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WALTER A. TRATSCH, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO THE MONARCH TOOL & MANUFACTURING COMPANY, OF CINCINNATI, OHIO, A CORPORATION OF OHIO

## COIN SLIDE

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This invention relates to coin slides for vending machines and has for its object to provide a construction which is simple in parts and more efficient in operation than those heretofore proposed.

With these and other objects in view the invention resides in the novel details of construction and combinations of parts as will be disclosed more fully hereinafter and particularly pointed out in the claims.

Referring to the accompanying drawing forming a part of this specification in which like numerals designate like parts in all the views,—

Fig. 1 is a central longitudinal sectional view of the slide assembly with the slide in outermost position ready to receive a coin;

Fig. 2 is a view similar to Fig. 1 differing therefrom in that the slide now shows an inserted coin and has been pushed inwardly a part of its ultimate travel;

Fig. 3 is a view similar to Figs. 1 and 2 showing the slide at a still further inward position and the contained coin dropping therefrom;

Fig. 4 is a transverse sectional view of the parts shown in Fig. 2, taken as on the line 4—4 thereof and looking in the direction of the arrows;

Fig. 5 is an enlarged central longitudinal view of a portion of the coin slide illustrating the locking of the slide when a magnetic disk is fraudulently disposed therein; and

Fig. 6 is a partial bottom elevational view illustrating the relative positions of the locking dogs with respect to said slide.

This invention relates to a mechanism wherein the insertion of a coin is necessary in order to unlock or release the vending mechanism. Specifically it contemplates a coin slide mounted substantially in a horizontal plane and provided with a circular opening within which the requisite coin is inserted, said coin being retained in the plane of said slide by virtue of an underlying surface carried by the slide guide member. If the coin be of proper predetermined characteristics such as value, thickness, and diameter, as well as composition of metal, then the slide may be moved inwardly of the machine the full and

predetermined distance necessary to cause the slide to unlock or release the vending mechanism. If the disk inserted in the coin slide is not of the proper predetermined characteristics, then the slide can not move to the limit of its intended travel whereupon the vending mechanism will not be released or unlocked. In other words, disks of steel or iron, or actual coins of a diameter less than that of the requisite coin, will fail to accomplish the unlocking or releasing of the vending mechanism. For the purpose of this disclosure, it will be understood that the vending mechanism is unlocked or released only when the coin slide has moved to substantially its fullest innermost position relative to the vending cabinet, and therefore the drawing does not show any elements of the vending mechanism nor does it show any cooperating interconnection between the slide and the lock or release for the vending mechanism, since this forms no part of the present invention. Also the cabinet to which the coin slide mechanism is attached, is not shown in the drawing for the sake of clearness.

Referring to the drawing, 1 indicates a cover plate to be applied over and in registry with a suitable opening in the wall of the vending machine cabinet indicated by the dot and dash lines 2, said plate being secured to said wall as by the screws 3. Said plate has an opening therethrough of a size and shape to snugly fit the slide guide generally indicated by the numeral 4 and which in turn receives the slide generally indicated by the numeral 5. The guide is secured as by the screws 6 to an angle plate 7 fastened to the cover plate 1 as by the rivets 8. The guide member has a portion extending a short distance outwardly beyond the cover plate, which portion is provided centrally thereof with a finger hole 9 of a diameter sufficient to permit passing therethrough a coin of less diameter than that required to operate this particular slide.

The guide has centrally disposed thereof a depressed portion providing the channels 10, 11 and 12 the purpose of which will appear hereinafter. Near the innermost end of the guide member there is provided a circular coin

release opening 13 of a diameter slightly greater than that of the required coin and the bottom wall of the guide member forwardly adjacent said opening is pressed downwardly as indicated at 14 out of the plane of the main body portion of the bottom of said guide.

Intermediate the circular holes 9 and 13, the bottom wall of the guide is provided with a rectangular opening 15 the transverse dimension of which is substantially equal to the diameter of the finger hole 9. The rear edge of this rectangular opening has formed therein the channel 12 hereinbefore mentioned which channel connects said rectangular opening with the area established by the depressed portion 14 just described. That is to say, from Fig. 4 it should be apparent that the rear edge of said rectangular opening has formed therein the channel 12 which is only wide enough to permit passage therethrough of the coin slide projections 46 and 47 to be described hereinafter, but the depressed portion 14 is of a width greater than that of said rectangular opening to accommodate or pocket the coin carried by the slide, all as will be pointed out more fully in the following description. At the two rear or innermost corners of this rectangular opening there are provided rearwardly extending kerfs to receive locking dogs presently to be described.

Mounted on the bottom of the guide is an inverted U-shaped bracket 20 carrying the horizontal pin 21 having reduced ends, and upon these ends and positioned thereby as well as by the arms of the bracket, are mounted two slide holding or locking dogs 22 and 23 each under the control of a double wound coil spring 24 carried by the pin 21. Each dog is of a length to extend upwardly and have its end pass through a kerf just above described and lie in the plane of the coin slide, the upper end of each dog being slightly tapered as clearly indicated.

The extreme rear or innermost end of the guide carries a member 25 secured thereto as by the screw 26, said member having its rear end bent upwardly to pass through an opening provided therefor in the guide and to extend thereabove into the plane of the coin slide to serve as a stop, limiting movement of the latter in one direction. The other or forward end of the member 25 is also bent upwardly and then horizontally to provide the coin deflector portion 27 lying in the plane of the coin slide, and having the under edge of its extremity slightly bevelled as indicated. One side of the coin deflector 27 is cut away as clearly seen in Fig. 6. This coin deflector is slightly to one side of the longitudinal center of the guide.

The slide 5 is a rectangularly formed piece of metal of a width to closely fit the turned over edges of the slide guide, of a thickness equal to that of the prerequisite coin, and of a length to permit its movement from the coin

receiving position to a position for releasing or unlocking the vending mechanism. This slide is planar with its forward or outer end 30 upturned to provide a hand-hold by means of which the slide is moved. A coin opening 31 is centrally provided in the slide and so disposed that, when the slide is in its extreme outer position with reference to the cabinet, the coin opening 31 will have its forward edge overlying the forward edge of the finger hole 9 in the guide but, as hereinbefore stated, the finger hole is of a diameter less than that of the required coin and therefore the rear edge of the coin opening 31 will overlie a portion of the bottom wall of the guide.

Hence, it will be seen that a coin of requisite diameter 38, when placed in the opening 31, will remain supported in the plane of the slide by the underlying portion of the bottom wall of the guide. On the other hand, a coin of less diameter will drop normally through both openings 31 and 9 unless pains be taken to manually maintain the fraudulent coin in the plane of the slide while initiating its rearward movement. However, such pains will be of no avail for releasing the vending mechanism because the fraudulent coin will ultimately fall through the rectangular opening 15 in the guide member and thereby free the slide of any means by which the slide can be made to pass the holding or locking dogs such as 22 and 23 to reach a position to unlock or release the vending mechanism.

Extending rearwardly from the coin opening 31 is a slot 32 to receive therein the ends of the member 25, the extreme rearward end of the slot 32 being so positioned that it will strike the end 33 of said member to limit the outward movement of the slide in its guide, see Fig. 1. At the forward end of the slot there is provided a shoulder 34 (see Fig. 6) which is so positioned as also to strike the stop 33 thereby limiting the innermost movement of said slide. In Fig. 3 the slide has been moved inwardly almost to the limit of its movement. A spring 35 may be disposed in the edge of the slide to increase the frictional engagement with its guide.

The under surface of the slide adjacent the forward edge of the opening 31, is provided with a short groove for each of the dogs 22 and 23. In other words, there is a groove 36 for the dog 22 and a similar groove 37 for the dog 23, said grooves having their bottom surfaces inclined to the plane of the slide and said grooves functioning primarily when worn coins of requisite value are used. In other words, these grooves or inclined surfaces do not extend clear through the slide, and therefore, when no coin is carried by the slide in its opening 31, the dogs 22 and 23 will be forced by the tension of their common spring 24 into said opening and their ends will extend therethrough sufficiently to

engage the front edge of the opening, prohibiting further inward movement of the slide. On the other hand, when a coin of prerequisite size is in said opening, inward movement of the slide will cause the ends of the dogs to ride readily from the under surface of the slide on to and over the under surface of the coin and then pass again on to the under surface of the slide. Should the required value coin be worn to reduce its thickness, then the dogs might stop the slide when attempting to pass from the coin again to the surface of the slide and therefore the grooves 36 and 37 are provided to receive the ends of the dogs and direct them again on to the slide surface.

The angle bracket 7 has a central longitudinally extending slot 40 adapted to receive therethrough an upper holding or locking dog 41 under the tension of a leaf spring 42, said dog loosely mounted on a pin 43 bridged across said slot and having its ends journaled in upstanding ears 44 mounted adjacent said slot. The leaf spring 42, secured as by the screw 45 to the rearmost end of said angle bracket, is curved upwardly and forwardly over the dog to exert a downward pressure thereon.

The mounting of this forwardly projecting dog is such that, when the slide is in its forward or outermost position, the tapered free end of the dog will rest on the top surface of the slide adjacent the edge of the slot 32. If the slide is pushed inwardly with no coin in its opening 31, the dog 41, under the urge of its spring, will move downwardly into the coin opening and, dropping therethrough as well as through the rectangular opening 15 of the slide guide, come to vertically hanging rest between the forward edge of the coin opening 31 and the rear edge of said rectangular slot, thus preventing any further inward movement of the slide. On the other hand, when a coin of prerequisite characteristics is employed, the dog 41 will ride readily from the top surface of the slide on to and over the top surface of the coin, and pass therefrom to rest again on the upper surface of the handle end of the slide because the prerequisite coin completely fills said opening.

To assist in free movement of the dog 41, the central portion of the slide immediately adjacent the periphery of the coin opening 31, is depressed angularly out of the plane of the slide as indicated at 46 and 47 to provide inclined surfaces functioning similarly to the surfaces 36 and 37 previously described. The depressed portions of the slide will travel freely in the channels 10, 11 and 12 of the guide. By depressing the metal out of the plane of the slide there is provided a teat or projection 47 to assist in moving the coin inwardly until the coin ultimately drops through the intended release

opening 13, and the other teat or projection 46 serves to insure a full inward stroke of the slide to release the coin from said opening 13. In this connection it will be understood that the projections 46 and 47 extend downwardly so far that they could not pass over a coin in the pocket 14. In other words, should the slide be moved inwardly almost to the full end of its stroke and then stopped, the contained coin will drop into the pocket 14, but an outward movement of the slide sufficient to permit the insertion of another coin would be impossible because the projection 46 would strike the innermost edge of the pocketed coin and jam said coin against the closed end of the pocket. Therefore it will be appreciated that if the projection 46 were omitted from this construction, it would be possible for the slide to be moved inwardly so as to cause its contained coin to drop into and be retained in said pocket when said slide was not moved to the fullest innermost end of its stroke; then said slide could be moved outwardly and another coin be inserted therein with a subsequent inward movement of the slide in an attempt to operate the vending mechanism. However, in such a condition as just described, the second inserted coin would slide over the upper surface of the previously inserted and now pocketed coin but the projection 47 would ultimately come in contact with the edge of the previously inserted coin with the result that the further inward movement of the slide would have a tendency to cause both coins, now in superposed position, to be moved toward the release opening 13. When the superposed coins would reach said opening, then there would be a jamming action since this opening is made only slightly greater than necessary to permit a single coin to fall therethrough. Not only this, but the two superposed coins would completely fill the space in which they laid so that no tipping of the coins could result, which tipping is necessary in order to start the discharge of the coin through the release opening. It should be further stated that the vertical dimension of the drop of said pocket 14 is preferably made equal to the thickness of a coin, and therefore, it will be further appreciated that when a coin lies in said pocket an outward movement of the slide is made impossible because the projection 46 extends downwardly so far that it will contact the edge of the pocketed coin.

Mounted on the upper side of the slide guide is a magnet 50 secured as by the bridge 51 and screws 52, the purpose of the magnet being to prevent release of the vending mechanism through fraudulent substitution of an iron or steel disk or washer for the coin of prerequisite characteristics. The magnet overlies the slide so that, when the slide is moved inwardly, the iron disk 53 will be

attracted upwardly by the poles 54 of the magnet as clearly shown in Fig. 5. When this occurs the edge of the iron disk will abut the end 27 of the coin deflector and thus stop the slide from further inward movement to that position where it will unlock or release the vending mechanism. The prerequisite coin will not be attracted by said magnet and therefore its advancing edge will fall in the depression 14 of the guide member as clearly shown in Fig. 3 and pass under the bevelled end of the deflector 27 to ultimately drop through the coin release opening 13, thereby freeing the slide which then moves to vending releasing position.

From the foregoing, it will thus be evident that a coin having the predetermined characteristics may be used in this slide, and also coins of lesser diameters as well as iron or steel disks, with or without central apertures, may be used. The use of a coin of predetermined characteristics will, of course, result in the intended operation of the slide to release or unlock the vending mechanism, but a disk of the same size as the predetermined coin may also be used to permit operation of the slide at least as far as the poles of the magnet 50. If such a substitute disk be used and it be of material other than that which is attracted by a magnet, then the slide will be correctly operated as fully intended when a predetermined coin is used. Therefore, it is possible with this slide to use, for instance, a brass trade check or token as is often the case where machines of this character might be displayed, said check or token having the full monetary value of the predetermined coin.

On the other hand, if such a substitute disk be of material which is attracted by the magnet, then the poles of the magnet will draw it upwardly and therefore retain it in the plane of the slide so that, instead of falling into the depressed portion 14 of the guide and ultimately passing out through the discharge opening 13 thereof, it will strike the end 27 of the coin deflector and thereby prevent further inward movement of the slide into vending operating position.

If there be used a hollow centered coin or disk of the general shape of a washer and of the same diameter as the predetermined coin, then such substitute disk may be moved with the slide only as far as the upper centrally disposed holding or locking dog 41. In other words, this dog is so positioned that the point thereof will be moved under the urge of the spring 42 into the disk aperture and pass so far therethrough as to cause the point of said dog to extend below the plane of the slide and thereby cause a jamming or stopping of the inward movement of the slide, whereby it is impossible to release the vending mechanism. In such a case, the retraction or outward movement of the slide

is possible since the upper dog is forwardly directed and the end thereof is tapered so that there will be no part of said dog to catch upon the edge of the opening of the substitute disk and prevent its being drawn out with the slide to a position where it can be removed.

If a coin or disk of a diameter less than the diameter of the predetermined coin be inserted in the coin opening 31 of the slide, it may drop therethrough and also through the finger hole 9. If, however, the fraudulent operator of the machine so intends, he may cause the slide to move inwardly while he manually holds the fraudulent disk in the plane thereof until it has about half way passed the cover plate 1, at which time the disk can be further moved by the slide alone. Naturally, inward movement of the slide causes such a disk to be tangent to the forward edge of the coin opening 31, thereby leaving a space between the opposite edge of said opening and the advancing edge of the disk. It is therefore evident that in such a case, the point of the upper dog 41 may readily enter such space and abut the advancing edge of the disk thereby preventing further inward movement of the slide. Upon retracting the slide, the small diameter disk will be moved therewith and may be dropped through the finger hole 9.

However, the fraudulent operator of the machine may be ingenious enough to use his finger nail or other suitable device to keep the small diameter disk pushed up against the edge of the coin opening 31 until such time as the upper dog has ridden from the upper surface of the slide on to the upper surface of said disk. This will not result in successful operation of the machine since a very slight further movement of the slide in an inward direction, coupled with the pressure created through the spring 42, will cause the upper dog to push said disk down through the rectangular opening 15 which has a transverse dimension just slightly less than the diameter of the predetermined coin. The slide, then being freed of said disk, may be moved a little further inward, but the upper dog will have fallen through the coin opening 31 and will be hanging vertically therethrough as well as through the rectangular opening 15 as a result of which the slide will come to a stop when the forward edge of the coin opening 31 jams the depending dog 41 against the rear edge of the opening 15.

In heretofore known constructions where there has been provided a single holding or locking dog on one side of the slide, it has been possible for a fraudulent operator to insert a thin sheet of material, such as steel or strong paper, to cover the coin opening 31 and which is moved simultaneously inwardly with the slide. In such a case the

upper dog such as 41 will drop on to the surface of said sheet but will ride thereover and be kept above the plane of the slide so that the slide could reach its innermost position and release the vending mechanism. Said sheet would, of course, be placed on that side of the slide on which the single dog operated.

It is also conceivable that a sheet of a width greater than the diameter of the coin opening would keep a plurality of dogs from functioning as intended, if said dogs were on one side of the slide only. The depressed portions 46 and 47 of the slide, by extending below the under surface of said slide and closely fitting the channels such as 10 and 11, would make it extremely difficult, if not impossible, to insert such a sheet between said under surface and the top surface of the enclosing guide therefor, because the sheet would not flex itself to fit said channels and the advancing edge of the sheet, even though it passed 47, would flatten out to such an extent as to be obstructed by the depending point of 46.

Therefore, the dimensions of this slide and its guide are so proportioned that there will be only a small clearance therebetween sufficient for an easy sliding coaction without binding. Such a clearance might be sufficient for the insertion of a sheet of such material on one side of the slide, but it would be insufficient for the use of such material on both sides at the same time. It would therefore result that one of the dogs would function as intended to hold the slide from inward movement to a position to release the vending mechanism, in the absence of a coin of predetermined characteristics.

It is also to be noted that both the upper and lower dogs are so mounted that each has a general forward inclination or, in other words, both the upper and lower dogs extend from their pivots in a direction toward the handle of the slide, whereby an inward movement of the slide naturally tends to create a binding action by the dogs with respect to the slide. Thus, the dogs are what may be termed naturally opposed to the releasing movement of the slide, and said dogs are opposed to each other since they are disposed on opposite sides of the slide and are forced by their respective springs toward said slide. Lastly, the upper dog is disposed in an operating plane which is intermediate the operating planes of the lower dogs whereby a coin or disk, as well as the coin receiving opening 31, is affected at three different points.

A reversal of the single upper dog 41 and the pair of lower dogs 22 and 23 would not result in an efficient operation of the slide for the following reason. It is to be particularly noted that the single dog is disposed in a diametric plane of the coin aperture, and therefore, in its illustrated position, the point thereof will operate upon the foremost ad-

vancing portion of the coin, thus tending to force the advancing edge portion downwardly into the rectangular opening 15 of the slide guide. It follows that, in the continued movement of the slide, the coin will be still further deflected downwardly by pressure of the single dog until it is completely released from the coin aperture 31, and in this downward deflection there will be no under dog disposed in the diametric plane of the coin for the advancing edge of the coin to strike and be jammed thereby, since the under dogs 22 and 23 are disposed an appreciable distance to either side of said plane and in positions not to affect or even touch the advancing edge of the coin. Were the pair of under dogs disposed on the top side of the guide and the single dog 41 disposed beneath the same, then the pair of dogs would not be of a length nor in such pivotal position as to cause them to forcibly move downward the advancing edge of the coin. The points of the pair of dogs would not operate upon the coin until the advancing edge of the latter had passed the transverse plane of said points, and when this occurred, then the single dog on the under side would be in a position to obstruct the downwardly deflected forwardly moving edge of the coin and cause a jamming action.

It is obvious that those skilled in the art may vary the details of construction as well as arrangements of parts without departing from the spirit of the invention, and therefore it is not desired to be limited to the foregoing except as may be required by the claims.

What is claimed is:—

1. In a device of the character described the combination of a slide provided with an aperture to receive a coin; a guide for said slide adapted to permit a stroke of predetermined length when said slide contains a coin; and means on said guide for preventing a full stroke of said slide when containing no coin, said means comprising a pair of pivoted members engageable with said aperture on one side of said slide, and a single pivoted member engageable with said aperture on the other side of said slide, the single member disposed intermediate said pair.

2. In a device of the character described the combination of a slide provided with an aperture to receive a coin; a guide for said slide adapted to permit a stroke of predetermined length when said slide contains a coin; and means on said guide for preventing a full stroke of said slide when containing no coin, said means comprising a pair of pivoted members below said slide and engageable with said aperture of the latter, and a single pivoted member disposed above said slide and operable in a plane intermediate the lower members, said single member also engageable with said aperture.

3. In a device of the character described the combination of a slide provided with an aperture to receive a coin; a guide for said slide adapted to permit a stroke of predetermined length when said slide contains a coin; and means on said guide for preventing a full stroke of said slide when containing no coin, said means comprising a single pivoted member disposed on one side of said slide in a diametric plane of said aperture, and a pair of pivoted members disposed on the other side of said slide in chordal planes of said aperture, all of said members engageable with said aperture.

4. In a device of the character described the combination of a slide provided with an aperture to receive a coin; a guide for said slide adapted to permit a stroke of predetermined length when said slide contains a coin; and means on said guide for preventing a full stroke of said slide when containing no coin, said means comprising a single pivoted member disposed on one side of said slide in a diametric plane of said aperture parallel to a slide edge, and a pair of pivoted members disposed on the other side of said slide in chordal planes of said aperture parallel to said diametric plane, all of said members engageable with said aperture.

5. In a device of the character described the combination of a slide provided with an aperture to receive a coin; a guide for said slide adapted to permit a stroke of predetermined length when said slide contains a coin; and means on said guide for preventing a full stroke of said slide when containing no coin, said means comprising a single pivoted member disposed on one side of said slide in a diametric plane of said aperture, and a pair of pivoted members disposed on the other side of said slide in chordal planes of said aperture and to either side of the single member, all of said members engageable with said aperture.

6. In a device of the character described the combination of a slide provided with an aperture to receive a coin; a slot in said slide; a guide for said slide; a magnet disposed above said slide and over said slot; means extending into said slot to permit the full operative travel of said slide when carrying a coin, said means cooperating with said magnet to prohibit said full operative travel when the slide carries a magnetic substitute for the coin; and means on said guide to prevent a full stroke of said slide when containing no coin, said means comprising a pair of pivoted members engageable with said aperture on one side of said slide, and a single pivoted member engageable with said aperture on the other side of said slide, the single member disposed intermediate said pair.

7. In a device of the character described the combination of a slide provided with an aperture to receive a coin; a slot in said slide;

a guide for said slide; a magnet disposed above said slide and over said slot; means extending into said slot to permit the full operative travel of said slide when carrying a coin, said means having an extension cooperating with said magnet to prohibit said full operative travel when the slide carries a magnetic substitute for the coin, said extension abutting the substitute attracted by said magnet; and means on said guide to prevent a full stroke of said slide when containing no coin, said means comprising a pair of pivoted members engageable with said aperture on one side of said slide, and a single pivoted member engageable with said aperture on the other side of said slide, the single member disposed intermediate said pair.

In testimony whereof I affix my signature.  
WALTER A. TRATSCH.

