No. 649,983. Patented May 22, 1900.

S. J. GLASS.

COIN BOX FOR COIN CONTROLLED MECHANISM.

(Application filed July 31, 1899.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 3.

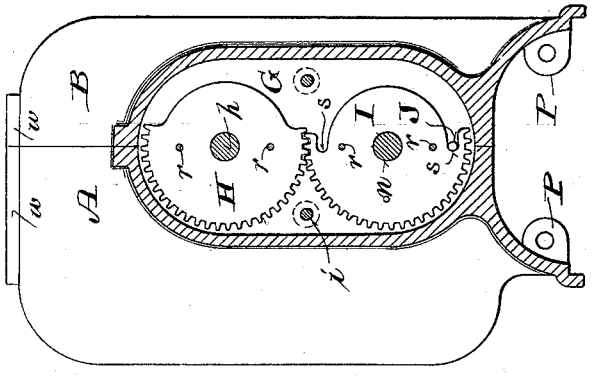


Fig. 2.

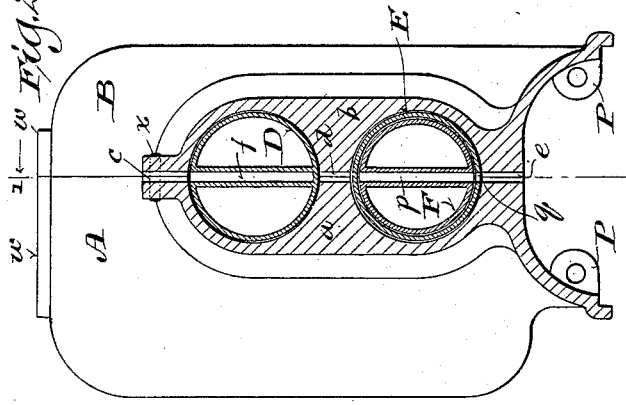


Fig. 5.

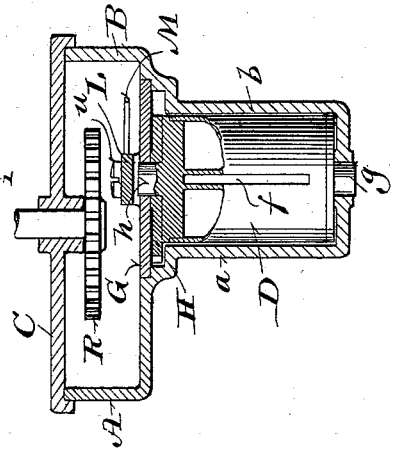


Fig. 1.

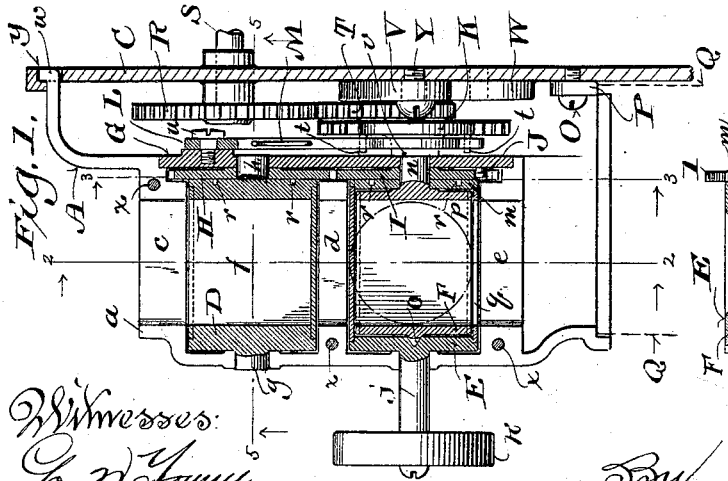
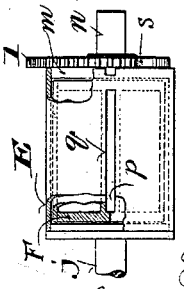


Fig. 4.



Witnesses:
Geo. W. Young
B. C. Roloff

Inventor
Sheldon J. Glass.
By H. G. Underwood
Attorney

No. 649,983. Patented May 22, 1900.

S. J. GLASS.

COIN BOX FOR COIN CONTROLLED MECHANISM.

(Application filed July 31, 1899.)

(No Model.) 3 Sheets—Sheet 2.

Fig. 8.

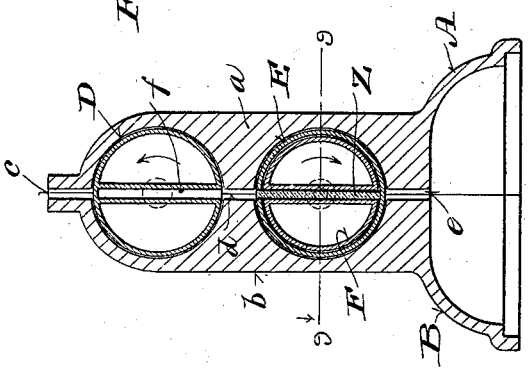


Fig. 9.

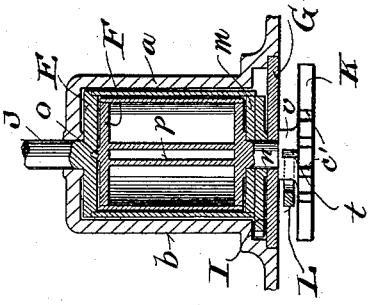


Fig. 6.

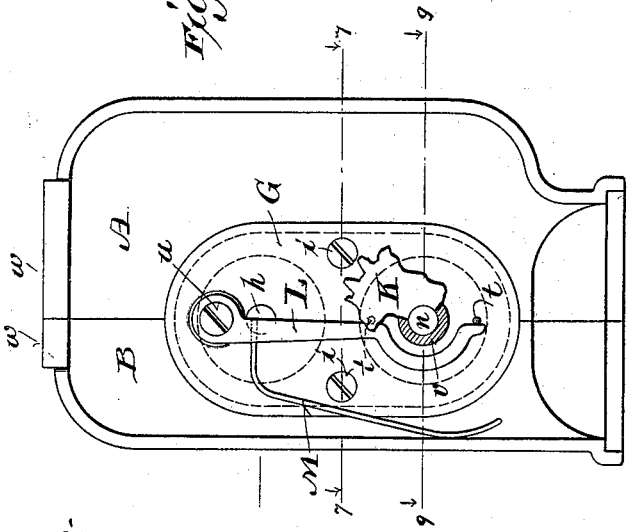
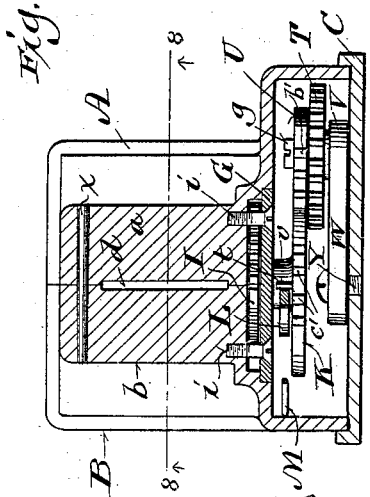


Fig. 7.



Witnesses:
Geo. W. Young.
B. C. Rolff.

Inventor
Sheldon J. Glass.
By H. G. Underwood
Attorney

No. 649,983. Patented May 22, 1900.

S. J. GLASS.

COIN BOX FOR COIN CONTROLLED MECHANISM.

(Application filed July 31, 1899.)

(No Model.) 3 Sheets—Sheet 3.

Fig. 11.

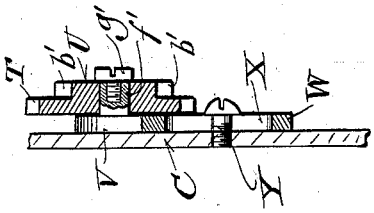
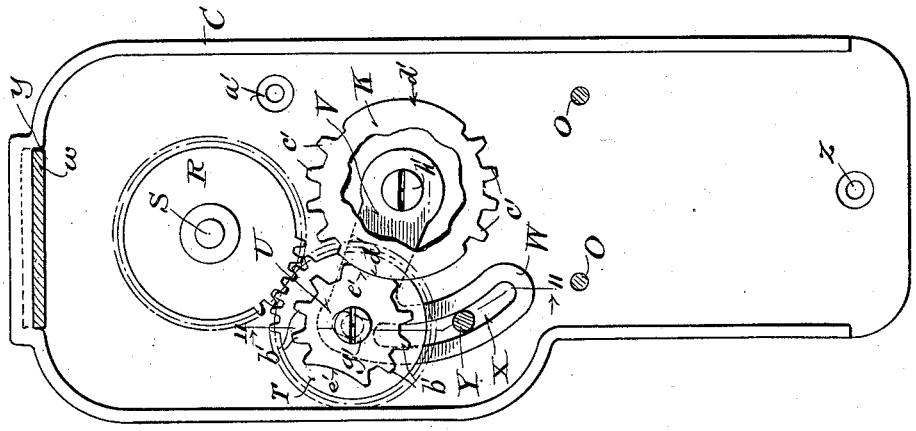


Fig. 10.



Witnesses:
Geo. W. Young
B. C. Roloff.

Inventor
Sheldon J. Glass,
By H. G. Underwood
Attorney

UNITED STATES PATENT OFFICE.

SHELDON J. GLASS, OF MILWAUKEE, WISCONSIN.

COIN-BOX FOR COIN-CONTROLLED MECHANISM.

SPECIFICATION forming part of Letters Patent No. 649,983, dated May 22, 1900.

Application filed July 31, 1899. Serial No. 725,636. (No model.)

To all whom it may concern:

Be it known that I, SHELDON J. GLASS, a citizen of the United States, and a resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Coin-Boxes for Coin-Controlled Mechanism; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to coin-boxes for coin-controlled mechanism—such, for example, as is employed in various prepayment vending devices; and it consists in certain peculiarities of construction and combination of parts, as will be fully set forth hereinafter and subsequently claimed.

In the drawings, Figure 1 is a vertical longitudinal sectional view of my improved device on the line 1 1 of Fig. 2. Figs. 2 and 3 are vertical transverse sectional views on the lines 2 2 and 3 3, respectively, of Fig. 1. Fig. 4 is a plan view of the lower coin-cylinder, partly broken away to illustrate certain details of construction. Fig. 5 is a horizontal sectional view on the line 5 5 of Fig. 1. Fig. 6 is an inner end elevation of my device, partly broken away or in section. Fig. 7 is a horizontal sectional view on the line 7 7 of Fig. 6. Fig. 8 is a vertical transverse sectional view on the line 8 8 of Fig. 7. Fig. 9 is a horizontal sectional view on the plane indicated by the lines 9 9 in Figs. 6 and 8. Fig. 10 is an elevation of the rear casing of my device with the gearing connected thereto, and Fig. 11 is a detail sectional view on the lines 11 11 of Fig. 10.

My present invention is an improvement on the device shown in my prior patent, No. 601,251, granted to me March 29, 1898; and it includes means for preventing the operative coin-cylinder from being turned without the use of a proper coin either from the coin-box itself or from the device to which said coin-box may be attached, as well as in certain novel features for bringing the coin-slot in the lower inner coin-cylinder into perfect alinement with the coin-slots in the other cylinders and with the coin-channel in the casing, and in other features tending to simplify and improve the construction covered by said prior patent.

Referring to the drawings, A B represent separable side and front pieces of the casing of my device, and C represents the back piece thereof. Each piece A and B is shown cast with a solid extension *a* and *b*, each having an upper and lower semicylindrical bore therein, which when the two parts are put together are for the reception of the hereinafter-described coin-cylinders D E, the said parts *a* and *b* being further formed with semicylindrical bearings for the trunnions or journals at one end of said cylinders and with vertical grooves *c d e*, forming the coin-channel in the casing when the two parts are put together. The upper cylinder D is shown as consisting of a cylindrical shell with a parallel-walled central longitudinal slot *f* extending through one face of said cylinder, but closed at the opposite face thereof, said shell having closed ends provided with trunnions, (marked *g h*, respectively,) the trunnion *g* being journaled in the described semicylindrical bearings of the parts *a* and *b* and the trunnion *h* being journaled in a circular bearing in a plate G, secured to said parts *a b*, as by screws *i i*. The lower cylinder E is also a cylindrical shell, but having another cylinder F within it, the latter being also a cylindrical shell with closed ends, as hereinafter described.

The outer closed end of cylinder E is made integral with or rigidly secured to the rod *j* of a hand-wheel *k*, which rod is round in cross-section and forms the outer trunnion of the cylinder E, being journaled in the other described semicylindrical bearings of the parts *a b* below and in line with the bearings of the trunnion *g* of the upper cylinder D. The inner end *m* of the cylinder E is made fast to the shell of said cylinder, but has no trunnion, having instead a central circular aperture through which there projects the journal *n* of the inner end of the cylinder F, the opposite closed end of said inner cylinder having, preferably, a conical trunnion *o*, seated in a correspondingly-shaped bearing in the center of the adjacent face of the outer closed end of the outer cylinder E, and said inner cylinder F is shown formed with a parallel-walled central longitudinal slot *p*, extending entirely through said cylinder and the oppo-

site faces thereof, while the outer cylinder E is formed with a longitudinal slot *q* through its shell at one point only.

H I represent two segmental toothed disks, disk H being secured to the inner end of cylinder D and disk I to the like end of cylinder E, as by pins *r r*, the circular portions of said disks being of greater diameter than those of said cylinders and the teeth of said two disks being in mesh.

J is a pin or stop projecting from the adjacent plate G, and the lower disk I is provided with recesses *s s* at diametrically-opposite points for engagement with said pin or stop.

K represents a mutilated gear having a limited number of teeth—as four, for example—at diametrically-opposite points of its periphery, the hub *v* of said gear K being rigidly secured to the projecting end of the journal *n* of the described inner cylinder F and said gear having pins *t t* projecting from one face thereof at diametrically-opposite points toward the plate G.

L is a lever pivotally secured to said plate G, as shown by the pivot-screw *u*, the lower end of said lever being curved, as shown, to escape contact with said gear-hub *v* and having parallel bearing-surfaces just above and below said curved portion for engagement with the described pins *t t* on said mutilated gear K.

M represents a spring, one end of which is secured to the said lever L and the other end of which bears against the inner surface of the casing B.

The two side and front pieces A and B of my casing are formed with lips or offset flanges *w w* at the tops thereof, and when said pieces are put together (and secured by pins *x x*) the said lips are slipped into an upper transverse slot *y* in the back piece or rear casing C, the parts being firmly held together by the flanged edges of said back piece and by suitable screws O, passing through lugs P on the lower ends of the parts A B and passing into screw-threaded bores in the back piece C. It will be understood, of course, that a suitable receptacle is provided beneath the parts A B and fastened to the back piece C, as by a screw passing through the back of said receptacle into a properly-threaded hole in said back piece, (indicated at *z*;) but I have not deemed it necessary to illustrate such a receptacle, with its usual and proper locked door, &c., in the present drawings, as same may be of any ordinary or suitable construction, and have merely indicated its location by the dotted lines Q Q in Fig. 1.

R is a gear-wheel removably secured to an operating-shaft S, which passes through an opening in the back piece C to actuate or set in motion the mechanism of the device to which my coin-box is to be attached, said back piece being provided with suitable screw-holes (one of which is shown at *a'*) for the purpose of such attachment, another of said screw-holes being concealed by the gear-wheel T.

This last-named gear-wheel T is formed integral or made rigid with a mutilated pinion U, having a given number of teeth *b' b'* (three, for example) on its periphery diametrically opposed to a like number of similar teeth on the opposed edge of said periphery, which are adapted to mesh at the proper times with one or the other of the sets of teeth *c' c'* on the described mutilated gear K. The two sets of teeth on the gear K are separated by opposed convex portions *d' d'* of the periphery thereof, while the two sets of teeth on the pinion U are correspondingly separated by opposed concave portions *e' e'* of the periphery of said pinion, and when the parts A B C are put together, as already described, and ready for operation the convex and concave portions of said mutilated gear and pinion are always in contact with each other and the teeth of the gear-wheels T and R are similarly always in mesh. The combined gear-wheel and mutilated pinion T U is revolubly mounted on a stud *f'* and held in place thereon, as by a screw *g'*, said stud projecting from a plate V, pivotally secured to said back piece, as by screw *h'*, said plate V having an arm W rigid therewith, which arm is provided with an arc slot X, and when the plate V is adjusted so that wheels T and R are in mesh a set-screw Y, whose shank passes through the slot X into the back piece C, is tightened down, thereby securing the arm and plate in the desired position. By this means the gear-wheel R may be removed from the shaft S and another gear-wheel of different diameter substituted therefor and the plate moved to bring this new wheel into mesh with gear-wheel T and the said plate tightened to place to keep said gear-wheels in engagement.

The operation of my device will be readily understood from the foregoing description of its construction, taken in connection with the accompanying drawings. When it is desired to deposit a coin of the required size and value in my coin-box, the hand-wheel *k* is turned, which revolves the cylinder E, and the segmental toothed disk I on said outer lower cylinder E, in mesh with the like disk H on the outer end of the upper cylinder D, will bring said cylinders into the relative positions shown in Fig. 2. The coin is then dropped into the upper portion *c* of the coin-channel, and as the same is in line with the slot *f* in disk D said coin will then drop into said slot and be wholly within cylinder D. A reverse motion is then given to the hand-wheel *k*, and the described toothed disks H I will reverse the said cylinders D E, so that they will occupy the relative positions shown in Fig. 8, and said coin (here marked Z) will drop out of the slot *f* in cylinder D and passing through the portion *d* of the described coin-channel in the casing will pass through the coin-slot *q* in the outer lower cylinder E and into the coin-slot *p* in the inner lower cylinder F, as the last-described movement of the hand-wheel *k* has brought slot *q* of the lower outer cylinder E

uppermost and in line with the coin-slot p in said inner cylinder F. Up to this time the said inner cylinder F has remained stationary, with its coin-slot p in vertical line with the described coin-channel $c\ d\ e$ of the coin-box and undisturbed by the movement back and forth of the lower outer cylinder E; but now as a solid portion of the cylindrical shell of said cylinder E closes the passage to the portion e of the coin-channel the upper edge of said proper-sized coin Z will project up through the coin-slots p and q of the two lower cylinders and hold them in engagement, so that when the handle k is next moved the cylinders are restored to the relative positions shown in Fig. 2, with the coin-slot q in the lower cylinder at the bottom of the same, and the coin Z will drop down through the lowest portion e of the coin-channel in the box or casing into the receptacle beneath. So long as there is no coin in the lower cylinders turning the hand-wheel k back or forth will only result in moving the outer lower cylinder E over the inner lower cylinder F without disturbing the position of the latter, which is always normally stationary, with its coin-slot p in line with the described coin-channel $c\ d\ e$ in the box or casing, and hence there would be no movement of the mutilated gear K, which is rigidly secured to the journal n of said inner cylinder F; but the moment that the coin is received within the registering slots of the said lower cylinders E F then said cylinders must move together until the said coin is discharged, and hence while they are thus locked together by said coin turning the hand-wheel k will also turn the mutilated gear K, which in turn will move the mutilated pinion U by the engagement of one set of the teeth $c'\ c'$ on the former with one set of the teeth $b'\ b'$ on the latter, and as pinion U is fast with gear-wheel T this will cause said last-named wheel to turn gear-wheel R and its shaft S, thereby actuating or setting in motion any mechanism attached to said shaft S.

As the gear-wheel R is in mesh with the gear-wheel T and the latter is rigid with the mutilated pinion U, which pinion has one of its concave portions e' in contact with one of the convex portions d' of the mutilated gear K, there is a positive stop against any attempt to turn said gear-wheel R, and the operating or actuating shaft S, rigid therewith, independently of the coin-operated cylinders, as said mutilated pinion U is thereby absolutely locked against any movement whatsoever until it is itself moved by said mutilated gear K, and so long as said pinion U remains thus locked then the wheel T, rigid therewith, cannot be moved, nor the wheel R and its shaft S, as said wheel is in mesh with the wheel T.

Coins of the same value but of different dates of coinage often appreciably differ in thickness, and coins of the same value and date frequently differ in thickness on account of the greater wear or abrasion of one of them consequent upon greater use, and hence it is necessary that my device should be so constructed as to insure such perfect alinement of the slot p in the lower inner cylinder F with the coin-channel of the box or casing that in the reception or discharge of a coin there shall always be perfect freedom of movement of said coin, whether it be thicker or thinner than the average of such coins, and so that the coin-slot in said inner cylinder F shall always be brought into the just-described perfect alinement to receive a fresh coin after the said cylinder has been partly revolved in the discharge of the previous coin. To accomplish these results, I have provided the hereinbefore-named spring-controlled lever L and the pins $t\ t$ on the mutilated gear K. Were it not for this it would sometimes happen that one wall of the slot p in said inner cylinder F would project slightly beyond the corresponding wall of the slot q in the outer lower cylinder E, and thus retard the reception or discharge of the coin, as the case might be; but with my present construction the spring M will always force the parallel bearing-surfaces of the lever L against the pins $t\ t$ on the gear K, (which latter, as heretofore described, is rigid with the journal n of said inner cylinder F,) and as said pins $t\ t$ are exactly parallel with the slot p of said inner cylinder, and one pin consequently in direct line with the other, this action of the spring-controlled lever L will always insure that said pins $t\ t$ and said slot p shall always be in the same absolutely-vertical line whenever the outer cylinder E is turned to the limit of its half-revolution to receive or discharge a coin, and the described segmental toothed disks H I will insure the like perfect vertical alinement of the slots $f\ q$ in the cylinders D E with said slot p in cylinder F and the coin-channel $c\ d\ e$ at the end of every half-revolution of the said cylinders D E. A further function of the just-described spring-controlled lever L and the pins $t\ t$ on the mutilated gear K lies in the fact that said lever by its engagement with said pins serves to keep said gear K in its normal position, (illustrated in Fig. 10,) with one of its convex surfaces d' in contact with one of the concave edge portions e' of the pinion U, when there is no coin within the said lower cylinders E F, and this insures the absolute prevention of movement of said inner cylinder F, gear K, pinion U, wheels T R, and shaft S, hereinbefore mentioned, in the absence of the said necessary coin. Further, by my present invention if a coin of less diameter (and hence of less value) than the one for which my device is adapted is attempted to be used therewith said coin will merely pass through the described coin-slots and coin-channel into the receptacle beneath as the cylinders D E are turned without having any effect, the diameter of such coin being of course insufficient to cause it to project through both slots $p\ q$ when the cylinders are in the relative po-

sitions shown in Fig. 8, and hence there cannot be any locking of the two lower cylinders E F together by such smaller coin, which locking is necessary to cause any movement of the mutilated gear K and pinion U and the train of gears and operating-shaft S, connected thereto, and consequent movement of the mechanism of the device to which said coin-box may be attached.

As in my prior patent, hereinbefore named, and on which my present invention is an improvement, tampering with the operating-cylinder is guarded against by rendering the same inaccessible by means of the location of the upper or primary coin-receiving cylinder, and hence in my present device the lower inner cylinder cannot be turned in any other manner than by the insertion of a coin of the proper size in the manner heretofore described.

By reason of the hereinbefore-described spring-controlled lever L and the pins *t t* on the gear rigid with the inner cylinder F it follows that the parts just named will coact to automatically complete the semirevolution of said inner cylinder, and thus insure that the slot of said cylinder will be brought into perfect alinement with the coin-channel even if the operator fails to complete said semirevolution by fully turning the hand-wheel *k*, and this is a great advantage over the construction set forth in my said prior patent.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a coin-box for coin-controlled mechanism, the combination with a casing having a coin-channel extending therethrough, of a rotatable outer cylinder having a single longitudinal slot in its periphery adapted to be brought into alinement with said coin-channel; an inner cylinder, having a longitudinal slot extending entirely therethrough, and capable of being rotated with its outer cylinder on the insertion of a coin of predetermined size therein; means for preventing the rotation of said inner cylinder in the absence of said coin, and means for automatically completing the revolution of said inner cylinder and for bringing and normally keeping the slot of the inner cylinder in alinement with said coin-channel.

2. In a coin-box for coin-controlled mechanism, the combination with a casing having a coin-channel extending therethrough, of a rotatable outer cylinder having a single longitudinal slot in its periphery adapted to be brought into alinement with said coin-channel; an inner cylinder, journaled within said outer cylinder, and having a longitudinal slot extending entirely therethrough; a mutilated gear rigidly connected to one of the journals of said inner cylinder, and a mutilated pinion pivotally secured within said casing, forming a positive stop against movement of said inner cylinder without the insertion of a coin of predetermined size within the latter, and having teeth for engagement with like teeth on said mutilated gear when said coin has been so inserted.

3. In a coin-box for coin-controlled mechanism, the combination with a casing having a coin-channel extending therethrough, of a rotatable outer cylinder having a single longitudinal slot in its periphery adapted to be brought into alinement with said coin-channel; an inner cylinder, journaled within said outer cylinder, and having a longitudinal slot extending entirely therethrough; a transverse part rigidly connected to one of the journals of said inner cylinder, and provided with laterally-projecting pins in line with the slot in said inner cylinder; and a spring-controlled lever pivotally secured to said casing, and having parallel bearing-surfaces for engagement with said projecting pins.

4. In a coin-box for coin-controlled mechanism, the combination with a casing having a coin-channel extending therethrough, of a rotatable outer cylinder having a single longitudinal slot in its periphery adapted to be brought into alinement with said coin-channel; an inner cylinder, journaled within said outer cylinder, and having a longitudinal slot extending entirely therethrough; a mutilated gear rigidly connected to one of the journals of said inner cylinder and having sets of diametrically-opposed teeth separated by smooth convex portions of its periphery; and a mutilated pinion pivotally secured within said casing, and having like sets of diametrically-opposed teeth separated by smooth concave peripheral portions, one of which concave portions is normally in contact with one of the described convex portions of said gear, forming a lock against the rotation of the said inner cylinder.

5. In a coin-box for coin-controlled mechanism, the combination with a casing having a coin-channel extending therethrough, of a pair of connected rotatable cylinders, each having a longitudinal coin-slot extending through its periphery at one point only, and adapted to be brought into alinement with said coin-channel; an inner cylinder having a longitudinal slot extending entirely therethrough, located within one of said last-named cylinders, and capable of being rotated therewith on the insertion of a coin of predetermined size therein; means for bringing and normally keeping the slot of the inner cylinder in alinement with said coin-channel; and means for preventing the rotation of said inner cylinder in the absence of said coin.

6. In a coin-box for coin-controlled mechanism, the combination with a casing having a coin-channel extending therethrough, of a pair of connected rotatable cylinders each having a longitudinal coin-slot extending through its periphery at one point only, and adapted to be brought into alinement with said coin-channel; an inner cylinder having a longitudinal coin-slot extending entirely therethrough, located within one of said last-

named cylinders; and means for automatically completing the revolution of said inner cylinder and for bringing and normally keeping the slot in said inner cylinder in perfect alinement with said coin-channel.

7. In a coin-box for coin-controlled mechanism, the combination of a casing having a coin-channel extending therethrough and cylindrical bores intersecting said coin-channel, of a cylinder in the upper bore having a slot extending partly therethrough and adapted to be brought into alinement with said coin-channel; an outer cylinder in the lower bore having a single longitudinal slot in its periphery also adapted to be brought into alinement with the coin-channel in the casing; means for the partial revolution of said last-named cylinder from the outside of said casing, and for the simultaneous partial revolution of the upper cylinder from the lower; an inner cylinder journaled within the outer lower cylinder and provided with a longitudinal slot extending entirely therethrough; a mutilated gear rigidly connected to one of the journals of said inner cylinder, and a mutilated pinion pivotally secured within said casing, forming a positive stop against movement of said inner cylinder without the insertion of a coin of predetermined size within the latter, and having teeth for engagement with like teeth in said mutilated gear, when said cylinder has been operated after the insertion of said coin.

8. In a coin-box for coin-controlled mechanism, the combination with a pair of coin-carriers, revolubly mounted within said coin-box, of a mutilated gear rigidly connected to the journal of one of said carriers, and a mutilated pinion pivotally secured to said coin-box, and adapted for engagement with said mutilated gear, on the insertion of a coin within said carriers.

9. In a coin-box for coin-controlled mechanism, the combination with a casing having a coin-channel extending therethrough, and a pair of coin-carriers revolubly mounted within said coin-box, and having coin-slots adapted to be brought into alinement with said coin-channel, of a transverse part rigidly connected to one of said carriers, and a spring-controlled part within said casing, and adapted for engagement with said transverse part, whereby the slot in said carrier is brought into and held in alinement with said coin-channel.

10. In a coin-box for coin-controlled mechanism, the combination with a casing having a coin-channel extending therethrough, and a pair of coin-carriers revolubly mounted within said coin-box and having coin-slots adapted to be brought into alinement with said coin-channel, of a transverse part rigidly connected to the journal of one of said carriers, and provided with lateral projections and a spring-controlled lever pivotally secured to said casing, and having parallel bearing-surfaces for engagement with said projections.

In testimony that I claim the foregoing I have hereunto set my hand, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

SHELDON J. GLASS.

Witnesses:
H. G. UNDERWOOD,
N. E. OLIPHANT.