F. W. SMITH.

COIN DEVICE FOR VENDING MACHINES.

APPLICATION FILED JULY 13, 1906.

947,087.

Patented Jan. 18, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

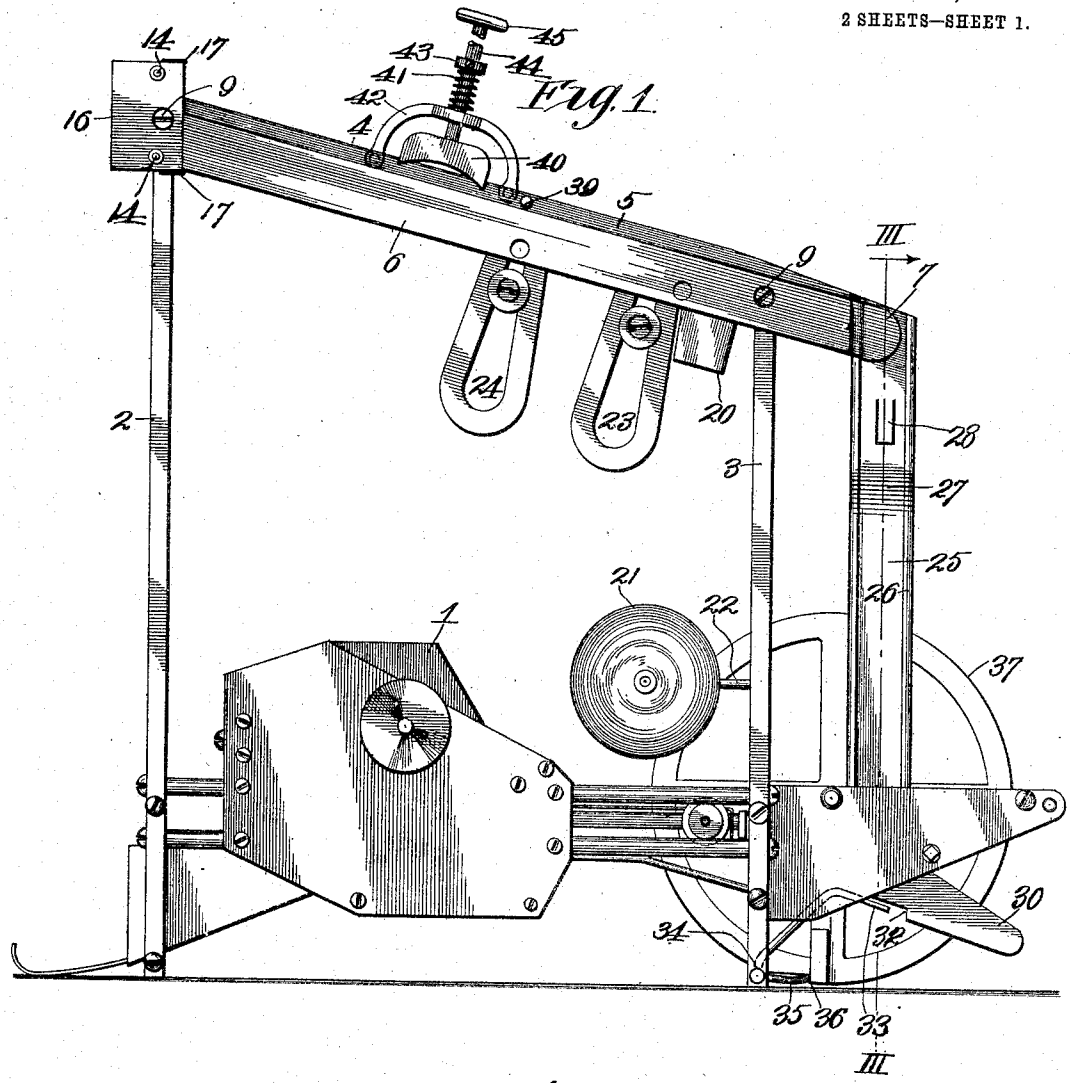
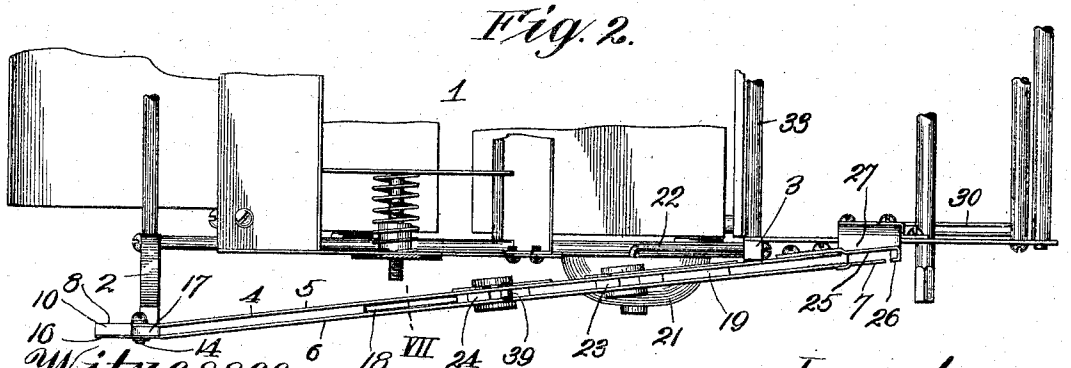


Fig. 2.



Witnesses

Frank R. Glore.

H. C. Rodgers.

Inventor

F. W. Smith.

By George L. Thorpe Atty.

ANDREW. B. GRAHAM CO., PHOTO-LITHOGRAPHERS, WASHINGTON, D. C

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2 SHEETS—SHEET 2.

Fig. 3

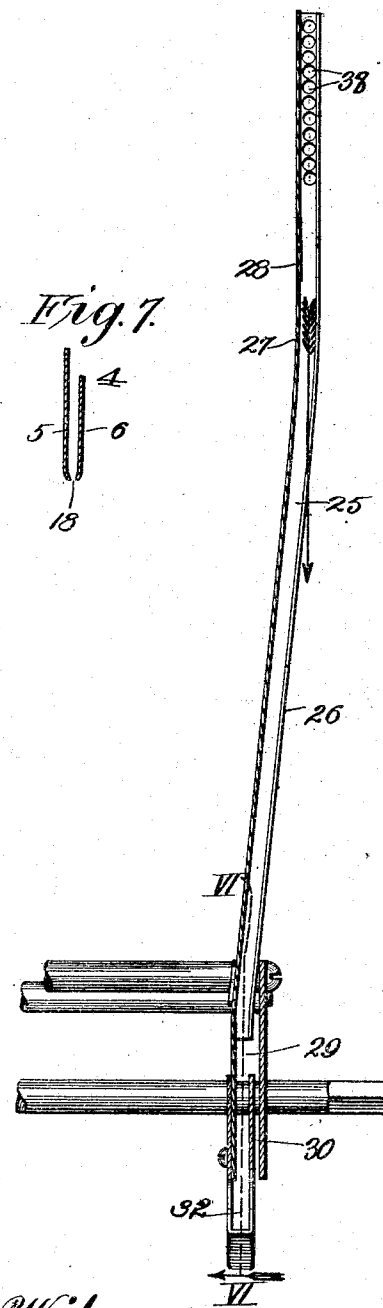


Fig. 7.

Fig. 4.

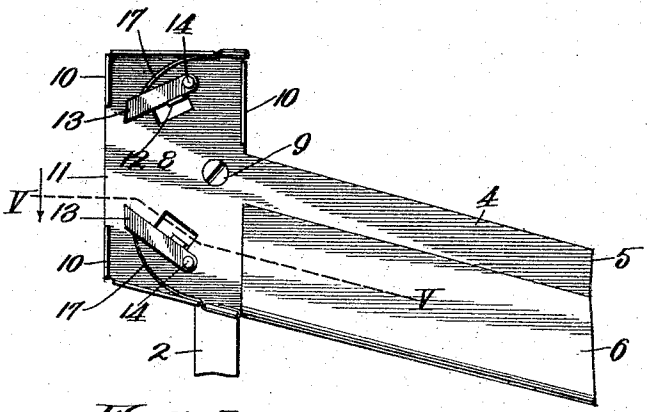


Fig. 5.

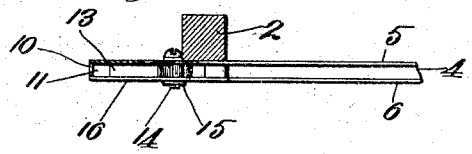
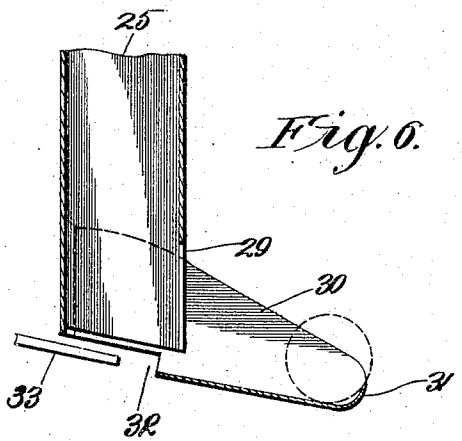


Fig. 6.



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H. C. Rodgers.

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UNITED STATES PATENT OFFICE.

FRANK W. SMITH, OF KANSAS CITY, MISSOURI.

COIN DEVICE FOR VENDING-MACHINES.

947,087. Specification of Letters Patent. **Patented Jan. 18, 1910.**

Application filed July 13, 1906. Serial No. 325,998.

To all whom it may concern:

Be it known that I, FRANK W. SMITH, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Coin Devices for Vending-Machines, of which the following is a specification.

This invention relates to coin devices for automatic vending machines, and has for its object to produce a device of this character into which lead or other soft disks cannot be inserted; which will prevent the introduction of disks of proper size but with their peripheries milled or otherwise roughened; which will prevent an iron or other disk subject to magnetic attraction flipped into the housing, from rolling through the chute at greater speed than if simply shoved into the housing in proper manner and which will eject said disks from the chute before they have traversed the full length thereof and cause them to sound an alarm if desired; and which will also eject non-magnetic hard or soft disks or coins of less thickness or diameter than the coin selected to set the vending machine in operation. A further object is to produce a device of this character of simple, strong, durable and cheap construction.

To these ends the invention consists in certain novel and peculiar features of construction and organization as hereinafter described and claimed; and in order that it may be fully understood reference is to be had to the accompanying drawings, in which—

Figure 1, is a side elevation of a portion of a vending machine equipped with a coin device embodying my invention. Fig. 2, is a top view of the same. Fig. 3, is a vertical section taken on the line III—III of Fig. 1. Fig. 4, is a full-sized side view—with one side of the housing omitted—of the front end of the coin chutes. Fig. 5, is a horizontal section taken on the line V—V of Fig. 4. Fig. 6, is a full-sized vertical section of the lower end of the coin chute, taken on the line VI—VI of Fig. 3. Fig. 7, is a vertical section taken on the dotted line VII of Fig. 2.

In the said drawings, 1 indicates a portion of a vending machine of any suitable or preferred type, and 2—3 front and rear standards of said machine, the former projecting to a higher plane than the latter so as to support in a downwardly and rearwardly inclined position the upper chute 4 of a coin device. The coin chute is preferably made from a sheet of thin metal bent to U-form in cross section with its inner wall 5 preferably higher than its outer wall 6, and with the latter equipped with an extension projecting beyond the rear end of the former as at 7. The inner wall 5 terminates forward of the front end of wall 6 in an enlargement 8, and through the same and through the rear portion of wall 5 securing screws 9 extend into the standards 2—3. The upper and lower portions of the enlargement are provided with laterally projecting flanges 10 with the flanges at the front margin disposed a sufficient distance apart to provide a mouth 11 which will conveniently admit between them a coin of the largest diameter to pass through the chute and set in motion the machinery of the vending machine, the passage of the chute being slightly wider than the thickness of such coin. The device shown is proportioned properly to receive a nickel which is adapted to pass through the chute and operate the vending machine as hereinafter explained, and in this connection it will be noted that the rear flange 10 of the housing depends below the plane of the top of the mouth 11 sufficiently to intercept any coin or disk flipped into the housing and cause the same to drop down into the chute and roll down the same at the same speed as a coin which is simply pushed into the housing. By this arrangement it is impossible for a person to flip a magnetic coin or disk through the chute at sufficient speed to pass the opening in the chute hereinafter referred to, through which the disk should be ejected.

Stamped out of the enlargement 8 and projecing outwardly therefrom—inwardly of the chute—are stops 12 to limit the pivotal movement toward each other of a pair of dogs 13 pivoted at 14 on bolts extending through said enlargement and engaged at their outer ends by small nuts 15, which nuts furthermore serve to clamp against flanges 10 and in the vertical plane of wall 6 of the chute, the outer wall 16 of the housing constituted by such wall and the enlargement 8. The dogs are held yieldingly toward each other by means of springs 17 secured as shown or otherwise to flanges 10 of the housing.

A suitable distance from its front end the bottom of the chute is provided with an opening 18 through which coins thinner than those designed to operate the vending mechanism may fall, and rearward of said opening the chute is provided with a second opening 19 through which magnetic disks may be caused to fall, said opening communicating with a depending tube 20, whereby such coins shall be caused to fall upon a bell 21 or other device for sounding an alarm, supported by arm 22 projecting from standard 3 or any other suitable support. To insure the discharge of magnetic disks through opening 19, a horseshoe or equivalent magnet 23 is secured rigidly to and forms part of the bottom of chute 4, just forward of tube 20, a second magnet 24 being similarly secured to the chute forward of magnet 23 for the purpose of retarding the speed of such disks in order to make positive their ejection through opening 19 under the attractive influence of magnet 23.

25 indicates the upright member of the coin chute, the same comprising a bar, U-shape in cross section with the arms of the U flanged inwardly at their outer margins as at 26, the extension 7 of wall 6 being disposed at the upper end of the upright member of the chute in the vertical plane of the contiguous portions of flanges 26 as shown clearly in Fig. 2. The upright chute member 25 is of proper proportion to accommodate a nickel, in this instance, and the space between its flanges 26 is sufficiently wide to permit a penny or similar coin or disk to pass therethrough, and to insure such passage and prevent a penny or other coin or disk of substantially the same size from sliding down to the bottom of the chute member 25, the latter is bent inwardly a short distance from its upper end as at 27, so that its delivery or lower end shall be inward of the vertical plane of its receiving or upper end and to further insure the escape of a penny or other coin or disk of smaller diameter than a nickel, a tongue 28 is stamped out of the bridge portion of member 25 and projects outward slightly as shown in Fig. 3, so as to induce outward movement of each coin passing down through said member, it being apparent that if the coin is of diameter to fit properly within the chute, such as a nickel, that the flanges 26 will prevent it from being ejected and will retain it in the chute until it escapes from the lower end of the same.

The lower end of the chute member 25 is open and the corresponding end of its rear arm is provided with an opening 29 through which the coin is adapted to pass into a chute 30 inclined downwardly and rearwardly slightly and having its bottom terminating in an upcurved end 31, as an abutment to arrest the coins as they successively engage the same in order that any one inspecting the machine may see what character of coin was last employed to operate it. The chute 30 is provided with a bottom opening 32 of smaller diameter than the coin to prevent the same passing therethrough and projecting into said opening and adapted to be operated by the impact of the coin dropping through member 25, is an arm 33, of a rock shaft 34, said rock shaft being adapted to be held yieldingly in the position described, and with a second arm 35 in a notch 36 of a wheel 37 forming a part of the vending machine and adapted when the coin depresses arm 33 and trips arm 35 to operate the machine under the action of mechanism not herein shown and described because it forms no part of the invention.

To prevent a person from introducing a wire through chute 4 and down through chute member 25 and effecting the depression of arm 33, the upper end of the rear arm of member 25 is roughened, preferably by a series of holes 38 into which the end of such wire will catch, such fraudulent operation of the vending machine being furthermore guarded against by means of the cross pin 39 projecting outwardly from the upper wall 5 of chute 4 which obviously will prevent the wire after its end engages the rear wall of chute member 25, from buckling or springing upward at its middle out of chute 4 and thus giving a better opportunity to work the end of the wire in chute member 25 downwardly through the same. A nickel or other hard coin or disk of proper size and smooth periphery when pushed between the dogs will cause them to move apart and will start to roll down chute 4. If the coin or disk is materially thinner than the predetermined size, it will fall through opening 18. If of proper proportion but magnetic material, such as iron, it will pass said opening and will be caused by the magnets to drop through opening 19 and upon the bell. If the coin is of brass or copper, or other non-magnetic material, of smaller diameter than a nickel, its momentum will carry it past the opening 19 and into chute member 25 from which it will be ejected through the open side of the same as indicated by the arrow Fig. 3, as hereinbefore explained. It will thus be seen that to operate the machine a coin or disk of non-magnetic material of the size of a nickel must be employed, and if any spurious coin or disk is employed to operate the machine it will remain in view against the abutment at the lower end of chute 30 until the operation of the machine is again effected, the impact of the last coin employed, against the one lodged in the position shown in dotted lines, causing the latter to override the abutment

and drop into a money drawer or equivalent device below, not shown.

At times a disk, such as a penny may be sufficiently thin to lodge in opening 18 and thus clog chute 4, and in order to effect the ejectment of such disk, I provide a flat plunger 40, concaved at its lower edge, in the vertical plane of opening 18 and held elevated normally by a spring 41 having its opposite ends engaging a bracket 42 secured to the wall 5 of the chute or at any other fixed point, and a collar 43 mounted on the stem 44 of the plunger, said stem projecting up through the top of the casing, not shown, of the vending machine and having a push button 45 at its upper end.

Should a person insert a proper coin such as a nickel and the same be arrested by a disk lodged in opening 18, such person may by simply pressing down on push button 45 force the disk down through said opening 18, the spring immediately reëlevating the plunger and permitting the nickel to continue on its way through the chute and effect the operation of the machine, it being noted that the concaved lower edge of the plunger tends to centralize the lodged disk with respect to the opening so as to make its ejectment positive. In practice the machine will be equipped with printed instructions when and how to effect the dislodgment of a disk sticking in said opening.

From the above description it will be apparent that I have produced a coin device which can be operated only by a non-magnetic coin or disk of predetermined diameter and thickness and which furthermore must have a smooth periphery and be of hard metal, it being understood that the disk must be heavy in order to overcome the resistance of arm 33 and depress the same. As stated the dogs prevent the insertion of lead or other soft disks into the machine and accomplish this result because the points of the dogs are disposed apart a distance considerably less than the diameter of the coin by which the machine is to be operated. By this arrangement as the coin is inserted the dogs must necessarily be forced apart which action takes place invariably if the coin is hard and its periphery smooth but if the coin is soft the attempt to shove either dog up or down or to use one of them as a fulcrum on which to roll the coin into the housing is defeated because the other dog follows the upward or downward movement of the coin and thus stands constantly in its path. It is to be understood of course, that I do not desire to be restricted to the exact details of construction shown and described as obvious modifications will suggest themselves to one skilled in the art.

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

1. A chute for the passage of a coin edgewise therethrough having its bottom wall formed intermediate its ends with an exit opening; in combination with means located directly above said opening for forcing edgewise through the latter a coin clogged therein.

2. A chute for the passage of a coin edgewise therethrough having its bottom wall formed with an exit opening for a coin of less than the proper thickness; in combination with means for forcing edgewise through said opening a coin clogged therein.

3. A chute for the passage of a coin edgewise therethrough having its bottom wall formed with an exit opening for a coin of less than the proper thickness; in combination with a plunger mounted directly above said opening, for forcing through the latter a coin clogged therein.

4. A chute for the passage of a coin edgewise therethrough having its bottom wall formed with an exit opening for a coin of less than the proper thickness; in combination with a normally elevated plunger mounted upon the chute directly above said opening for forcing through the latter a coin clogged therein.

5. An inclined chute for the passage of a coin therethrough having its bottom wall formed intermediate its ends with an exit opening; in combination with a vertically movable member mounted upon the chute directly above said opening for forcing through the latter a coin clogged therein.

6. A chute for the passage of a coin having its bottom wall formed with an opening for the exit of a coin edgewise therethrough; in combination with a plunger located directly above the opening for forcing through the latter a coin clogged therein, said plunger having a concave lower edge for centering the coin with respect to said opening.

7. In a device of the character described, a substantially upright chute of U-shape in cross section and comprising a bridge portion, arms projecting outwardly therefrom, and flanges at the outer ends of said arms; said chute at a suitable distance from its upper end being bent inwardly to permit coins of smaller diameter dropped into the chute to escape therefrom through the opening between said flanges, and a tongue projecting outwardly from the bridge portion to effect outward movement of passing coins.

8. In a coin device, an inclined chute U-shape in cross section and having one wall preferably higher than the other and provided with a pin projecting over the chute passage, and an upright chute communicating with the discharge or lower end of the inclined chute.

9. In a coin device, the combination of an inclined chute U-shape in cross section and provided with a pin overhanging its pas-

sage, and an upright chute communicating at its upper end with the lower end of the inclined chute and of U-shape in horizontal section and having the arm most remote from the inclined chute roughened to offer an obstruction to the passage of a wire introduced through the inclined chute.

In testimony whereof I affix my signature, in the presence of two witnesses.

FRANK W. SMITH.

Witnesses:
H. C. RODGERS,
G. Y. THORPE.