Dec. 5, 1961 F. C. PALLADINO 3,011,614

COIN SLIDER

Filed Feb. 11, 1960

FIG.1

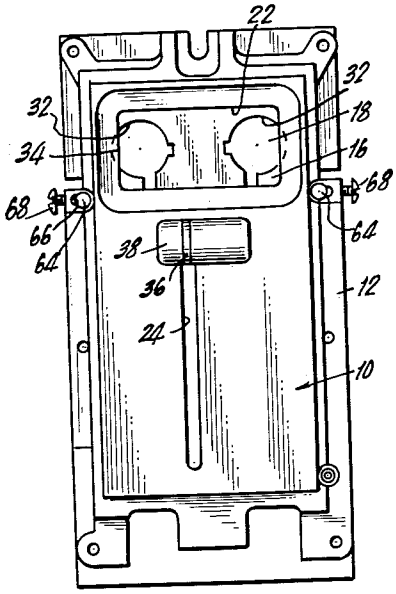


FIG.2

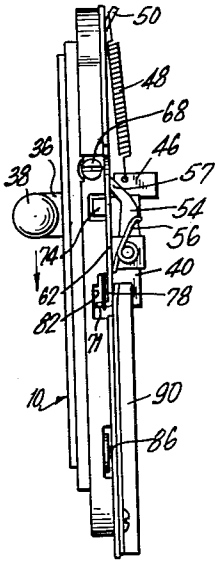
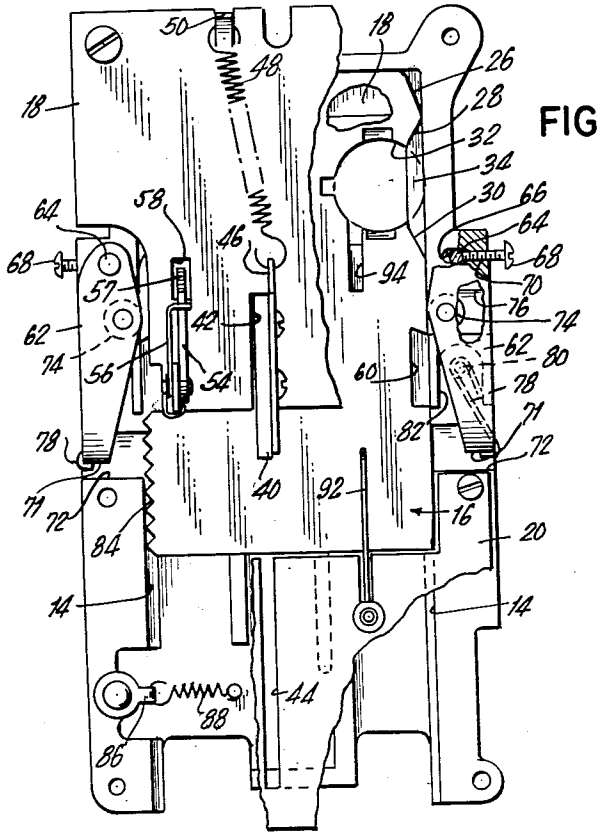


FIG.3



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COIN SLIDER

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The present invention relates to coin sliders, of the type particularly adapted for use with coin-controlled apparatus such as automatic washers and dryers, vending machines, and the like.

In coin sliders of the character described there is generally provided a reciprocable slider bar or plate which operates to control a mechanism, such as a switch of a timer in a connected electric circuit or an article for releasing mechanism, at one end of its stroke. The movement of such slider plate into operating position is normally inhibited, and the inhibiting means is inactivated by a coin carried on the slider and moved thereby.

As heretofore made, such coin slider devices as described above, in order to avoid inadvertent displacement of a coin disposed thereon, were formed and arranged and mounted with the slider plate reciprocating in a horizontal plane, with a coin or coins flatly disposed thereon and likewise in a horizontal plane, to minimize the chances of its rolling off therefrom. Such mounting and arrangement of the coin slider presented certain disadvantages. It necessitated that the coin slider project a substantial distance from the apparatus on which it was mounted. This required larger space for the installation of the apparatus mounting the coin slider. It also presented risk of injury to the body and apparel of persons moving about in the vicinity of such apparatus. Further, it presented a substantial purchase to persons desiring to tamper with the coin box which is generally associated with such a coin slider.

It is an object of the present invention to provide coin sliders of the character and for the purposes described which may be mounted for the reciprocation of its slider bar or plate in a vertical plane, yet with a minimum of risk for rolling off, of any coin therefrom, to thereby eliminate undue projection of the device from the supporting surface and obviating the disadvantages flowing from such projection, as described above.

It is another object of the present invention to provide coin sliders of the character described which are capable of ornamental treatment, to thereby enhance the appearance of the apparatus with which it is associated.

It is still another object of the present invention to provide coin sliders of the character described which are of relatively simple and sturdy construction and which are proof not only against tampering but also against damage and distortion due to the efforts on the part of users to overcome any temporary inoperativeness of the device.

In coin sliders of the type of which the present invention relates, means are generally provided, for inhibiting the movement of the slide plate, which are released by the coin or token inserted into the device. One such means operable by the coin is responsive to the diameter thereof being moved into releasing position by the edge of the coin or token. The present invention is also directed to the provision of coin-released slide-plate-engaging means of simplified construction and have simplified means for adjusting the same to be responsive to coins or tokens of different diameters.

The foregoing and other objects and advantages of the coin slider of the present invention will become more readily apparent to those skilled in the art from the embodiment thereof shown in the accompanying drawings, and from the description following. It is to be understood, however, that such embodiment is shown by way

of illustration only, to make the principles and practice of the invention more readily comprehensible and without any intent of limiting the invention to the specific details therein shown.

In the drawings:

FIG. 1 is a plan view of one embodiment of a coin slider of the present invention, adapted for operation by two coins;

FIG. 2 is an edge view of the same; and

FIG. 3 is a rear elevation of the same, with the coin chute removed, and other parts partly broken away, to illustrate details of construction and arrangement.

Referring now in greater detail to the accompanying drawings, the coin slider therein illustrated comprises a face plate, generally designated as **10**, which may be formed of cast metal, of generally rectangular shape. The plate **10** is formed with an inwardly and then outwardly offset flange **12**, defining a recess on the inner side thereof. The flange **12** may serve to secure the face plate **10** in position and its inner longitudinal edge portions are parallel, to define guideways **14**, for a slide bar or plate, generally designated as **16**. The inner face of the flange **12** may serve to support upper and lower retainer plates, **18** and **20**, respectively, inwardly of which the slide plate **16** is disposed, its edges resting in guideways **14**. The face plate **10** is formed with a preferably rectangularly-shaped opening **22**, whose dimensions will hereafter be made clear, and with a longitudinally-extending slot **24**, running just short of the height thereof, between the opening **22** and its bottom.

The slide plate **16** is formed with bevelled upper corners **26**, and with recesses **28**, in each side edge at the end of bevels **26**, whose top and bottom edges **30**, are inwardly tapered. The plate **16** is also provided with a coin-receiving circularly-shaped opening **32**, adjacent each recess **28** and opening thereinto; such coin openings **32** being so arranged that a coin disposed therein will project substantially into the adjacent recess **28**. The opening **22** of the face plate **10** is of such size and the coin-receiving openings **32** are so disposed that the recess **28** into which each coin opening **32** extends underlies a side edge portion of the face plate opening **22**, so that a coin inserted into a coin opening **32** will have a portion thereof underlie the side edge portion **34**, of the opening **22**, to be thereby retained in place, even in vertical position, between such edge portion **34** and the upper retainer plate **18** which backs up the slide plate **16**.

The slide plate **16** is provided on its outwardly-facing side with a normally disposed arm **36**, that projects outwardly through the slot **24** normally at its upper end, and carries an operating handle or piece **38**, by which the slide plate **16** may be reciprocated in and out of operating position.

The slide plate **16** is formed with an upstanding rib **40**, which is adapted to be guided during reciprocation of slide **16** in a guide slot **42**, formed in the retainer plate **18** and opening into the lower edge thereof, and a guide slot **44**, formed in the retainer plate **20**, opening into the upper edge thereof. The rib **40** has secured to its upper end an ear **46**, on which is anchored one end of a contracting coil spring **48**, whose other end is anchored on a struck-out lug **50**, formed in the upper edge of the upper retainer plate **18**; such spring normally maintaining the slide plate **16** in its uppermost position in the recess of the face plate **10**. Pivotally supported at the lower end of the retainer plate **18** are a pair of pawls **54**, each opposite one of the coin openings **32**, which are each tensioned by a spring **56**, to have its hooked end **57**, extend through an opening **58**, formed in the retainer plate **18**, to engage within the corresponding coin opening **32**, in the event the latter is pushed down by the handle **38**. Such hooked end **57**, by engaging the upper edge of the coin opening

32, prevents and limits the downward movement of the slide plate 16 when there are no coins within its openings 32; the presence of a coin within each of the openings 32 disengaging the associated hooks 57 out of the openings 32 to permit the movement of the slide plate to its fullest downward stroke.

Th coin slider of the invention is provided with additional coin-released escapement means for limiting the downward movement of slide plate 16 in the absence of coins in either of the coin openings 32. Such escapement means comprises an approximately rectangular-shaped recess 60, formed preferably in each longitudinal edge of the slide plate 16, below the tapered edge recess 28 and a pawl 62, pivoted on one end, on a pivot pin 64, which extends through a transversely elongated slot 66, formed in the flange 12. The pivot pin 64 is connected to a screw 68, which is engaged in a tapped opening 70, extending between the slot 66 and the outer face of the flange 12, whereby the pivot 64 of the pawl 62 is fixedly adjustable in the slot 66 by the turning of the screw 68.

The pawl 62 is pivoted in dependent position and is formed with an inwardly-extending offset end or hook 71, that is disposed in a groove 72, formed to accommodate the same in the flange 12 The pawl 62 is provided, intermediate its ends in greater proximity to its pivot 64 and adjacent the edge thereof facing the slide plate 16, with an inwardly-extending pin on which is mounted a roller 74, that is accommodated in a second transverse groove 76, formed in the flange 12 of the face plate 10. Tensioning means are provided for normally biasing the offset hooked end 71 of the pawl 62, toward the inner recess of the face plate 10. This may comprise a torsion spring 78, mounted on a pin 80, set into the flange 12 in a recess 82, formed therein, one end of which spring engages the side wall of the recess and the other end the hooked end 71 of the pawl 62.

In operation, when the slide plate 16 is held in inoperative position by the spring 48, the roller 74 carried by the pawl 62 engages against a portion of the adjacent edge of the slide plate 16 intermediate the upper recess 28, and the lower recess 60; being resiliently pressed thereagainst by the torsion spring 78. When the slide plate 16 is moved downwardly, without any coin in the coin-receiving opening 32, the roller 74 will move into the recess 28 and thereby cause the hooked end of the pawl 62 to move into the lower recess 60, under pressure of the torsion spring 78, to engage against the upper edge of such recess, to inhibit the downward movement of the slide plate 16. Such pawl 62 and recess 60 are so arranged that the interengagement of the two will inhibit or stop the movement of the slide plate before it reaches a position to operate the associated mechanism which it is intended to control. However, when a coin is disposed in a coin opening 32, with part of it projecting into the recess 28, such coin will, as the slide plate 16 is moved downwardly, engage against the roller 74 of the pawl 62 to maintain the hooked end 71 thereof over the flange 12 of the face plate 10, to permit the slide plate 16 to complete its downward movement without interference by the pawl 62.

Means are provided in the coin slider of the present invention for preventing the return of the coin-loaded slide plate 16 before completion of the operative stroke of the slide plate and before the discharge of the coins from the slide plate. Such means comprise a ratchet 84, formed in one edge of the slide plate 16, immediately below the recess 60 and the pawl 86, mounted on the flange 12 adjacent the ratcheted edge of the slide plate. The pawl 86 is spring-tensioned, as by spring 88, which engages its free end to extend transversely of the inner recess of the plate 10 to lie in the path of the descending slide plate, so that the descending slide plate, as it engages the pawl 86, biases its end downwardly to engage in the ratchet teeth and prevent the upward movement of the slide plate 16 until all of the ratchet teeth have cleared

the pawl. The last takes place at the end of the completed downward stroke of the slide plate, when the pawl 86 straightens out under the pull of the spring 88, into the recess 60. In the last position, the pawl 86 may be upwardly tilted by the lower edge of the recess 60 and maintained in such upwardly tilted position by the ratchet 84, as the slide is moved to initial inoperative position by the spring 48, until the bottom of the ratchet 84 or of the slide plate 16 clears the pawl 86 and permits it to straighten out again.

The coins are discharged from the opening 32 into a chute defined by a plate 90, secured by offset edges over the retainer plate 20, in a manner readily understood and shown in FIG. 2. Such discharge is facilitated by inwardly curved wire springs 92, that are mounted on the retainer plate 20 in upwardly-extending position, overhanging the slide plate 16, and which, when the slide plate 16 reaches its lowermost position, have their free ends enter slots 94, formed in the slide plate, to engage underneath the coin held in the slide plate and guide it outwardly therefrom over such pins and outwardly of the retainer plate 20; between the latter and the chute plate 90.

While the plate 90 forming the chute is shown in the drawing to be parallel to the face plate 10, it may here be stated that where the device of the present invention is mounted in a horizontal position, such chute may be formed to slant downwardly and inwardly to facilitate the dropping of the released coins out of the device.

This completes the description of the coin slider for coin-controlled apparatus of the present invention. It will be readily apparent that such coin slider may be mounted compactly, in vertical position, and will effectively operate in such position. It will also be apparent that such coin slider is readily susceptible of decorative treatment. It will be likewise apparent that such coin slider of the invention may be most easily and conveniently adjusted for use with coins or tokens of different sizes by means of turning an easily accessible screw.

It will also be apparent that numerous modifications and variations in the coin slider of the present invention may be made by anyone skilled in the art, in accordance with the principles of the invention hereinabove set forth, and without exercise of any inventive ingenuity. I desire, therefore, to be protected for any and all such modifications and variations that may be made within the spirit of the present invention and scope of the claims hereto appended.

What I claim is:

1. A coin slider of the character described, comprising a vertically mounted face plate, a slide member disposed against the inner side of said face plate, means on the inner side of said face plate supporting and guiding said coin slide member for reciprocal vertical longitudinal movement over said face plate, said slide member having a coin-receiving opening formed therein, said face plate having a coin-inserting opening formed therein, said coin-receiving opening and said coin-inserting opening arranged to register in one relative position of said slide member and said face plate, said coin-inserting opening having a longitudinally-extending edge portion thereof arranged to overlie an edge portion of a coin disposed within said coin-receiving opening, to thereby retain said coin within said coin-receiving opening when in said relative position, said face plate having a longitudinally-extending slot formed therein, said slide member having means secured thereto extending through said slot for manual engagement for reciprocating said slide member relative to said face plate.

2. A coin slider of the character described, comprising a vertically mounted face plate having a substantially rectangular vertically extending recess on its inner face, a slide member reciprocable in said recess in a plane parallel to said face plate, said slide member having a coin-receiving opening formed therein, said face plate having

a coin-inserting opening formed therein, said coin-receiving opening and said coin-inserting opening arranged to register in one position of said slide member within said recess, said coin-inserting opening having a longitudinally-extending edge portion arranged to overlie an edge portion of a coin disposed within said coin-receiving opening when in said relative position, said face plate having a longitudinally-extending slot formed therein, said slide member having an arm secured in normal relation thereto extending through said slot for manual engagement for moving said slide within said recess.

3. A coin slider of the character described comprising an outer plate secured in upright position on a surface, a vertically longitudinally-extending guideway on the inner side of said outer plate formed in recessed relation thereon, a slide member disposed within said guideway, said slide member of lesser height than said outer plate, a coin-receiving opening formed in said slide member adjacent the upper end thereof, a coin-inserting opening formed in said outer plate and arranged to be in longitudinal register with said coin-receiving opening when said slide member is in upper position within said guideway, said coin-receiving opening having a longitudinal edge portion thereof overlying an edge portion of a coin disposed within said coin-receiving opening when said slide member is in said upper position, said outer plate having a longitudinally-extending slot formed therethrough, said slide plate having means extending through said slot and projecting therefrom for engagement to reciprocate said slide member in said guideway.

4. The coin slider of claim 3, wherein retainer plate means are secured against the inner face of said outer plate over said slide member, including a retainer plate disposed over the upper portion of said inner face, said retainer plate having a longitudinally-extending slot formed therein opening in its lower edge, said slide member having a rib provided thereon extending through said retainer plate guide slot, and a coil spring connected by one end to said rib and by its other end to an upper portion of said retainer plate, whereby said slide member is normally disposed in uppermost position within said guideway.

5. A coin slider of the character described, comprising an outer plate adapted to be secured on a surface, a longitudinally-extending guideway on the inner side of said outer plate, a slide member of lesser height than said guideway disposed within said guideway for reciprocal movement therein, means normally resiliently maintaining said slide member at one end of said guideway, a coin-receiving opening formed in said slide member adjacent one end thereof, said coin-receiving opening extending to substantially a side edge of said slide member, a coin-inserting opening formed in said face plate in register with said coin-receiving opening when said slide member is in normal position, a recess formed on said edge of said slide member, said recess encompassing a portion of said coin-receiving opening and having outwardly divergent edges, and means releasable by a coin inserted in said coin-receiving opening limiting the movement of said slide member toward the opposite end of said guideway, said means comprising a second recess formed in said edge of said slide member in spaced relation to said first recess, a pawl, means pivotally supporting said pawl by one end on the inner side of said outer plate, alongside said guideway in position to have its free end opposite said second recess when said slide member is at said end of said guideway, resilient means

urging said free pawl end into said recess, said pawl having means intermediate its ends engageable by a coin disposed within said coin-receiving opening and by the edge portion of said slide member intermediate said recesses to move the free end of said pawl out of said recess.

6. The coin slider of claim 5, wherein said coin-inserting opening in said outer plate is of a diameter not less than the diameter of said coin-receiving opening, and wherein said coin-inserting opening has an edge portion thereof overlie said first recess and a portion of a coin disposed within said coin-receiving opening.

7. The coin slider of claim 5, wherein said means pivotally supporting said pawl are adjustable in the direction transverse to said guideway.

8. The coin slider of claim 5, wherein said means pivotally supporting said pawl are adjustable in the direction transverse to said guideway, and comprise a slot formed in said face plate adjacent said guideway and elongated in the direction transverse to said guideway, a pivot member secured to said pawl and extending through said slot a threaded opening connecting the edge of said outer plate with the adjacent edge of said slot and a screw engaged in said opening and rotatably secured to said pivot member.

9. A coin slider comprising a first plate adapted to be fixed in position, a second plate reciprocably slidable against said first plate, said second plate having a circular coin-receiving opening formed therein extending to an edge thereof, a recess formed in a portion of said edge encompassing a portion of said coin-receiving opening less than half thereof, said recess having outwardly diverging edges, and means releasable by a coin inserted in said coin-receiving opening for limiting the movement of said slide plate comprising a second recess formed in a portion of said slide plate spaced from said first recess therein, said second recess having its end edges disposed at an angle not greater than 90° to the inner edge thereof, a pawl, means pivotally supporting said pawl by one end in position to have its free end disposed opposite said second recess, means resiliently urging said free end of said pawl into said recess, said pawl having a portion thereof engageable by a coin disposed within said coin-receiving opening and by the edge portion of said slide plate intermediate said recesses to move its free end out of the second recess.

10. The coin slider of claim 9, wherein said pivot means are adjustably supported for movement toward and away from the adjacent edge of said slide plate.

11. The coin slider of claim 9, wherein said pivot means comprise a pivot pin secured to said pawl, a slot formed in a portion of said device and elongated in the direction perpendicular to the direction of movement of said slide plate, a screw rotatably secured by one end to said pivot pin, and threaded means on a portion of said device engaging the said screw for adjustment of said pivot pin within said slot upon rotation of said screw within said threaded means.

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