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JACKPOT ARRANGEMENT FOR POKER MACHINES

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4 Sheets-Sheet 1

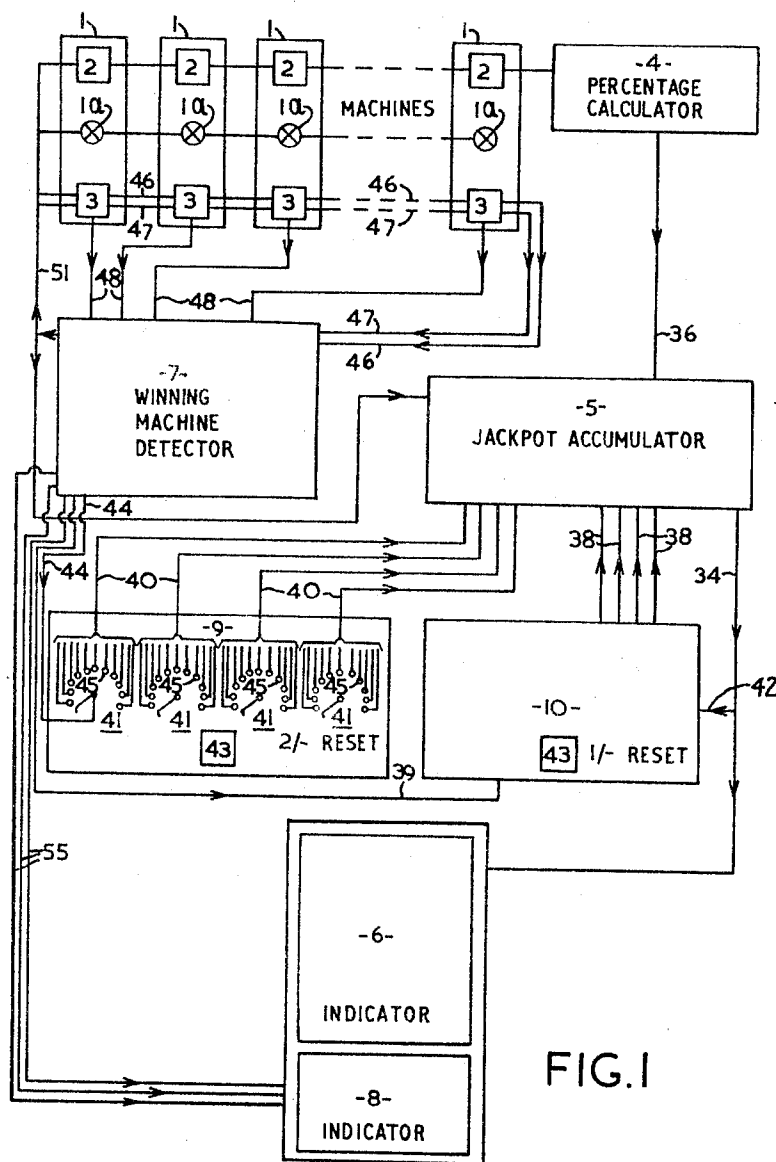


FIG. 1

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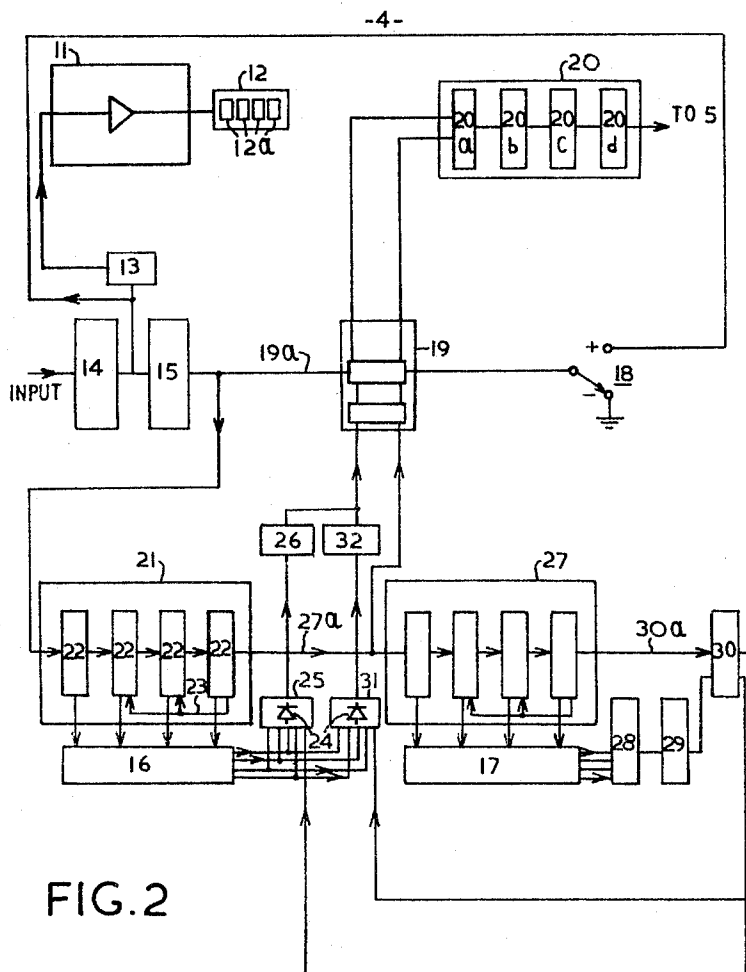


FIG.2

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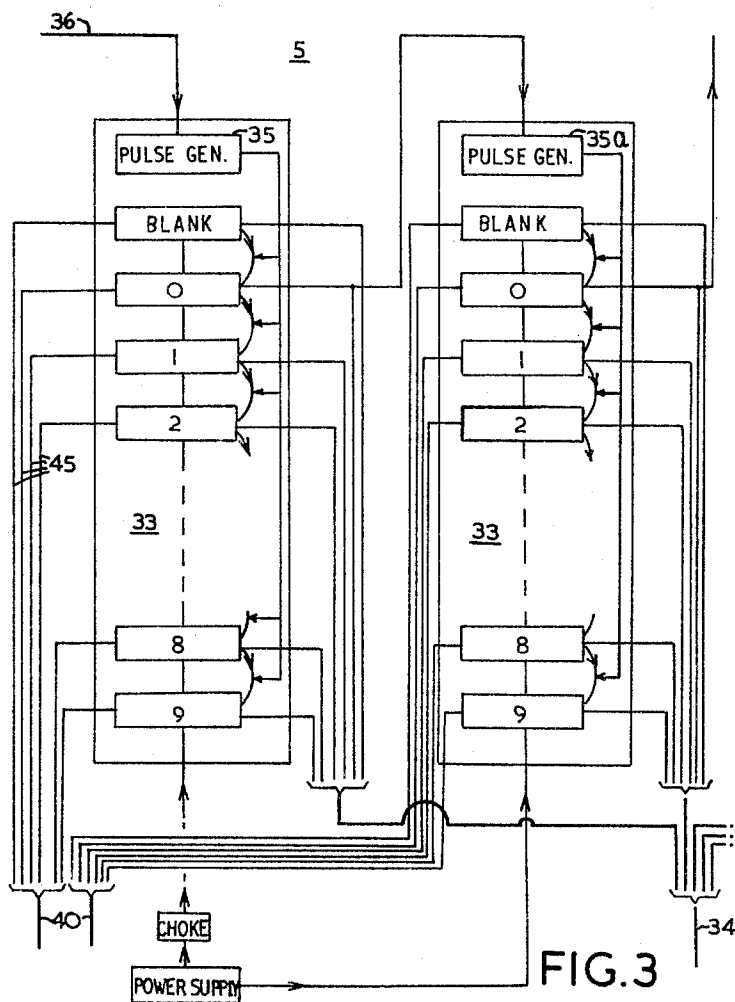
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4 Sheets-Sheet 3



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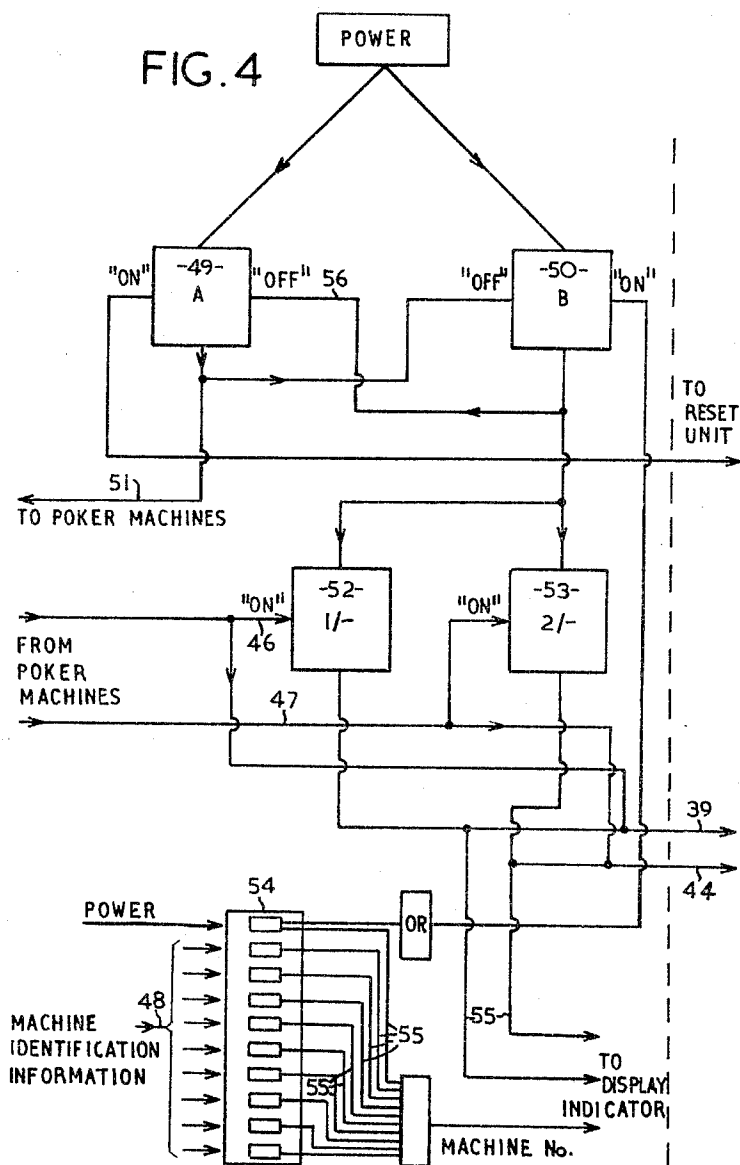
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JACKPOT ARRANGEMENT FOR POKER MACHINES

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4 Sheets-Sheet 4



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JACKPOT ARRANGEMENT FOR POKER
MACHINES

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39,181/63

13 Claims. (Cl. 194—1)

The invention relates to apparatus for deriving an accumulating jackpot for poker, fruit or other like gaming machines which is payable on any one of a plurality of such machines. In effect an accumulation of a percentage of the total investments on all machines is thus intended for payout as a "jackpot" to the first one of the machines indicating a predetermined jackpot winning combination.

This system may be included as an adjunct to the normal payouts of any individual poker machine in the group, thus giving an additional incentive to the player, and, therefore, also increasing the profit of the machine operator, for example, a club.

It is an object of the invention to provide apparatus of this nature which will automatically and reliably function with normal use of the gaming machines.

Another object is to require a minimum of modification to the gaming machines to which the apparatus is to be applied.

Furthermore, it is an object that the functions of the apparatus be provided through the use of electrical or electronic components preferably of so-called "solid state" construction, whereby durability of adjustment, and ruggedness are assured.

A further object is to provide in apparatus for deriving an accumulating jackpot for poker, fruit or other like gaming machines, a percentage calculating unit having a main electronic control gate for relay of values to an accumulator, with automatic switching means for the gate to permit passage of a predetermined proportion of the values signalled from the machines.

Another object of the invention is to provide manually adjustable resetting means for the main accumulator which, when resetting of the accumulator is required relays back thereto signals to reset the accumulator at a value representing the minimum jackpot payable.

The construction of apparatus according to the invention will be better understood from the following description with reference to the accompanying drawings, in which:

FIG. 1 shows in the form of block schematics the general overall function of apparatus of the invention;

FIG. 2 shows in greater detail the construction of a percentage calculator for use with the overall system;

FIG. 3 by block diagram illustrates the form of jackpot accumulator to be used with the system of FIG. 1; and

FIG. 4 is an illustration of a form of winning machine detector suitable with the system.

Throughout the drawings there is illustrated a single embodiment which assumes connection of the apparatus of the invention to a series of poker machines 1 some of which accept coins or tokens to the value of one shilling (1/-) and other coins or tokens to the value of two shillings (2/-). Each machine is modified to include an investment pulse generator 2 and a jackpot winning combination detector 3.

The output of the various pulse generators 2 is fed into a percentage calculator 4 which determines how much of the investment (i.e. value of the coins tendered to each machine 1) is to be set aside for the accumulating jackpot. Signals derived from this percentage calculator 4 are then electrically transferred over wire 36 to a jackpot accumulator 5 which may or may not control display on a suitable

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visual display indicator 6 of the total of the accumulated percentage of investment available for the jackpot at any instant.

The winning combination detectors 3 of each machine 1 of the group are electrically connected to a winning machine detector 7, via leads 46 and 47, which is operated from any one of the machines 1 when the latter shows the predetermined winning combination. The winning machine detector 7 then controls display on the visual display indicator 8 of the identification number of the winning poker machine 1 as well as the basic denomination of this machine for example 2/- or 1/- as the case may be.

The winning machine detector 7 also sends a signal back to the various pulse generators 2 and winning combination detectors 3 of the individual machines 1 so as to avoid continued recording of investments and further winning combinations which may otherwise occur immediately succeeding the first winning combination. It is also possible to give an indication to all patrons advising them to halt any further play until the recorded winning combination has been cleared from the winning machine detector 7.

The winning combination is cleared from the winning machine detector 7 by renewed operation of the winning machine 1. This has the effect of cancelling the visual indication of the machine number and denomination from the indicator 8 and operating one of two reset devices 9 and 10 electrically connected with the winning machine detector 7 and the jackpot accumulator 5 to reset the latter to a predetermined initial jackpot value. At the same time an indication can be given to all players that they may continue play on their machines and they may continue until any one of the machines 1 of the group displays again the particular winning combination.

As referred to above one of the two reset devices 9 and 10 may be operated upon clearing of the winning machine 1. If the machine on which the jackpot has been won operates with a 1/- value coin or token, the clearing signal is relayed to the 1/- reset device 10. The resultant effect is the reduction by 50% of the jackpot visually indicated on indicator 6. On the other hand if the machine involves a 2/- investment per operation, the clearing signal proceeds to the 2/- reset device 9. This device 9 incorporates manually adjustable control switches 41 which provide for a minimum permissible jackpot value to which the jackpot accumulator 5 will restore after receipt at the device 9 of the clearing signal.

The various units are described hereinafter in more detail with reference to the illustrated embodiment of the invention. It is assumed that ten poker machines are combined in one group, some of these machines operating on a 2/- investment basis and some on a 1/- investment basis. Lights 1a are provided at all poker machines 1 of the group indicating whether each machine can be played or whether play should stop until a winning combination at one of the machines has been cleared.

As mentioned above each poker machine incorporates an investment pulse generator 2 which consists of a normally closed magnetically operated mono-stable change-over type switch, the switches of all machines being connected in series so that when any one switch moves off its home contact into the operated position it breaks the series circuit for about two milliseconds during the transit time of the moving arm of the switch and allows a pulse to appear across a load resistor during the absence of current. Preferably the switches are operated by the handle movement of the machine. For this purpose a magnet is fixed to a moving part of the machinery in the poker machine 1 so that in the case of a 1/- machine it approaches and recedes from the switch once per investment or operation. Thus two pulses are formed per operation, one as the switch operates under the increasing

magnetic field and another as it restores under the tension of its spring as the magnetic field decreases. Each pulse, therefore, has an effective value of $6d$. In a 2/- machine the switch and magnet are arranged so that the latter sweeps past and then back. Thus in effect it approaches and recedes twice per operation and thus gives four pulses which are transmitted to the percentage calculator 4. The pulses from the investment pulse generators 2 are fed into the percentage calculator 4. As mentioned, each pulse represents an investment of $6d$ and these pulses pass through a pulse shaping network to a bistable multivibrator (not shown) which halves the number of pulses per investment thus giving a pulse or signal representative of a value of a 1/- investment. As an alternative to the above arrangement, microswitches may be used which, when operated, discharge condensers into a low impedance circuit to form electrical impulses of one microsecond duration. One impulse may be obtained for every operation of a 1/- machine, and two impulses for every operation of a 2/- machine.

The generated pulses, in either event are received at the percentage calculator 4 by a multivibrator 14 which halves the number of pulses from the machines 1, so that the output therefrom are pulses of which each one represents every 2/- investment, which is the basic unit for which the calculator is designed. These pulses may, if desired, be fed via a suitable amplifier arrangement 11 to a mechanical counter 12 which will then indicate the total investment of the combined poker machines in 2/- units. An additional decade counter 13 may be provided so that counter 12 will then indicate in £ units the total investments at any instant. A second bistable multivibrator 15 is connected in series with the bistable multivibrator 14 thus further halving the number of pulses in order to allow for the recording of $\frac{1}{2}\%$ steps. This is done with the aid of two ten-position switches 16 and 17 and one change-over switch 18 as will be explained more fully hereafter. The multivibrator 15 also serves to space out the final output pulses in time to give a more uniform rate of increase in the jackpot amount. Each pulse derived from the bistable multivibrator 15 represents, therefore, 50% of the total investment made at the poker machine (one pulse only being derived from every 4/- invested). These pulses are then passed via lead 19a through an electronic gate 19 and an amplifier arrangement 20 to the jackpot accumulator 5. The amplifier 20, preferably, contains a combining "ALL" gate 20a, a pure amplifier 20b, a pulse shaping unit 20c, and a power amplifier 20d.

In order to provide for other percentages than 50%, however, the path through the gate 19 can be broken for certain periods so as to reduce the number of pulses transmitted and thus to reduce the effective investment percentage below 50%. It is also possible to increase the percentage above 50% by adding pulses between the 50% pulses.

In order to do this the 50% pulses from the multivibrator 15 are also fed into a decade counter 21 consisting of four multi-vibrators 22 with feed back diodes 23 which count the pulses and give one output pulse for every 10 input pulses or $\frac{1}{10}$ of 50% = 5% of investment units. Each of the multi-vibrators 22 also feeds the combined selector switch 16 which can select any digit in the count of 10 and feeds its output through 4 negative biased diodes 24 in parallel giving an electronic gate 25 (which will reproduce the logic of the word "and") and an emitter follower amplifier 26 to give a second output which is spaced in time from the 5% output by twice the number of units of investments shown on the selector switch 16. For example, if the switch 16 is set on "2" then after the completion of a group of 10 and the appearance of a 5% pulse, it will be necessary for the counter 21 to reach 2 before the second pulse appears.

Now if these two spaced pulses are applied to the main controlling gate 19 so that the 5% pulse turns it off and

the adjustable delayed pulse turns it back on, then this provides a means of omitting the number of pulses shown on the switch 16, in every ten pulses passing through the calculator 4. For example, with the switch 16 on "2" two pulses in every 10 are blocked, i.e. only $\frac{8}{10}$ of the pulses are transmitted and since these pulses are only 50% of the invested units the final output is $\frac{8}{10}$ of 50% = 40%. Thus the numbers on the 5% decade selector switch 16 represent the number of 5%'s omitted from 50%, or in order to determine the output 5 times the number of units set on the switch is subtracted from 50%.

If a higher percentage than 50% is to be transferred to the jackpot accumulator 5 the same arrangement can be used. A switch 18 is provided which connects the output of the multivibrator 14 (one pulse for each 2/- investment) to the main controlling gate 19. Thus pulses at the 100% rate are introduced during the periods where previously pulses were omitted to replace the 50% pulses and to add an extra pulse between each 50% pulse, so that the setting of the selector switch 16 now represents the number of 5% pulses added to the 50% pulses.

The percentage calculator 4 as described above will give outputs in 5% steps between 0% and 100%. A more precise control is, however, required and in order to do this a further decade counter 27 identical to the counter 21 referred to above, is driven from the 5% output pulses of the first decade counter 21 over wire 27a. Thus every output from this further decade counter 27 is $\frac{1}{10}$ of 5% or 0.5%, and the output from its selector switch 17 is spaced therefrom by the number of $\frac{1}{2}\%$ steps indicated on it. The $\frac{1}{2}\%$ output therefore is used to increase the effective setting of the selector switch 16 on the first counter 21 by one for the number of decades shown on the selector switch 17 of the second counter 27 at which point it is restored to normal. For example if the first selector switch 16 is on "2" and the second switch 17 is on "5" then the first switch will block 2 pulses in 10 but on 5 of the occasions in every 10 it will block 3 instead of 2. Hence in a group of 100 it will block 5 times $3 + (10 - 5)$ times $2 = 15 + 5$ times $2 = 15 + 10 = 25$ pulses. This means that the number transmitted is 50% minus 25 in every 100 of these 50% pulses or $50 - 25/100$ times $50 = 50 - 12.5 = 37.5\%$. Thus the setting on the second selector switch 17 will represent the number of $\frac{1}{2}\%$'s omitted in addition to the number of 50%'s referred to earlier.

The $\frac{1}{2}\%$ pulses can be added, if required, in the same way as described above for the 5% pulses for percentage values above 50%. The decade counter 27 for the $\frac{1}{2}\%$ operates over a circuit including a negatively biased diode "and" gate 28 which sends a signal from the corresponding selector switch 17 to a grounded emitter inverter amplifier 29 and from there to a bistable multivibrator 30 which serves as a memory. This multivibrator has a second input 30a directly connected with the output of the decade counter 27, which controls the multivibrator 30, so that the latter alternates between an "on" and "off" condition. In the "off" position an additional pulse is sent into the gate of the 5% decade counter 25 which operates normally as described above. In the "on position," however, this additional pulse is not present. An alternative path through a further gate 31 is opened instead which connects to a grounded emitter transistor amplifier 32 and the gate 19 of the calculator is now switched, not when the pulse appears, but when the pulse is removed, i.e. one pulse later. This gives the desired extra period during which the gate is operated to effect the % indication.

As above stated the pre-arranged percentage of investment pulses is transferred to the jackpot accumulator(s) which contains five decade ring counters 33 (two of which are shown in FIG. 3) to provide a total capacity of £9,999.18.0 in 2/- steps. Each counter has eleven output connections 34 which correspond to the digits 0 to 9 re-

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spectively and a blank so that an indicator connected therewith will show the actual amounts without any naughts for the first digits if the total is below £1000. The stepping of the counters is carried out by individual stepping pulse generators 35.

The pulse generator 35 for the lowest (2/-) decade counter 33 receives the pulses from the percentage calculator 4 via wire 36 and the pulse generators of subsequent decades 35A are controlled from the setting of the preceding decade counter 33. This is in respect of the carry function as a counter steps on to zero.

The output connections from all decade counters are taken to an indicator 6 via wire 34 or further display units and also to a 1/- reset unit 10, which is also connected to the input side of the jackpot accumulator 5 via wires 38 (which joins input 40, see FIG. 3) and the winning machine detector via wire 39, which will be described hereafter.

A 2/- reset unit 9 is also connected between said winning machine detector 7 and the input of the jackpot accumulator 5 via wires 44 and 40. The 1/- reset unit 10 and the 2/- reset unit 9 are operated respectively by a pulse received from the winning machine detector 7 depending on whether the winning poker machine was a 2/- or 1/- machine. In the case of a 2/- machine the jackpot accumulator 5 is reset to a predetermined minimum value, which can be manually preset by means of control switches 41 connected with the 2/- reset unit 9. In the case of a 1/- poker machine winning the jackpot only half of the indicated amount will be paid out, while the other half remains as a starting value. The 1/- reset unit 10 has, therefore, to reset the jackpot accumulator 5 to half of the value which was recorded in the accumulator at the time at which the 1/- machine struck the winning combination. This is achieved by feeding the output of the jackpot accumulator 5 back into the 1/- reset unit 10, as mentioned above via wire 42.

Both reset units incorporate a pulse generator unit 43 which is fired by a corresponding pulse from the winning machine detector 7 via wire 44 or 39, respectively. In the case of the 2/- reset unit 9 this new pulse is split into four isolated pulses which are fed into four control switches 41 set in accordance with the four digits of the starting value for the jackpot. The shilling amounts are always reset to 0. The switches route each pulse to one of eleven wires leading to the eleven inputs 45 of the decade counters 33 (FIG. 3) to reset them accordingly.

In the case of the 1/- reset unit 10 the newly created pulse is applied to four interconnected logic circuits (not shown) which are in turn connected to the inputs and outputs of the four decade counters 33 via wires 38. Each logic circuit performs a dividing function by means of a plurality of biased diode logic gates so that the jackpot accumulator 5 is reset to half the value of the previously recorded jackpot.

The visual indicator 6 operated by the jackpot accumulator 5 can be of known design to display the numerals representing the setting of the decade counters 33. It is, however, advantageous to use a special indicator (not shown) which consists essentially of a printed circuit for each decade counter 33 supporting a matrix of indicator lamps switched by the accumulator setting. Each numeral will be represented by a chain of lamps outlining the shape of the numeral. Groups of lamps occurring in a plurality of numerals can be electrically combined to simplify the circuits.

To give the required information, when a poker machine of the group has selected a winning combination each poker machine is provided with a winning combination detector 3.

The winning combination detector 3 consists of a change-over switch similar to that described above for each pulse generator 2 and operated by a magnet which is attached to one of the payout fingers of the poker machine such that when a winning combination occurs this

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finger passes through the holes in the conventional payout plates and allows the magnet to approach the switch. When the machine is next operated, the finger and attached magnet are restored and the switch allowed to return to its rest position.

The wires 46 and 47 pass through each machine corresponding to the two denominations (2/- and 1/-) used and the detectors 3 are connected in the wires respective to the machine's particular denomination; hence providing the relevant input information to the winning machine detector 7. From each detector 3 a separate lead 48 is returned to the winning machine detector 7 to give machine number identification of the winning machine.

The winning machine detector 7 has two main rectifier units 49 and 50 (see FIG. 4) which direct power to one of the two circuits. In the normal rest position the first rectifier unit 49 supplies power to lamps on the poker machine via wire 51 indicating that they can be played and to the 1/- and 2/- denomination wires 46 and 47 passing through all poker machines of the group. In case a jackpot winning combination appears on one of these machines 1 the potential on the corresponding wires 46 or 47 is altered and prepares a denomination indicator 52 or 53 (which are connected to display unit via wires 55) for subsequent operation. At the same time the altered potential operates a machine identification indicator 54 which as mentioned above has additionally a direct connection 48 to each of the poker machines of the group, so that the number of the winning machine is displayed on indicator 8 via wire 55. The second rectifier unit 50 is operated simultaneously with the identification indicator 54 to release the first rectifier unit 49, via wire 56, thus extinguishing all lamps 1a at the poker machines to indicate to patrons not to continue with further play, and changing the potential on the denomination wires 46 and 47 so that no further wins can be transmitted to the winning machine detector 7. Over this second rectifier circuit 50 power is now supplied for the denomination indicator 52 and 53 and any other visual or audible indicator required to signal that a winning combination has been struck on one of the machines 1.

When the winning combination is removed from the corresponding poker machine 1 by renewed operation of the machine the potential on the corresponding denomination wires 46 and 47 is restored and a pulse is transmitted to the 1/- or 2/- reset unit 10 or 9 of the jackpot accumulator 5 to reset the latter as described above. A pulse from the operated reset unit 9 or 10 releases the second rectifier unit 50 and re-operates the first rectifier unit 49, so that now all circuits will be restored to their normal condition ready for further play on the poker machines.

If required an emergency power supply in the form of a battery can be provided which automatically comes into operation, when the main power supply fails, to maintain the various circuits in their relative conditions. Thus on restoration of the main power supply all electrical conditions existing prior to the failure will be restored and no faulty indications can occur.

What I claim is:

1. Apparatus for deriving an accumulative jackpot for plural poker, fruit and other like gaming machines, said apparatus comprising means for generating signals representative of the value of coins and tokens invested in the machines, an accumulating device for totalling and recording the values signalled thereto, a relaying unit receiving said signals and having means for transmitting to said accumulating device signals representing a total value which is a predetermined proportion of the total value of said received signals, means for generating and connecting to the accumulating device a reset signal in response to a function connected with a jackpot winning combination on any one of the gaming machines, and means for cancelling the recorded total value in the accumulating device upon receipt of the reset signal.

2. Apparatus according to claim 1, wherein there are two alternative means for relaying the reset signal to the accumulating device, each of said means being responsive to respective groups of machines, each machine of one group accepting the same value of coin and token which is of different value to the value of coin and token accepted by all of the machines of the other group.

3. Apparatus according to claim 2, wherein the value of one coin is double the value of the other, and the reset relaying means responsive to the group of machines accepting the larger value coin comprises a device for deriving signals which when transmitted to the accumulating device causes it to record a predetermined value.

4. Apparatus according to claim 3, wherein said signal deriving device includes manually adjustable switches thus providing for preselection of the value of a minimum jackpot payable on the machines.

5. Apparatus according to claim 2, wherein the reset relaying means responsive to the group of machines accepting the lower value coin comprises means for signalling to the accumulating device to cause it to record a value which is half the value of the total previously recorded therein.

6. In apparatus for deriving an accumulative jackpot for plural poker, fruit and other like gaming machines, the combination of signal generators on each machine for producing signals representative of the invested values of coins, a percentage relaying unit having a controlled electronic gate through which the said signals are relayed, a preset controlling circuit for opening and closing the gate and connected to the incoming signals so that only a percentage of said signals pass said gate, an electronic accumulating device receiving the relayed signals from the relaying unit, visual display means for the total value recorded in the accumulating device, further signal generators in the machines for indicating a jackpot winning combination, and means for responding to the signals from said further generators to indicate the win at all other machines and to transmit a reset signal to said accumulating device.

7. Apparatus as claimed in claim 6 wherein a second visual indicator is provided which responsive to signals emanating from the machines displays the identity, and value of the operating coin of the winning machine.

8. Apparatus as claimed in claim 6, wherein the accumulating device contains a plurality of decade ring counters each recording a different digit of the jackpot value.

9. In apparatus for deriving an accumulating jackpot for plural poker, fruit and other like gaming machines, the combination of signal sources at the machines, an accumulating device for said signals, means for providing a visual indication of the totalled value, and a percentage calculating relaying unit connecting the signals from said sources to said accumulating device, said relaying unit comprises an electronic gate, a switching circuit for said

gate, input means to the gate halving the frequency of applied signals in the form of pulses to be relayed through the gate, means for controlling the operation of the switching circuit according to a prearranged sequence whereby a predetermined proportion of the pulses applied to the gate through its input means are relayed through the gate and to the accumulating device to represent a percentage of the invested total value which is less than 50%.

10. Apparatus according to claim 9, wherein a connection is provided around said input means to an inlet to the gate through a switch which when operated increases said percentage relayed to the accumulating device in excess of 50% of the total investments on the machines.

11. Apparatus according to claim 10, wherein the switching circuit for the gate comprises a binary decade counter interconnected with a decade selector switch.

12. Apparatus according to claim 11, wherein a second binary decade counter and associated decade selector switch are provided and interconnected with the first-mentioned binary decade counter to provide for finer adjustment of the percentage value relayed.

13. Apparatus for deriving an accumulative jackpot for plural poker, fruit and other like gaming machines, said apparatus comprising signal generators in individual machines indicating with each signal the value of each invested coin, a percentage relaying unit receiving all signals as pulses and having an electronic control gate for passing signals through the unit, switching means for alternately turning the gate "ON" and "OFF", means for presetting the frequency of switching relative to the frequency of incoming pulses so as to pass through the gate only a predetermined percentage of received signals, an accumulating device receiving the pulses delivered from the relaying unit, means responsive to the state of the accumulating device for visually displaying the total value of a jackpot payable on any one of the gaming machines, means at each machine for developing a signal indicative of the occurrence of a jackpot winning combination on one of the machines, means responsive to said winning signal to provide an indication at all other machines of the said occurrence, means for restoring the accumulating device to a normal condition after said occurrence, and manually adjustable means through which a reset signal for said accumulating device is sent to effect recording therein of a minimum value of the jackpot.

References Cited by the Examiner

UNITED STATES PATENTS

2,044,320	6/1936	Norris	273—143
2,057,651	10/1936	Mills	194—1

EVON C. BLUNK, *Primary Examiner*.

S. H. TOLLBERG, *Assistant Examiner*.