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## PATENT SPECIFICATION

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Specification Accepted: Nov. 21, 1935.

### PROVISIONAL SPECIFICATION

No. 12058 A.D. 1934.

### Improvements in and relating to Coin-freed Apparatus for Playing a Game of Skill

I, BERNARD WILLIAM BRENNER, of 374, London Road, Croydon, Surrey, a British Subject, do hereby declare the nature of this invention to be as follows:—

- 5 This invention relates to coin-freed apparatus for playing a game of skill of the kind comprising a plurality of wheels that are adapted to be spun and in which means are provided for stopping the said wheels in certain predetermined positions in which a prize-delivery mechanism is permitted to deliver a prize determined by the positions in which the said wheels stop. Heretofore the aforesaid wheels have all been spun at the same time and the operation of the prize-delivery mechanism has been controlled by the relative angular positions of all the wheels when they come to rest.
- 20 The present invention has for its object improvements in the coin-freeing mechanism of apparatus of the kind referred to and in the general construction thereof according to which each wheel is spun independently by energy stored by the operation of a lever after it has been freed by the insertion of a coin in a slot, as a result of which one of the said number-wheels is first spun and if it stops in a winning position, the second wheel is spun and so on until one of the said wheels stops in a non-winning position. Prizes may be delivered when any of the wheels stop in winning positions and when the last wheel of the series stops in a winning position a pool, into which some of the coins inserted into the apparatus to free it fall, may also be delivered to the successful player.
- 40 According to one mode of carrying out the present invention a plurality of number-wheels are freely mounted one above the other on a stationary vertical shaft supported at its lower end by the base of the apparatus and at its upper end by a horizontal member supported by pillars
- [Price 1/-]

rising from each side of the said base.

Each of the number-wheels has a disc fixed to its underside and is supported by a shoulder or ball race fixed to the wheel shaft, so that each may rotate independently. The disc fixed to each of the said number-wheels is provided with V-shaped teeth and a deep radial slot at suitable intervals between its teeth.

Above each number-wheel, a frame that surrounds the shaft on which the said wheels are mounted, is supported by one of a plurality of sleeves each of which is mounted on another shaft journaled in the base and upper horizontal member, between one of its supporting pillars and the edge of the number-wheels.

Beneath each of the aforesaid number-wheels a short arm extends from another sleeve mounted on the same shaft as the frame sleeves but between them. Each of these short arms is provided with a roller, and is acted on by a spring that normally urges its roller into engagement with the teeth of the disc secured to the wheel above it. Each of these short arms is also provided with a spring-controlled lever having an arcuate portion with radial projections at each end, one of which is adapted to be engaged by a pin extending downwardly from a short arm carried by the frame sleeve above it, to disengage the aforesaid roller from the toothed disc with which it co-operates, when the frame fixed to this sleeve moves far enough. This roller may be permitted to re-engage the toothed disc by turning the said lever on its pivot until the projection on its arcuate portion that was engaged by the aforesaid pin, is no longer in its path.

All the aforesaid frames except the uppermost, have a pin or projection on their respective upper faces, that, when each frame is in its rearmost position, extends between two of the teeth of the

disc above it, so as to spin it and the number-wheel to which it is secured when that frame is moved towards the front of the apparatus by a spring that is put in tension when the frame with which it co-operates is moved towards the rear of the apparatus by the operating lever, after it has been freed by the insertion of a coin. All the aforesaid frames are provided with an upstanding ear that is engaged by the short arm that projects from the sleeve of the frame next above it, so that when the uppermost frame is moved into its operative position all the other frames are also moved into their operative positions and their respective springs are put in tension.

The lever for operating the apparatus after a coin has been inserted, is fixed to one end of a horizontal shaft carried in bearings at the rear of the base of the apparatus. An arm at the other end of this shaft is connected by a slotted link to an arm fixed to the sleeve shaft to which the uppermost sleeve that carries the uppermost frame is fixed. After the frames have been moved to the rear of the apparatus all but the uppermost are retained in that position by the pin that engages the teeth of the disc above it which is prevented from rotating by the roller on the short arm carried by the intermediate sleeve until it is pushed out of engagement with the toothed disc by the engagement of the pin on the short arm at the lower end of the upper frame sleeve with the projection on the lever pivoted to the arm that carries the roller. So soon as this roller is disengaged from its toothed disc, the frame held by it moves towards the front of the apparatus under the influence of its spring until a roller carried by it engages the edge of the said disc from its rear side. If this roller enters the V-space between two teeth the frame carrying the roller is stopped before the pin depending from the short arm extending from the lower end of its sleeve, engages the projection on the lever pivoted to the short arm that carries the roller that prevents the toothed disc fixed to the net number-wheel from rotating. If the roller on the frame last freed enters one of the deep radial slots between the teeth of the disc with which it co-operates, the said frame is permitted to move further, until the pin that depends from its short arm engages the lever on the roller arm which is thereby caused to release the next number-wheel which is then spun by the pin on the frame beneath it.

In like manner all frames are released unless the forward movement of the one above it is stopped before it has released

the next toothed disc.

In order to prevent the number-wheels being stopped too soon after they have been spun, each frame is provided with a second roller that is adapted to engage one of a series of arms that projects into its path from another vertical shaft journalled in the base of the apparatus and in the upper horizontal member. This shaft is provided with a suitable retarding device such as a fan, dash-pot or the equivalent. When a dash-pot is employed the said shaft is provided with an arm having a slotted arcuate portion at its outer end in which the head of a piston rod is adapted to slide. A piston fixed to the other end of this rod slides in a pivoted dash-pot cylinder, which prevents the arm shaft turning too quickly and thereby retards the movement of the frames. So soon as the roller carried by the frame, passes the end of the arm that it has moved out of its path, the shaft is returned by a spring to its initial position in which its other arms are in a position to retard the movement of the other frames. When the frames are returned to the rear of the apparatus, the slot in the arcuate arm allows the shaft to turn against the action of a spring in the reverse direction to enable the rollers to pass the retarding arms.

The coin inserted to free the apparatus, passes down a coin shoot of known kind, which is arranged in a substantially vertical plane, until the said coin rests upon a horizontal portion between two pins carried by a link by which they are caused to slide in a slot parallel to the portion of the coin shoot on which the coin rests, when the link is operated. The horizontal portion of the coin shoot lies between walls whose upper edges are provided with a step adapted to normally obstruct the movement of a flat link pivoted at one end to a lever that is actuated every time the lever for operating the apparatus is actuated. If a coin has been previously inserted, it will come to rest at this part of the shoot and the arcuate edge of the coin will subtend the step and so enable the flat link to slide over it.

The operating lever is provided with a pivoted arm whose movement about its pivot is opposed by the friction of a strong spring-washer. The outer end of this pivoted arm is provided with a laterally extending pin that engages the hooked free end of a lever pivoted to the base of the apparatus adjacent a rack having ratchet teeth on one side that allow the said pin to slide between them and a ledge formed on the base of the apparatus, in one direction after it has

left the hooked end of the aforesaid lever, and the said rack has reversely directed ratchet teeth on its other side that allow the said pin to return between them and the said lever into engagement with its hooked end. A link connects the hooked end to one arm of a bell-crank lever pivoted to the frame of the apparatus while the flat link hereinbefore referred to is pivoted to the other arm of the said bell-crank lever. The link that carries the two pins that traverse the horizontal portion of the coin shoot is pivoted to one end of another lever pivoted to the frame of the apparatus, whose opposite extremity is connected to the operating lever by a slotted link.

When the operating lever is actuated, the pin at the end of its friction arm first lowers the hooked end of the aforesaid lever which causes the flat link to move towards the step on the side walls of the horizontal portion of the coin shoot and over that step if a coin has been previously inserted.

The further movement of the operating lever causes the pin on the said friction arm to slide along the ledge adjacent one side of the rack and after it reaches the end, the reverse movement of the operating lever causes the aforesaid pin to pass to the other side of the rack and to follow the adjacent side of the hooked lever until it reaches its hooked extremity. During this movement the two pins will carry the coin along the shoot to a downwardly-directed portion through which it will fall into a prize magazine until it is full after which the coins may overflow into a pool and after that has been filled, the coins will fall into a cash box as payment for the use of the apparatus. When the prizes to be delivered do not consist of coins, the coins inserted to free the apparatus pass direct to a cash box. In that case the prize magazine, which is provided with suitable delivery mechanism, is charged when the apparatus is prepared for use.

If the operating lever is turned before a coin has been inserted into the apparatus, the flat link pivoted to one of the arms of the bell-crank lever actuated by the said operating lever, will engage the step on the upper edge of the walls of the part of the shoot on to which a coin first falls. This will arrest the continued movement of the operating lever in a position in which the pin at the end of its friction arm is opposite the end of the rack hereinbefore described, in which a recess is formed to receive the said pin which thus prevents the further movement of the operating lever.

The prize magazine and pool are preferably in the form of vertical tubes in which the coins inserted after falling into them arrange themselves in a column. The bottom of the prize magazine is closed by a number of transversely swinging shutter plates of varying thickness having holes of the same diameter as the magazine while the thickness of each is determined by the number of coins or tokens each is intended to pay out. The hole in the lowermost shutter plate is closed by the base plate. These shutter plates are pivoted on one of the pillars that support the upper horizontal member of the frame and each is acted upon by a spring that tends to swing them from beneath the prize magazine sufficiently to carry the tokens within each beyond the edge of or an opening in the base plate and to close the hole in the shutter above it. In this way the tokens removed from the bottom of the column, are delivered into the mouth of a prize-delivery shoot which also extends beneath the bottom of the pool and leads to a receptacle outside the casing of the apparatus.

The bottom of the pool is also closed by a shutter which may be pivoted on the same pillar as the prize magazine shutters, all of which are maintained in their closed position by a long tooth supported by a shaft. This long tooth intercepts a tooth of different length on each of the shutters each of which is released one by one as the shaft that carries the long tooth turns. This shaft is journalled in the base of the apparatus and the upper horizontal member between the pillar on which the shutters are pivoted and the outer edges of the frames each of which except the uppermost one is provided with a pin or equivalent part that successively intercepts an arm on the shaft that carries the long tooth, after it has released one of the shutters.

The lowermost frame carries an additional pin which, after the first has moved out of the path of one arm on the long-tooth shaft, intercepts a part pivoted on a second arm unless the appropriate roller on the said last frame enters a radial slot in the toothed disc fixed to the lowermost number-wheel and so allows the lowest frame to carry the additional pin beyond the part pivoted to the second arm on the long-tooth shaft hereinbefore referred to. The part on the said second arm intercepted by the additional pin, is pivoted to enable the said additional pin to pass behind it when the frames are returned to their initial positions when the apparatus is next operated.

In order to restore the shutters to their

closed positions beneath the prize magazine and the pool, the lowermost prize magazine shutter is connected by a slotted link with an arm fixed to the frame-sleeve shaft, which turns the said lowermost shutter on the frame pillar on which it is pivoted, when the operating lever is actuated. This shutter is provided with a pin or abutment on its upper surface that closes any of the shutters above it that may have been opened when the apparatus was last operated, and another abutment on its underside that closes the pool shutter if that had been opened during the previous operation.

The hereinbefore described mechanism is enclosed in a suitable case provided

with windows through which numbers, flags or other indications on the periphery of the number-wheels can be seen, one or more slots for the insertion of coins, and levers or equivalent parts for operating the control levers pivoted on the roller arms to enable them to re-engage their respective toothed discs for the purpose of stopping it or them in a desired position.

Dated this 21st day of April, 1934.

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### PROVISIONAL SPECIFICATION

No. 22991 A.D. 1934.

## Improvements in and relating to Coin-freed Apparatus for Playing a Game of Skill

I, BERNARD WILLIAM BRENNER, of 374, London Road, Croydon, Surrey, a British Subject, do hereby declare the nature of this invention to be as follows:—

This invention relates to coin-freed apparatus for playing a game of skill of the kind comprising a plurality of wheels that are adapted to be spun and in which means are provided for stopping the said wheels in certain predetermined positions in which a prize-delivery mechanism is permitted to deliver a prize determined by the positions in which the said wheels stop. Heretofore the aforesaid wheels have all been spun at the same time and the operation of the prize-delivery mechanism has been controlled by the relative angular positions of all the wheels when they come to rest.

The present invention has for its object improvements in the coin-freeing mechanism of apparatus of the kind referred to and in the general construction thereof according to which each wheel is spun independently by energy stored by the operation of a lever after it has been freed by the insertion of a coin in a slot, as a result of which one of the said number-wheels is first spun and if it stops in a winning position, the second wheel is spun and so on until one of the said wheels stops in a non-winning position. Prizes may be delivered when any of the wheels stop in winning positions and when the last wheel of the series stops in a winning position a pool, into which some of the coins, inserted into the apparatus to free it, fall, may also be delivered to the successful player.

A further feature of the present invention consists of means for separating the coins inserted into the apparatus to free it, from checks with which the prize magazine and pool are charged before it is used, in order that the former may be delivered into a cash-box and retained for the use of the apparatus and the latter may be delivered to successful players to enable them to use the apparatus longer for their amusement, without further payment until the checks they have won are used up.

According to one mode of carrying out the present invention a plurality of number-wheels are freely mounted one above the other on a stationary vertical shaft fixed at its lower end to a platform supported by posts a suitable distance above the base of the apparatus. The upper end of this shaft is fixed to a horizontal member supported by pillars rising from each side of the said platform.

Each of the number-wheels has a disc fixed to its upper-side and is supported by a shoulder or ball-race fixed to the wheel shaft, so that each may rotate independently. The disc fixed to each of the said number-wheels is provided with V-shaped teeth and a deep substantially radial slot at suitable intervals between its teeth.

Above each number-wheel, an arm curved or bent in a horizontal plane so as to extend partly around the shaft on which the said wheels are mounted, is freely mounted on another shaft journaled in the aforesaid platform and upper horizontal member, between one of

its supporting pillars and the edge of the number-wheels.

Each of the aforesaid curved arms is provided at its free end with a spring pawl adapted to engage the toothed disc of the number-wheel beneath it, and is acted upon by a separate spring adapted to move said arm towards the rear of the apparatus, so as to spin that number-wheel in a clockwise direction, until it is stopped by a pin carried by the said curved arm, entering one of the V-shaped spaces between the teeth of its disc, or one of the radial slots in it. Normally, each of these arms is prevented from moving under the influence of its springs by a detent flap hinged to it. This flap has two detents, one of which is formed by its forward edge that engages the periphery of a control-disc mounted on a vertical, spring-actuated, control-shaft journaled in the aforesaid platform of the apparatus and in the aforesaid upper horizontal member, on the opposite side of the number-wheels to the shaft on which the curved arms are mounted. Each of these discs is provided with a gap at a suitable part of its periphery, which allows the forward edge of the detent flap hinged to the co-operating curved arm, to pass when it reaches it. After the curved arm is released in this way, it is turned by its spring until it is stopped by the second detent on its hinged flap, which is situated at a greater distance from the shaft on which the curved arms are mounted. This detent also engages the periphery of its control-disc and delays the further movement of its curved arm under the influence of its spring until the gap in its control-disc again releases it. When the curved arm was first released the number-wheel it controls was first spun by reason of the engagement of its spring-pawl with the toothed disc fixed to that number-wheel, which was allowed to continue its rotation during the time the movement of the curved arm was arrested by the second detent on its hinged flap. During this interval the number-wheel may be stopped in a winning position, indicated by a number or other device on its periphery, by the skill-control mechanism hereinafter described. After the control-disc has turned sufficiently to allow the said second detent to enter its gap, the curved arm again moves unless it has been previously released by the skill-control mechanism, under the influence of its spring until the pin carried by it engages the toothed disc. If this pin enters one of the V-shaped spaces between its teeth, the curved arm is stopped in a position that will leave another part of its detent flap in the gap of its control-

disc with the result that it will stop the control-shaft when the edge on the opposite side of the gap in the control-disc reaches it. If the aforesaid pin enters one of the radial slots in the toothed disc, the curved arm will move further until its detent flap is clear of its control-disc and thus allow the control-shaft to continue to turn until the next control-disc mounted on it releases the curved arm that spins and afterwards stops the next number-wheel in the same manner as the one just described. In this way one number-wheel is spun after the one above it has stopped if the pin on the curved arm that co-operates with the said number-wheel above it enters one of the radial slots in its toothed disc. If, however, this pin enters one of the V-shaped spaces between its teeth, the control-shaft is prevented from turning and the apparatus stops.

The lower end of the control-shaft is connected to one end of a wound spring whose other end is secured to a spring case fixed beneath the platform in which the lower end of the said control-shaft is journaled. The control-shaft has a toothed wheel and a prize-delivery plate, hereinafter described, fixed to its lower end above the platform and a chain wheel and cam for operating the shaft that returns the curved arms that spin and stop the number-wheels, all of which are hereinafter described, fixed to it beneath the said platform.

The toothed wheel referred to is geared to a fan through a one-way clutch that retards the rotation of the control-shaft when driven by its spring but allows it to turn freely in the reverse direction to wind it.

The lever for starting the apparatus after a coin has been inserted, turns a horizontal shaft extending between the side frames and journaled in bearings supported by them. This shaft is provided at its right-hand end with two diametrically opposed short arms having rollers at their extremities one of which operates a cam-plate pivoted above it near the rear edge of the right-hand side frame, and the other operates another cam-plate pivoted beneath it to the same side frame near its rear edge. The upper cam-plate carries a pin which, after it has been moved a short distance, drives a lever fulcrummed at one end on the same pivot as the cam-plate and connected at its other end to a chain that is guided around suitable wheels to the chain wheel on the control-shaft which it turns in the direction to wind its spring, when the upper cam-plate is raised by one of the aforesaid rollers, when the

starting lever is operated. When this roller is raised it moves out of the path of a projection on the lower cam-plate which is connected by a link to a coin-controlled lever which is not free to move until a coin has been inserted in the apparatus. In this position the other roller engages a portion of the cam surface that is at right-angles to a line drawn from the said roller to the pivot of its cam-plate which, therefore, remains stationary.

After a coin has been inserted, the aforesaid lever is freed and the lower cam-plate falls a sufficient distance under its own weight to bring another part of its surface in a position to be engaged by the last mentioned roller when it descends, thereby enabling it to turn the said cam-plate which is thus enabled to operate the coin release and distribution mechanism in the manner hereinafter described.

During the operation of the starting lever considerable work has to be done to wind the spring of the control-shaft and to return the curved arms to the front of the apparatus and this varies according to the number of wheels that have been spun and the number of curved arms that have to be returned, and if the energy applied to the starting lever, is continued after the work to be done is finished, the apparatus is liable to receive a very considerable shock. In order to prevent this, a double dash-pot is connected to the horizontal shaft that is turned by the starting lever.

The double dash-pot employed comprises two cylinders in which loosely fitting pistons are reciprocated so as to transfer oil or glycerine and water or other suitable fluid from one side of each piston to the other. One of these cylinders is pivoted to the platform of the apparatus and the piston rod of the other cylinder is pivoted to the upper horizontal member of the left-hand side frame, and the piston rod of the lower cylinder is pivoted to the bottom of the upper cylinder by a crank pin carried by an arm fixed to the left-hand end of the shaft operated by the starting lever. With this arrangement, the pistons of the lower cylinder and the upper cylinder are caused to transfer the fluid contents of both cylinders to the opposite side of their respective pistons, for every half-revolution of the said shaft.

The coin-shoot is provided with a pivoted hopper at its upper end. This hopper has a downwardly-extending plate which can pass freely through a slot in the coin-shoot when the hopper swings on its pivot. In its normal position a coin slit in the bottom of the hopper is in line

with the coin shoot but in this position the hopper plate extends through the slot in the shoot. The front edge of this plate has a cam surface that is engaged by an inserted coin by which the plate is moved out of the slot and the hopper turned on its pivot into a position in which its coin slit is moved from over the coin shoot to a return coin shoot. With this arrangement coins inserted while the apparatus is in use are returned to the player. This downwardly-extending plate is also provided with side plates at right-angles to it, that pass freely through other slots in the coin shoot at right-angles to the one first referred to, so as to prevent a wire or like implement being passed down the shoot when the apparatus is not in use.

In order that the hopper may be maintained over the return coin shoot after a coin inserted to free the apparatus has fallen below its downwardly-extending plate, a rod of suitable shape and length pivoted to an arm operated by the coin-release lever, passes through a hole in one of the side plates of the hopper sufficiently to lie behind the coin. This arm may be fixed to a short shaft supported in bearings behind the coin shoot, to which the lever connected to the lower cam-plate hereinbefore described, and a depending lever, hereinafter described, are fixed.

When these levers are actuated, the aforesaid rod is raised above the coin which is supported after it falls below the hopper plate and through the shoot beneath it, by two pins that extend at right-angles to the front plate of the said shoot, the rear side of which is cut away.

The depending lever above referred to has a horizontal arm that extends behind the coin shoot and parallel to it. Two forwardly-directed fingers which are normally urged towards each other by springs are pivoted to the upper side of this arm a slight distance apart and extend through slots above the pins that support the coin, and two similar spring-controlled fingers are pivoted on the same pins on the under-side of the same arm and extend through similar slots to the ones above them. The inner edges of these fingers are inclined outwardly towards their free ends so that the coin in falling on to the aforesaid pins, passes between them.

When the lower cam-plate is released by turning the starting lever, its weight will first turn the short shaft, through the lever fixed to it and the link that connects it to the cam-plate. When the short shaft is turned in this way the depending lever will be moved towards the coin shoot. This movement will cause the inclined

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inner edges of the fingers pivoted to its arm to engage the opposite sides of the coin supported on the pins with the result that their ends will be separated as they  
 5 pass forward through the slots in the front plate of the coin-shoot and so enable them to clear a stop-plate which would arrest their forward movement if a coin had not been supported on the pins. At  
 10 the inner end of the inclined portions of the aforesaid fingers they are provided with notches, the forward edges of which form steps that pass in front of the coin which is drawn off the ends of the support-  
 15 ing pins when the fingers are retracted and allowed to drop into a second shoot through which it passes either to a prize-magazine, or to a pool or to a cash-box.

During the forward movement of the depending lever it engages a spring-controlled arm that carries a rod that passes behind two depending arms each of which is provided with a pin that respectively enters a hole in the prize magazine and a  
 25 hole in the pool, both of which have the form of a vertical tube having an internal diameter equal to that of the checks and the coins inserted to free the apparatus, into which they fall. When the coins in  
 30 these tubes rise above the hole which the aforesaid pin is intended to enter, it is prevented from doing so with the result that deflecting plates carried by them are prevented from returning to their normal  
 35 positions in the path of a check or coin when it falls. These deflecting plates occupy positions one above the other when neither the prize magazine nor the pool is full with the result that the upper-  
 40 most one diverts the falling check into a shoot that directs it into the tube that controls it. When the first one is full the deflecting plate beneath it will divert the coins into its tube and when both the  
 45 prize magazine and the pool are full, the coin will fall into a shoot that leads it to the cash-box.

In order to separate the coins inserted to free the apparatus from the checks delivered to successful players, that have been inserted into the apparatus to free it, the latter are provided with a central hole through which the teeth of a suitable star-wheel hereinafter described, will  
 55 freely pass. This star-wheel is freely mounted on a pin supported at the upper end of a lever fulcrummed on the side of the coin shoot, which is operated against the resistance of a spring by the depend-  
 60 ing lever to which the coin-engaging fingers are pivoted. This star-wheel is situated above the deflector plates carried by the depending arms hereinbefore referred to and the points of its teeth are  
 65 caused by a spring on the lever that sup-

ports it, to pass through a slot in a plate beneath the shoot into which a check or coin falls after it has been pulled off the supporting pins by the aforesaid pivoted fingers. When a check falls on to one of the teeth of the star-wheel, its weight  
 70 turns the star-wheel and the next tooth enters the hole in the centre of the check whose weight again turns the wheel which, therefore, allows it to pass on to  
 75 one of the deflecting plates and thence into either the prize magazine or the pool, or direct into the cash-box.

When a coin falls on to one of the teeth of the star-wheel the latter is prevented from turning sufficiently to allow it to pass, by the next tooth which is brought into contact with the centre of the coin through which it cannot pass because it has not a hole at its centre, as the checks  
 80 have. Just before the coin-fingers-supporting lever reaches the end of its forward movement but after the deflecting plates have been moved out of their operative positions, the said lever engages the  
 90 lower end of the lever that supports the pin on which the star-wheel is mounted and moves it sufficiently away from the slotted plate to release the coin held by it, which then falls vertically into a shoot  
 95 that guides it into the cash-box.

The prize-delivery mechanism includes a disc or plate hereinbefore referred to, that is fixed to the control-shaft a slight distance above the toothed-wheel that  
 100 gears it to the fan. Pins extend from the lower face of the prize-delivery plate into the space between it and the aforesaid gear-wheel. When the prize-delivery plate is turned by the control-shaft after  
 105 it has been released by one of the number-wheels stopping in a winning position, one or more of the pins—according to the number-wheel that has released the control-shaft—engages a part pivoted to a lever  
 110 fulcrummed on the platform. The opposite end of this lever is connected by a link to a pivoted plate adapted to traverse the space between the bottom of the prize-magazine and a plate provided with an  
 115 opening above a prize-delivery shoot. The aforesaid pivoted plate is also provided with an opening that is normally situated over the opening in the plate beneath it but is caused when the aforesaid lever is  
 120 operated by the pins on the prize-delivery plate, to move under the open bottom of the prize-magazine so that the lowermost checks or coins in it will descend into the opening in the said plate so as to be trans-  
 125 ferred by it to the prize-delivery shoot when the lever returns to its normal position under the influence of a spring.

Another lever fulcrummed on the platform is connected at one end by a link to  
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another pivoted plate that is adapted in one position to close the bottom of the pool and to allow its contents to fall into a delivery shoot when it is moved from  
5 beneath the said pool. Normally, this plate is maintained in the position to close the pool by a spring that urges a roller on its actuating lever into engagement with the edge of the prize-delivery  
10 plate which is circular except at one part where it has a depression that is brought beneath the aforesaid roller when the control-shaft has turned to its full extent. In this position the roller enters the depression and enables the lever that carries  
15 it to turn on its fulcrum and open the bottom of the pool which delivers its contents into the prize-delivery shoot.

The aforesaid prize-delivery plate is of  
20 a thickness corresponding to the thickness of the number of checks to be delivered each time the prize-delivery mechanism is operated and to prevent more than that number being delivered at  
25 a time stationary springs bear on the upper and lower surfaces of the plate to hold back additional ones which are liable to enter the opening in the plate when the checks are thin. For the same purpose  
30 the plate may be provided with ribs or other projections on its upper and lower surface adapted to enter curved grooves in the adjacent surfaces between the springs.

35 In order to return the curved arms to the front of the apparatus and to store up energy in their springs to enable them to spin the number-wheels, the shaft on which they are freely mounted has a  
40 collar fixed to it between the boss of each arm. These fixed collars have upwardly directed fingers that extend into the path of the arm above each so as to move it when the said shaft is turned in the  
45 appropriate direction. For this purpose an arm is secured to the lower end of the said shaft below the platform of the apparatus. This arm is connected by a link to one end of a lever fulcrummed  
50 beneath the platform, whose other end is provided with a roller that is urged by a spring into contact with a cam mounted on the lower end of the control-shaft. This cam is turned when the spring on the  
55 control-shaft is wound by the starting

lever, with the result that all the arms are returned to their starting positions by the same operation. As the arm shaft moves its fingers away from the arms  
60 directly the control-shaft begins to turn under the influence of its spring, the finger that returned the first arm will have moved away from it before the arm is released by its control-disc and will, therefore, be able to move sufficiently  
65 under the influence of its spring to spin the first number-wheel.

To enable the number-wheels to be stopped in winning positions, the detent flap hinged to each of the curved arms is provided with a finger that occupies a position in the path of a skill-control arm when the curved arm to which it is hinged is stopped by its first detent. A skill-control arm is provided for each detent  
70 flap and is mounted on a short spring-controlled shaft that extends to the front of the apparatus where it is provided with a second arm adapted to be engaged by a lever hinged to the case that encloses the mechanism.  
75

In order to divert small discs or coins inserted into the apparatus to free it, a shoot is provided beneath the hereinbefore mentioned pins that support checks of  
80 coins of the proper size preparatory to their being engaged by the freeing mechanism. If the check or coin inserted is too small it will fall between the pins into a suitable receptacle so that the freeing mechanism cannot be operated by it.  
85

The mechanism is enclosed in a case provided with one or more windows through which the numbers on the wheels can be seen and in which the starting lever is fulcrummed. This lever is provided with buffers that limit the angle through which it may be operated, and a pivoted driving part that engages one of the rollers on the operating shaft when  
90 the starting lever is moved in one direction and is tripped out of its path when the lever is returned to its starting position.  
95

Dated this 8th day of August, 1934.

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#### PROVISIONAL SPECIFICATION

No. 5877 A.D. 1935.

### Improvements in and relating to Coin- Token- or Check-freed Apparatus for Playing a Game of Skill

105 I, BERNARD WILLIAM BRENNER, of 374, London Road, Croydon, Surrey, a British Subject, do hereby declare the nature of this invention to be as follows:—

This invention relates to coin-token- or check-freed apparatus for playing a game of skill of the kind comprising a plurality of wheels that are adapted to be spun and in which means are provided for stopping the said wheels in certain predetermined positions in which a prize-delivery mechanism is permitted to deliver a prize determined by the positions in which the said wheels stop. Heretofore the aforesaid wheels have all been spun at the same time and the operation of the prize-delivery mechanism has been controlled by the relative angular positions of all the wheels when they come to rest.

The present invention has for its object improvements in the coin-token- or check-freing mechanism of apparatus of the kind referred to and in the general construction thereof according to which each wheel is spun independently by energy stored by the operation of a lever after it has been freed by the insertion of a coin-token- or check in a slot, as a result of which one of the said number-wheels is first spun and if it is stopped in a winning position, the second wheel is spun and so on until one of the said wheels stops in a non-winding position. Prizes may be delivered when any of the wheels stop in winning positions and when the last wheel of the series stops in a winning position a pool, into which some of the coins, tokens or checks, inserted into the apparatus to free it, fall, may also be delivered to the successful player.

A further feature of the present invention consists of means for separating the coins, tokens or checks inserted into the apparatus to free it, from tokens or checks with which the prize magazine and pool are charged before it is used, in order that the former may be delivered into a cash-box and retained for the use of the apparatus and the latter may be delivered to successful players to enable them to use the apparatus longer for their amusement, without further payment until the token or checks, hereinafter referred to as tokens, they have won are used up.

According to one mode of carrying out the present invention a plurality of number-wheels are freely mounted one above the other on a stationary vertical shaft fixed at its lower end to a platform and a cross bar supported by side bars a suitable distance above the base of the apparatus. The upper end of this shaft is fixed to a horizontal member supported by pillars rising from each side-bar.

Each of the number-wheels has a disc fixed to its upperside and is supported by a shoulder or ball-race fixed to the wheel shaft, so that each may rotate independ-

ently. The disc fixed to each of the said number-wheels is provided with V-shaped teeth and a deep substantially radial slot at suitable intervals between its teeth.

Above each number-wheel, a frame arm curved or bent in a horizontal plane so as to extend around the shaft on which the said wheels are mounted, is freely mounted by means of a boss on another shaft journaled in the aforesaid cross-bar and upper horizontal member, between one of its supporting pillars and the edge of the number-wheels.

Each of the aforesaid frame arms is provided at its free end with a spring pawl adapted to engage the toothed disc of the number-wheel beneath it, and is acted upon by a separate spring adapted to move said arm towards the rear of the apparatus, so as to spin that number-wheel in a clockwise direction, until it is stopped by a pin carried by the said frame arm, entering one of the V-shaped spaces between the teeth of its disc, or one of the radial slots in it. Normally, each of these arms is prevented from moving under the influence of its springs by a detent flap hinged to it. This flap has two detents, one of which is formed by its forward edge that engages the periphery of a control-disc or cam mounted on a vertical, spring-actuated, control-shaft journaled in the aforesaid cross-bar of the apparatus and in the aforesaid upper horizontal member, on the opposite side of the number-wheels to the shaft on which the frame arms are mounted and adapted to be wound in a counter clockwise direction. Each of these discs is provided with a gap at a suitable part of its periphery, say in staggered relationship to each other, which allows the forward edge of the detent flap hinged to the co-operating frame arm, to pass when it reaches it turning in a clockwise direction. After the frame arm is released in this way, it is turned by its spring until it is stopped by the second detent on its hinged flap, which is situated at a greater distance from the shaft on which the frame arms are mounted. This detent also engages the periphery of its control-disc and delays the further movement of its frame arm under the influence of its spring until the gap in its control-disc again releases it. When the frame arm was first released the number-wheel it controls was first spun by reason of the engagement of its spring-pawl with the toothed disc fixed to that number-wheel, which was allowed to continue its rotation during the time the movement of the frame arm was arrested by the second detent on its hinged flap. During this interval the number-wheel may be stopped

in a winning position, indicated by a number or other device on its periphery, by the skill-control mechanism. To enable the number-wheels to be stopped in 5 winning positions, the detent flap hinged to each of the curved arms is provided with a finger that occupies a position in the path of a skill-control arm when the curved arm to which it is hinged is 10 stopped by its first detent. A skill-control arm is provided for each detent flap and is mounted on a short spring-controlled shaft that extends to the front of the apparatus where it is provided with a 15 second arm adapted to be engaged by a lever hinged to the case that encloses the mechanism.

After the control-disc has turned sufficiently in a clock-wise direction to allow 20 the said second detent to enter its gap, the frame-arm again moves unless it has been previously released by the skill-control mechanism, under the influence of its spring until the pin carried by it engages the toothed disc. If this pin enters one 25 of the V-shaped spaces between its teeth, the frame arm is stopped in a position that will leave another part of its detent flap in the gap of its control-disc with 30 the result that it will stop the control-shaft when the edge on the opposite side of the gap in the control-disc reaches it. If the aforesaid pin enters one of the radial slots in the toothed disc, the frame 35 arm will move further until its detent flap is clear of its control-disc and thus allow the control-shaft to continue to turn until the next control-disc mounted on it releases the frame arm that spins and 40 afterwards stops the next number-wheel in the same manner as the one just described. In this way one number-wheel is spun after the one above it has stopped if 45 the pin on the curved arm that co-operates with the said number-wheel above it enters one of the radial slots in its toothed disc. If, however, this pin enters one of the V-shaped spaces between its teeth, the control-shaft is prevented from turning 50 and the apparatus stops.

The upper end of the control-shaft is connected to one end of the wound spring whose other end is secured to a spring case fixed above the horizontal member in 55 which the upper end of the said control-shaft is journaled. The control-shaft has a toothed wheel and a stepped cam plate for pool control, hereinafter described, fixed to its lower end above the platform 60 and a chain wheel; and fixed to it above the said platform is has mechanism for operating the lever that operates the jack pot, all of which are hereinafter described.

The toothed wheel referred to is geared 65 to a fan through a one-way clutch that

retards the rotation of the control-shaft when driven by its spring but allows it to turn freely in the reverse direction to wind it.

The lever for starting the apparatus 70 after a coin or token has been inserted, turns a first horizontal shaft extending between the side frames and journaled in bearings supported by them. This shaft 75 is provided at its right-hand end with three short arms at 120° having rollers at their extremities one of which operates a cam-plate pivoted above it near the rear edge of the right-hand side frame, and 80 another of which operates another cam-plate pivoted beneath it to the same side frame near its front edge. The upper cam-plate is secured to a second horizontal shaft journaled in the side frames of the machine which is secured to three levers, 85 one of which is connected at its free end to a chain that drives the chain wheel on the control-shaft which it turns in the direction to wind its spring, when the upper cam-plate is raised by one of the 90 aforesaid rollers, when the starting lever is operated. This lever after operation is returned to its normal position by a spring of which an end is attached to the lever 95 and the other to the frame. When this roller is raised it moves out of the path of a projection on the lower cam-plate which cam-plate is connected by links to a coin-controlled lever which is not free to 100 move until a coin has been inserted in the apparatus. In this position the other roller engages a portion of the cam surface that is at right-angles to a line drawn from the said roller to the pivot 105 of its cam-plate which, therefore, remains stationary. The rollers are brought back to their initial position by the upper cam-plate.

In order to return the frame arms to the front of the apparatus and to store up 110 energy in their springs to enable them to spin the number-wheels, the shaft on which they are freely mounted has a collar fixed to it between the boss of each arm. These fixed collars have upwardly 115 directed fingers that extend into the path of the arm above each so as to move it when the said shaft is turned in the appropriate direction. For this purpose a turning arm is secured to the lower end 120 of the said shaft. This turning arm is connected by a link to the free end of the second lever secured to the second horizontal shaft. This second lever is turned 125 when the second horizontal shaft is turned by the upper cam-plate with the result that all the frame arms are returned to their starting positions by the same operation. As the frame-arm shaft under spring action moves its fingers away from the 130

frame - arms before the control - shaft begins to turn under the influence of its spring, the finger that turned the first arm counterclockwise will have moved  
 5 away from it clockwise before the arm is released by its control-disc and the frame-arm will, therefore, be able to move sufficiently under the influence of its spring to spin the first number-wheel.

10 After a coin has been inserted, the aforesaid coin controlled lever is freed and the lower cam or locking plate moves a sufficient distance under the influence of a spring connecting the coin controlled  
 15 lever to the coin chute hereinafter referred to, to bring another part of its surface in a position to be engaged by the last mentioned roller, which was engaged with the cam surface of said lower cam-plate. when  
 20 it descends, thereby enabling the roller to turn the said cam-plate which is thus enabled to operate the coin release and distribution mechanism in the manner hereinafter described.

25 During the operation of the starting lever considerable work has to be done to wind the spring of the control-shaft and to return the frame arms to the front of  
 30 the apparatus and this varies according to the number of wheels that have been spun and the number of frame arms that have to be returned, and if the energy applied to the starting lever, is continued  
 35 after the work to be done is finished, the apparatus is liable to receive a very considerable shock. In order to prevent this, a dash-pot is operatively connected to the first horizontal shaft this is the shaft  
 40 turned by the starting lever. The dash-pot is secured to the left-hand side frame.

The dash-pot employed comprises a cylinder in which a loosely fitting piston is reciprocated so as to transfer oil or glycerine and water or other suitable fluid  
 45 from one side of the piston to the other. The piston rod of the cylinder is pivoted to the upper horizontal member of the left-hand side frame, and the lower end of the cylinder is pivoted adjacent an upper  
 50 corner of a quadrilateral jointed frame secured to the left-hand side of the frame, the quadrilateral frame carrier rollers making contact with three arms (at 120°) fixed to the left-hand end of the shaft  
 55 operated by the starting lever. With this arrangement, the piston of the cylinder is caused to transfer the fluid contents of the cylinder to the opposite side of the piston, twice for every third of a revolution of  
 60 the said shaft.

The coin-chute is provided with a pivoted hopper at its upper end. This hopper has a downwardly-extending plate which can pass freely through a slot in  
 65 the coin-chute when the hopper swings on its pivot. In its normal position a coin slit in the bottom of the hopper is in line with the coin-chute but in this position the hopper plate extends through the slot  
 70 in the chute. The front edge of this plate has a cam surface that is engaged by an inserted coin by which the plate is moved out of the slot and the hopper turned on its pivot into a position in which its coin  
 75 slit is moved from over the coin-chute to a return coin-chute. With this arrangement coins inserted while the apparatus is in use are returned to the player. This downwardly extending plate is also provided with side plates at right-angles to  
 80 it, that pass freely through other slots in the coin-chute at right-angles to the one first referred to, so as to prevent a wire or like implement being passed down the chute when the apparatus is not in use.

85 In order that the hopper may be maintained over the return coin-chute after a coin inserted to free the apparatus has fallen below its downwardly extending plate, a rod of suitable shape and length pivoted to an arm operated by the coin-release lever, passes through a hole in one of the side plates of the hopper sufficiently  
 90 to lie behind the coin. This arm may be fixed to a short shaft supported in bearings behind the coin-chute, to which shaft a depending lever is fixed at one end, the other end of the lever being pivotally connected to the lower cam-plate hereinbefore  
 95 described, by links.

100 When these levers are actuated, the aforesaid rod is raised above the coin, which is supported after it falls below the hopper plate and through the chute beneath it, by two pins that extend at right-angles to the front plate of the said chute,  
 105 the rear side of which is cut away.

The depending lever above referred to has a horizontal arm that extends behind the coin-chute and parallel to it. Two  
 110 forwardly-directed fingers which are normally urged towards each other by a spring are pivoted to the upper side of this arm a slight distance apart and extend through slots above the pins that support  
 115 the coin, and two similar spring-controlled fingers are pivoted on the same pins on the underside of the same arm and extend through similar slots to the ones above them. The inner edges of these  
 120 fingers are inclined outwardly towards their free ends so that the coin in falling on to the aforesaid pins, passes between them.

125 When the lower cam-plate is operated by turning the starting lever, it will first turn the short shaft, through the lever fixed to it and the links that connect it to the cam-plate. When the short shaft is  
 130 turned in this way the depending lever

will be moved towards the coin-chute. This movement will cause the inclined inner edges of the fingers pivoted to its arm to engage the opposite sides of the coin supported on the pins with the result that their ends will be separated as they pass forward through the slots in the front plate of the coin-chute and so enable them to clear a stop-plate which would arrest their forward movement if it had not been supported on the pins. At the inner end of the inclined portions of the aforesaid fingers they are provided with notches, the forward edges of which form stops that pass in front of the coin which is drawn off the ends of the supporting pins when the fingers are retracted and allowed to drop into a second chute through which it passes either to a prize-magazine, or to a pool or to a cash-box.

During the forward movement of the depending lever a nose or projection on it engages a spring-controlled arm that carries a rod that passes behind two depending or feeler arms each of which is provided with a pin. The pin on one normally enters a hole in the prize-magazine and the pin on the other makes contact with a pivoted plate on the pool. The magazine has the form of a vertical tube having an internal diameter equal to that of the tokens and the coins inserted to free the apparatus, into which they fall. When the coins in this tube rise above the hole which the aforesaid pin is intended to enter, or when the pin on the other arm makes contact with the pivoted plate on the pool in forward or third position of said plate, the respective pin is prevented from resuming its normal position with the result that deflecting plates carried by it are prevented from returning to their normal positions in the path of a token or coin when it falls. These deflecting plates occupy positions one above the other when neither the prize-magazine nor the pool is full with the result that the uppermost one diverts the falling token into a chute that directs it into the tube or plate, as the case may be, that controls it. When the magazine is full the deflecting plate beneath it will divert the coins into the pool and when both the prize-magazine and the pool are full, the coin will fall into a chute that leads it to the cash-box. The pool will be hereinafter more particularly described. A second pin is provided on the magazine control depending or feeler arm which prevents a coin falling into the tube until the lever is withdrawn during the next operation.

In order to separate the coins inserted to free the apparatus from the tokens delivered the successful players, that have

been inserted into the apparatus to free it, the latter may be provided with a central hole through which the teeth of a suitable star-wheel hereinafter described, will freely pass. This star-wheel is freely mounted on a pin supported at the upper end of a lever fulcrummed on the side of the coin chute, which is operated against the resistance of a spring by the depending lever to which the coin-engaging fingers are pivoted. This star-wheel is situated above the deflector plates carried by the depending arms hereinbefore referred to and the points of its teeth are caused by a spring on the lever that supports it, to pass through a slot in a plate beneath the chute into which a token or coin falls after it has been pulled off the supporting pins by the aforesaid pivoted fingers. When a token falls on to one of the teeth of the star-wheel, its weight turns the star-wheel and the next tooth enters the hole in the centre of the token whose weight again turns the wheel which, therefore, allows it to pass on to one of the deflecting plates and thence into either the prize-magazine or the pool, or direct into the cash-box.

When a coin falls on to one of the teeth of the star-wheel the latter is prevented from turning sufficiently to allow it to pass, by the next tooth which is brought into contact with the centre of the coin through which it cannot pass because it has not a hole at its centre, as the tokens have. Just before the coin-fingers-supporting lever reaches the end of its forward movement but after the deflecting plates have been moved out of their operative positions, the lever engages the end of the lever that supports the pin on which the star-wheel is mounted and moves it sufficiently away from the slotted plate to release the coin held by it, which then falls vertically into a chute that guides it into the cash-box.

The delivery mechanism includes a third lever secured to the second transverse bar and pivotally connected at its free end to a link which is also pivotally and operatively connected to a first or minimum prize delivery slide running in guides in the base of the machine. The prize delivery slide is adapted to run to and fro under the open end of the hereinafter mentioned prize-magazine. The prize delivery slide is provided with an orifice of sufficient diameter just to contain one token horizontally and the orifice is deep enough to contain two tokens superposed vertically, which represents the prize—the minimum prize—for causing the first spinning wheel to release the second. Above the first prize delivery slide are superposed second, third and

fourth prize delivery slides, these prizes being in ascending order of magnitude. Each slide runs in guides in the slide beneath it, is provided with an orifice of sufficient diameter to contain one token 5 horizontally and a predetermined number—four, six, eight as the case may be—vertically superposed. All the orifices normally register vertically with the open 10 orifice at the bottom of the magazine, so that all the slides fill up with their appropriate number of tokens or coins, springs being provided under each guide to force the guides in to close contact with each 15 other. Each slide is held by a control spring which normally tends to pull it towards the rear of the machine. The bottom slide is provided with an upstanding stop at the back whereby by operation 20 of the spindle carrying the third lever all the slides that have delivered their prizes are forced back into their normal positions. The slides are adapted when 25 pulled back by their retaining springs to deliver their prizes into a chute through a common orifice in a plate in the base of the machine beneath the first prize slide. All the slides are held against the 30 tension of their springs in their normal forward positions by a plate having staggered or stepped serrations engaging in slots in the slides and secured by a curved arm to the foot of a vertical shaft pivoted 35 in bearings in the machine frame. The bottom or deepest step corresponds to and engages with the first or minimum prize slide, the next deepest with the next or 40 second prize slide, the shallowest with the third prize slide, the top extremity with the fourth or maximum prize slide. Thus a slight rotation of the shaft will release the first slide, a greater one the second 45 and so on. The vertical shaft to which the curved arm is secured is provided with horizontal arms in staggered relationship from top to bottom of the shaft, each arm 50 corresponding to a slide and being adapted to engage with a pin secured to the appropriate frame arm on suitable rotation of said arm, whereby rotation of 55 the shaft by the second number wheel-frame arm release the first prize, by the third number wheel-frame arm the second prize and so on. The slides are returned to their normal position when the operating lever is actuated on insertion of the next coin.

The pool consists of a vertical box or 60 container having a glass front, a bottom or main pool trap door, and intermediate reserve pool trap door and means for controlling same, a diverter plate; a coin or 65 token counting mechanism, a control plate, means for neutralising or resetting, and means for control by the main cam

control-shaft of the machine and the first horizontal shaft or winding of the machine all hereinafter described.

The vertical box or pool container is 70 disposed underneath the orifice of the pool side of main coin-chute in the forepart of the machine so that the glass front is visible through a window on the front of the outer case of the machine. In one or 75 both sides of the pool container are journaled all the pivoting points of the component parts. The container is enclosed at the back, and has a further partition or false back in the higher or reserve part.

The main pool trap door at the bottom 80 of the pool container is pivoted at the rear with pivoting points in the two sides of the pool container. It has a slotted arcuate extension plate extending behind the pool 85 container near to and parallel to the right hand or main working side of the container.

The intermediate or reserve pool trap 90 door divides the top half of the container from the bottom half and is pivoted a short distance away from the back of the container to allow the free passage of 95 tokens or coins passing between the partition or false back into the lower part of the pool. On the right hand or main 100 working side of the trap door is an extension lug situated a short distance from the pivoting centre and projecting outside the container through an arcuate slot cut in 105 the container side.

Means for controlling the reserve pool 110 trap door consist of a toothed wheel, freely pivoted outside the container below the arcuate slot so that the extension lug of the trap door rests on the periphery of it. 115 A pair of large openings are cut into the periphery of this wheel so that on rotation of a half revolution the aforesaid extension lug is first allowed to fall into an 120 opening and then is lifted back again to the outside periphery. Small ratchet teeth are also cut on the periphery of this wheel and a suitably spring tensioned pawl engages these to allow free movement in an anti-clockwise direction only.

The rotation of this toothed wheel is 125 effected by means of a further small ratchet wheel having suitably shaped teeth with which a spring tensioned actuating pawl pivoted on the control plate, hereinafter described, engages.

The diverter plate is pivoted at the top 130 of the container a short distance from the back and is directed substantially upwards to the orifice of the pool side of the main coin-chute. In one or the first position of 135 this plate, tokens or coins issuing from the coin-chute are guided forward into the high or reserve part of the container and in another or second position coins are 140

directed towards the back of the container and pass between the false back and the back proper down to the lower or main part of the container. In a third position  
 5 the outer edge of this plate is moved forward sufficient to hold the depending or feeler arm controlling the pool diversion previously described away from the coin-chute, so withdrawing its deflector plate  
 10 so that no coins are deflected to the pool side of the coin-chute at all. When in the third position a suitable locking pawl pivoting on the side of the container holds it in place. The positions of this diverter  
 15 are controlled by an extension tail fixed to it and extending outside the container downwards to a counting mechanism hereinafter described.

The counting mechanism consists of a  
 20 main bar freely pivoted on the side of the container with an actuating end extending downwards into the path of a tooth on the control plate hereinafter described, and a coin arresting end extending up-  
 25 wards to the orifice of the coin-chute, having a forwardly directed finger fixed to its extremity upon which coins are arrested before issuing from the coin-chute. This main bar is spring tensioned to rotate it  
 30 in an anti-clockwise direction so that the forwardly directed finger normally lies underneath the coin-chute orifice. Pivoted on the same axis is a feeler bar, extending upwards towards the coin-chute with  
 35 a forward directed feeler finger fixed to its extremity, which finger passes through holes in the coin-chute channel. Movement of this feeler bar is limited by a stop  
 40 or stops engaging the main bar, and spring tension directs it in an anti-clockwise direction.

Pivotaly secured to each of these two bars is a spring tensioned ratchet pawl engaging with the ratchet teeth of a spring  
 45 controlled counting wheel. This counting wheel is freely pivoted to the same axis as the two bars and is spring-tensioned to rotate it in a clockwise direction. Upon the side face of this wheel are carried two  
 50 arcuate cam-plates adjustable in position by means of pin or screws and holes, one plate being of larger radius than the other. The cam-plates and counting wheel may be provided with indicating means  
 55 to show the number of coins which will be counted into the pool. Each of these cam-plates subtends an angle equal to a predetermined number of ratchet teeth on the periphery of the wheel. The down-  
 60 wardly extending tail of the diverter plate previously described presses on the periphery of the arcuate cam-plates. Stop means may be provided to limit its motion in this respect.

65 A control plate is pivotaly secured to

the side of the pool container and is spring-tensioned to turn it in a clockwise direction. An upwardly extending tooth  
 70 engages with the actuating end of the counting mechanism main bar previously described. A pin carried by the lower part of the control plate comes into contact with the slotted arcuate extension  
 75 plate of the main trap door previously described. A further pivot pin carries a connection-link to the main mechanism of the machine. Another pin is freely pivoted to the actuating pawl for the ratchet wheel controlling the reserve trap  
 80 door mechanism previously described. Freely pivoted on the same pin is a neutralizing or resetting bar.

The neutralizer or resetting bar extends vertically from the pivot on the control  
 85 plate. At its high end it is pivotaly connected to the free end of a short lever arm which lever arm is pivoted to the same point on the side of the container as the director plate locking pawl previously  
 90 described.

Near the higher end of the resetter bar is a shaped tooth extension which en-  
 95 gages with a projection on the diverter plate to reset it. Also near the top of the resetter bar is a peg upon which rests the free end of a pawl lifting lever, the other end of which is pivotaly secured to the feeler counting bar and lying so that its top edge is underneath lateral projections  
 100 from the counting pawls.

The control of the pool mechanism is through a connecting link pivoted from the control plate to the free end of a cam  
 105 lever and also by a further link connected to a depending lever pivoted on the upright of the frame, and actuated by the rollers on the first horizontal or winding shaft. Said cam lever is pivoted to the cross bar of the machine, and has at its  
 110 other free end a pin engaging with the periphery of a stepped cam fixed at the lower end of the main control cam shaft of the machine.

The stepped cam on the cam control shaft has a spring controlled pawl posi-  
 115 tioned over an opening in the cam so that its outer edge constitutes a continuation of the radial periphery of the cam.

The action of the pool is as follows:—  
 120 When the first horizontal or winding shaft is rotated one of the rollers moves the depending lever to an upright of the frame and by means of the two links rotates the control plate in an anti-clockwise direction. The tooth on the control  
 125 plate engages with the actuating end of the counting main arm moving it in a clockwise direction, so moving the forwardly directed finger at its top extremity away from the coin-chute, taking with it  
 130

the counting feeler lever and so also withdrawing the feeler finger at its extremity from the coin-chute. This is called position A. When part of the travel of the  
5 roller on the first horizontal shaft is completed the depending lever is released. The control plate thus is free to move to a position called B and held in that position through the link and cam lever with  
10 pin at the end pressing against the periphery of the stepped cam-plate on the main control shaft.

Through its connection with the control plate the finger on the counting main arm  
15 is allowed to move forward under the coin-chute orifice. The counting arm moves with it, and the point of its feeler finger remains just outside the coin-chute channel.

20 When the travel of the rollers on the winding shaft is completed, the token or coin used to free the mechanism will have been drawn back by the fingers and dropped into the main coin-chute. If the  
25 token or coin passes to the pool of the coin-chute by means of the deflector plate on the depending arm controlling this side it falls on to the finger of the counting main lever and so is arrested.

30 The winding action being completed the main control or cam shaft of the machine now rotates through the action of its spring and other mechanism to allow the first frame arm to spin the first number-  
35 wheel. During this rotation, and before the first stopping point is reached, the pin on the cam lever is allowed to move down a step on the edge of the stepped cam. The control plate now moves to a position  
40 called C. The counting main arm thus moves its finger further, still supporting the coin, but the feeler finger on the feeler arm is prevented from further movement by the coin or token in the  
45 chute, thus the ratchet pawl carried by main arm is moved away from the ratchet pawl on the feeler arm, a distance equal to 1 tooth of the counting wheel.

If the main control shaft stops by reason  
50 of the frame arm pins entering between the teeth in the toothed disc and not in a radial slot (no win) no further movement of the pool mechanism occurs, it remains at position C.

55 On the next winding operation of the machine the same operations occur; the pool control plate is first moved to position A, when the token or coin previously  
60 arrested is allowed to issue from the coin-chute by reason of the finger of the counting main arm being withdrawn from under it, the coin strikes the divertor plate which is in its first position i.e. its tail  
65 resting on the larger diameter arcuate cam-plate on the counting wheel and is

diverted forward into the reserve pool.

On movement of the counting main arm from positions C to B it takes up the free  
70 movement between it and the feeler arm and in moving from B to A carries the feeler arm with it. The two ratchets on the feeler arm will have now closed together again the distance equal to one  
75 tooth of the counting wheel, thus having accomplished a net movement of one tooth of the counting wheel. This net movement of one tooth of the counting wheel occurs every time a coin is directed to the  
80 pool side of the coin-chute. When a predetermined number of tokens or coins have been diverted to the reserve pool, the counting wheel will have rotated sufficiently to allow the tail of the divertor  
85 plate to fall off the first arcuate cam-plate on to the second or smaller diameter arcuate plate. This is the second position of the divertor plate. Coins are now directed down the back of the pool container into the lower or main pool. Again  
90 when a predetermined number of coins have been directed this way, the counting wheel will be rotated to a point where the tail of the divertor plate falls off the end of the second arcuate cam-plate and is  
95 thus free to move to its third or locked position, thus preventing any further coins being directed to the pool side of the main coin-chute as previously described.

To pay out the pool it is necessary for  
100 the machine to successively spin all the number wheels i.e. frame arm pins drop into radial slots of all toothed discs of number wheels. Then the main control cam shaft will have rotated sufficiently to  
105 allow the pin on the cam lever to fall into an opening in the stepped cam. This moved control plate to a position D. The pin on the control plate which engages the slotted arcuate plate extension of the  
110 bottom trap door now moves to a position over the slot in the arcuate surface thus allowing the arcuate plate to rise and consequently the main trap door to fall and also the contents of the main pool which  
115 fall into a collecting trough directed to deliver the coins to outside the machine.

The neutralising or resetting bar is  
120 lifted, thus rotating the short lever arm, which in turn lifts the divertor plate locking pawl by reason of a stop peg on this pawl, thus unlocking the divertor plate if it has been in the locked position. The  
125 tooth on the resetting bar presses against the lateral projection of the tail of the divertor plate thus moving the divertor plate back to its first position. At the same time the peg on the resetting lever lifts the free end of the pawl lifting lever, lifting the two counting pawls, and thus releasing the counting wheel, which turns  
130

under tension of its spring in a clockwise direction back to its initial or neutral position against a stop.

5 On the next winding action of the machine the control plate is moved from position D to position A. During the movement D to C the pin re-engages the arcuate extension of the main trap door thus closing it. The resetting lever with-  
10 drawn releases the pawls and so forth. The ratchet pawl controlling the reserve trap door wheels is at position D high enough to engage a tooth in ratchet wheel, and on movement D to A rotates the ratchet  
15 wheel, to bring the opening in the periphery of the larger wheel to allow the reserve pool trap door to fall and release its contents into main pool.

20 Further action of the machine moving the control plate between positions A and C allows the aforesaid reserve ratchet pawl to engage further near spaced teeth in the ratchet wheel, thus rotating in successive stages the pool control wheels closing the  
25 reserve pool trap door. Then the trap door is closed, half a revolution has been completed, and a wide space on the small ratchet wheel prevents the ratchet pawl connecting again until a further pool re-  
30 lease occurs i.e. movement to D.

In order to divert small discs or coins inserted into the apparatus to free it, a chute is provided beneath the hereinbefore mentioned pins that support tokens or  
35 coins of the proper size preparatory to their being engaged by the freeing mechanism. If the token or coin inserted is too small it will fall between the pins into a suitable receptacle so that the free-  
40 ing mechanism cannot be operated by it.

In a modified form of device the stepped cam is secured to a lever pivoted to the bottom slide and this lever is pivotally attached to an arm on a post on the  
45 opposite side of the frame, which post is provided with arms actuated by pins on the frame arms to rotate said post to actuate said arm. The cam is controlled by a spring attached to said post.

50 In a further modified form of device in-

stead of the trap door to the reserve pool being held in position by a pawl secured to the axle, the trap door may be actuated by a cam pivoted to the side of the con-  
55 tainer and operated by a ratchet and pawl, the pawl being actuated by the main lever that actuates the pawl mechanism.

The mechanism is enclosed in a case provided with a coin slot, one or more windows through which the numbers on the wheels can be seen, windows through  
60 which the pool coins can be seen, skill controlled levers and the starter lever.

The coin slot consists of a hollow chute casting having a selecting ring rigidly  
65 fixed to it. The hollowed chute part is rectangular of a size amply large enough for coins to pass down it. The selecting ring has an internal bore of a size to pass the correct size of coin but to prevent in-  
70 ssertion of an oversize or damaged coin. The distance between the edge of the selecting ring inside the hollow chute and the back face of the chute is just sufficient to allow the normal thickness of coin to  
75 pass, but to prevent bent or damaged coins passing.

For easy removal the coin slot casting is fastened to its place on the outside of the case by a forward lug or projection  
80 which engages under a fixed part of the case and a further wedge-shaped lug projecting towards the rear of the case. A spring tensioned locking lever is pivoted horizontally inside the case to engage  
85 with the wedge shaped lug of coin slot and by its engagement locks the coin slot flat into position.

The starting lever is provided with buffers that limit the angle through which  
90 it may be operated, and a pivoted driving part that engages one of the rollers on the operating shaft when the starting lever is moved in one direction and is tripped out of its path when the lever is returned to  
95 its starting position.

Dated this 23rd day of February, 1935.

NEWBURN, ELLIS & CO.,  
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Chartered Patent Agents.

## COMPLETE SPECIFICATION

### Improvements in and relating to Coin-, Token- or Check-freed Apparatus for Playing a Game of Skill

I, BERNARD WILLIAM BRENNER, of 374, London Road, Croydon, Surrey, a British Subject, do hereby declare the nature of  
100 this invention and in what manner the same is to be performed to be particularly

described and ascertained in and by the following statement:—

This invention relates to coin-, token- or check-freed apparatus for playing a  
105 game of skill of the kind comprising a

plurality of wheels that are adapted to be spun and in which means are provided for stopping the said wheels in certain predetermined positions in which a prize-delivery mechanism is permitted to deliver a prize determined by the positions in which the said wheels stop. Heretofore the aforesaid wheels have all been spun at the same time and the operation of the prize-delivery mechanism has been controlled by the relative angular positions of all the wheels when they come to rest.

The present invention has for its object improvements in the coin-, token- or check-freeing mechanism of apparatus of the kind referred to and in the general construction thereof according to which each wheel is spun independently by energy stored by the operation of a lever after it has been freed by the insertion of a coin-, token- or check in a slot, as a result of which one of the said number-wheels is first spun and if it is stopped in a winning position, the second wheel is spun and so on until one of the said wheels stops in a non-winning position. Prizes may be delivered when any of the wheels stop in winning position and when the last wheel of the series stops in a winning position a pool, into which some of the coins, tokens or checks, inserted into the apparatus to free it, fall, may also be delivered to the successful player.

A further feature of the present invention consists of means for separating the coins, tokens or checks inserted into the apparatus to free it, from tokens or checks with which the prize magazine and pool are charged before it is used, in order that the former may be delivered into a cash-box and retained for the use of the apparatus and the latter may be delivered to successful players to enable them to use the apparatus longer for their amusement, without further payment until the tokens or checks, hereinafter referred to as tokens, they have won are used up.

The figures in the accompanying drawings illustrate one form of coin-, token-, or check-freed apparatus made in accordance with this invention, wherein:—

Fig. 1 is a front elevation.

Fig. 2 is a part rear elevation.

Fig. 3 is a right-side elevation.

Fig. 4 is a left-side elevation.

Fig. 5 is a plan.

Fig. 6 is a plan showing the stepped cam plate 241.

Fig. 6a is a similar view to Fig. 6 showing an alternative position.

Fig. 7 is a sectional view of the pool.

Fig. 8a is a plan of the delivery mechanism.

Fig. 8b is an underside plan of one of the slides.

Fig. 8c is a section on the line V—V Fig. 8a.

Fig. 8d is a side elevation, partly in section, of the delivery mechanism.

Fig. 9 is a detail of the hopper and coin chute.

Figs. 10 and 10a are plan views showing different positions to the fingers 103.

Fig. 11 shows the raised position of the depending arm 121.

Fig. 12a is a front elevation of the casing enclosing the apparatus.

Fig. 12b is a side elevation of the coin slot.

Fig. 13 is a detail of the starting handle.

Fig. 14 illustrates a modification of the delivering device.

According to one mode of carrying out the present invention (Fig. 1) a plurality of number-wheels 2a, 2b, 2c, 2d, 2e, are freely mounted one above the other on a stationary vertical shaft 3 fixed at its lower end to a platform 4 and a cross bar 5 supported by side bars 6, 6, a suitable distance above the base of the apparatus. The upper end of this shaft is fixed to a horizontal member 7 supported by pillars 8, 8, rising from each side-bar 6.

Each of the number-wheels 2a . . . has a disc 9a, 9b, 9c, 9d, 9e, fixed to its upper-side and is supported by a shoulder or ball-race 10a, 10b, 10c, 10d, 10e, fixed to the wheel shaft 3, so that each may rotate independently. The disc 9a . . . fixed to each of the said number-wheels is provided with V-shaped teeth 11a, 11b, 11c, 11d, 11e, and a deep substantially radial slot 12a, 12b, 12c, 12d, 12e at suitable intervals between its teeth, (Fig. 5).

Above each number-wheel 2a . . . a frame arm 13a, 13b, 13c, 13d, 13e curved or bent in a horizontal plane so as to extend around the shaft 3 on which the said wheels are mounted, is freely mounted by means of a boss 14a . . . on another shaft 15 journaled in the aforesaid cross-bar 5 and upper horizontal member 7, between one of its supporting pillars 8 and the edge of the number-wheels 2a. . .

Each of the aforesaid frame arms 13a . . . is provided at its free end with a spring pawl 16a, 16b, 16c, 16d, 16e, (Fig. 5), adapted to engage the toothed disc 9a . . . of the number-wheel beneath it, and is acted upon by a separate spring 17a . . . adapted to move said arm 13a . . . towards the rear of the apparatus, so as to spin that number-wheel 2a . . . in a clockwise direction, until it is stopped by a pin 18a, 18b, 18c, 18d, 18e carried by the said frame arm 13a . . . entering one of the V-shaped spaces 19a . . . between the teeth 11a . . . of its disc 9a . . . or one of the radial slots 12a . . . in it. Normally, 130

each of these arms 13a . . . is prevented from moving under the influence of its springs 17a . . . by a detent flap 20a, 20b, 20c, 20d, 20e hinged to it. This flap 20a

5 . . . has two detents 21a, 21b, 21c, 21d, 21e, and 22a, 22b, 22c, 22d, 22e, one of which namely 21a . . . is formed by its forward edge that engages the periphery 23a, 23b, 23c, 23d, 23e of a control-disc or cam 24a,

10 24b, 24c, 24d, 24e mounted on a vertical, spring-actuated, control-shaft 25 journaled in the aforesaid cross-bar 5 of the apparatus and in the aforesaid upper

15 horizontal member 7, on the opposite side of the number-wheels 2a . . . to the shaft 15 on which the frame arms 13a . . . are mounted and adapted to be wound in a counter clockwise direction. Each of these

20 discs 24a . . . is provided with a gap 26a . . . at a suitable part of its periphery, say in staggered relationship to each other, which allows the forward edge 21a . . . of the detent flap 20a . . . hinged to the co-operating frame arm 13a . . . to

25 pass when it reaches it turning in a clockwise direction. After the frame arm 13a . . . is released in this way, it is turned by its spring 17a . . . until it is stopped by the second detent 22a . . . on

30 its hinged flap 20a . . . which is situated at a greater distance from the shaft 15 on which the frame arms 13a are mounted. This detent 22a . . . also engages the periphery 23a . . . of its control-disc 24a . . .

35 and delays the further movement of its frame arm 13a . . . under the influence of its spring 17a . . . until the gap 26a . . . in its control-disc 24a . . . again releases it. When the frame arm 13a . . . was

40 first released the number-wheel 2a . . . it controls was first spun by reason of the engagement of its spring-pawl 16a . . . with the toothed disc 9a . . . fixed to that number-wheel, which was allowed to continue its rotation during the time the

45 movement of the frame arm 13a . . . was arrested by the second detent 22a . . . on its hinged flap 20a . . . During this interval the number-wheel 2a . . . may be

50 stopped in a winning position, indicated by a number or other device on its periphery, by the skill-control mechanism. To enable the number-wheels 2a . . . to be stopped in winning positions, the de-

55 tent flap 20a . . . hinged to each of the frame arms 13a is provided with a finger 27a, 27b, 27c, 27d, 27e, (Fig. 4) that occupies a position in the path of a skill-control arm 28a, 28b, 28c, 28d, 28e when

60 the curved arm to which it is hinged is stopped by its first detent 21a . . . Thus a skill-control arm is provided for each detent flap and is mounted on a short spring-controlled shaft 29a, 29b, 29c, 29d,

65 29e that extends to the front of the appara-

tus where it is provided with a second arm 30a, 30b, 30c, 30d, 30e adapted to be engaged by a lever 31a . . . (Fig. 12a), hinged to the case that encloses the mechanism. When the lever 31a is

70 operated to raise arm 30a, this through shaft 29a raises arms 28a . . . which raises the corresponding finger 27a . . . and so releases detent flaps 20a . . . and allows wheel 2a to stop.

After the control-disc 24a . . . has turned sufficiently in a clockwise direction to allow the said second detent 22a . . . to enter its gap 26a . . . the frame-arm 13a . . . again moves unless it has been

80 previously released by the skill-control mechanism, under the influence of its spring 17a . . . until the pin 18a . . . carried by it engages the toothed disc 9a . . . If this pin 18a . . . enters one of the V-shaped spaces 19a . . . between its teeth, 11a . . . the frame arm 13a . . . is stopped in a position that will leave detent 22a . . . in the gap 26a . . . of its control-disc

85 24a . . . with the result that it will stop the control-shaft 25 when the edge on the opposite side of the gap 26a . . . in the control-disc 24a . . . reaches it. If the aforesaid pin 18a . . . enters one of the radial slots 12a . . . in the toothed disc 9a . . . the frame arm 13a . . . will move further until its detent flap 20a is clear of its control-disc 24a and thus allow the control-shaft 25 to continue to turn until the

90 next control-disc 24b . . . mounted on it releases the frame arm 13b that spins and afterwards stops the next number-wheel 2b . . . in the same manner as the one just described. In this way one number-wheel is spun after the one above it has stopped

95 if the pin on the frame arm that co-operates with the said number-wheel above it enters one of the radial slots in its toothed disc. If, however, this pin enters one of the V-shaped spaces between

100 its teeth, the control-shaft is prevented from turning and the apparatus stops.

The upper end of the control-shaft 25 is connected to one end 32 of the wound spring 33 whose other end 34 is secured to

11 a spring case 35 fixed above the horizontal member 7 in which the upper end of the said control-shaft 25 is journaled. The control-shaft 25 has a toothed wheel 36 and a stepped cam plate 37 for pool control, hereinafter described, fixed to its

12 lower end above the platform 4 and a chain wheel 38 at the top of the shaft 25.

The toothed wheel 36 referred to is geared to a fan 41 through a one-way

12 clutch 42 that retards the rotation of the control-shaft 25 when driven by its spring 33 but allows it to turn freely in the reverse direction to wind it.

In order for the apparatus to function 18

for the delivery of prizes it is necessary that a token be inserted in the hopper 82 and that such token shall fall as will be hereinafter described into such a position

5 that fingers 103 will be separated when allowed to move forward, by the commencement of the movement of handle 43, the actual motive force for this being the pull of spring 69, so that they can move

10 forward to their full extent. By doing this they allow levers 62, 96 also to move forward, lever 96 being pulled forward by spring 69 and consequently allow cam 50 to release the adjacent roller on shaft 44

15 when the said shaft is rotated by lever 43.

The lever 43 for starting the apparatus after a coin or token has been inserted, turns in a counter-clockwise direction a first horizontal shaft 44 extending between

20 the side frames 45*a*, 45*b* and journaled in bearings 46 supported by them. This shaft 44 is provided at its right-hand end with three short arms 47*a*, 47*b*, 47*c* at 120° having rollers 48*a*, 48*b*, 48*c* (Fig. 3)

25 at their extremities one of which operates an upper cam-plate 49 pivoted above it near the rear edge of the right-hand side frame 45*a*, and another of which operates another cam-plate 50 pivoted beneath it to

30 the same side frame 45*a* near its front edge. Ratchet wheel 44<sup>1</sup> on shaft and pawl 44<sup>11</sup> pivoted on the frame prevent counter rotation of shaft 44. The upper cam-plate 49 is secured to a second horizontal shaft 51 journaled in the side

35 frames 45*a*, 45*b* of the machine which shaft is secured to arms 51*a*, 51*b*, 51*c* (Fig. 2). Arms 51*a*, 51*b*, 51*c* on rotation of the shaft make contact with and actuate

40 three levers 52, 53, 54 loose on the shaft of which lever 52 is connected at its free end 55 to a chain 56 that drives the chain wheel 38 on the control-shaft 25 which it turns in the direction to wind its spring

45 33, when the upper cam-plate 49 is raised by 48*a*, one of the aforesaid rollers, when the starting lever 43 is operated. The lever 54 (Fig. 2), after operation is returned to its normal position by

50 spring 57<sup>1</sup>, one end 58 of said spring being attached to the lever and the other 59 to the frame. Spring 57 of which one end 58 (Fig. 2), is attached to the lever and the other 59 to the frame

55 causes lever 52 to take up the slack of chain 56. When this roller 48*a* . . . is raised the next roller 48*b* . . . moves out of the path of a projection 60 on the lower cam-plate 50 which cam-plate 50 is connected by links 61, 62 (Fig. 3) to a coin-controlled lever 96 which is not free to

60 move fully until a coin has been inserted in the apparatus. In this position another roller 48*c* . . . engages a portion 63 of the cam surface that is at right-angles to a

line drawn from the said roller to the pivot of its cam-plate 50 which, therefore, remains stationary. The rollers 48*a* . . . are brought to their initial position by the upper cam plate 49 under influence of

70 spring 57<sup>1</sup>. The limiting position of cams 49, 50 is shown in broken line.

If no coin is inserted when it is attempted to operate shaft 44 by lever 43 the adjacent arm 47*c* . . . meets and is

75 stopped by cam surface 63 and is thereby held against further rotation, because fingers 103 when they attempt to move forward are stopped by plate 111.

On the contrary when a coin is inserted and as previously described separates

80 fingers 103 when they attempt to move forward so that they can pass plate 111, lever 96 can be pulled forward by spring 69 and therefore also lever 61 can move

85 forward and cam surface 63 moves out of the way of the adjacent roller 48*c* . . . by the time that arm reaches the original position of the cam surface 63.

Spring 69 pulls lever 96 over about half

90 its full travel. The remainder of the travel of lever 96 is completed by the pressure of roller 48*c* . . . in cam surface 71 . . . When lever 96 has completed the function of its forward travel it is with-

95 drawn to its normal position of rest by the pressure of roller 48*c* . . . on cam surface 63*b* on the completion of the motion of roller 48*c* . . . Actually lever 43 turns

100 arm 47*c* . . . through about 90° and the pressure of cam 49 forces the arm 47*c* . . . through another 30° making in all about 120° per arm.

In order to return the frame arms to the front of the apparatus and to store up

105 energy in their springs 17*a* . . . to enable them to spin the number-wheels 2*a* . . . the shaft 15 on which they are freely mounted has a collar 64*a* . . . fixed to it between the boss 14*a* . . . of each arm

110 (Fig. 5). These fixed collars 64*a* have upwardly directed fingers 65*a* that extend into the path of the arm above each so as to move it when the said shaft 15 is turned in the appropriate direction. For

115 this purpose a turning arm 66 (Fig. 8*a*) is secured to the lower end of the said shaft 15. This turning arm 66 is connected by a link 67 (Fig. 2) to the free end 68 of the second lever 53 secured to

120 the second horizontal shaft (Fig. 2). This second lever 53 is turned when the second horizontal shaft 51 is turned by the upper cam plate 49 with the result that all the frame-arms 13*a* . . . are returned to their

125 starting positions by the same operation. As the frame-arm shaft 15 under spring action moves its fingers 65*a* away from the frame-arms 13*a* before the control-shaft 25 begins to turn under the influence

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of its spring 33, the finger 65a . . . that turned the first arm 13a counter-clockwise will have moved away from it clockwise before the arm 13a is released by its control-disc 24a and the frame-arm 13a will, therefore, be able to move sufficiently under the influence of its spring 17a to spin the first number-wheel 2a.

After a coin has been inserted, the aforesaid coin controlled lever 96 is freed and the lower cam 50 or locking plate (Fig. 3) moves a sufficient distance under the influence of the spring 69 connecting it to the coin chute 70 hereinafter referred to, to bring cam surface 71 in a position to be engaged by the last mentioned roller, which was engaged with the locking surface 63 of said lower cam plate 50, thereby enabling the roller to turn the said cam-plate 50 which is thus enabled to operate the coin release and distribution mechanism in the manner hereinafter described.

During the operation of the starting lever 43 considerable work has to be done to wind the spring 33 of the control-shaft 25 and to return the frame arms 13a . . . to the front of the apparatus and this varies according to the number of wheels 2a . . . that have been spun and the number of frame arms 13a . . . that have to be returned, and if the energy applied to the starting lever 43, is continued after the work to be done is finished, the apparatus is liable to receive a very considerable shock. In order to prevent this, a dash-pot 72 (Fig. 4) is operatively connected to the first horizontal shaft 44; this is the shaft turned by the starting lever. The dash-pot 72 is secured to the left hand side frame 45b.

The dash-pot employed comprises a cylinder 73 in which a loosely fitting piston is reciprocated so as to transfer oil or glycerine and water or other suitable fluid from one side of the piston to the other. The piston rod 74 of the cylinder is pivoted to the upper horizontal member 75 of the left-hand side frame 45b, and the lower end 76 of the cylinder is pivoted adjacent an upper corner 77 of a quadrilateral jointed frame 78 secured to the left-hand side 45b of the frame, the quadrilateral frame carrier rollers 79 making contact with three arms 80 (at 120°) fixed to the left-hand end of the shaft operated by the starting lever 43. With this arrangement, the piston of the cylinder is caused to transfer the fluid contents of the cylinder to the opposite side of the piston, twice for every third of a revolution of the said shaft.

The coin-chute 81 (Fig. 3) is provided with a pivoted hopper 82 at its upper end. This hopper has a downwardly ex-

tending plate 83 which can pass freely through a slot 84 in the coin-chute when the hopper swings on its pivot 85. In its normal position a coin slit 86 in the bottom of the hopper 82 is in line with the coin chute 81 but in this position the hopper plate 83 extends through the slot 84 in the chute 81. The front edge of this plate 83 has a cam surface 87 that is engaged by an inserted coin by which the plate 83 is moved out of the slot 84 and the hopper 82 turned on its pivot 85 into a position in which its coin slit 86 is moved from over the coin chute 81 to a return coin chute 88. With this arrangement coins inserted while the apparatus is in use are returned to the player. This downwardly extending plate 83 is also provided with side plates 89 (Fig. 1) at right angles to it, that pass freely through other slots 90 in the coin chute 81 at right-angles to the one first referred to, so as to prevent a wire or like implement being passed down the chute 81 when the apparatus is not in use.

In order that the hopper 82 may be maintained over the return coin chute 88 after a coin inserted to free the apparatus has fallen below its downwardly extending plate 83, a rod 91 of suitable shape and length pivoted to an arm 92 operated by the coin-release lever 96, passes through a hole 93 in one of the side plates of the hopper sufficiently to lie behind the coin and by its weight positively to move the hopper into the required position. This arm 92 is fixed to a short shaft 94 (Fig. 5) supported in bearings 95 in arms 86 behind the coin chute 81, to which shaft 94 the depending lever 96 is fixed at one end 97, the other end 98 of the lever being pivotally connected to the lower cam-plate 50, hereinbefore described, at 99 by links 61, 62, with allowance for angular adjustment of plate 50 diagrammatically indicated at 99<sup>a</sup>.

When these levers are actuated, the aforesaid rod 91 is raised above the coin, which is supported after it falls below the hopper plate 83 and through the part of the chute 81 beneath it, by two pins 100 (Fig. 9) that extend at right-angles to the front plate 101 of the said chute, the rear side of which is cut away. Normally the centre of gravity of rod 91 is so situated that it hangs as illustrated in Fig. 3 to prevent the passage of a wire or the like as above described down chute 81. A token on passing pushes rod 91 aside as in Fig. 9, whereafter the rod swings back to the position in Fig. 3.

The depending lever 96 above referred to has a horizontal arm 102 (Fig. 10) that extends behind the coin chute 81 and parallel to it. Two forwardly-

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directed fingers 103 which are normally urged towards each other by a spring 104 are pivoted to the upper side of this arm 102 a slight distance apart and extend through slots 105 above the pins 100 that support the coin, and two similar spring-controlled fingers 106 are pivoted on the same pins 107 on the underside of the same arm 102 and extend through slots 108 similar to the ones above them. The inner edges 109 of these fingers are inclined outwardly towards their free ends 110 so that the coin in falling on to the aforesaid pins 100, passes between them.

When the lower cam-plate 50 is operated by turning the starting lever 43, the short shaft 94 is turned through the spring 69 and then through the depending lever 96 and the links that connect it to the cam-plate. When the short shaft 94 is turned in this way the depending lever 96 will be moved towards the coin chute 81. This movement will cause the inclined inner edges (Figs. 10 and 10a) of the fingers pivoted to its arm to engage the opposite sides of the coin supported on the pins 100 with the result that their ends 110 will be separated as they pass forward through the slots 105 in the front plate 101 of the coin-chute 81 and so enable them to clear the stop-plate 111 which would arrest their forward movement if a coin had not been supported on the pins. By clearing the stop-plate 111 the fingers 103 are able to move forward sufficiently far to allow the operating handle to be turned far enough for the handle to rock lever 52 far enough to pull chain 56 to wind spring 33 and rotate cam shaft 25 and arms 13a. . . . When handle 43 releases arm 47a . . . the spring 33 causes shaft 25 to rotate in the opposite direction allowing cams 24a . . . to rotate and permit arms 13a . . . to return permitting of drive of the wheels 2a . . . and actuation of other mechanism as previously described. At the inner end of the inclined portions of the aforesaid fingers they are provided with notches 112, the forward edges 113 of which form stops that pass in front of the coin which, when the fingers are retracted owing to roller 48b . . . pushing cam surface 63b back, is drawn off the ends of the supporting pins 100 and allowed to drop into a second chute 114 through which it passes either to a prize-magazine 115, or to a pool 116 (Fig. 1) or to a cash-box (not shown).

During the forward movement of the depending lever 96 a nose or projection 117 (Figs. 1 and 11) on it engages a spring-controlled arm 118 that carries a rod 119 that passes behind two depending or feeler arms 120, 121 each of which is provided with a pin. The pin 122 (Fig. 5) on one normally enters a hole 123 in the prize magazine 115 and the pin 124 on the other makes contact with a pivoted plate 125 on the pool 116. The magazine 115 has the form of a vertical tube having an internal diameter equal to that of the tokens or the coins inserted to free the apparatus, into which they fall. When the coins in this tube rise above the hole 123 which the aforesaid pin 122 is intended to enter, or when the pin 124 on the other arm makes contact with the pivoted plate 125 on the pool 116 in the extreme forward position of said plate, the respective pin is prevented from resuming its normal position with the result that deflecting plates 126 or 127 carried by the arms in question are prevented from returning to their normal positions in the path of a token or coin when it falls. These deflecting plates 126, 127 occupy positions one above the other when neither the prize-magazine 115 nor the pool 116 is full with the result that the uppermost one 126 diverts the falling token into a chute 128 that directs it into the tube or plate, as the case may be, that controls it. When the magazine 115 is full the lower deflecting plate 127 will divert the coins into the pool 116 and when both the prize-magazine and the pool are full, the coin will fall into a chute 129 (Fig. 3) that leads it to the cash-box (not shown). The pool will be hereinafter more particularly described. A second pin 130 is provided on the magazine control depending or feeler arm 120 which prevents a coin falling into the tube until the lever is withdrawn during the next operation.

If it is desired to ensure that only tokens or checks be delivered as prizes in order to separate therefrom the coins that may be inserted, the tokens or checks may be provided with a central hole through which the teeth 131 (Fig. 3) of a suitable star-wheel 132 hereinafter described, will freely pass. In such a case this star-wheel 132 is freely and removably mounted on a pin 133 supported at the upper end of a spring-controlled lever 134 fulcrummed on the side of the coin chute 81, which is operated by the depending lever to which the coin-engaging fingers are pivoted. This star-wheel 132 is situated above the deflector plates 126, 127 carried by the depending arms 120, 121 hereinbefore referred to and the points of its teeth 131 are caused by a spring 137 on the lever 134 that supports it, to pass through a slot 138 in a plate 139 below the chute into which a token or coin falls after it has been pulled off the supporting pins 100 by the aforesaid

pivoted fingers 106. When a token falls on to one of the teeth 131 of the star-wheel, its weight turns the star-wheel 132 and the next tooth enters the hole in the centre of the token whose weight again turns the wheel 132 which, therefore, allows it to pass on to one of the deflecting plates 126, 127 and thence into either the prize-magazine 115 or the pool 116, or direct into the cash-box.

When a coin falls on to one of the teeth 131 (Fig. 3) of the star-wheel 132, the latter is prevented from turning sufficiently to allow it to pass by the next tooth, which is brought into contact with the centre of the coin through which the tooth cannot pass because the coin has not a hole at its centre, as the tokens have. Just before the depending lever 96 reaches the end of its forward movement but after the deflecting plates 126, 127 have been moved out of their operative positions, the depending lever 96 engages the lower end of the lever 134 that supports the pin 133 on which the star-wheel 132 is mounted and thus moves the pin 133 sufficiently away from the slotted plate to release the coin held by it, which then falls vertically into the centre part of a chute 140 that guides it into the cash-box chute 129.

The delivery mechanism includes a third lever 54 (Fig. 2) secured to the second horizontal shaft 51 and pivotally connected at its free end to a link 141, Figs. 3 and 8*d*, which is also pivotally and operatively connected to a first or minimum prize delivery slide 142*a* running in guides 143 (Fig. 1) in the base of the machine. The prize delivery slide 142*a* is adapted to run to and fro under the open end of the hereinbefore mentioned prize-magazine 115 (Fig. 1). The prize delivery slide 142*a* is provided with an orifice 144 of sufficient diameter just to contain one token horizontally and the orifice 144 is deep enough to contain two tokens superposed vertically, which represents the prize—the minimum prize—for causing the first spinning wheel 2*a* to release the second 2*b*. Above the first delivery slide 142*a* are superposed second, third and fourth prize delivery slides 142*b*, 142*c*, 142*d*, these prizes being in ascending order of magnitude. Each slide runs in guides in the slide beneath it, is provided with an orifice of sufficient diameter to contain one token horizontally and a predetermined number—four, six, eight as the case may be—vertically superposed. All the orifices 144 . . . normally register vertically with the open orifice 145 at the bottom of the magazine, so that all the slides 142*a* . . . fill up with their appropriate number of tokens

or coins, springs 146*a* . . . (Fig. 8*b*) being provided under each slide to force the slides 142*a* . . . in to close contact with each other. Each slide is held by a control spring 147*a*, 147*b*, 147*c*, 147*d* which normally tends to pull it towards the rear of the machine. The bottom slide 142*a* is provided with an upstanding stop 148 (Fig. 8*d*) at the back whereby by operation of the spindle carrying the third lever 54 all the slides that have delivered their prizes are forced back into their normal positions. The slides 142*a* . . . are adapted when pulled back by their retaining spring 147*a* . . . to deliver their prizes into a chute through a common orifice 149 in a plate 150 in the base of the machine beneath the first prize slide. All the slides 142*a* . . . are held against the tension of their springs 147*a* . . . in their normal forward positions by a plate 151 (Fig. 8*a*) having staggered or stepped serrations engaging in slots 153 in the slides and secured by a curved arm 154 (Fig. 8*a*) to the foot of a vertical shaft 155 pivoted in bearings 156 in the machine frame. The bottom or deepest step 152 corresponds to and engages with the first or minimum prize slide 142*a*, the next deepest step with the next or second prize slide 142*b*, the shallowest step with the third prize slide 142*c*, and the top extremity with the fourth or maximum prize slide 142*d*. Thus a slight rotation of the shaft 155 will release the first slide 142*a*, a greater one the second 142*b* and so on. The vertical shaft 155 to which the curved arm 154 is secured is provided with horizontal arms 157*a*, 157*b*, 157*c*, 157*d* (Fig. 1) in staggered relationship from top to bottom of the shaft, each arm 157*a* . . . corresponding to a slide 142*a* and being adapted to engage with a pin 158*a*, 158*b*, 158*c*, 158*d* secured to the appropriate frame arm 13*b* . . . on suitable rotation of said arm, whereby rotation of the shaft 155 by the second number wheel-frame 13*b* releases the first prize, by the third number wheel-frame arm 13*c* the second prize and so on. The slides 142*a* . . . are returned to their normal position when the operating lever is actuated on insertion of the next coin.

The pool consists of a vertical box or container having a glass front, a bottom or main pool trap door, and an intermediate reserve pool trap door and means for controlling same, a divertor plate, a coin or token counting mechanism, a control plate, means for neutralising or resetting and means for control by the main cam control shaft of the machine and the first horizontal shaft or winding of the machine all hereinafter described.

The vertical box or pool container

is disposed underneath the orifice of the pool side of the main coin chute in the forepart of the machine so that the glass front 160 is visible through a window 161 on the front of the outer case 162 of the machine (Fig. 12a). In one or both sides of the pool container are journaled all the pivoting points of the component parts. The container 159 is enclosed at the back, and has a further partition or false back 163 in the higher or reserve part 164 (Fig. 7).

The main pool trap door 165 at the bottom of the pool container 159 is pivoted at the rear with pivoting points 166 in the two sides of the pool container. It has a arcuate extension plate 167, slotted at 167<sup>1</sup>, extending behind the pool container 159 near to and parallel to the right hand or main working side of the container.

The intermediate or reserve pool trap door 168 (Fig. 7) divides the top half of the container from the bottom half and is pivoted at 169 a short distance away from the back of the container to allow the free passage of tokens or coins passing between the partition or false back 163 into the lower part of the pool. On the right hand or main working side of the trap door 168 is an extension lug 170 situated a short distance from the pivoting centre and projecting outside the container through an arcuate slot 171 cut in the container side.

Means for controlling the reserve pool trap door consist of a toothed wheel 172 (Fig. 3) freely pivoted at 173 outside the container below the arcuate slot 171 so that the extension lug 170 of the trap door 168 rests on the periphery 174a of it. A pair of large openings 175a, 175b are cut into the periphery 174 of this wheel so that on rotation of a half revolution the aforesaid extension lug 170 is first allowed to fall into an opening and then is lifted back again to the outside periphery 174. Small ratchet teeth 176 are also cut on the periphery of this wheel and a pawl 177 suitably spring tensioned at 220 engages these to allow free movement in an anti-clockwise direction only.

The rotation of this toothed wheel 172 is effected by means of a further small ratchet wheel 178 having suitably shaped teeth 179 with which an actuating pawl 180 spring tensioned at 218 and pivoted at 181 on the control plate, hereinafter described, engages.

The diverter plate 182 (Fig. 7) is pivoted at the top of the container 159 a short distance from the back and is directed substantially upwards to the orifice 183 of the pool side of the main coin

chute. In one or the first position of this plate 182, tokens or coins issuing from the coin chute are guided forward into the high or reserve part 164 of the container and in another or second position coins are directed towards the back of the container and pass between the false back 163 and the back proper 184 down to the lower or main part 185 of the container. In a third position the outer edge 186 of this plate 182 is moved forward sufficient to hold the depending or feeler arm 121 (Fig. 3) controlling the pool diversion previously described away from the coin chute, so withdrawing its deflector plate 127 so that no coins are deflected to the pool side of the coin chute at all. When in the third position a suitable locking pawl 187 pivoting at 188 on the side of the container holds it in place. The positions of this diverter 182 are controlled by an extension tail 189 fixed to it and extending outside the container downwards to a counting mechanism hereinafter described.

The counting mechanism consists of a main bar 190 (Fig. 3) freely pivoted at 191 on the side of the container with an actuating end 192 extending downwards into the path of a tooth on the control plate hereinafter described, and a coin arresting end 193 extending upwards to the orifice of the coin chute, having a forwardly directed finger 194 fixed to its extremity upon which coins are arrested before issuing from the coin chute. This main bar 190 is spring tensioned at 195 to rotate it in an anti-clockwise direction so that the forwardly directed finger 194 normally lies underneath the coin chute orifice. Pivoted on the same axis at 196 is a feeler bar 197, extending upwards towards the coin chute with a forward directed feeler finger 198 fixed to its extremity, which finger 198 passes through holes 199 in the coin chute channel. Movement of this feeler bar 197 is limited by a stop or stops 200 engaging the main bar 190, and spring tension 201 directs it in an anti-clockwise direction.

Pivotally secured to each of these two bars 190, 197 (Fig. 3) is a spring tensioned ratchet pawl 202a, 202b engaging with the ratchet teeth 203 of a spring controlled counting wheel 204. This counting wheel 204 is freely pivoted to the same axis as the two bars 190, 197 and is spring-tensioned at 205 to rotate it in a clockwise direction. Upon the side face of this wheel 204 are carried two arcuate cam plates 206a, 206b adjustable in position by means of pins or screws 207 and holes 208, one plate, 206a being of larger radius than the other 206b. The cam plates 206a, 206b and counting wheel 204

may be provided with indicating means 209 to show the number of coins which will be counted into the pool. Each of these cam plates 206*a*, 206*b* subtends an angle equal to a predetermined number of ratchet teeth 203 on the periphery of the wheel. The downwardly extending tail 189 of the divertor plate 182 previously described presses on the periphery of the arcuate cam plates. Stop means 210 may be provided to limit its motion in this respect.

A control plate 211 is pivotally secured at 212 to the side of the pool container and is spring-tensioned at 213 to turn it in a clockwise direction. An upwardly extending tooth 214 engages with the actuating end 192 of the counting mechanism main bar 190 previously described. A pin 215 carried by the lower part of the control plate 211 comes into contact with the slotted arcuate extension plate 167 of the main trap door 165 previously described. A further pivot pin 216 carries a spindle 217 of a spring connection-link 232 to the main mechanism of the machine. Freely pivoted on the same pin 181 is a neutralizing or resetting bar 219.

The neutraliser or resetting bar 219 (Fig 3) extends vertically from the pivot 181 on the control plate 211. At its higher end the resetter bar 219 is pivotally connected at 221 to the free end 222 of a short lever arm 223 which lever arm is pivoted to the same point on the side of the container as the divertor plate locking pawl 187 previously described.

Near the higher end of the resetter bar 219 is a shaped tooth extension 224 which engages with a projection 225 on the divertor plate 182 to reset it. Also near the top of the resetter bar 219 is a peg 226 upon which rests the free end 227 of a pawl lifting lever 228, the other end 229 of which is pivotally secured at 230 to the feeler counting bar 197 and lying so that its top edge is underneath lateral projections 231 from the counting pawls.

The control of the pool mechanism is through the connecting link 232 pivoted from the control plate 211 to the free end of a cam lever 233 and also by a further link 234 connected to a depending lever 235 pivoted at 236 on the upright 237 of the frame, and actuated by the rollers 48*a* . . . on the first horizontal or winding shaft 44. Said cam lever 233 is pivoted at 238 (Figs. 6 and 6*a*) to the cross bar of the machine, and has at its other free end 239 a pin 240 engaging with the periphery of a stepped cam 241 fixed at the lower end 244 of the main control cam shaft 25 of the machine.

The stepped cam 241 on the cam con-

rol shaft 25 has a spring controlled pawl 245 positioned over an opening 246 in the cam so that its outer edge 247 constitutes a continuation of the radial periphery 248 of the cam.

The action of the pool is as follows:—

When the first horizontal or winding shaft 44 is rotated one of the rollers 48*a* moves the depending lever 235 pivoted to an upright of the frame and by means of the two links rotates the control plate 211 in an anti-clockwise direction. The tooth 214 on the control plate 211 engages with the actuating end 192 of the counting main arm 190 moving it in a clockwise direction, so moving the forwardly directed finger 194 at its top extremity away from the coin chute 81, taking with it the counting feeler lever 197 and so also withdrawing the feeler finger 198 at its extremity from the coin chute 81. This is called position A. When part of the travel of the roller 48*a* on the first horizontal shaft 44 is completed the depending lever 235 is released. The control plate 211 thus is free to move to a position called B and held in that position through the link and cam lever 233 with pin 240 at the end pressing against the periphery of the stepped cam plate 241 on the main control shaft 25.

Through the action of the control plate 211, the finger 194 on the counting main arm 190 is allowed to move forward under the coin chute orifice 81. The counting arm 190 moves with it, and the point of its feeler finger 198 remains just outside the coin chute channel.

When the travel of the rollers 48*a* on the winding shaft 44 is completed, the token or coin used to free the mechanism will have been drawn back by the fingers and dropped into the main coin chute. If the token or coin passes to the pool 116 of the coin chute by means of the deflector plate 127 on the depending arm 121 controlling this side it falls on to the finger of the counting main lever and so is arrested.

The winding action being completed the main control or cam shaft 25 of the machine now rotates through the action of its spring 33 and other mechanism to allow the first frame arm 13*a* to spin the first number wheel 2*a*. During this rotation, and before the first stopping point is reached, the pin 240 on the cam lever 233 is allowed to move down a step on the edge of the stepped cam 241. The control plate 211 now moves to a position called C. The counting main arm 190 thus moves its finger 194 further, still supporting the coin, but the feeler finger 198 on the feeler arm 197 is prevented from further movement by the coin or token in

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the chute, thus the ratchet pawl 202a carried by main arm 190 is moved away from the ratchet pawl 202b on the feeler arm 197 a distance equal to 1 tooth of the counting wheel.

If the main control shaft 25 stops by reason of the frame arm pins 18a . . . entering between the teeth in the toothed discs 9a . . . and not in a radial slot 12a . . . (no win) no further movement of the pool mechanism occurs, it remains at position C.

On the next winding operation of the machine the same operations occur; the pool control plate 211 is first moved to position A, when the token or coin previously arrested is allowed to issue from the coin chute by reason of the finger of the counting main arm 190 being withdrawn from under it, the coin strikes the divertor plate 182 which is in its first position i.e. its tail 189 resting on the larger diameter arcuate cam plate 206a on the counting wheel 204 and is diverted forward into the reserve pool 164.

On movement of the counting main arm 190 from position C to position B it takes up the free movement between it and the feeler arm 197 and in moving from position B to position A carries the feeler arm 197 with it. The two ratchets on the counting main arm 190, on the feeler arm 197 will have now closed together again the distance equal to one tooth of the counting wheel, thus having accomplished a net movement of one tooth of the counting wheel 204. This net movement of one tooth of the counting wheel 204 occurs every time a coin is directed to the pool side of the coin chute.

When a predetermined number of tokens or coins have been diverted to the reserve pool, the counting wheel 204 will have rotated sufficiently to allow the tail 189 of the divertor plate 182 to fall off the first arcuate cam plate 206a on to the second or smaller diameter arcuate plate 206b. This is the second position of the divertor plate 182. Coins are now directed down the back of the pool container 159 into the lower or main pool 165b. Again when a predetermined number of coins have been directed this way, the counting wheel 204 will be rotated to a point where the tail 189 of the divertor plate 182 falls off the end of the second arcuate cam plate 206b and is thus free to move to its third or locked position, thus preventing any further coins being directed to the pool side of the main coin chute as previously described.

To pay out the pool it is necessary for the machine to successively spin all the number wheels 2a . . . i.e. frame arm pins 18a . . . drop into radial slots 12a . . .

of all toothed discs of number wheels 2a. . . Then the main control cam shaft 25 will have rotated sufficiently to allow the pin 240 on the cam lever 233 to fall into an opening 246 in the stepped cam 241. This moves the control plate to a position D. The pin 215 on the control plate 211 which engages the slotted arcuate extension plate 167 of the bottom trap door 165 now moves to a position over the slot 171 in the arcuate surface thus allowing the arcuate plate 167 to rise and consequently the main trap door 165 to fall and also the contents of the main pool which fall into a collecting trough directed to deliver the coins to outside the machine.

The neutralising or resetting bar 219 is lifted, thus rotating the short lever arm 223, which in turn lifts the divertor plate locking pawl 187 by reason of a stop peg 187a on this pawl, thus unlocking the divertor plate 182 if it has been in the locked position. The tooth 224 on the resetting bar 219 presses against the lateral projection 225 of the tail 189 of the divertor plate 182 thus moving the divertor plate back to its first position. At the same time the peg 226 on the resetting lever 219 lifts the free end 227 of the pawl lifting lever 228, lifting the two counting pawls 202a, 202b, and thus releasing the counting wheel 204, which turns under tension of its spring 205 in a clockwise direction back to its initial or neutral position until stopped by stop 210.

On the next winding action of the machine the control plate 211 is moved from position D to position A. During the movement D to C the pin 215 re-engages the arcuate extension 167 of the main trap door 165 thus closing it. The resetting lever 219 withdrawn releases the pawls 202a, 202b and so forth. The ratchet pawl 180 controlling the reserve trap door wheels 178, 172 is at position D high enough to engage a tooth 179 in the ratchet wheel 178, and on movement D to A rotates the ratchet wheel 178, to bring the opening 175a, 175b in the periphery of the larger wheel 172 to allow the reserve pool trap door 168 to fall and release its contents into main pool.

Further action of the machine moving the control plate 211 between positions A and C allows the aforesaid reserve ratchet pawl 180 to engage further near spaced teeth 179 in the ratchet wheel 178, thus rotating in successive stages the pool control wheels 178, 172 closing the reserve pool trap door 168. When the trap door 168 is closed, half a revolution has been completed, and a wide space on the small ratchet wheel 178 prevents the ratchet

pawl connecting again until a further pool release occurs i.e. movement to D.

In order to divert small discs or coins inserted into the apparatus to free it, a  
5 chute 249 is provided beneath the hereinbefore mentioned pins that support tokens or coins of the proper size preparatory to their being engaged by the freeing mechanism. If the token or coin inserted  
10 is too small it will fall between the pins into said chute 249 and then into a suitable receptacle not shown so that the freeing mechanism cannot be operated by it.

15 In a modified form of device as illustrated in Fig. 14 the stepped plate 151 is secured to a lever 252 pivoted at 251 to the prize delivery slide casing 252' and this lever 252 is pivotally attached at 253  
20 through a link 253' to an arm 254 on a post 255 on the opposite side of the frame 45b, which post 255 is provided with arms 256a . . . actuated by downwardly projecting lugs 257a . . . on the frame arms 13a  
25 . . . to rotate said post 255 to actuate said arm. The plate 151 is controlled by a spring 258 attached to said post 255.

The mechanism is enclosed in a case 259 (Fig. 12a) provided with a coin slot  
30 260, one or more windows 261 through which the numbers on the wheels 2a . . . can be seen, windows through which the pool coins can be seen, skill-control levers 262a . . . and the starter lever 43 controlled by spring 263 (Fig. 13).

The coin slot 260 consists of a hollow chute casting 264 (Fig. 12b) having a selecting ring 265 rigidly fixed to it. The hollow chute 264 is rectangular of a size  
40 amply large enough for coins to pass down it. The selecting ring 265 has an internal bore of a size to pass the correct size of coin but to prevent insertion of an oversize or damaged coin. The distance  
45 between the edge 266 of the selecting ring inside the hollow chute and the back face 267 of the chute is just sufficient to allow the normal thickness of coin to pass, but to prevent bent or damaged coins passing.

50 For easy removal the coin slot casting 260 is fastened to its place on the outside of the case by a forward lug 268 or projection which engages under a fixed part 269 of the case and a further wedge-shaped lug 270 projecting towards the  
55 rear of the case. A spring tensioned locking lever 271 is pivoted horizontally inside the case to engage with the wedge shaped lug 270 of the coin slot and by  
60 its engagement locks the coin slot flat into position.

The starting lever 43 is provided with buffers 272 (Fig. 13) that limit the angle through which it may be operated, and a  
65 pivoted driving part 273 engages one of

the rollers 48a . . . on the operating shaft when the starting lever is moved in one direction and is tripped out of its path when the lever 43 is returned to its starting position.

In some cases it may be desired to employ coins and in others tokens or checks to operate the machine. This is a matter of choice for the owner of the machine. When tokens or checks are employed, by  
7 providing them with an orifice as hereinbefore described, the use of a star-wheel as hereinbefore described ensures the employment of the proper tokens or checks. By removal of the star-wheel the machine  
8 is rendered available for use with coins or unorificed tokens or checks.

Where tokens or checks are employed they may if desired be exchanged for a certain value in cash or goods.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. Coin-, token-, or check-freed apparatus for playing a game of skill comprising in combination a plurality of wheels, lever actuating means for spinning said wheels independently and consecutively,  
9 means for freeing said lever actuating means by the insertion of a coin, token or check in the apparatus, means for stopping said wheels, and means for delivering a prize determined by the positions  
10 in which the wheels are stopped.

2. Coin-, token-, or check-freed apparatus according to claim 1 comprising means for spinning the wheels consecutively and paying out prizes consecutively whilst the machine is in operation.

3. Coin-, token-, or check-freed apparatus according to claim 1 or 2 comprising means for delivering a pool to the successful player when a predetermined wheel of  
11 the series is stopped in a winning position.

4. Coin-, token-, or check-freed apparatus according to claim 1, 2 or 3, comprising spring actuated lever means for  
11 spinning the wheels independently and consecutively.

5. Coin-, token-, or check-freed apparatus according to any of claims 1 to 4 comprising lever means for freeing said  
15 lever actuating means.

6. Coin-, token-, or check-freed apparatus according to any of the preceding claims with shallow and deep radial recesses carried by rotatable discs coaxial with projections on rotatable arms for  
15 stopping said wheels.

7. Coin-, token-, or check-freed apparatus according to any of the preceding claims comprising means controlled by a 1.

movable stepped plate for delivering a prize determined by the positions in which the wheels stop.

- 5 8. Coin-, token-, or check-freed apparatus according to any of the preceding claims comprising a star wheel for separating the inserted coins, from tokens or checks with which the prize magazine and pool are charged before they are used.
- 10 9. In coin-, token-, or check-freed apparatus according to any of the preceding claims, a coin-chute, a return coin-chute, a pivoted hopper above said coin-chute, a downwardly extending plate to said hopper, which can pass freely through said coin-chute, having side plates to prevent an implement being passed down the chute, a gravity device for moving said hopper whereby the hopper is maintained over the return coin-chute after a coin inserted to free the apparatus has fallen below its downwardly extending plate and a star wheel for separating orificed tokens from un-orificed tokens or coins inserted in the apparatus.
- 15 10. In coin-, token-, or check-freed apparatus according to any of claims 3 to 9, delivery mechanism having a stepped plate controlling the delivery slides, a prize magazine above said delivery slides, and mechanism for selectively delivering a predetermined prize by said slides.
- 20 11. In coin-, token-, or check-freed apparatus according to any of claims 3 to 9, comprising a main pool, a reserve pool, means for releasing said pools, a stepped cam for controlling said means, setting gear for said pools, trap doors to said pools, a divertor plate, means for controlling said divertor plate for divert-

ing tokens selectively into said pools, a counting wheel, and a resetting bar for moving said divertor plate to its initial position and said counting wheels to its neutral initial position. 45

12. Coin-, token-, or check-freed apparatus according to any of the preceding claims, comprising an operating shaft, a casing provided with coin slot means, a window for inspecting a pool, skill control means for stopping the wheels, a starting lever having a pivoted driving part that operatively engages said operating shaft when moving in one direction and means for tripping said driving part when the lever is returned to its starting position. 50 55

13. In coin-, token-, or check-freed apparatus according to any of claims 1 to 11, a casing, a coin slot comprising a hollow chute having a selecting ring rigidly fixed to said chute for said coin slot, a projection fastening on said chute engaging a fixed part of said casing, a lug on said chute projecting towards the rear of the casing, and a spring locking device pivoted to said casing so as to engage said lug. 60 65 70

14. Coin-, token-, or check-freed mechanism according to claim 2 comprising spring actuated means for stopping the wheels independently.

15. Coin-, token-, or check-freed mechanism for playing a game of skill substantially as described and illustrated with reference to the accompanying drawings. 75

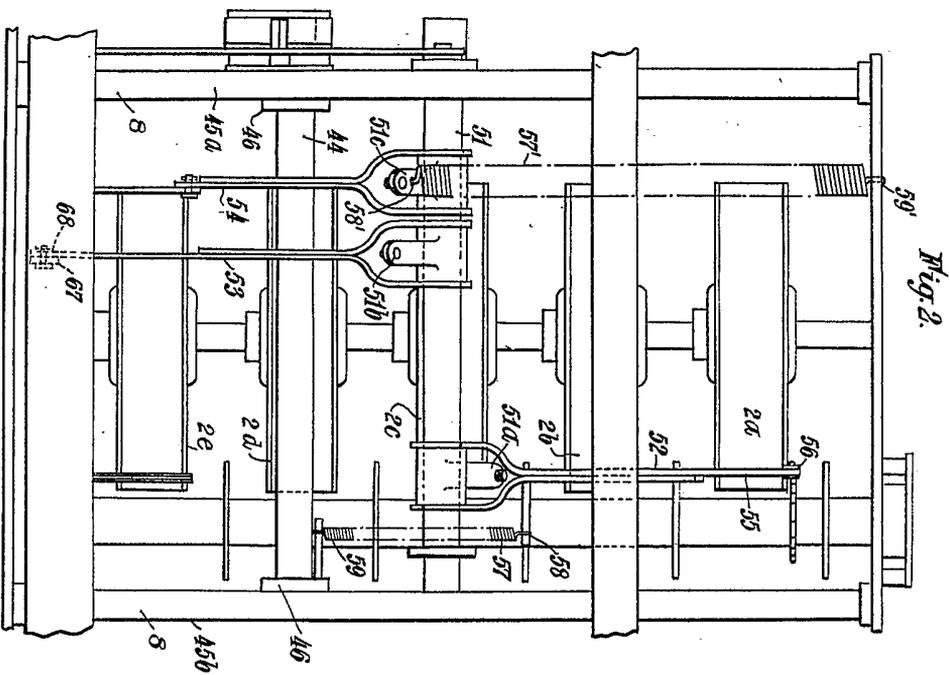
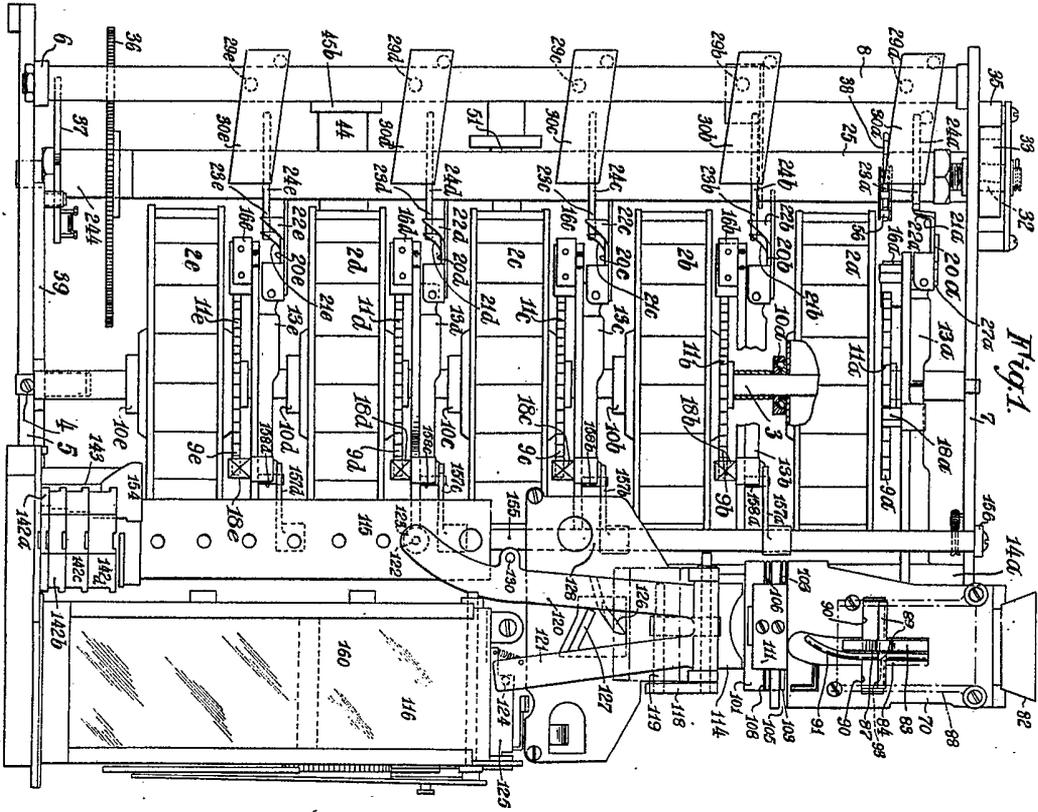
Dated this 18th day of April, 1935.

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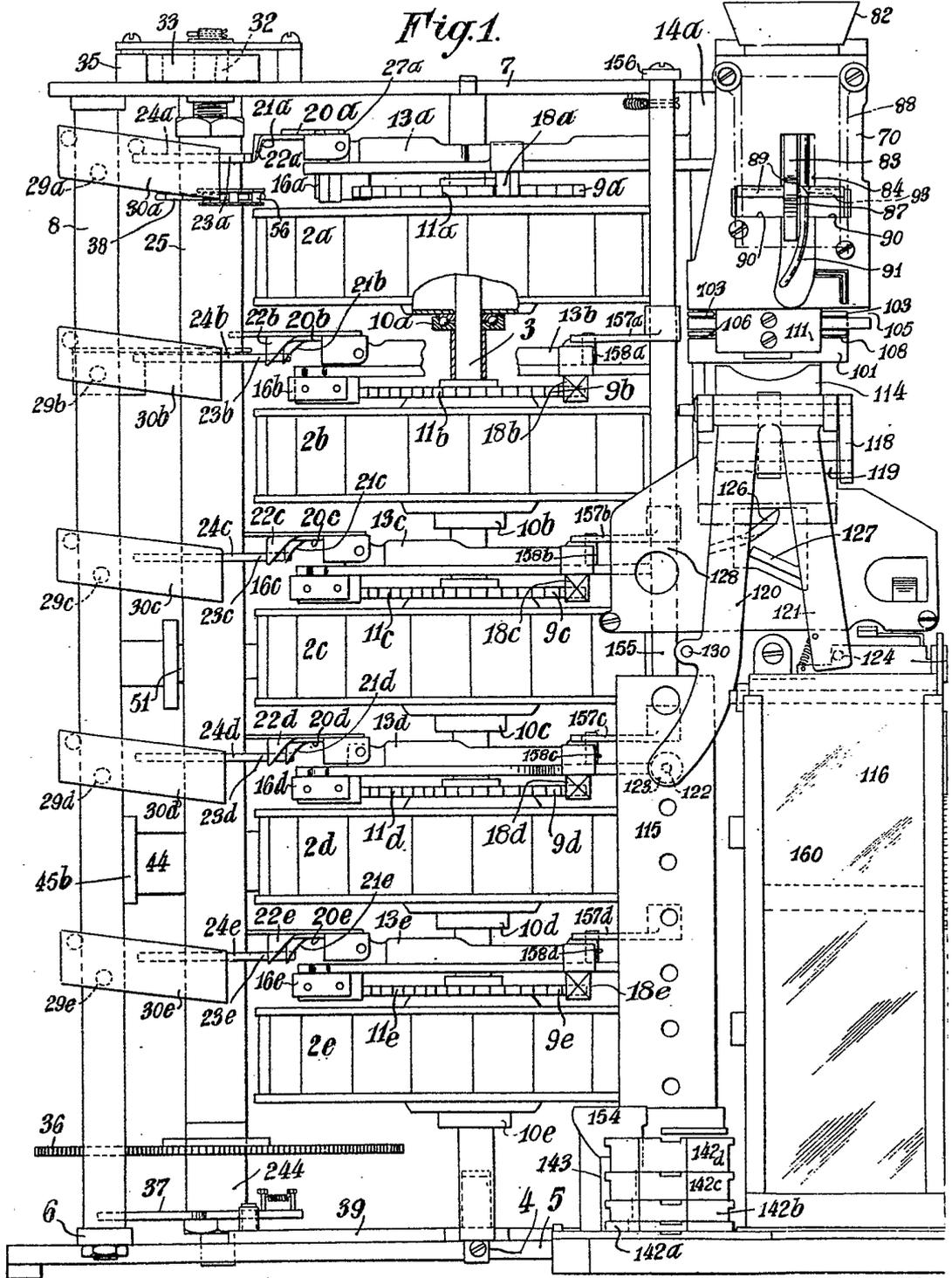
439,238. COMPLETE SPECIFICATION

SHEET 1



7 SHEETS  
SHEET 2

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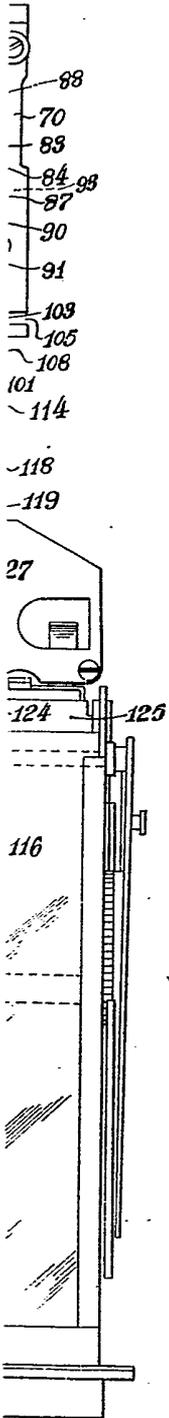
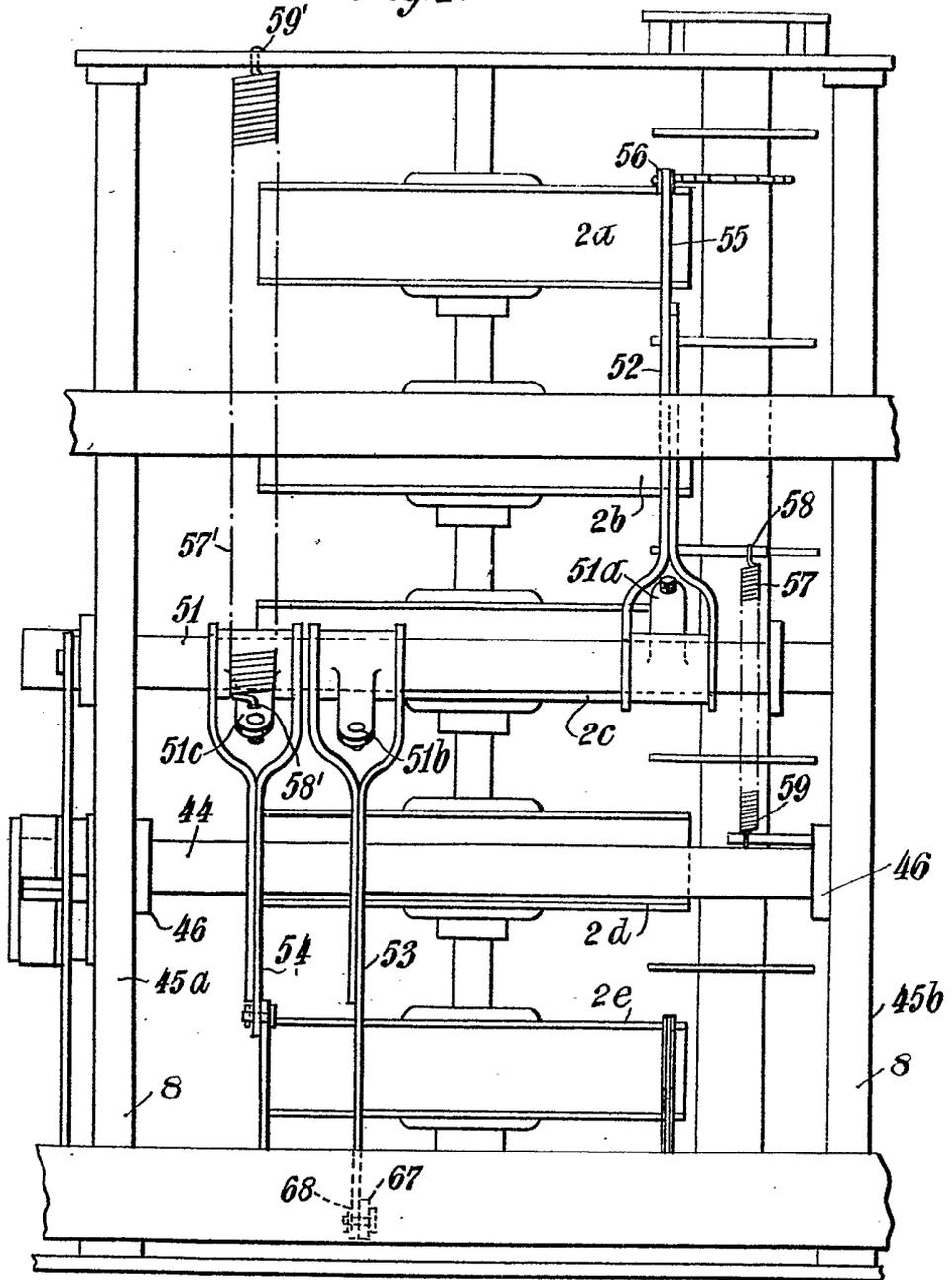


Fig. 2.



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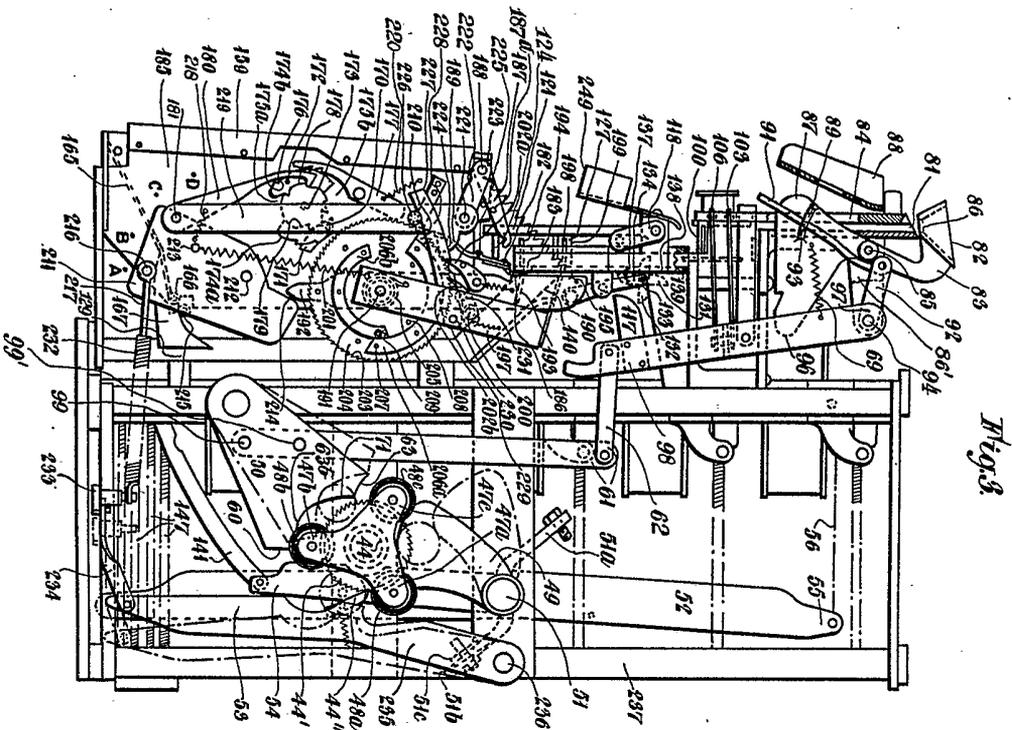


Fig. 3

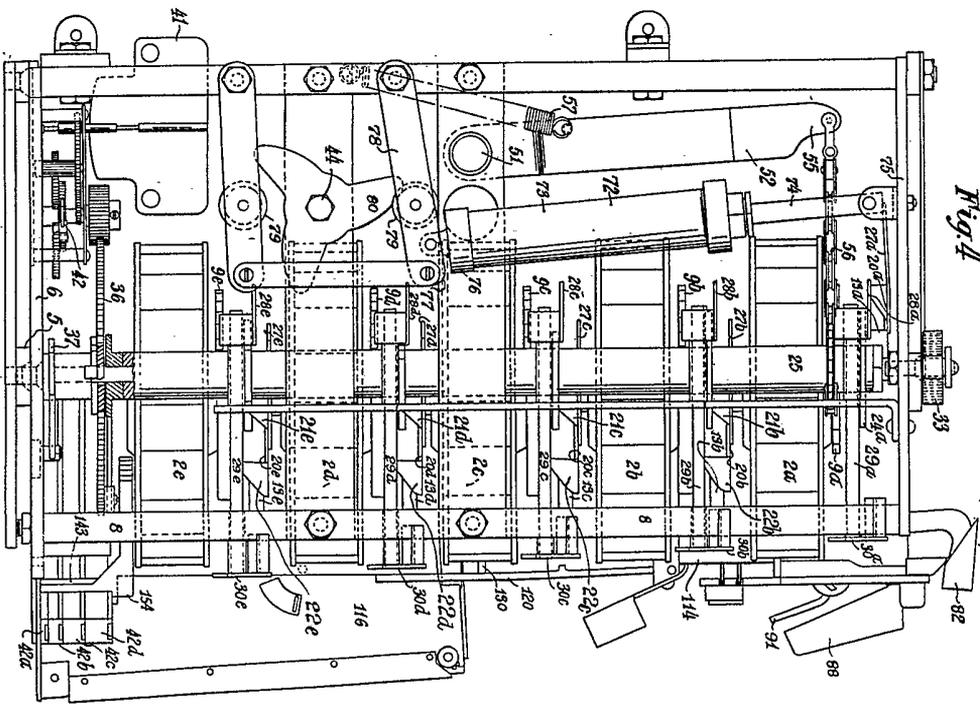


Fig. 4

Fig. 3.

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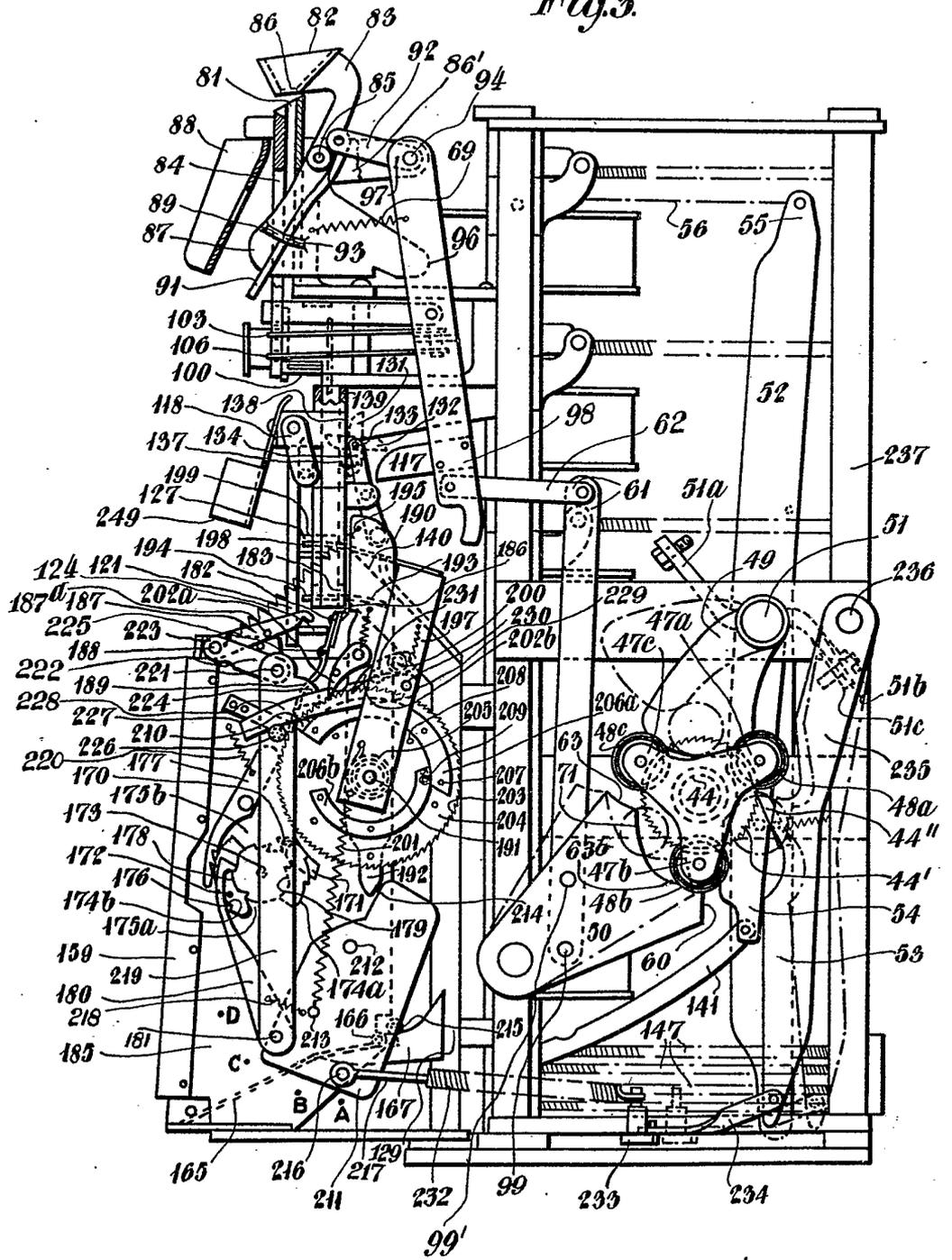
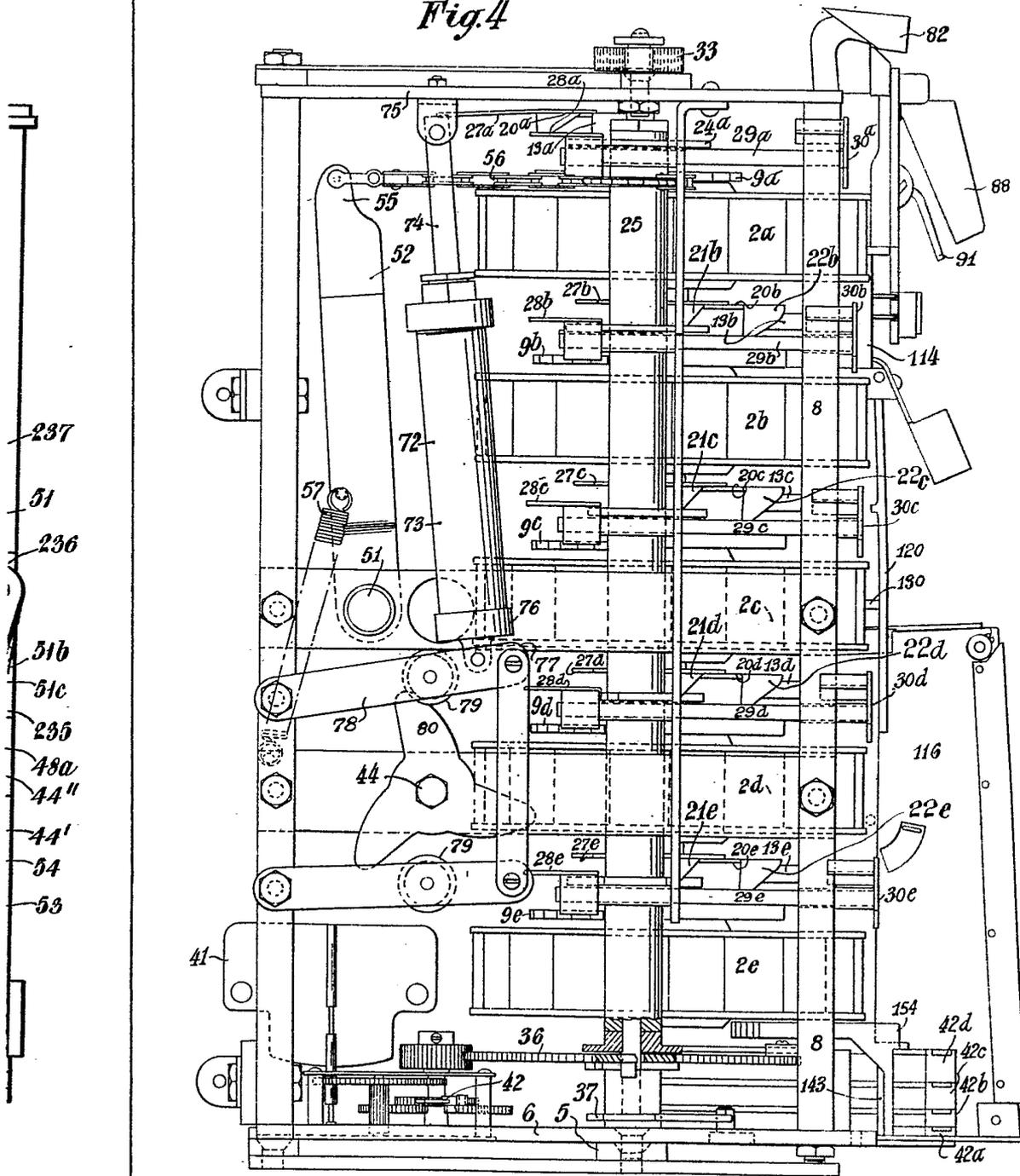


Fig. 4





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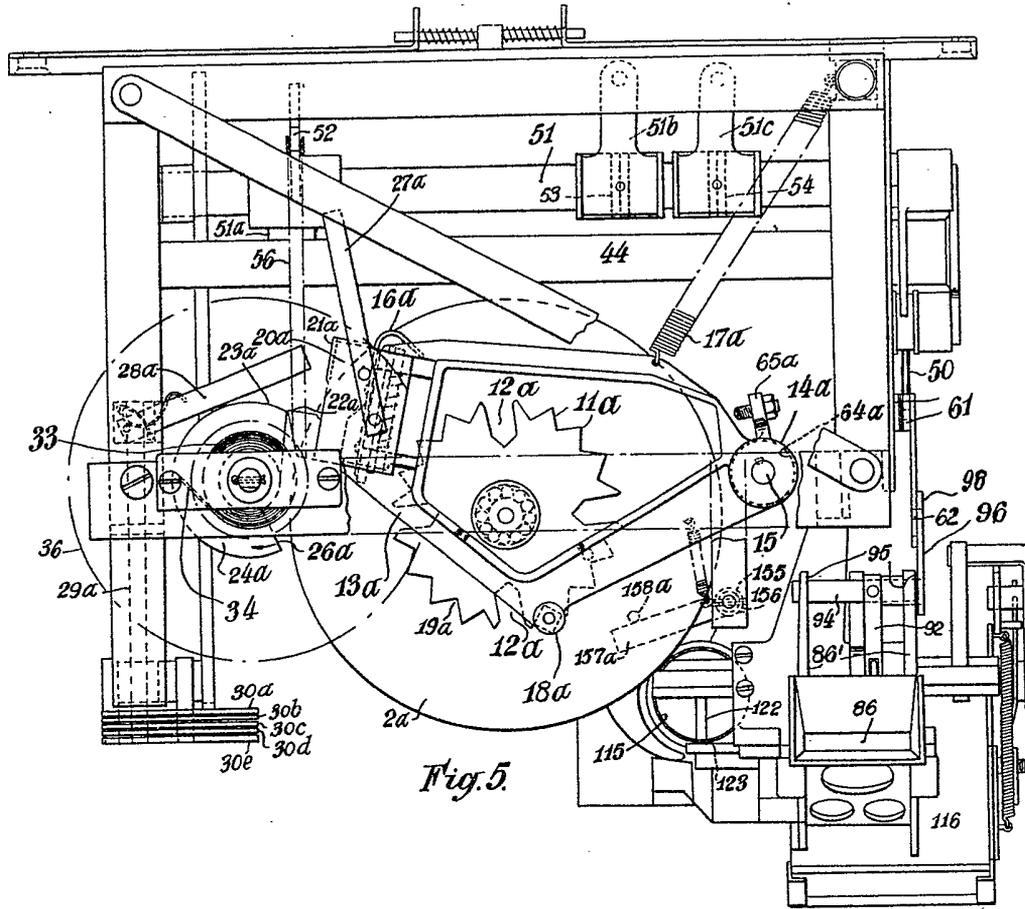


Fig. 5.

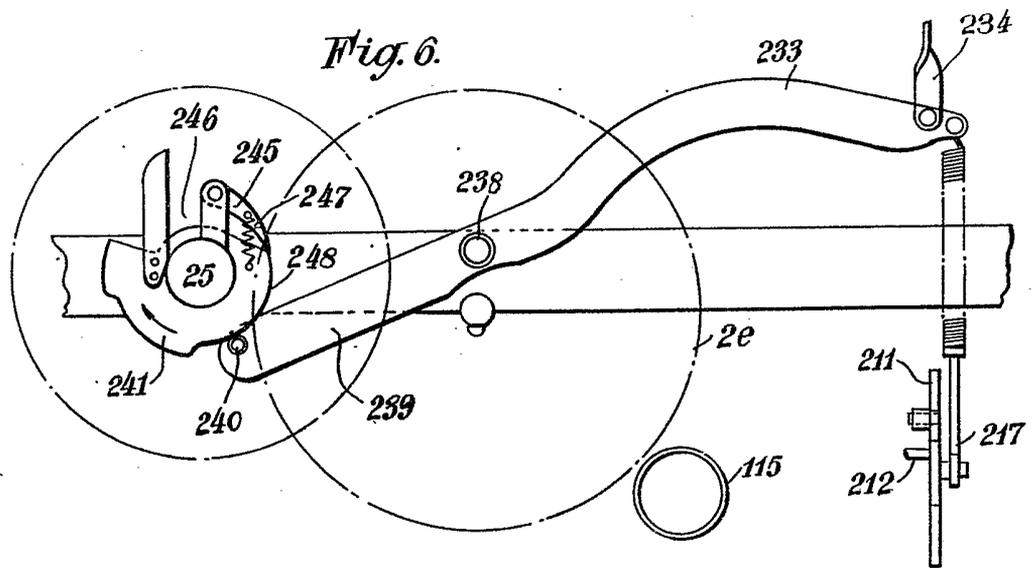
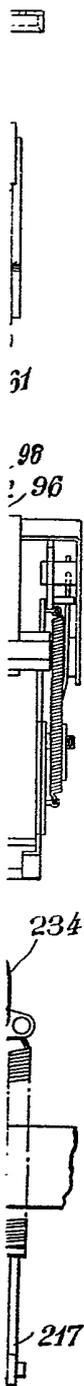
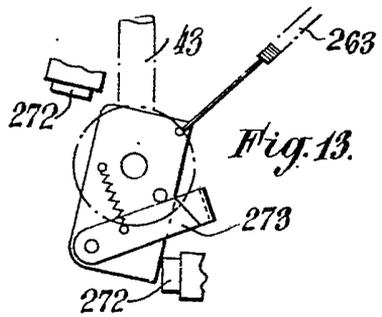
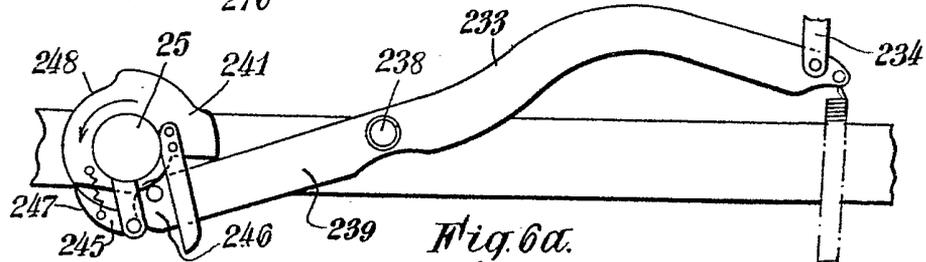
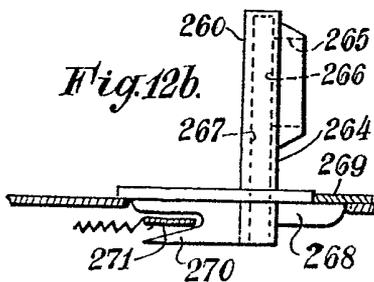
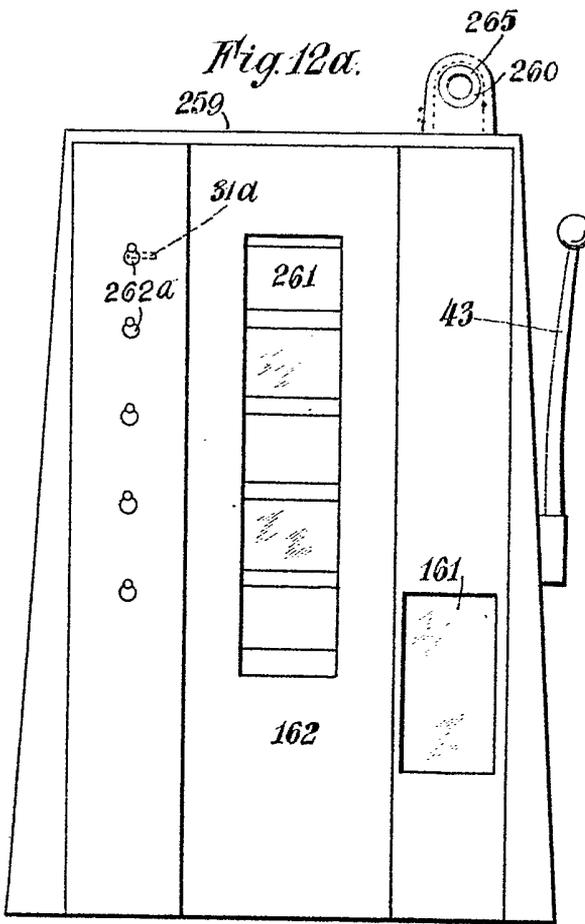
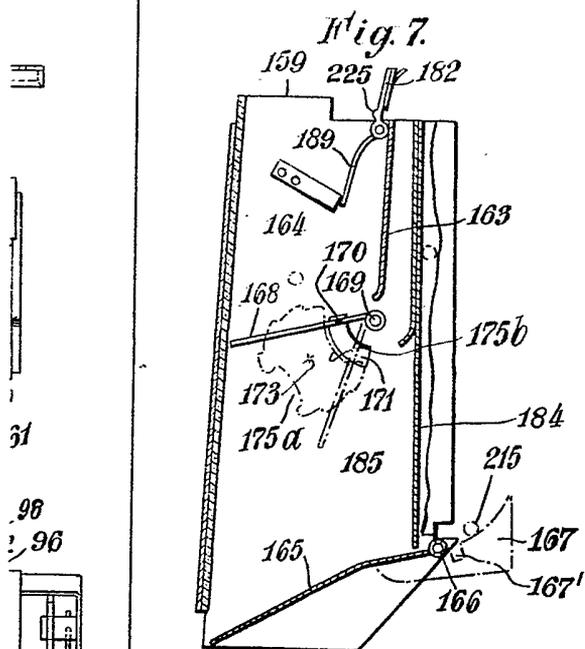


Fig. 6.



[This Drawing is a reproduction of the Original on a reduced scale.]

