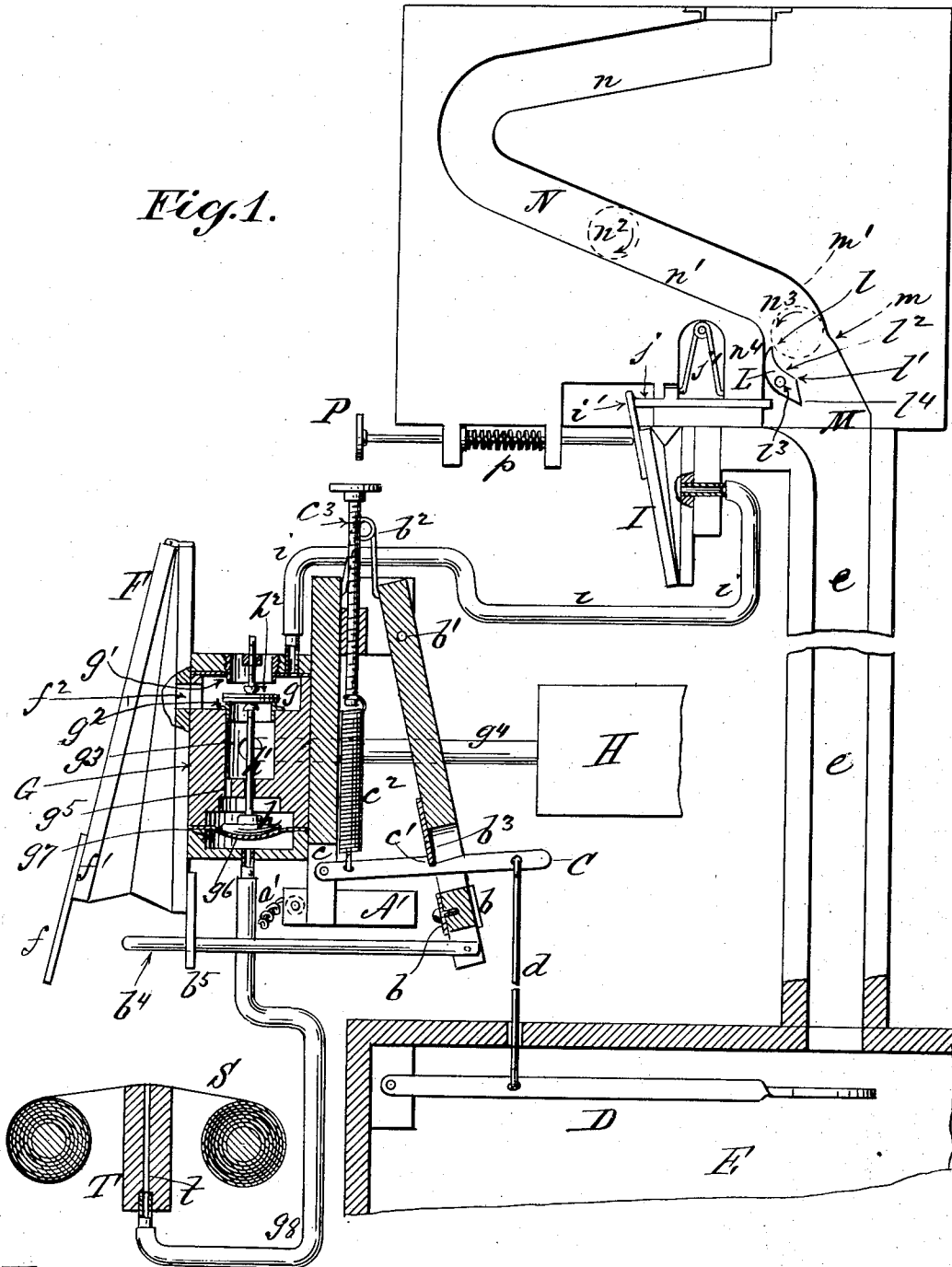


G. P. BRAND.
 COIN OPERATED RELEASING MECHANISM.
 APPLICATION FILED JAN. 16, 1906.

909,362.

Patented Jan. 12, 1909.
 3 SHEETS—SHEET 1.

Fig. 1.



Witnesses:
 W. Gardner.
 S. Pope

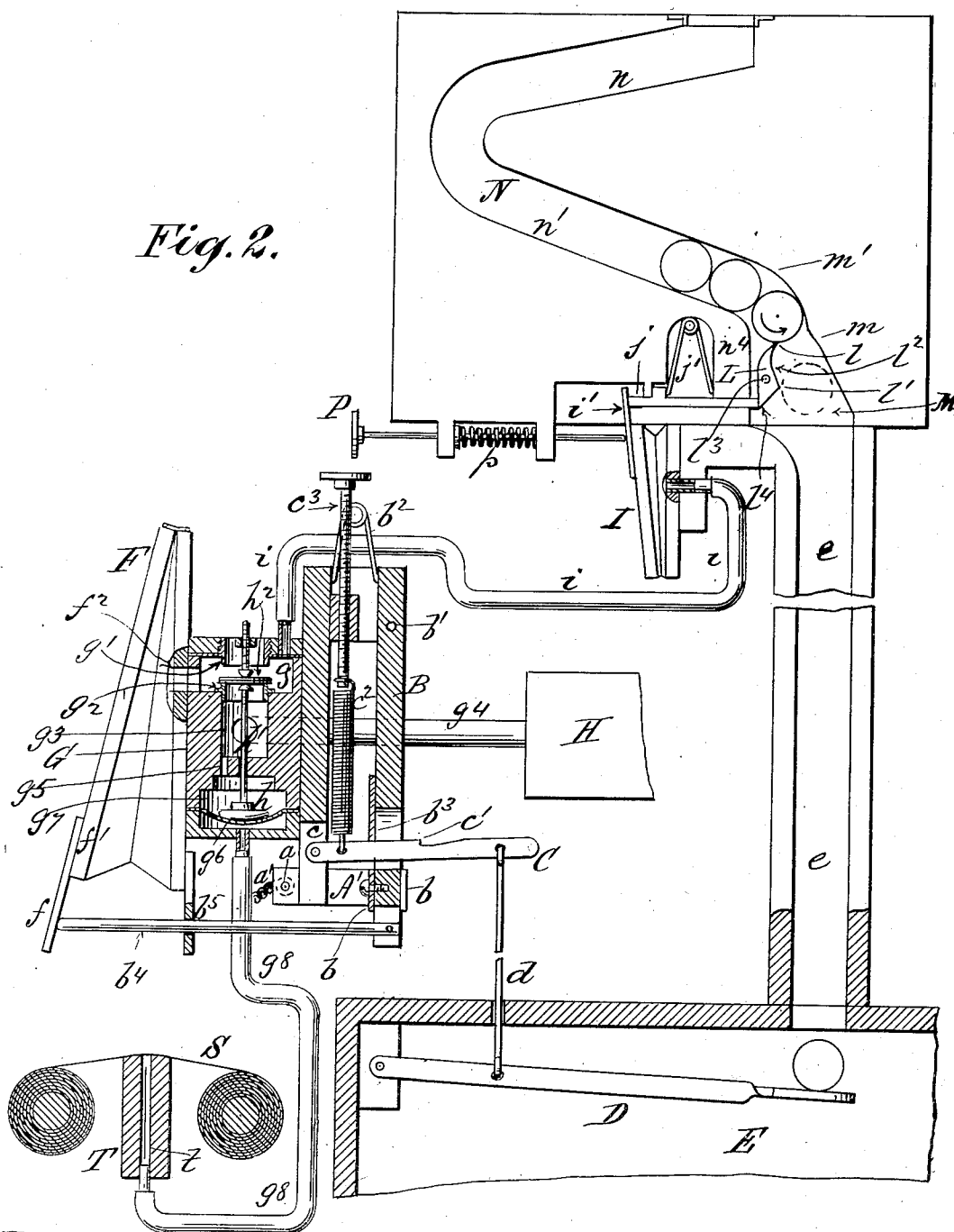
Inventor:
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3 SHEETS—SHEET 2.

Fig. 2.



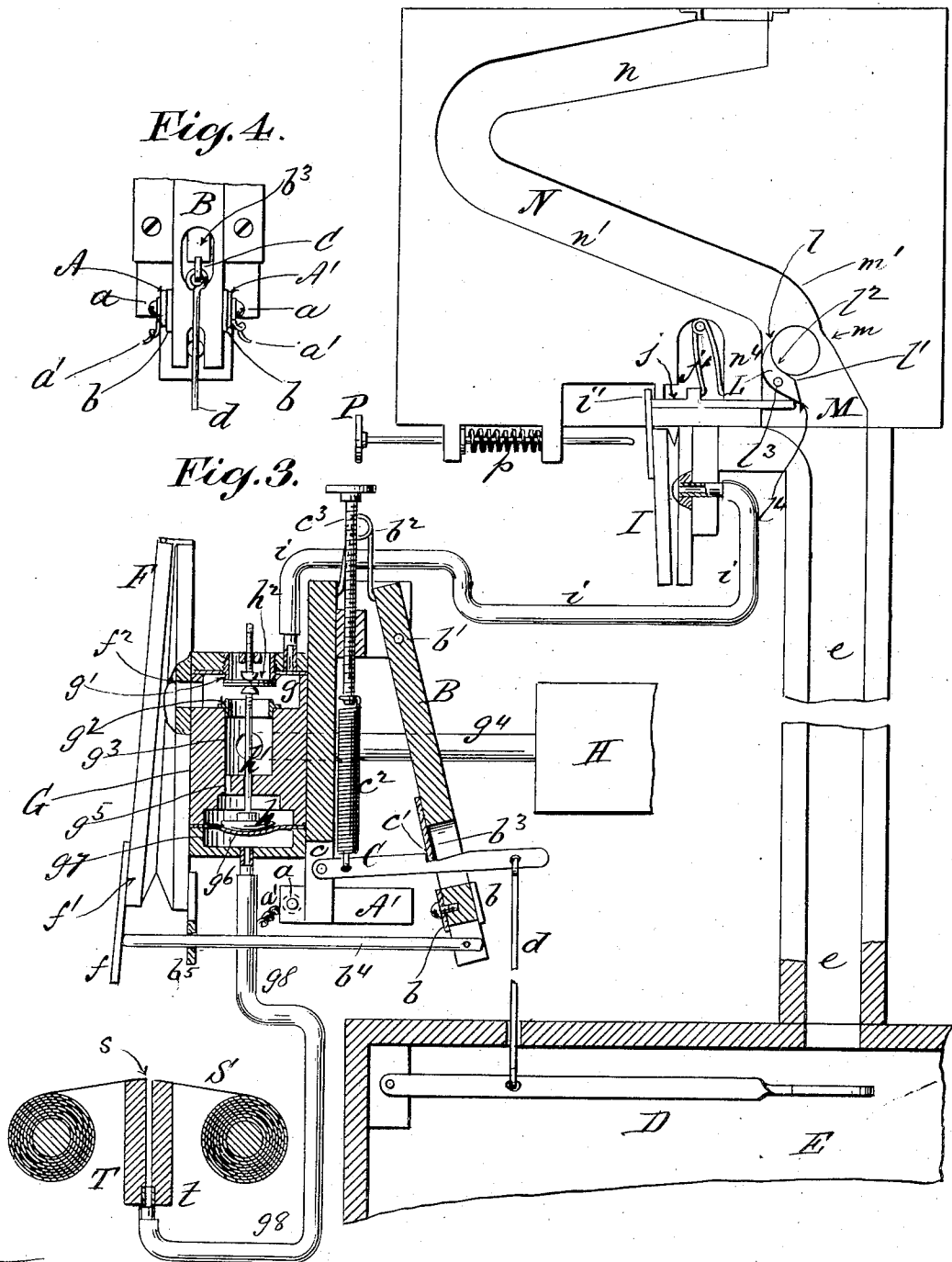
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 D. W. Gardner.
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UNITED STATES PATENT OFFICE.

GEORGE P. BRAND, OF NEW YORK, N. Y.

COIN-OPERATED RELEASING MECHANISM.

No. 909,362.

Specification of Letters Patent.

Patented Jan. 12, 1909.

Application filed January 16, 1906. Serial No. 296,314.

To all whom it may concern:

Be it known that I, GEORGE P. BRAND, a citizen of the United States, residing in the borough of the Bronx, city, county, and State of New York, have invented certain new and useful Improvements in Coin-Operated Releasing Mechanism, of which the following is a specification.

My improvements relate to coin slot mechanism used for the purpose of starting automatic apparatus of any kind, particularly automatic players or musical apparatus in which a coin is caused to impinge against a trip lever arranged to release the driving mechanism.

The main object of my invention is to provide means whereby a plurality of coins may be accommodated and supported in the coin chute simultaneously, and be released successively and automatically one at a time at the end of each tune, turn or performance of the apparatus, so that the operation of the latter will be rendered practically continuous until the supply of coins in the chute is exhausted.

The distinguishing feature of my invention consists in the use of a coin-releasing and check gate which in the act of freeing the lowest coin in the chute, protrudes into the path of the next succeeding coin and supports it and those above it, if any, until such checking gate is again retracted or reopened by automatic means at the end of a tune or performance, of a prescribed duration substantially as hereinafter set forth.

I herein show and describe my improvements as applied to and incorporated with the coin operated releasing mechanism set forth and claimed specifically in my concurrent application No. 296,312 filed Jan. 16, 1906, although I do not limit myself in this particular, since the essential features of my invention may be embodied in other forms of pneumatic apparatus the operation of which is controlled by a perforated sheet passing over a tracker bar, the feature in the present case being the use of my special form of checking gate in conjunction with a retracting or re-setting pneumatic operated from the tracker bar.

In the accompanying drawings, Figure 1, represents in sectional elevation and more or less diagrammatically parts essential to the practical application of my invention, the parts being in their normal positions at rest; and a coin shown in the act of passing

through the checking gate to fall upon the trip lever and release or start the mechanism by which the player or other apparatus is driven, the power used in the present illustration being electrical. In Fig. 2, which is a like view, the parts are shown at the instant that the trip lever is depressed, and electrical connection established with the motor, the check gate having been tripped by the coin just passed so as to protrude into the path of, and support, succeeding coins in the raceway or receiving slot, while in Fig. 3, the parts are shown in the positions they assume just after the perforated sheet passing over the tracker bar effected the deflation of the pneumatics, and the return of the parts to their normal positions. Fig. 4, is a detail view showing the terminals of the electric circuit.

It being understood that my improved coin releasing and checking mechanism, may be controlled independently and directly from the tracker bar, and arranged to set in operation driving mechanism other than that of using electricity as motive power, I will proceed to describe its use in connection with the power starting and stopping mechanism set forth in my concurrent application hereinbefore referred to, in which A, A', represent two opposed terminals or contact plates having binding screws a, a, by which electrical contact is established with the circuit wires a', a', connected with the electric motor (not shown) by which the pneumatic player or other apparatus is operated when the circuit is completed,—that is to say when the switch lever B is between the said contact plates A, A', as shown in all but Fig. 4, of the drawings.

To the switch lever B is secured the U-shaped contact plate or bridge b, for engagement with the inner surfaces of the terminal plates A, A'. The switch lever B is pivotally supported at b', and is connected with a spring b², which tends constantly to throw the switch lever B, into engagement with said terminal plates A, A'. The said lever B is held open normally against the resistance of the spring b², by a latch C, pivotally supported at c, and formed with a shoulder c', for engagement with the lower edge of the plate b³, on the switch lever B, as shown in Fig. 1. The latch C is coupled to the trip lever D by a link rod or other connection d, said trip lever D being pivotally supported within the coin receptacle F with its free end immedi-

ately below the coin chute *e*, so that coin dropping into the receptacle *F* from the lower end of the chute *e*, will impinge upon the end of the trip lever *D* and cause it to withdraw the latch from engagement with the switch lever *B*, thereby releasing the latter and enabling the spring *b*², to close the electrical circuit through the medium of the bridge *b*, on said switch lever *B*.

10 The resistance to be overcome by the coin in order to trip the lever *D* and withdraw the latch *C* is regulated by means of a retractile spring *c*², and tension-adjusting screw *c*³, or by resort to any other well known mechanical expedient.

15 To the lower extremity of the switch lever *B* is pivoted a contact-breaking rod *b*⁴, which extends backward through a stationary guide *b*⁵, and into the path of an arm or extension *f*, of the movable member *f*¹, of the pneumatic *F*. The latter communicates through the port *f*², with the valve chamber *g*, in the valve chest *G*, said valve chamber *g*, being formed with two valve seats, one *g*¹, opening into the atmosphere, and the other *g*², opening into the central chamber *g*³, of the valve chest *G*, said central chamber *g*³, communicating in turn through the conduit *g*⁴, with the wind chest *H* which is connected as usual with air exhaust mechanism, and with pneumatics which actuate music-producing devices. The central chamber *g*³, also communicates through the duct *g*⁵, with the space above the diaphragm *g*⁶, in the diaphragm chamber *g*⁷, the space in said chamber below the diaphragm communicating through a duct *g*⁸, with an opening *t*, in the tracker bar *T*. The diaphragm *g*⁶, is formed with the usual bleed hole. A button *h*, resting upon the upper side of the diaphragm *g*⁶, supports a valve rod *h*¹, carrying the valve *h*², situated within the valve chamber *g*. It is obvious that the movement of the member *f*¹, of the pneumatic *F* may be utilized to operate a slide valve or equivalent mechanical expedient arranged to control a motive force other than electrical for the purpose of operating a suitable motor, with like results.

50 *I*, is a pneumatic the interior of which is connected by means of the duct *i*, with the valve chamber *g*, in the chest *G*, so that it is normally inflated. Against an extension *i*¹, of the movable member of the pneumatic *I*, bears the end of a slide *j*, a spring *j*¹, being interposed between said slide *j*, and a stationary part so as to tend constantly to maintain contact between said extension *i*¹, and the slide *j*.

60 *L* is the checking gate pivotally supported in the throat *M*, between the coin race way or receiving slot *N*, and the coin chute *e*. The throat *M* is wide enough to accommodate the checking gate *L* in a position at
65 one side of the path of the coins, although

protruding in part into the said path. That is to say the ends *l*, *l*¹, of its concave surface *l*², protrude alternately into the path of the coins, the peripheral edges of which fit into said concave surface *l*², as they pass, and between it and the opposed stationary surface *m*, of the throat *M* which opposed surface *m*, is concentric with the hinge or fulcrum *l*³, of the check gate *L*. The space between this stationary concentric surface *m*, and the concave surface *l*², of the checking gate *L*, thus constitutes the actual throat or clearance for the coin when the checking gate *L*, with a coin resting on said concave surface is rocked upon its fulcrum so as to carry the coin into coincidence with said concentric surface *m*. In other words, under these conditions, the edge of the coin farthest from the pivot *l*³, describes the arc of a circle concentric with said pivot *l*³, and said surface *m*, so that the coin is free to drop from the gate *L*, as soon as the lower point *l*¹, of the latter is sufficiently retracted. As a matter of fact the points *l*, and *l*¹, are the essential parts of the gate *L* in so far as its action with relation to the coin is concerned, since the concave surface *l*², need not necessarily bear against the coin so long as it accommodates the edge of the latter between the said points *l* and *l*¹.

The coin race way or receiving slot *N*, is preferably formed with two reversed inclines *n* and *n*¹, down which latter the coin rolls in the direction indicated by the arrow at *n*², Fig. 1. Opposite the lower end of the incline *n*¹, and at a distance therefrom greater than the diameter of a coin, is the curved surface *m*¹, against which the descending coin impinges and over which it rolls, thereby reversing its direction of rotation as indicated by the arrow at *n*³, Fig. 1. This is of importance, particularly where the release of a coin into the chute *e*, has set or tripped the checking gate *L* so that its upper point protrudes into the path of a succeeding coin, as for instance in Fig. 2, in which the reversal of rotation occasioned by contact with the concave surface *m*¹, (causing said coin to rotate from right to left as indicated by the arrow in said figure) tends to preserve and maintain the desired and necessary position of the gate *L*, to the end that it may act as a check and support for the coin, or coins until the gate is retracted or rocked backward by the slide *j*, as herein-after set forth. In other words, the checking gate *L* being pivotally supported only, and free to adapt itself to a preponderance of weight or pressure in either direction, might be forced backward by a coin rotating from left to right, or the direction shown at *n*², Fig. 1, if the periphery of said coin happened to encounter the point *l*, of the gate *L* at the instant that the preceding coin was released therefrom thereby opening the gate and allowing the

next succeeding coin to pass, and so on, indefinitely, whereas by reversing the direction of rotation of the coin by means of the concave surface m' , the rotative force of the coin is utilized in closing the gate to its fullest extent so that it will effectually support not only the particular coin in contact with it but also any number of coins in the coin runway above, as indicated in Fig. 2. From this position it is tripped or opened by the reciprocation of the slide j , acting against its lower member l^4 , as illustrated in Fig. 3, the retractile movement of said slide j , leaving the checking gate L in the position shown in said figure, and in Fig. 1, with its back resting against a suitable stop m^4 , as for instance against the adjacent wall of the throat M, as shown in the drawings, in which position the gate is "open" to receive the coin, since the distance between its point l and the beginning of the concentric curve m , exceeds the diameter of the coin, which settles into the position shown in Figs. 1 and 3, so that its weight and the weight of the coins resting upon it if any, is exerted to again rock the gate L, into the position shown in Fig. 2, thereby releasing the coin and intercepting the next succeeding coin, and so on.

In operation, a coin thus dropped into the chute e , impinges against the trip lever D, in its descent into the coin receptacle E as illustrated in Fig. 2, thereby causing said trip lever D, acting through the medium of the connection rod d , to depress the latch C, sufficiently to withdraw the shoulder c' , from the edge of the plate b^3 . Thus released, the lower arm of the switch lever B, under the action of the spring b^2 , acting upon its upper arm, is swung inward sufficiently to carry the U-shaped contact bridge b , in between the terminal plates A, A', thereby completing the electric circuit and starting the electric motor by which the musical apparatus is actuated. The playing is continuous and the parts remain in the same relative position as shown in Fig. 2, until a perforation s , in the music sheet S, comes into coincidence with the opening t , in the tracker bar T. When this happens the air admitted through the duct g^8 , into the diaphragm chamber g^7 , underneath the diaphragm g^6 , raises the latter and thereby lifting the button h , valve rod h' , and valve h^2 , and transferring said valve h^2 , from the seat g^2 to the chamber g . As a result communication to the atmosphere is closed so far as the pneumatics F and I, are concerned, and at the same time communication is established between the interior of the said pneumatics F and I, and the wind chest H, through the medium of the port f^2 , duct i , seat g^2 , central chamber g^3 , and conduit g^4 , as will be readily understood by reference to Fig. 3. The consequent deflation of the pneumatic F causes the arm or extension f' , of its movable member f , acting upon the contact breaking rod b^4 , to push the switch lever C, back, carrying the bridge b , out of contact with the terminals, thereby breaking the circuit and stopping the motor, and also allowing the shoulder c' , on the spring latch C, to snap in behind the plate b^3 , on the switch lever B, and lock the latter in its original position as shown in Figs. 1, 3. The deflation of the pneumatic I, occurs simultaneously with the above action, causing the extension i' , to push the slide j , inward against the resistance of the spring j' , thereby tripping and opening the checking gate L, into the position shown in Figs. 1 and 3. The passage of the perforations s , beyond the opening t , in the tracker bar obviously quickly again closes communication between the lower part of the diaphragm chamber and the atmosphere, and the internal pressure being soon equalized through the bleed in the diaphragm, the latter allows the valve to return to its normal position upon its seat g closing communication with the wind chest and the pneumatics F and I, reestablishing communication between said pneumatics and the atmosphere, so that each pneumatic is again inflated, in the one case carrying the arm or extension f , away from the end of the contact making rod b , and in the other case retracting the extension or arm i' , the slide j , following by reason of the pressure of the spring j' , thus leaving the checking gate L, free to be tripped by the next succeeding coin.

In order that the checking gate L, may be set manually if desired for any reason, I provide as an auxiliary, a push rod P which may be pressed inward against the resistance of the spring p , so as to push the movable member of the pneumatic I, inward and cause its extension i' , to advance the slide j , to set the gate L as before described, the spring p' , retracting the pusher P, as soon as released by hand thereby allowing the pneumatic I and slide j , to assume their normal position.

What I claim as my invention and desire to secure by Letters Patent is,

1. In coin slot mechanism of the character described, the combination of a coin-receiving raceway adapted to receive a plurality of coins, a pivotally supported gate disposed wholly within said raceway having means whereby it serves as an automatic check, and adapted to be rocked by actual contact with a passing coin so that a portion of said gate is caused to protrude into the path of the next succeeding coin, a fixed stop for engagement by said gate to allow the coin to pass and means disconnected from said gate for tripping and opening the same to release the succeeding coin.

2. In coin slot mechanism of the character described, a coin-receiving raceway adapted to accommodate a plurality of coins, a

loosely pivoted gate disposed wholly within said raceway, having means whereby it serves as an automatic check and having a concave surface conforming to the periphery of a coin, and means movable independently of said gate for contact with the portion thereof below its pivot.

3. In coin slot mechanism of the character described, a coin-receiving raceway adapted to accommodate a plurality of coins, a loosely pivoted gate actuated solely by direct contact of the coin therewith and having means whereby it serves as an automatic check for checking the next succeeding coin, and means for actuating said gate to return it to the position it occupied before the passage of the coin.

4. In coin slot mechanism of the character described, a coin-receiving raceway adapted to accommodate a plurality of coins, a loosely pivoted gate having a concave portion within said raceway having means whereby it serves as an automatic check and a portion depending below its pivot, and pneumatic means for engagement with said depending portion to actuate the gate in a direction opposite to that in which it is actuated by direct contact of the coin therewith.

5. In coin slot mechanism of the character described, a coin-receiving raceway adapted to accommodate a plurality of coins, a loosely pivoted gate having a concave portion within said raceway having means whereby it serves as an automatic check and a portion depending below its pivot, pneumatic means for engagement with said depending portion to actuate the gate in a direction opposite to that in which it is actuated by direct contact of the coin therewith, and manual means cooperating with said pneumatic means.

6. In coin slot mechanism of the character described, a coin-receiving raceway adapted to receive a plurality of coins, a loosely pivoted automatic checking gate having within said raceway a depressed upper face to directly receive the periphery of a coin, with one point for reversing the position and the other for protruding into the path of the succeeding coin, and means for moving said gate into the position opposite that in which it is thrown by the weight of the coin.

7. In coin slot mechanism of the character described, a coin-receiving raceway adapted to receive a plurality of coins, a loosely pivoted automatic checking gate having upon that portion within the raceway two separated points one for engagement of the

coin to tilt the gate to release the coin and the other for protrudance into the path of the next succeeding coin and pneumatically operated means disconnected from said gate and slidingly mounted for engagement with the portion of said gate projecting below its pivot.

8. In coin slot mechanism of the character designated, the combination with a coin chute and trip lever interposed in the path of the coin below said chute and arranged to release or start automatic apparatus, of a pivotally supported checking gate above said chute adapted to be rocked by a passing coin so as to protrude into the path of a succeeding coin, a coin receiving race way above said checking gate adapted to accommodate a plurality of coins, and means for re-setting said checking gate, consisting of a slide held normally retracted by a spring, and a pneumatic controlled by a perforated sheet passing over a tracker bar and arranged to actuate said setting slide against the resistance of said retractile spring for the purpose described.

9. In coin slot mechanism of the character designated, the combination of a coin receiving raceway adapted to accommodate a plurality of coins, a pivotally supported automatic checking gate, said checking gate being formed and adapted to be rocked by actual contact with a passing coin so that a portion of the checking gate is caused to protrude into the path of the next succeeding coin, and pneumatic means controlled by a perforated music sheet passing over a tracker bar for tripping and opening the checking gate to release the succeeding coins, for the purpose described.

10. In coin slot mechanism of the character designated, the combination of a coin receiving raceway adapted to accommodate a plurality of coins, a pivotally supported automatic checking gate, said checking gate being formed and adapted to be rocked by actual contact with a passing coin so that a portion of the checking gate is caused to protrude into the path of the next succeeding coin, pneumatic means controlled by a perforated music sheet passing over a tracker bar for automatically tripping the checking gate to release the succeeding coins, and auxiliary means for tripping and opening said checking gate manually, for the purpose described.

GEORGE P. BRAND.

Witnesses:

D. W. GARDNER,
GEO. WM. MIATT.