

Sept 10, 1957

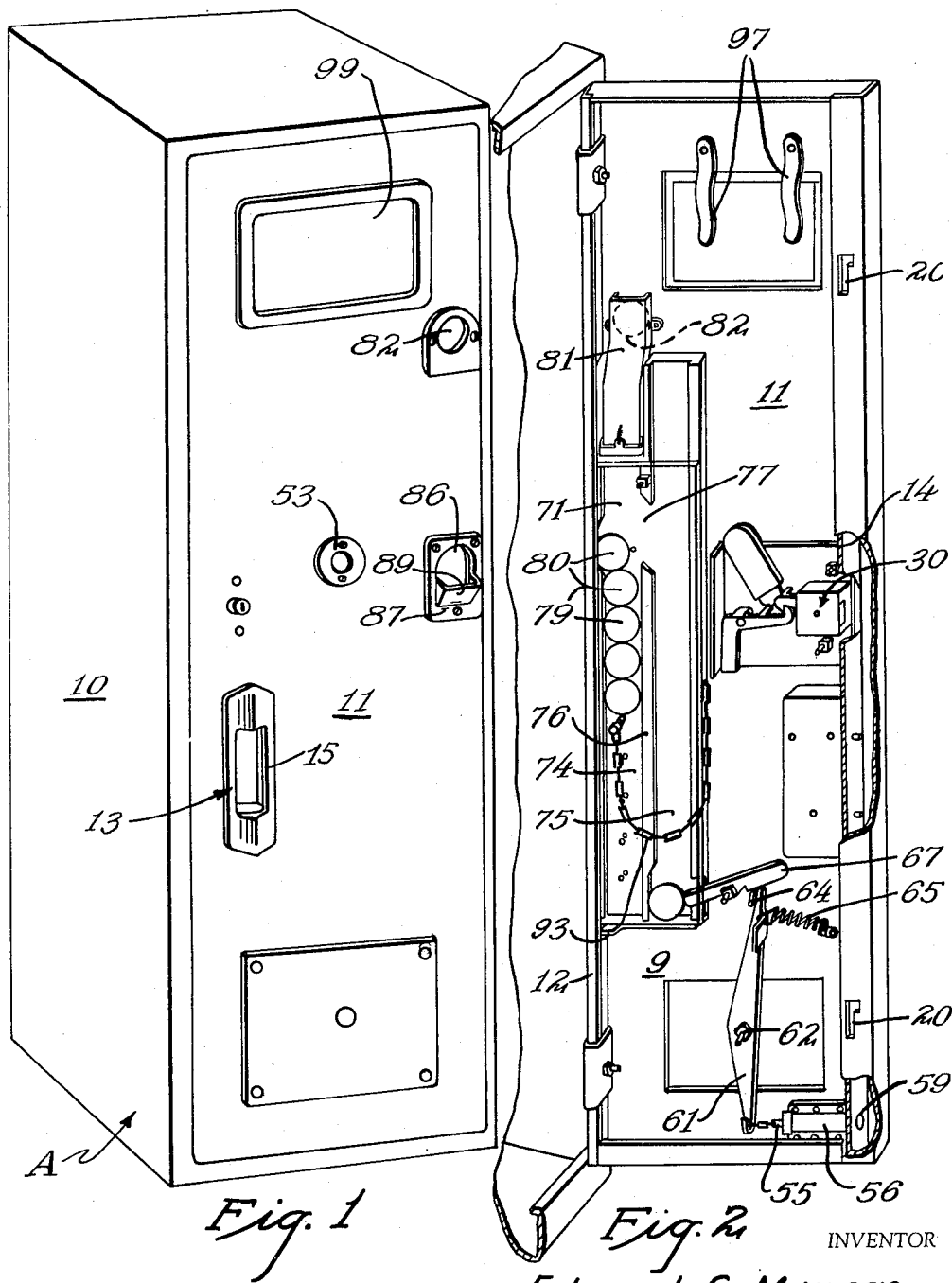
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2,805,747

SELF-SERVICE LAUNDRY AND DRY CLEANING SYSTEM

Filed Aug. 8, 1952

3 Sheets--Sheet 1



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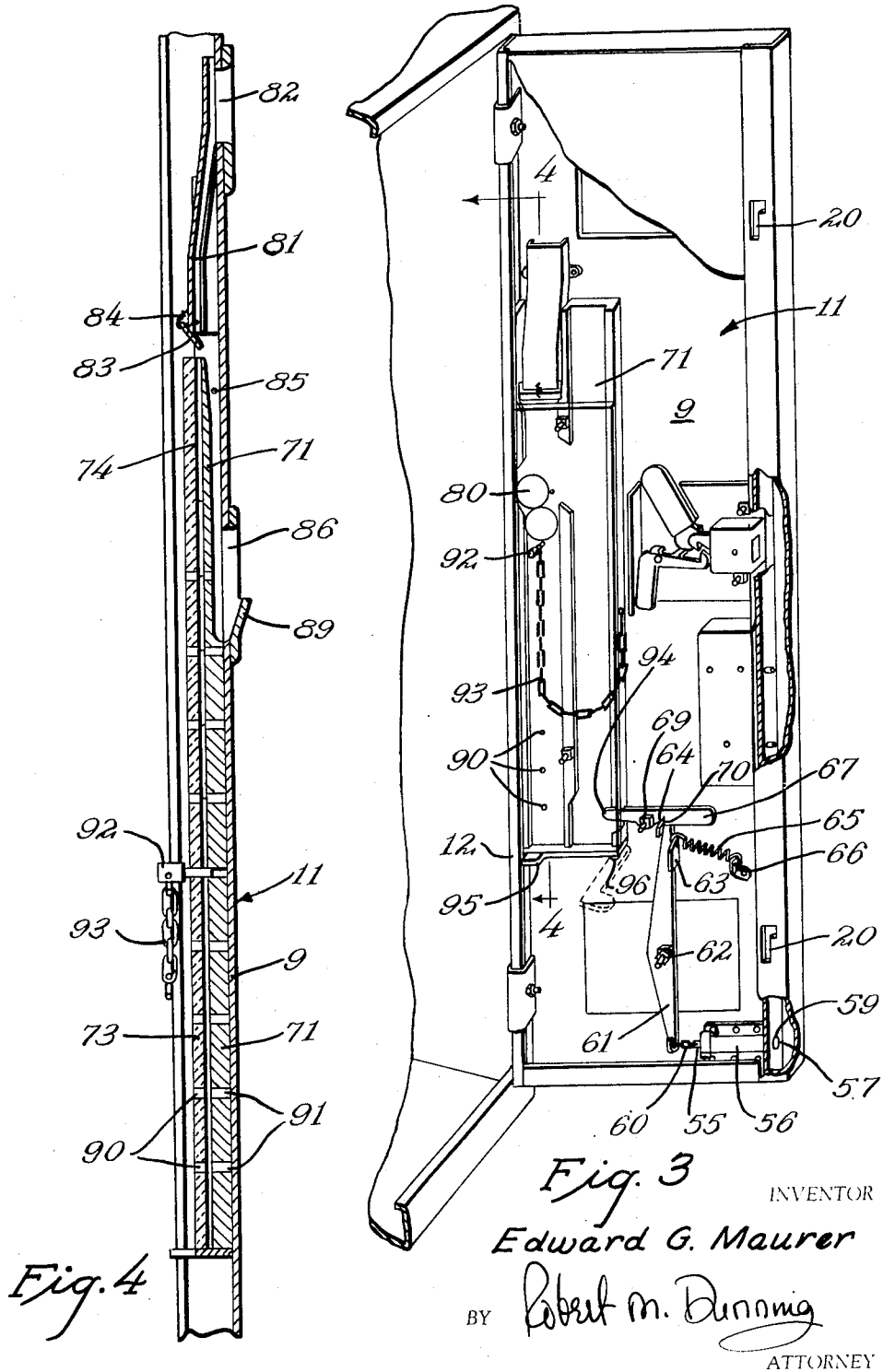
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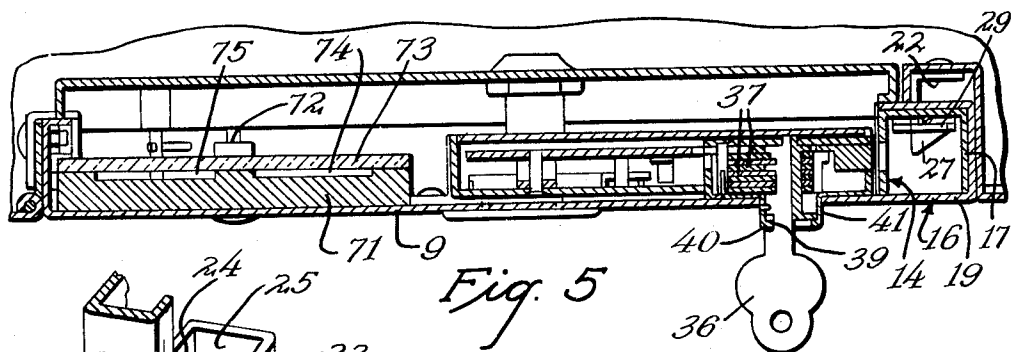


Fig. 5

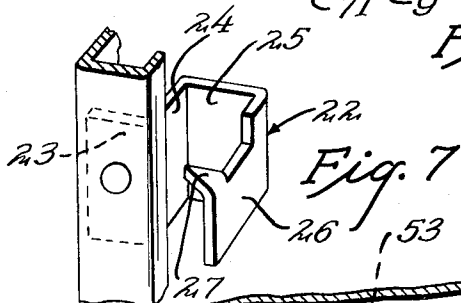


Fig. 7

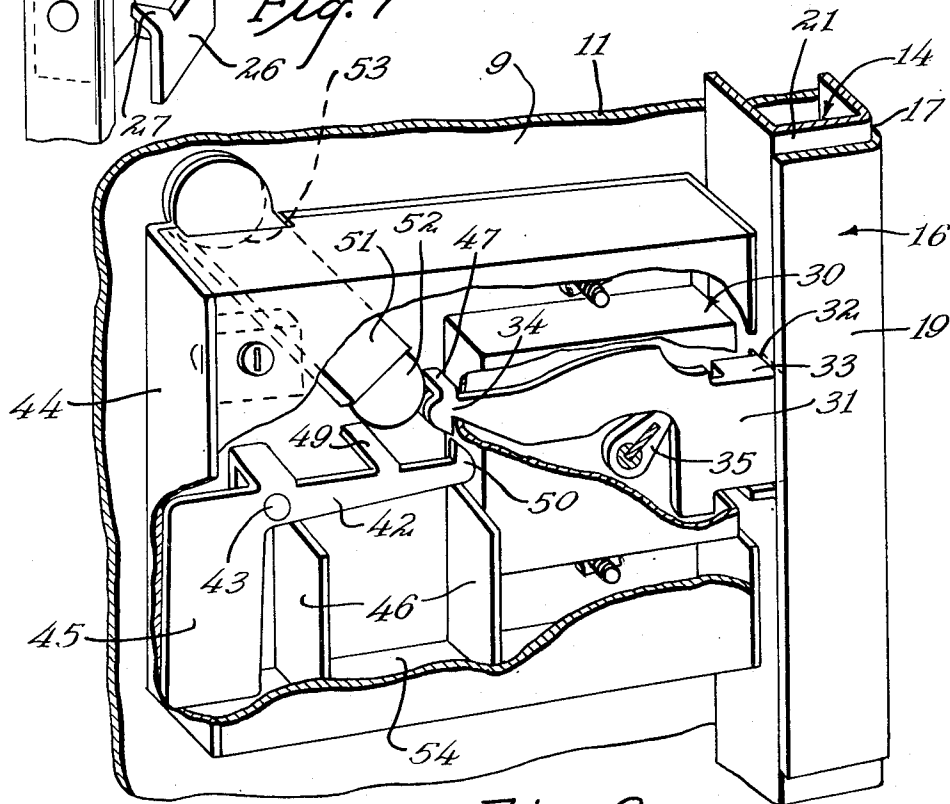


Fig. 6

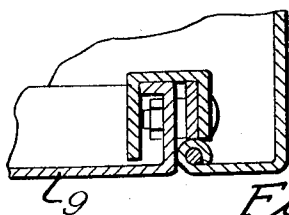


Fig. 8

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SELF-SERVICE LAUNDRY AND DRY CLEANING SYSTEM

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5 Claims. (Cl. 194—51)

This invention relates to an improvement in self-service laundry and dry cleaning system and deals particularly with an apparatus useful in containing garments before and after they have been laundered or dry cleaned.

Various types of self-service dispensing systems have been employed during recent years. Most of these devices are designed to dispense a predetermined product or predetermined quantity of a product when a certain amount of money is inserted in a coin slot. Such systems are not particularly useful in conjunction with a self-service laundry or dry cleaning system because of the great variation in cost of the work being done. For example, a customer may desire a small amount of dry cleaning done or may desire a large washing processed. The cost of this work may vary considerably between wide limits.

An object of the present invention resides in the provision of a simple locker system which is well adapted for use as a self-service laundry and dry cleaning system. The apparatus comprises a locker or other such receptacle having a closure which may be locked. The closure is provided with a lock which may be operated by a key after the garments have been inserted in the locker. Upon removal of the key, the garments are safely contained until they are picked up by the laundry and dry cleaning establishment. A master key is used for unlocking the lockers, the customer retaining the key to the locker he has used during the time the clothes are being processed. After the clothes have been washed or cleaned they are returned and placed in the locker. The customer may then regain the clothes by unlocking the locker after a predetermined amount of money has been inserted.

A feature of the present invention resides in the provision of a simple lock employing a key which can only be removed when the lock is in door locking position. Means is provided for preventing the key from being turned and removed until a service charge has been paid. Thus in addition to the fee collected by the laundry or dry cleaning establishment, a small service charge may be added, this money normally being used to pay for the rental of the space on which the lockers are situated.

A feature of the present invention lies in the provision of a coin actuated locking mechanism which prevents the opening of the door after the garments have been cleaned until a predetermined number of coins have been inserted. The coins inserted slide into an accumulator which is adjustable to accommodate a variable number of coins. When a sufficient number of coins have been accumulated the next coin inserted actuates a trip lever which in turn opens the door lock and permits the locker to be opened.

A feature of the present invention resides in the simplicity of the apparatus and the low cost of production of the necessary parts. The key operation lock comprises a modification of a simple key actuated locker lock which may be purchased at relatively low cost. The coin actuated door lock is extremely simple in construction and operation and a portion of the structure may be pur-

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chased on the market. Accordingly the device may be entirely assembled at relatively low cost and may be produced in volume at a relatively low die and jig cost. The locker may comprise a metal locker of a type commonly employed and readily available on the market.

These and other objects and novel features of my invention will be more clearly and fully set forth in the following specification and claims.

In the drawings forming a part of my specification:

10 Figure 1 is a perspective view of a single locker unit showing the door thereof in closed position.

Figure 2 is a perspective view of the inner side of the locker door, the protective panel covering normally concealing the mechanism having been removed.

15 Figure 3 is a view similar to Figure 2 showing parts of the mechanism in a different relative position.

Figure 4 is a sectional view through the coin accumulator, the position of the section being indicated by the line 4—4 of Figure 3.

20 Figure 5 is a sectional view through the locking mechanism for the locker door.

Figure 6 is a perspective view of the locking mechanism, portions thereof being broken away for the purpose of illustration.

25 Figure 7 is a perspective view of a detailed portion of the door structure.

Figure 8 is a sectional view through a portion of the door hinge.

30 The dry cleaning and laundry self-service system employs a series of lockers A, each of which comprises a separate unit and a series of such lockers being normally mounted in side by side or superimposed relation. Each locker is of sufficient size to readily accommodate a man's suit, a lady's dress in folded condition, or a bundle of laundry. The locker itself may be of any suitable design, many such lockers being available on the market. The locker includes a body 10 usually including bottom and top walls, side walls and a connecting back panel, and having an open front end which is normally closed by a door or closure 11 having an outer closure panel 9. The door 11 is hingedly supported along one edge 12 to the locker body and may be swung open to gain access to the interior of the body 10.

45 A latch 13 is usually employed for holding the door closed. The latch includes a vertically slidable channel 14 which is connected to a handle member 15 so that it may be raised and lowered thereby.

50 The channel 14 is vertically slidably supported in a channel shaped enclosure 16 extending along the vertical edge of the closing panel 11 opposite the hinged edge 12. The enclosure 16 includes an edge flange 17 and an inner flange 19 extending parallel to the door panel 9. The channel 14 is arranged with its base in substantial surface contact with the inner flange 19. L-shaped slots 20 are provide in the flange 19 and in the channel base 21. These slots may register in raised position of the channel 14, and move somewhat out of registry in lowered position of the channel.

60 In order to hold the locker closure 11 in closed position, projections such as 22 are mounted upon the body of the locker adjacent to the edge 16 of the door. One of these projections is best illustrated in Figure 7 of the drawings. The projection 22 includes an anchoring flange 23 which is connected by the right angularly extending flange 24 and a laterally extending flange 25 to the forwardly extending flange 26. This flange 26 is provided with a laterally extending wedge shaped tongue 27 along its upper edge. The tongue 27 is designed to extend through the horizontal portion of the L-shaped slots 20 and inwardly of a retaining member 29 within the channel 14. The projection may be withdrawn from the

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channel when the channel is in elevated position so that the slots in the channel and in the enclosure 16 are aligned. However, when the channel 14 is in lowered position the wedge shaped tongue 27 may enter the slot but can not be withdrawn.

In order to lock the locker door in closed position two separate locking systems are employed. The first lock comprises a key actuated mechanism indicated in general by the numeral 30. The locking member 30 includes a laterally movable latch bolt 31 designed to enter a recess 32 in the channel 14 and to hold the channel in lowered or locked position. The latch bolt 31 includes a locking end 33 which extends through the aperture 32 and also includes at its opposite extremity a hook shaped projection 34. The latch bolt 31 is moved by a cam 35 which is rotatably supported for rotary movement with the key 36. The key 36 may rotate the cam 35 when the shape of the key properly fits the tumblers 37. The key 36 includes a retaining notch 39 which engages the intumed flange 40 of the rotor enclosing sleeve 41 so that the key may only be removed when in one rotative position. The lock is so devised that the key may be removed when the latch bolt 31 is in locking position and can not be removed when the key is in unlocked position.

A locking lever 42 is pivotally supported at 43 to the lock housing 44. The lock housing is secured in any suitable manner to the panel 9 of the closure 11. The lever 42 includes a weight or enlargement 45 on one side of the pivot 43 which tends to swing the lever 42 in a counter-clockwise direction as viewed in the drawings. A coin receptacle beneath the locking lever includes spaced walls 46 which limit the pivotal motion of the locking lever 42 in a clockwise direction and one of these walls 46 may also limit the swinging of the locking lever in a counter-clockwise direction.

The latch bolt 31 is provided with a laterally extending arm 47 which extends in close proximity to the rear surface of the closure panel 9. A similar laterally turned arm 49 is provided on the locking lever 42. The locking lever is provided with a hook end 50 which may unlock with the hook end 34 of the latch bolt 31. When the locking lever is interengaged with the hook end of the latch bolt, the latch bolt can not be moved by the cam 35. In other words, the key can not lock the latch bolt 31 when the locking lever 42 and latch bolt 31 are hooked together.

A flat chute 51 is secured to the inner surface of the closure panel 9, the lower edge of the chute being directed to a point between the arms 47 and 49. These arms 47 and 49 are spaced apart a distance proper to support a coin 52 therebetween. An opening 53 is provided in the closure panel 11 in registry with the upper end of the chute 51. A coin such as 52 inserted through the aperture 53 will roll down the chute 51 and be supported between the arms 49 and 57. The chute holds the coin from tilting out of position when thus supported. The weight of the coin 52 is sufficient to pivot the locking arm 42 about its pivot 43 in a clockwise direction, a distance sufficient to unhook the hook end 50 from the hook end 34 of the latch bolt. Thus when the coin 52 is inserted the locking lever is moved out of the path of movement of the latch bolt and the latch bolt may be moved by the key operated cam 35. When the latch bolt 31 is moved to the right from the position shown in Figure 6, the coin 52 is free to drop between the arms 47 and 49 and into the coin receptacle 54.

A second locking mechanism is provided for holding the closure 11 in locked position. This second lock comprises a plunger 55 seen in Figures 2 and 3 of the drawings near the lower end of the door. The plunger 55 is slidably supported in a barrel 56 and is spring urged by a spring enclosed within the barrel toward projected or locking position as seen in Figure 3. The plunger 55 is provided with an extremity 57 which extends through an opening 59 in the channel 14. When the plunger 55 is

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engaged in the aperture 59, the channel 14 is held from vertical movement and the lock is maintained in a locked position.

The plunger 55 is flexibly connected at 60 to one end of a lever 61. The lever 61 is pivotally attached at 62 to the closure panel 9. The opposite end of the lever 61 from that attached to the latch bolt is provided with a pair of angularly extending ears 63 and 64. The ear 63 is connected by a spring 65 to a fixed bracket 66 on the closure panel 9. The spring 65 is stronger than the spring biasing the plunger 55 toward locked position so that the spring 65 will normally retract the plunger 55 from locking position. A trigger lever 67 is hingedly connected at 69 to the panel 9 and includes a hook shaped notch 70 designed to hook over the ear 64 to hold the spring 65 expanded. When the trigger lever 67 is engaged with the lever 61 as indicated in Figure 3 of the drawings, the plunger 55 is moved by its biasing spring into locked position. However, when the trigger lever 67 is released from the lever 61 as indicated in Figure 2 of the drawings, the spring 65 contracts and withdraws the plunger 55 from the latch channel 14.

A coin accumulating apparatus is supported upon the rear surface of the locker door 11, the details of this accumulator being illustrated in Figures 2, 3, 4, and 5 of the drawings. The accumulator includes a base plate 71 which is secured to the inner surface of the door panel 9 by any suitable means such as by bolts or pivots 72. A covering plate 73 overlies the base 71 and is held in place by the bolts 72. In the pictured arrangement the covering plate 73 is of transparent plastic so that the interior of the accumulator is visible. This accounts for the fact that the interior structure may be seen in Figures 2, 3, of the drawings.

The base plate 71 is provided with two parallel vertically extending grooves 74 and 75 on its inner surface. These grooves 74 and 75 are spaced by a separating wall 76 which extends flush with the inner surface of the base plate. A notch 77 is formed in the separating wall 76 near the upper extremity thereof. Thus coins such as 79 may drop into the groove 74 and normally will do so until the groove 74 is filled to a point slightly above the lower end of the connecting notch 77. The groove 74 is widened laterally near its upper extremity 80 for a purpose which will be later described.

A chute 81 is secured to the inner surface of the wall panel 9 and terminates just above the upper extremity of the groove 74. An opening 82 is provided in the panel 11 in registry with the upper end of the chute 81 and in communication with the interior thereof. As indicated in Figure 4 of the drawings, a deflector 83 is pivotally supported along its upper edge 84 and extends in a downwardly and outwardly inclined position directly beneath the outlet of the chute 81. The deflector 83 is spring urged into the inclined position shown in Figure 4. However, the weight of a suitable coin will pivot the deflector 83 toward vertical position and allow the proper coin to drop directly into the groove 84. The coins deflected by the plate 83 extend downwardly through a groove 85 in the outer surface of the base plate 71. The lower end of the groove 85 registers with an aperture 86 in the closure panel 9. An apertured bracket 87 overlies the outer surface of the door panel 11 and includes a cup shaped receptacle 89 which will support rejected coins so that they may be picked up by the customer.

The operation of the deflector plate 83 is assisted by the proximity of this plate to the lower end of the chute 81. In the particular construction illustrated the chute 81 is designed to accommodate fifty cent pieces and to reject smaller or lighter coins. The width and height of the fifty cent pieces passing down the chute 81 hold these coins from being easily deflected by the deflector plate 83 and insure the entrance of such coins into the groove 74.

A series of vertically spaced apertures 90 are provided

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in the chute covering plate 73 and a corresponding series of apertures 91 are provided in the base plate 71. These apertures are spaced apart a distance substantially equal to the diameter of the coins being collected. Thus in the illustrated structure the apertures 90 are spaced apart a distance equal to the diameter of a fifty cent piece. A pin 92 is attached to the door by means of a flexible connection 93 and this pin may be inserted in any of the apertures 90. The pin 92 extends in the path of coins moving downwardly in the groove 74 and thus limits the number of coins which may be accumulated in this groove 74. As indicated in Figures 2 and 3, the uppermost coin 80 of a series of coins inclines against the laterally widened portion 80 and is thus slightly out of alignment with the remaining coins in the groove 74. As a result when the next coin is inserted, it will strike the upper end of the uppermost coin 80 and will be deflected laterally through the connecting notch 77 and will slide downwardly in the groove 75.

As indicated in Figures 2 and 3 of the drawings, the trigger lever 67 has an operating end 94 which extends through an aperture in the base plate 71 of the accumulator and extends into the path of coins dropping into the chute 75. Accordingly when any coin drops down in the chute 75 it strikes the operating end 94 of the trigger lever 67 and pivots this trigger lever in a counter-clockwise direction as viewed in the drawings. This disengages the trigger lever from the ear 64 at the upper end of the lever 61, allowing the spring 65 to pivot the lever 61 to unlock the latch bolt 55 from the latch channel 14.

An arm 95 is pivotally attached at 96 to the base plate 71 and may be swung from the position shown in full lines in Figure 3 of the drawings to the position shown in dotted outline. This arm 95 normally closes the lower ends of the grooves 74 and 75. However, the arm may be swung into the position shown in dotted outline so that the coins 80 may be removed from both of the grooves 74 and 75 when the pin 92 is removed.

Having described the construction of the apparatus, I will now describe the operation thereof. In order to use the apparatus, the customer approaches any locker having a key therein and places the garments to be cleaned or washed in the locker. The customer also places with the garments a blank provided for the purpose within the locker bearing his name and address. This blank may if desired be held by spring clips 97 behind a window 99, the blank indicating that the locker is in use.

The customer then closes the locker door and places a coin (such as for example a dime) in the opening 53. The coin slides through the chute 51 and rests against the arms 47 and 49. Prior to this time the locking lever 42 has been in engagement with the hook end of the latch bolt 31, holding the latch bolt from being moved to locking position. As soon as the coin has been inserted the locking lever 42 swings out of engagement with the latch bolt and the key may be operated to move the latch bolt into locking position. The key may then be removed and may be retained by the customer as a claim check.

A driver or other representative of the laundry and dry cleaning establishment collects the garments from the lockers at regular intervals. The driver opens the locker with a master key and removes the garments, placing therewith the identification given by the customer, as well as an identification of the locker from which the garments were removed. The garments are taken to the dry cleaning establishment and laundry and are processed. They are thereafter returned to the locker by the driver.

Means are provided on the interior of the door to unlatch the locking lever 42 from the latch bolt 31 without inserting a coin through the chute 51. This means is not illustrated in the drawings, but may include an opening in the lock housing, known only to the driver, through which a finger may be inserted for manually unhooking the locking lever and latch bolt. If preferred,

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the unlatching means may comprise a key insertable through the rear panel of the locker door to pivot the locking lever 42 out of engagement with the latch bolt so that the latch bolt may be moved without the insertion of the coin. As the door may be closed after the master key has been removed and will lock in closed position, this action may take place while the door is open.

When the driver returns the garments he again opens the locker, places the garments within the same and attaches to the garments or garment hanger, an envelope containing any change to which the customer may be entitled. In view of the fact that the coin accumulator is only capable of collecting coins of a predetermined denomination such as fifty cent pieces, the envelope returned with the garments will contain any difference between the amount to be paid by the customer and the actual cost of the work. For example, if the garment cleaning cost is \$1.20, thirty cents change is returned with the garment and the customer is instructed to insert three fifty-cent pieces into the accumulator inlet opening 82.

The driver next sets the accumulator pin 92 into the proper aperture to receive the necessary number of coins 80. The lever 61 is then swung in a counter-clockwise direction until the notch 70 of the trigger lever 67 engages the ear 64 of the lever 61. The bolt 55 is then in engagement with the latch channel 14 and the door can not be reopened until the trigger lever 67 is released from the lever 61.

The driver then removes his master key in the manner previously described and the garments await collection by the customer. The customer reads the amount of the charges through the sight window 99, a card replacing the previously used card advising the customer of the amount of coins to insert and the amount of change enclosed with the garments. The customer then inserts the necessary number of coins, one at a time into the accumulator opening 82. These coins fall into the groove 74 until the groove is filled to the proper level, whereupon the next coin dropped will fall through the notch 77 and into the groove 75. The weight and force of this coin dropping in the slot 74 pivots the trigger lever 67 out of engagement with the lever 61. The spring 65 then pulls the lever 61 in a clockwise direction to withdraw the locking bolt 55 from the latch channel 14. The door may then be unlocked and the garments and change removed.

It will be seen that my apparatus may be constructed at a relatively low cost and is simple in its operation. The theory behind the insertion of a coin into the aperture 53 before the locker can be locked is to provide a separate charge which may become the property of the owner of the space in which the lockers are located. The purpose in returning change with the garments in place of providing separate coin chutes to receive coins of other denominations is to simplify the construction and reduce its cost. The purpose of the two separate door locking devices is to provide a separate means of collecting coins of two denominations in two separate receptacles. Furthermore, this arrangement permits the door to be opened on occasion only by the insertion of coins while on other occasions the door may be opened without the deposit of coins. The deflector provides a simple and effective means of eliminating coins of the wrong denomination and preventing the accumulator from being filled with small coins.

While the device has been described for use in connection with laundry and dry cleaning, it may also be used for other purposes, such as for shoe repair, linen supply, or for any other service. It is particularly useful where a product is to be left for processing or repairing and results in a saving of time and labor.

In accordance with the patent statutes, I have described the principles of construction and operation of my self-service laundry locker, and while I have endeavored to set forth the best embodiment thereof, I desire to have

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it understood that this is only illustrative thereof and that obvious changes may be made within the scope of the following claims without departing from the spirit of my invention.

I claim:

1. A locker system including a locker body, a closure secured to said body to close the same, a latch bolt for holding said closure in closed position, spring means urging said latch bolt into locking position, spring urged lever means loosely connected to said latch bolt to retract the same trigger means holding said last named means from moving said latch bolt from locking position, and coin actuated means for actuating said trigger.

2. The structure described in claim 1 and including coin accumulating means for accumulating a predetermined number of coins adjustable stop means supported in the path of movement of the coins entering said accumulator, said accumulator including means for guiding a coin against said trigger after a predetermined number of coins has been accumulated.

3. A locker system including a locker body, a closure secured to said body to close the same, a latch bolt for holding said closure in closed position, an accumulator secured to the inner surface of said closure, said accumulator including a pair of guides connected together at their upper extremities, means for directing coins into one of said guides, said coins engaging in superimposed relation, apertures intersecting one of said guides in spaced relation, means selectively engageable in any of said apertures in the path of movement of coins therein to limit the effective length of said one guide to contain a predetermined number of coins, the uppermost of said predetermined number of coins acting to direct the next

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coin passing through said coin directing means into said other guide, said latch bolt being retractable under spring tension, resilient means normally urging said latch bolt retracted, and means in the path of movement of a coin in said other guide for holding said resilient means from retracting said latch bolt, said last named means being operable by the movement of a coin for releasing said resilient means for retracting said latch bolt.

4. The structure in claim 3 and including a lever pivotally attached to said closure and connected to said latch bolt and said resilient means, and in which the last named means comprises a trigger for holding said lever from pivotal movement.

5. The structure of claim 3 and including a lever pivotally connected to said closure, means connecting one end of said lever to said latch bolt, means connecting the other end of said lever to said resilient means, and in which said means in said other guide comprises a trigger engaging said lever.

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