card. While it is possible for a person to leave the establishment without paying, the operator is encouraged to guard against this for the reasons noted above. In any event, there is minimum likelihood of the wrong patron being charged for that unpaid rental. This is because the lights at that table and corresponding pilot light will remain lit, so that the operator will not assign another patron to that table without first turning off the table light and then turning it on again to begin a time card for the new patron.

Thus, the system gives the owner a permanent record of the play time at each and all of the tables in the establishment and discourages patron and employee dishonesty. Also, from the counter 16, the owner is apprised quickly of the expected receipts for the day. Further, by observing the count increase on counter 16 at various times, the operator and owner can tell immediately when during the day business starts to increase or slack off. This information is useful to anticipate patron needs.

While we have described the invention with reference to the game of billiards, it is obvious that the same techniques can be employed to keep a tally of the hire of the various courts in a squash or tennis club or of the several slots in the track in a slot car parlor by totalizing the times each slot is energized. In short, it has applications in any establishment where players are constantly coming and going and where it would be impractical for the operator of the business to make periodic on-the-spot checks of each separate game area in the establishment.

It will thus be seen that the objects set forth above, among those made apparent from the preceding description, are efficiently attained and, since certain changes may be made in the above construction without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

Having described the invention, what is claimed as new and sought to be secured by Letters Patent is:

1. A game play tally system for indicating the elapsed time that each of a plurality of play areas has been in use comprising

- (A) a plurality of play areas for hire, each play area having an active playing surface for the reception of game elements thereon,
- (B) an illumination source adjacent each play area and required to be energized before play can commence in the play area,
- (C) first time indicating means adapted to be connected in circuit with each said source for providing an indication of the time during which each said source is energized,
- (D) means for switching selected ones of said sources and said indicating means into and out of active circuit relation with each other, and
- (E) second time indicating means connectable in circuit with each of said sources and responsive to the energization of each of said sources to provide an indication of the total elapsed time during which all said sources have been energized.

2. A game play tally system according to claim 1 in which said second time indicating means comprises means for periodically sampling the state of each source to cause said second indicating means to increase its count by a predetermined amount for each said source which is energized during the sampling period.

3. A game play tally system according to claim 2 in which the sampling means comprises a driven rotary switch having a selector arm connected to said second

indicating means and having a plurality of contact elements, each contact element being in circuit with one of said sources and being periodically connected with said selector arm whereby the second indicating means is periodically connected to each of the sources.

4. A game play tally system according to claim 3 in which said second time indicating means provides a direct digital indication of the playing times which it monitors.

5. A game play tally system according to claim 1 which includes a recorder adapted to be connected to said first time indicating means to record the reading thereof at selected times whereby a permanent record of the rental due for use of a given table may be generated.

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