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PATENT SPECIFICATION

1,072,381

DRAWINGS ATTACHED

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Int. Cl.:—G 07 f 17/34 // A 63 f, G 07 d

COMPLETE SPECIFICATION

Coin Operated Mechanism

We, MAR-MATIC SALES LIMITED, a Company registered under the Laws of Great Britain of 31—35, Kirby Street, Hatton Garden, London, E.C.1. do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to coin operated mechanism in which different numbers of coins are paid out in dependence on the setting of the mechanism. An example of such mechanism is a coin operated gaming machine of the kind known as a fruit machine, or a coin counter or a change giver.

Coin operated mechanism according to the present invention includes a hopper, a dispenser for paying out coins from the hopper, a counter of coins dispensed, means for automatically setting a number of coins to be dispensed in dependence on the instantaneous positions taken up by one or more mechanical components following insertion of a coin for operation of the mechanism, and a switch arranged to stop operation of the dispenser when the set number of coins has been counted.

In the past, coins in the machine have been stacked in tubes of perhaps twenty coins and when it is desired to pay out a certain number of coins as a result of a certain winning combination having been established by a player, an appropriate mechanically operated or solenoid operated pusher pushes the appropriate number of coins off the stack of coins to a delivery passage. It is only practical to deliver up to about twenty coins in this way and since it is often desirable to provide a machine which will pay out large numbers of coins it has been the custom to provide a jackpot in which a random number of coins is collected as the machine is played.

The preferred electrical coin counter used in the present invention can however, count hundreds of coins in a very short time so that it becomes possible to pay out a precisely determined large prize. It is then only necessary for the setting means to be set to the appropriate large number when the winning combination of mechanical parts has been set up.

Coins for operating the mechanism will be arranged to fall into the hopper which will thus always be charged, and any overflow can fall into the collecting trough.

The setting means conveniently comprises a rotary device bearing a number of angularly disposed electrical contacts, which device can be set so that it has to be stepped—for example by a stepping relay using pulses derived from the counter in response to coins counted — through a set number of contacts. The set number can be selected by operation of an appropriate electrical switch in response to the positioning of the mechanical components.

The coin dispenser is conveniently driven by an electric motor which is de-energised when the set number of coins has been dispensed and the hopper, dispenser, and motor may be in one part of the machine, being merely connected through electrical connections with the automatic setting means in another part, preferably the upper part of the machine.

The invention may be carried into practice in various ways and one embodiment will now be described by way of example as applied to a conventional fruit machine.

Reference will be made to the accompanying drawings in which Figure 1 is a rather diagrammatic section of a hand operated fruit machine having three rotating drums 11 each bearing around its circumference a number of fruit or other symbols. The drums are rotated when a handle 12 is operated and come to rest in arbitrary positions, with each having one symbol opposite a viewing window. Depending on the particular combination of symbols displayed a prize may be won by the player or not.

[*Price 4s. 6d.*]

SPECIFICATION AMENDED - SEE ATTACHED SLIP

Price 5s. 0d.

Figure 2 of the accompanying drawings shows a front view in section of the lower half of the machine shown in Figure 1 and in particular shows at 13 a coin counting mechanism for controlling the number of coins paid out when a prize is won. Certain conventional parts of the equipment are omitted in the interests of clarity.

Figure 3 is a circuit diagram of a slightly modified machine.

Referring to Figure 1, coins fed into the machine pass through a chute 14 directly into a collecting trough 15 forming a part of the coin counting mechanism 13. This mechanism includes a plate 16 which can be rotated by a motor 17 to carry coins 18 from the trough 15 around to a micro switch 19, acting as part of a counter.

For this purpose the plate is formed with an annular recess around its rim divided off by small studs 21 into a number of sectors in each of which a coin can be accommodated. As the plate rotates coins from the trough naturally fall into position in the individual sectors and are rotated with the plate past a mechanical coin detecting lever 22 which operates the microswitch 19.

A pick-off knife 20 guides the coins into the pay-out pocket 28, and is only wide enough for one coin to pass over it to the pocket at a time.

A leaf spring 20^1 and a finger spring 20^{11} extending beside the coins position coins correctly in their sectors.

The plate 16 has a number of conical members 16^1 just below the annular recess which serve to stir up the coins in the trough 15 and prevent excess build up on one side. and the trough is formed with a baffle 15^1 which prevents excess coins from overloading the plate 16. In this way a small trough can carry a maximum of coins without overloading the plate.

Every time the micro switch 19 is operated by the lever 22 an electrical pulse is transmitted over conductors 23 to an operating coil on a stepping relay or rotary switch device 24 having rows of spaced contacts 33, 34, 35, and three corresponding wipers, 36, 37, 38 so that each coin counted turns the wiper assembly 36, 37, 38, of the relay 24 through one switch contact. In this way when coins are being counted, the wiper assembly is turned until one of the wipers reaches an end or zero position shown at 26 in Figure 1, in which position the wiper in question disengages from the energised row of contacts to disconnect or declutch the motor 17 and stop the further operation of the coin counter. At the same time a stop is dropped across a chute 27 for the counted coins to prevent further coins being delivered. The chute in fact delivers coins to a pay-out pocket 28 whence the operator can take his prize.

The rotary switch device 24 is set to three given prize values depending upon the positions taken up by the three drums 11, and this acts as an automatic setting device for the coin counter.

After the machine has been played, a number of mechanical feeler devices, one of which is shown at 29, are moved to co-operate with three steel plates 30, each of which is connected to be driven with one of the three drums 11. These plates have in them openings at certain positions permitting the respective feeler 29 to passs. Only when one of the selected winning combinations is achieved do three holes in the three plates 30 come into line opposite one of the feelers 29 to allow it to penetrate all three plates. When this happens the particular feeler actuates its associated bladeswitch 31 which directs the flow of current to the appropriate row of contacts of the stepping relay 24, the number of contacts energised having been previously determined in dependence upon the value of the prize to be awarded for the particular combination achieved.

Each feeler device 29 has its own switch 31 which is actuated only when the respective feeler penetrates all three plates 30, as determined by the winning combination assumed by the drums 11 when they come to a complete stop.

As soon as a blade switch 31 is actuated, and as long as the wiper it is controlling is still on a joined row of contacts of the stepping relay 24, then the coin counter will continue to deliver its prize and to advance the wiper assembly of the relay 24 one position per coin delivered until the particular wiper goes one step beyond the contacts which are energised. When this happens the coin counter ceases its operation as described above.

Thus, when one of the winning combinations is achieved the counter counts out the appropriate number of coins from the trough 15 and these are delivered as the prize. Then when the next coin is inserted, after a payout, and the handle 12 is depressed by the operator for another play, a switch on the mechanism is energised and resets the stepping relay to its normal position.

A diagrammatic circuit of the main electrical connections and componencts of a machine according to the invention is illustrated in Figure 3. The machine in this case is similar to that illustrated in Figures 1 and 2, and corresponding parts are given the same reference numerals, but the setting device is provided with four rings of contacts, and there are five feelers 29 co-operating with the discs 30.

In this circuit the coin dispenser motor 17 is in series with a relay switch 40 whose contacts are actuated by a relay winding 39 arranged in series with four wipers 41, 42, 43, 44. The wipers are driven by a stepping relay 45 in series with the micro-switch 19, which

actuated by the coin detector lever 22. A wiper re-setting relay 46 is in series with a reset switch 47, arranged to be actuated automatically after the machine has paid up a prize.

The four wipers respectively engage four rings of joined contacts 48, 49, 50, 51, having five, eleven, thirteen, and eighteen contacts respectively. Each of the last three rings of contacts is connected to a switch 31 actuated by one of five feeler devices 29. The first ring of contacts 48 is divided into two groups, of three and two, which are connected respectively to the two blades of a double switch 52, actuated by two further feelers, so as to provide in effect either three or five contacts in this row.

Thus when any one of the feelers moves into its operative position by penetrating aligned holes in the discs 30, the corresponding switch 31 or 52 is closed, and current passes through the corresponding wiper to the relay winding 39. This causes switch 40 to close, thus energising the coin counter motor 17. As each coin is counted the switch 19 transmits a pulse to the stepping relay 45 which advances the wipers by one contact. When the particular wiper reaches the end of its ring of contacts the relay winding 39 is de-energised, and the counter halts. The re-set switch 47 then resets the wipers to their start position.

It is to be observed that if a particularly rare combination is required to give a prize of many coins, the sort of prize that is termed a "jackpot", the mechanism can still be arranged to count the appropriate number of coins, possibly one hundred, by operation of the coin counter and stepping relay and thus it is not necessary that the jackpot prize shall be a random number of coins while yet the mechanism for delivering prizes is simple.

If it is desired to change the values of the prizes awarded this can be simply done by replacing the plates 30, or altering the positions of the wiper blades 36, 37, 38 on their driving spindle, without otherwise changing the equipment.

An electrically driven counter 32 can be arranged to be operated every time the wiper assembly moves over a contact step to retain a record of the total number of coins paid out over a period.

A further feature of the invention is that the machine can be used for giving its own change. For example if the machine utilizes sixpences and a user has only a half crown he can insert this in a "half crown slot" in the machine and a simple mechanism can be arranged so that when the half crown is inserted the wiper 41 is turned through five contacts with the result that five sixpences are counted out from the trough 15 to give the player his coins for playing on the machine.

Alternatively, the insertion of the half crown can operate a release mechanism enabling the operator to play five times without inserting further coins.

The lower part of the machine containing the mechanism 15—19 is connected to the upper part containing the playing mechanism through the electrical connections 23, and it is possible for the upper part to be separable with a plug and socket connection, so that the lower part could be used independently as a change-giver and/or a coin counter.

The counter can in any case be used to count the coins when the machine is emptied from time to time.

If it is desired to pay out a large number say 250, coins if a rare combination is achieved, a second stepping relay 24^1 can have a wiper 36^1 set by an appropriate feeler such as 29, and the stepping relay 24^1 can receive operating pulses from a divider 54 receiving the pulses at 23 and passing every tenth pulse to the relay 24^1. Thus 25 steps of the relay 24^1 will represent a payout of 250 coins.

Instead of the mechanically driven wheels 11, light rotary switches can be driven during play to cause images of the fruit symbols to be projected onto viewing screens as the switches rotate. Feelers 29 can detect whether the switch discs finish rotating in positions representing a winning combination, or this could be determined electrically. Thus, different electrical circuits can be arranged to be completed if the switch discs stop in certain positions, and completion of such a circuit can be arranged to have the same effect as closing a switch such as 31.

WHAT WE CLAIM IS:—

1. Coin-released mechanism including a hopper, a dispenser for paying out coins from the hopper, a counter of coins dispensed, means for automatically setting a number of coins to be dispensed in dependence on the instantaneous positions taken up by one or more mechanical components following insertion of a coin for operation of the mechanism, and a switch arranged to stop operation of the dispenser when the set number of coins has been counted.

2. A mechanism as claimed in Claim 1 including at least two independently movable components which become capable of being moved independently in response to insertion of a coin and in which the number (if any) of coins to be dispensed is automatically set in dependence on the relative positions taken up by the components.

3. A mechanism as claimed in Claim 1 in which a mechanical component takes up a position determined by the value or size of the coin inserted to set a number of coins to be dispensed in dependence on the value of the coin inserted.

4. Mechanism as claimed in any of the preceding claims in which coins inserted for operating the mechanism are arranged to fall into the hopper.

actuated by the coin detector lever 22. A wiper re-setting relay 46 is in series with a reset switch 47, arranged to be actuated automatically after the machine has paid up a prize.

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2. A mechanism as claimed in Claim 1 including at least two independently movable components which become capable of being moved independently in response to insertion of a coin and in which the number (if any) of coins to be dispensed is automatically set in dependence on the relative positions taken up by the components.

3. A mechanism as claimed in Claim 1 in which a mechanical component takes up a position determined by the value or size of the coin inserted to set a number of coins to be dispensed in dependence on the value of the coin inserted.

4. Mechanism as claimed in any of the preceding claims in which coins inserted for operating the mechanism are arranged to fall into the hopper.

* C L M S *

5. Mechanism as claimed in any of the preceding claims in which the setting means comprise a rotary device bearing a number of angularly disposed electrical contacts, which device can be set so that it has to be stepped through a set number of contacts in accordance with the desired number.

6. Mechanism as claimed in Claim 5 including a stepping relay arranged to operate the rotary contact device.

7. Mechanism as claimed in Claim 6 in which electrical pulses for stepping the stepping relay are derived from the counter in response to coins counted.

8. Mechanism as claimed in any of the preceding claims in which the number of coins to be dispensed is set by selection of one of a number of electrical switches in dependence on the positions taken up by the mechanical components.

9. Coin operated mechanism as claimed in any of the preceding claims, including a number of feelers arranged to engage the independently movable mechanical components, each feeler being arranged to move into an operative position for setting a number of coins to be dispensed only when the mechanical components each assume a selected position or positions.

10. Coin operated mechanism as claimed in Claim 9 in which each feeler is arranged to energise selectively a series of contacts of the automatic setting mechanism and the setting mechanism comprises a corresponding number of movable wipers or contacts.

11. Coin operated mechanism as claimed in any of the preceding claims in which the independently movable mechanical components are each associated with a series of symbols which are displayed to an operator to provide a visual indication of the instantaneous positions.

12. Mechanism as claimed in Claim 11 in which the mechanical components are arranged to cause different images to be projected on to a viewing screen in dependence on their instantaneous positions.

13. Mechanism as claimed in any of the preceding claims including a manually operated member coupled to the independently movable mechanical components to enable random movement to be imparted to them.

14. Mechanism as claimed in any of the preceding claims in which the coin counter includes a coin detecting element arranged to generate an electrical pulse as it is encountered by each coin dispensed.

15. Mechanism as claimed in Claim 14 in which the detecting element or a pulse derived from it is arranged to advance a movable element of the setting means by one position for each coin counted.

16. Mechanism as claimed in any of the preceding claims in which the coin dispenser is driven by an electrical motor which is energised when a number of coins to be dispensed has been set, the motor being de-energised when the setting device has been advanced through the number of positions corresponding to the set number.

17. Mechanism as claimed in any of the preceding claims in which there is merely an electrical operative connection between the hopper and dispenser on the one hand and the automatic setting means on the other hand.

18. Mechanism as claimed in Claim 17 in which the automatic setting means is in one part of a cabinet containing the mechanism and the hopper and dispenser are in another part of the cabinet.

19. Mechanism as claimed in any of the preceding claims in which the dispenser includes a plate having a peripheral rim divided into sectors for picking up the coins from the hopper and delivering them to the counter.

20. Mechanism as claimed in Claim 19 in which the plate is inclined to the horizontal and the lower edge lies in the hopper.

21. Mechanism as claimed in Claim 19 or Claim 20 in which the plate has proud of its surface and radially inside the peripheral rim, projections for stirring coins in the hopper to prevent jamming.

22. Coin release mechanism constructed and arranged substantially as herein specifically described with reference to the accompanying drawings.

KILBURN & STRODE,
Chartered Patent Agents,
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