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[54] **PLAY CONTROL DEVICE FOR AMUSEMENT GAME**

[76] Inventor: **Xaver Leonhart,** Pilsting/Ndb., 8381 Harburg b., Germany

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[51] **Int. Cl.** **A63b 39/00**

[58] **Field of Search** ..... 273/121 R, 121 A, 121 D, 273/121 E, 126 R, 126 A, 130 R, 130 A, 85 R, 125 A, 125 R, 119 R, 119 A, 119 D, 123 R, 123 A, 124 A, 30; 194/76, 81, 86, 89

[56] **References Cited**

UNITED STATES PATENTS

3,228,688 1/1966 Dennison ..... 273/125 A

Primary Examiner—Richard C. Pinkham
Assistant Examiner—Theatrice Brown
Attorney, Agent, or Firm—Brady, O'Boyle & Gates

[57] **ABSTRACT**

A plurality of tubular sleeves protruding from a plurality of bores positioned transversely across and at right angles to the playing direction of a large playing field of an amusement game effectively obstruct use of the playing field. The protruding sleeves are spring-mounted on a rack assembly which is retracted to effectively wind up a clockwork timer when the release rod of a coin controller is pushed inwardly after insertion of coins in the coin controller. Simultaneously the push rod elevates a plurality of pins through the hollow bores of the sleeves so that their ends protrude above the playing surface to obstruct the same as the ends of the sleeves are retracted below the playing surface, thereby making unauthorized jamming of the push rod to prevent operation of the clockwork timer ineffective. The clockwork timer is constructed to quickly return the sleeves to their protruding positions at the end of a predetermined time period and an alarm circuit is incorporated in the control device to send an alarm if unauthorized play is attempted by pushing the protruding sleeves inwardly without depositing coins.

10 Claims, 2 Drawing Figures

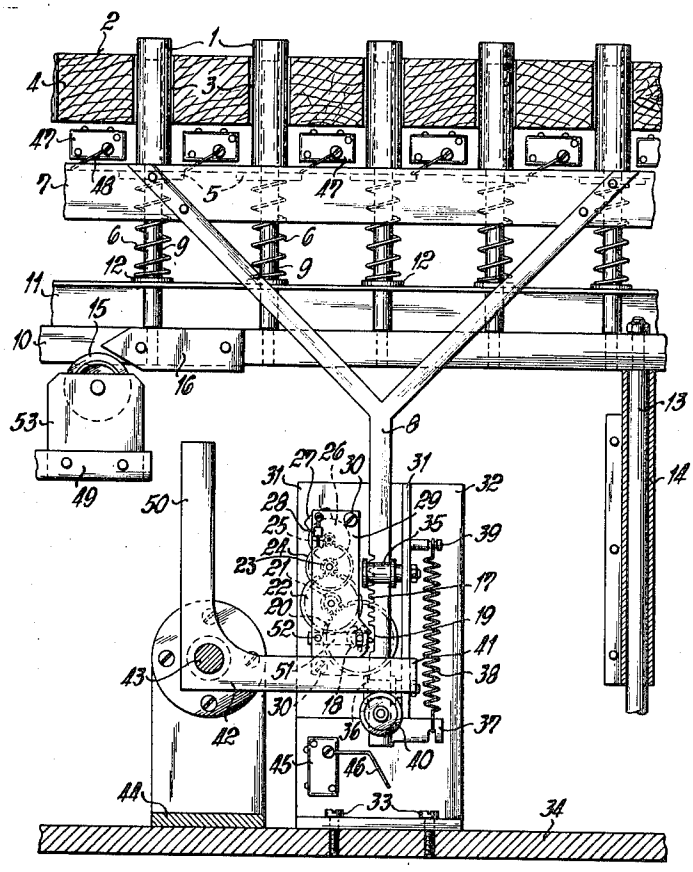


FIG. 1

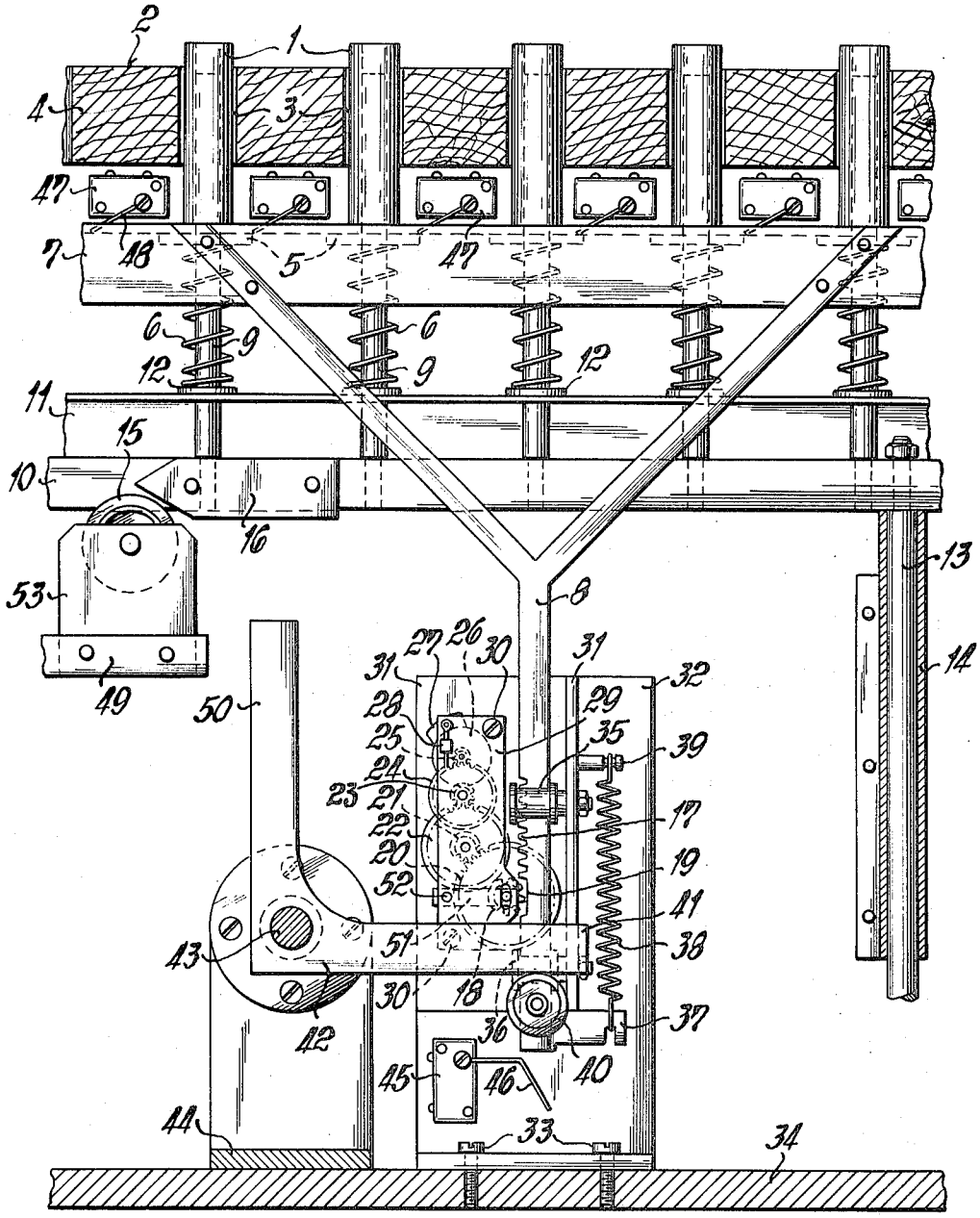
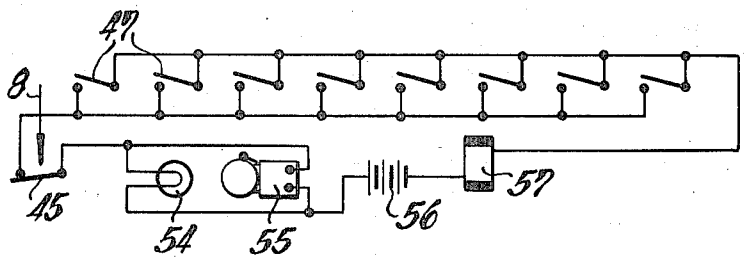

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FIG. 2


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PLAY CONTROL DEVICE FOR AMUSEMENT GAME

BACKGROUND OF THE INVENTION

This invention relates to an amusement game having a large table area as the playing field.

Games, such as curling or table tennis could not be set up heretofore in restaurants and public places for controlled play time periods for rendering income to the proprietor, because they require an additional person to monitor the maintenance of the paid-for playing period, and this has made them economically impractical.

This invention is based on the problem of automatically allowing the playing of games of this type for a specific time period in a conventional manner after insertion of a given number of coins and after activation of a release rod of a coin controller device, and to clearly and reliably indicate, by an alarm unit independent of an external current supply, the unauthorized use of wedge clamps and other articles for blocking or defeating the play control device of the amusement game.

SUMMARY OF THE INVENTION

This problem is solved, in accordance with the present invention, by providing a series of vertical bores in the playing field at right angles to the playing direction and extending over the entire width of the playing field to effectively bisect the same. Plural hollow sleeves extend from these bores to a position above the surface of the playing field in their initial position, which sleeves are retracted underneath the playing field after coins have been inserted into the coin controller and checker of the game device and a release rod of the coin controller has been pushed in. Plural pins are telescopically fitted into the hollow sleeves and extend out of the surface of the playing field when the release rod is pushed in and the sleeves are retracted below the playing surface. These pins are retracted beneath the playing surface as soon as the release rod is released and allowed to return to its outwardly urged position. A clockwork timer which is effectively wound up when the release rod is being pushed in allows the sleeves thereafter to gradually return toward their initial protruding position under the effect of a restoring spring during the length of one game playing period and frees these sleeves completely at the end of the play period and enables the restoring spring to quickly move the sleeves into protruding obstructing position of the playing field. The play control device of the invention is also provided with an alarm circuit with an electric switch which closes the alarm circuit when one of the sleeves projecting from the playing field into the playing area, against the fence of a relatively weak spring, is pushed back below the playing field surface, in an unauthorized manner. The play control device of the invention is constructed such that the vertically disposed pins are attached at their lower ends to the horizontal web of a vertically disposed and movable U-shaped frame. A relatively weak spring connected around each pin urges a broad flange at the lower end of each sleeve upwardly against an angle member horizontally disposed thereabove which has a downwardly extending rack, the latter being guided in the clockwork timer. A laterally projecting driving roller on the rack is moved downwardly, to wind up the clockwork timer after an initial downward idle stroke portion of the rack, together with the sleeves via a connecting lever by means of the release rod when the latter is pushed in.

BRIEF DESCRIPTION OF THE DRAWINGS

The drawing illustrates the essential parts of an amusement game according to this invention by way of example, in which:

FIG. 1 is a vertical transverse section view through a fragmenary portion of the width of an amusement game with a large playing surface area and showing the play control device of the invention in side elevation; and

FIG. 2 is an electrical schematic circuit diagram of an alarm circuit used with the play control device of FIG. 1.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

FIG. 1 shows, in a lateral view and partially in transverse section, a fragmentary portion of a straight line of tubular sleeves 1 extending across the entire width of the playing field 2 of an amusement game and at substantially right angles to the playing direction on field 2. The line of tubular sleeves are arranged to preferably approximately bisect the playing field 2 with the upper ends thereof extending through vertical bores 3 through the bed 4 of the playing surface and clearly projecting above the level of the playing field 2 to effectively prevent play on the playing field 2. The sleeves 1 are spaced relatively close together and, for instance extend across the middle of the playing surface of a curling game or across the useable playing surface of one or both ends of a table tennis game.

Flanges 5 on the lower ends of the sleeves 1 are pressed or urged against the underside of a horizontally arranged angle member 7, constructed of aluminum or the like, by means of springs 6, the tubular sleeves extending through bores in the angle member. Angle member 7 is connected by struts with a rack 8, which rack extends vertically downwardly. The tubular sleeves 1 have hollow bores and telescope over a number of pins 9 fixedly connected with a rod 10, which is preferably of a square cross section. FIG. 1 shows the normal non-play position of the parts with the upper ends of tubular sleeves 1 extending above surface 2 and the upper ends of pins 9 inside sleeves 1 and terminating at approximately the level of surface 2. The pins 9 extend through lateral recesses of an angle iron 11 connected to the amusement game in fixed relation to the playing surface bed 4, and springs 6 surrounding pins 9 have their lower ends arranged to rest on broad supporting disks or washers 12 on the top surface of the angle iron 11. A pair of guide rods 13, only one of which is shown, are threadably connected to the ends of the rod 10 at right angles thereto and in parallel relation to one another. These guide rods are longitudinally movable in guide tubes 14 connected on the amusement game in fixed relation with the playing field bed 4, with the ends of the rod 10 resting on the upper terminal ends of the guide tubes in the initial non-play position. During the engagement of a roller 15 on the movable release rod 49 of the coin checker and operating mechanism, in the direction of and with a cam 16 on the rod 10, the inherent weight of the pins 9 is overcome and they are moved uniformly in the upward direction, until the upper ends of pins 9 have reached the

upper projecting ends of the tubular sleeves 1 above the playing surface 2.

The teeth 17 of the rack 8 terminate, in the illustrated position of all parts, above a pinion 18 which is normally positioned at the same height as a toothless recess portion 19 of the rack 8 which prevents engagement of the pinion 18 with the teeth 17 in the initial position of the parts. The pinion 18 drives a ratchet wheel 26 via a large gear wheel 20, a pinion 21, a large gear wheel 22, a pinion 23, a large gear wheel 24, and a pinion 25. The ratchet wheel 26 is engaged by a double pawl 27 with an adjustable pendulum weight 28. All gear elements 18–28 of the timing device or clockwork are accommodated between plates 29 and form a rugged clockwork threadedly connected by means of screws 30 to a short, but wide angle iron 31. The angle iron, in turn, is attached to a sturdy wooden block 32, or the like, mounted by screws 33 to the lower cover panel 34 of the central base of the amusement game.

Pairs of guide rollers 35 and 36 on the projecting leg of the angle iron 31 form a vertical guide for the rack 8 and the angle member 7 connected therewith by the struts. An extension arm 37 on the lower end of the rack 8, has a strong spring 38 connected thereto and the other end of the spring 38 is connected to a pin 39 freely projecting outwardly from the side of the angle iron 31.

The horizontal end 41 of a toggle lever 42 rests on a roller 40 connected on the lower end of the rack 8, and the pivot shaft 43 of the toggle lever is connected in a U-shaped bearing block 44 connected on the lower cover panel 34 of the amusement game. Underneath the clockwork 18–29, a microswitch 45 is connected to the wooden block 32, the switching arm 46 of which is angled in the downward direction at the end and, in the illustrated closed position of the switch arm 46, does not contact the lower end of the rack 8, but is positioned in the downward path of movement of the rack. A plurality of further microswitches 47 are provided above the horizontal angle member 7, the switching arms 48 of which are held, in the illustrated initial position of all parts, in the spring loaded open position by the flanges 5 of the tubular sleeves 1.

When inserting the prescribed number of coins for playing the amusement game in a coin checker and operator of conventional construction, not shown herein, the standard release rod 49 of the coin operator is unlocked enabling it to be pushed inwards to actuate the play control device. As rod 49 is pushed inwards toward the right in FIG. 1, after a short idle stroke, the free end of the release rod 49 contacts the upper end 50 of the toggle lever 42 and pivots the latter in the clockwise direction about its shaft 43, so that horizontal end 41 moves the roller 40, together with the rack 8, the angle member 7 and also the sleeves 1, in a downward direction against the force of the springs 6 and spring 38, until the upper ends of sleeves 1 are flush with playing surface 2. During this step, the teeth 17 of the rack 8 very quickly engage with the pinion 18 of the clockwork 18–29 and pivots the pinion shaft which is disposed in a U-shaped bracket 51 in a downward direction about pivot 52 that pivotally connects bracket 51 to plates 29. The large gear wheel 20 fixedly connected to the shaft of pinion 18 is also pivoted in the downward direction, so that the connection of the large gear wheel 20 with the remaining gear wheels 21–26 is interrupted. However, during the inward actuation of the release rod 49, the roller 15, fixedly connected on plate 53 on the end of the release rod 49, contacts the lower surface of the cam 16 and moves the pins 9 firmly joined to the rod 10 in the upward direction so that the upper ends of pins 9 project above the playing surface 2 such that the ends of pins 9 and sleeves 1 have exchanged positions as illustrated in FIG. 1. Thus, even if a player would try to jam the release rod in the inward release position, in an unauthorized manner, by pressing a wedge-shaped article such as a pocket knife, or the like, into the device, to keep the sleeves 1 retracted and the clockwork from running, this player would not achieve anything in this way, because in this position the pins 9 are extended above and interrupt the playing field 2 in place of the sleeves 1.

By releasing the release rod 49 after it has been pushed in, the rod 49 returns to its basic outward position due to the pull of its own restoring spring, not shown, allowing roller 15 to release cam 16 and pins 9 to retract under their own weight so their outer ends are flush with the playing surface 2. Simultaneously, the strong spring 38 pulls the rack 8 upwardly. The upper end of the teeth 17 again pivot the pinion 18 and the large gear wheel 20 into engagement position with pinion 21 so that now, even though strongly braked by the timing clockwork, 18–29, the upper ends of sleeves 1 while retracted below surface 2, begin their return to their position illustrated in FIG. 1 during a sufficient length of time to allow the game to be played on playing surface 2 unobstructed by sleeves 1. In contrast thereto, the pins 9, together with the release rod 49, return immediately into the illustrated initial position, as previously stated, so that nothing prevents a play from taking place on playing field 2 during a predetermined specific time period, until the clockwork has run down, and the pinion 18 again arrives opposite to the toothless recess 19, and the pinion 18 disengages from the teeth 17. Now, the spring 38, unimpeded, rapidly moves the sleeves 1 upwardly again into the illustrated blocking position protruding above the playing field surface 2. Until the pinion 18 disengages from teeth 17 the ends of sleeves 1 are still below surface 2.

As can be seen from the schematic circuit diagram of FIG. 2, in the illustrated position of all parts, the microswitch 45 is in the normally closed position, whereas the other microswitches 47 have been urged into their open positions by the flanges 5 of the sleeves 1. All microswitches 45, 47 are series-connected and are joined to a dry-cell battery 56 via a visual alarm electric bulb 54, as well as a parallel connected audio alarm electric bell 55. If, in the illustrated position of all parts, one of the sleeves 1 is pressed downwardly in an attempt to defeat the blocking mechanism and clear the playing surface for unauthorized play, the microswitch 47 is closed and conducts current to the electric blub 54 and the bell 55. Thus, the visual 54 and audio 55 portions of the alarm unit are activated. In this connection by use of a time delay realy 57 connected in series in the circuit as shown, the circuit will function such that the alarm unit will not be activated by an inadvertent, or even willful, brief downward depressing movement of the upwardly protruding sleeves 1, but, rather, a predetermined time period is allowed to elapse so that only upon a longer and intended blockage of the illustrated parts is the alarm unit set in operation. If it is impossible

to return the auxiliary elements used in an unauthorized manner into the correct position by simple pulling upon a triggering of the alarm circuit, in order to turn off the alarm, then, after the insertion of a coin, the release rod 49 is to be pushed in only partially. In this case, the current through the microswitch 45 is interrupted to cut off the alarm, and the undue utilization of the device can be examined with leisure.

As for the type of alarm unit, it is to be pointed out that, upon unauthorized use of the amusement game, a mechanical attachment could very well activate a spring-wound alarm clock with a bell. However, such an alarm clock provides an alarm for only a short period of time, whereas a dry-cell battery operated alarm can remain in use for months and thus offers a far greater safety factor than a spring-wound alarm clock.

It is likewise possible to use, instead of the plurality of microswitches 47 proposed in this embodiment, only a single microswitch 47 which closes the alarm circuit via an elongated pivoted member movably disposed alongside the angle member 7, as soon as this elongated pivoted member, driven by one of the downwardly pushed sleeves 1, is pivoted out of its normal rest position.

A game according to this invention, set up in a restaurant or public place, however, is always exposed to the danger that inadvertently or purposely a glass of beer, for example, might be poured over the sleeves 1 and the sticky consistency of the beer render the single switch of the alarm unit inoperable. However, it can certainly be assumed that when using a plurality of switches 47 during the few weeks intervening between the periodic maintenance check-ups of an amusement game of the described type, not all switches 47 of the sleeves 1 are likely to be made to fail in this manner. It is sufficient for only a single switch 47 to remain in operation, in order to make the attempted fraud audible and visible to all by the loud sounding of the alarm bell 55 and the illumination of the signal light 54.

The terms and expressions which have been employed herein are used as terms of description and not of limitation, and there is no intention, in the use of such terms and expressions, of excluding any equivalents of the features shown and described or portions thereof, but it is recognized that various modifications are possible within the scope of the invention claimed.

I claim:

1. The combination with an amusement game with a large table playing field of a plurality of bores in the playing field extending across the width of the playing field and extending transverse to the direction of game play on the playing field, a plurality of sleeve members extending through said bores and protruding above said playing field, a movable frame assembly beneath said playing field, said plurality of sleeve members connected to said movable frame assembly, timer means, said movable frame assembly having a portion engaged with said timer means, a plurality of second members extending through said plurality of bores and having first ends normally terminating at the surface of said playing field and second ends connected to a second movable frame assembly beneath said playing field, actuation means connected for movement in one direction to move said movable frame assembly away from said playing field and retract said sleeve members beneath said playing field and actuate said timer means with said movable frame portion and simultaneously move said second movable frame assembly toward said playing field to extend the first ends of said plurality of second members above said palying field, and said actuator means connected for subsequent movement in the opposite direction to move said second movable frame assembly away from said playing field to return the first ends of said plurality of second members substantially flush with the surface of said playing field.

2. An amusement game as set forth in claim 1 in which said plurality of sleeve members have bores therethrough, and said plurality of second members are positioned in said bores of said sleeve members in coaxial arrangement.

3. An amusement game as set forth in claim 1 in which said plurality of second members are pin members having a smaller diameter than said sleeve members and connected coaxial with said sleeve members in said plurality of bores in said playing surface.

4. An amusement game as set forth in claim 1 in which said timer means in the actuated position is connected to move said movable frame portion toward said playing field and return said sleeve members to the initial protruding position above said playing field.

5. An amusement game as set forth in claim 4 including a restoring spring means connected between said movable frame portion and said timer means.

6. An amusement game as set forth in claim 5 including engagement means on said movable frame portion movably engaging said timer means and adapted to be driven thereby, said engagement means including a disengagement portion adapted to register with and disconnect said movable frame portion from said timer means, whereby said restoring spring means returns said plurality of sleeve members to a position protruding above said playing field.

7. An amusement game as set forth in claim 1 including an alarm circuit means including alarm means, switch means connected in said circuit means and connected to said plurality of sleeve members and operable to actuate said alarm circuit means when one of said sleeve members extending above the playing field is pushed inwardly into the bore from which it protrudes.

8. An amusement game as set forth in claim 1 in which said second movable frame assembly comprises a U-shaped frame having a horizontal member and vertical guide members, said plurality of second members are vertically disposed pin members connected at said second ends to said horizontal member.

9. An amusement game as set forth in claim 8 in which said movable frame assembly includes a top horizontal member connected with a downwardly extending rack which comprises said portion engaged with said timer means, said sleeve members each having a flange at the lower end thereof, said top horizontal member having openings through which said sleeve members extend, and individual spring means positioned around said plurality of pin members and connected to urge the flanges of said sleeve members against said top horizontal member.

10. An amusement game as set forth in claim 9 including a laterally extending contact means on said rack, and said actuator means including an intervening lever mechanism operatively connected to said contact means to move said rack downwardly when said actuator means is moved in said one direction.

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