Feb. 23, 1960 R. M. TERRY 2,925,898

COIN OPERATED DISPENSING DEVICE

Filed Dec. 17, 1956 4 Sheets-Sheet 1

FIG_1

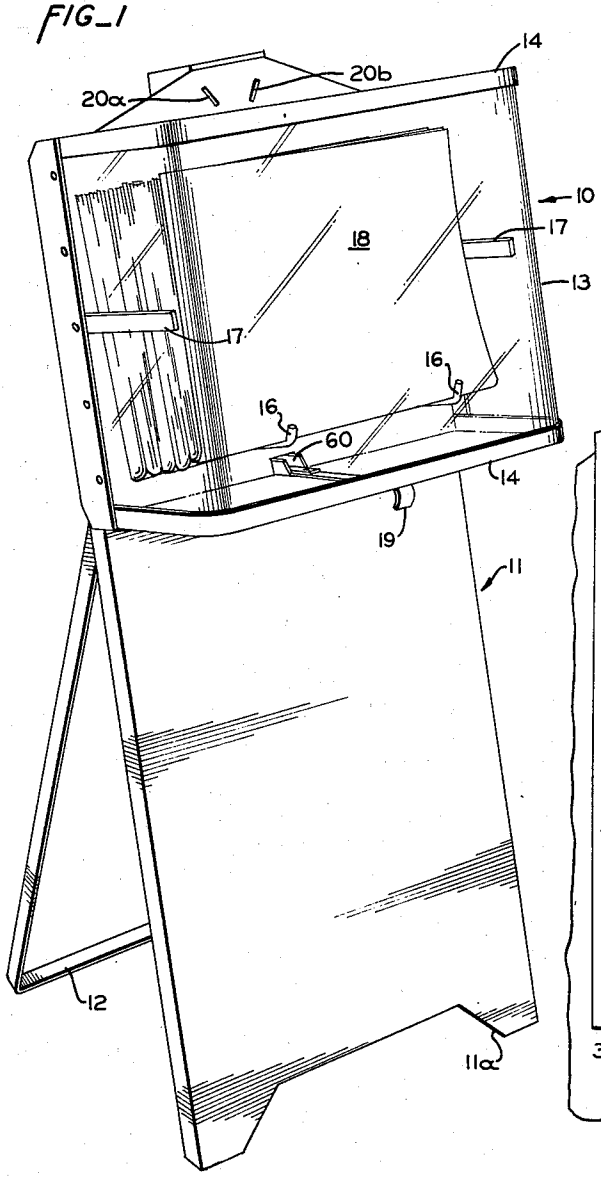
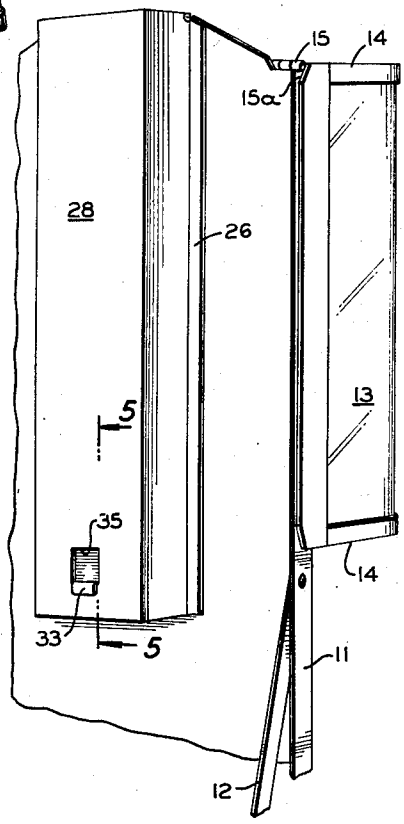


FIG_2



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Feb. 23, 1960 R. M. TERRY 2,925,898

COIN OPERATED DISPENSING DEVICE

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FIG_3

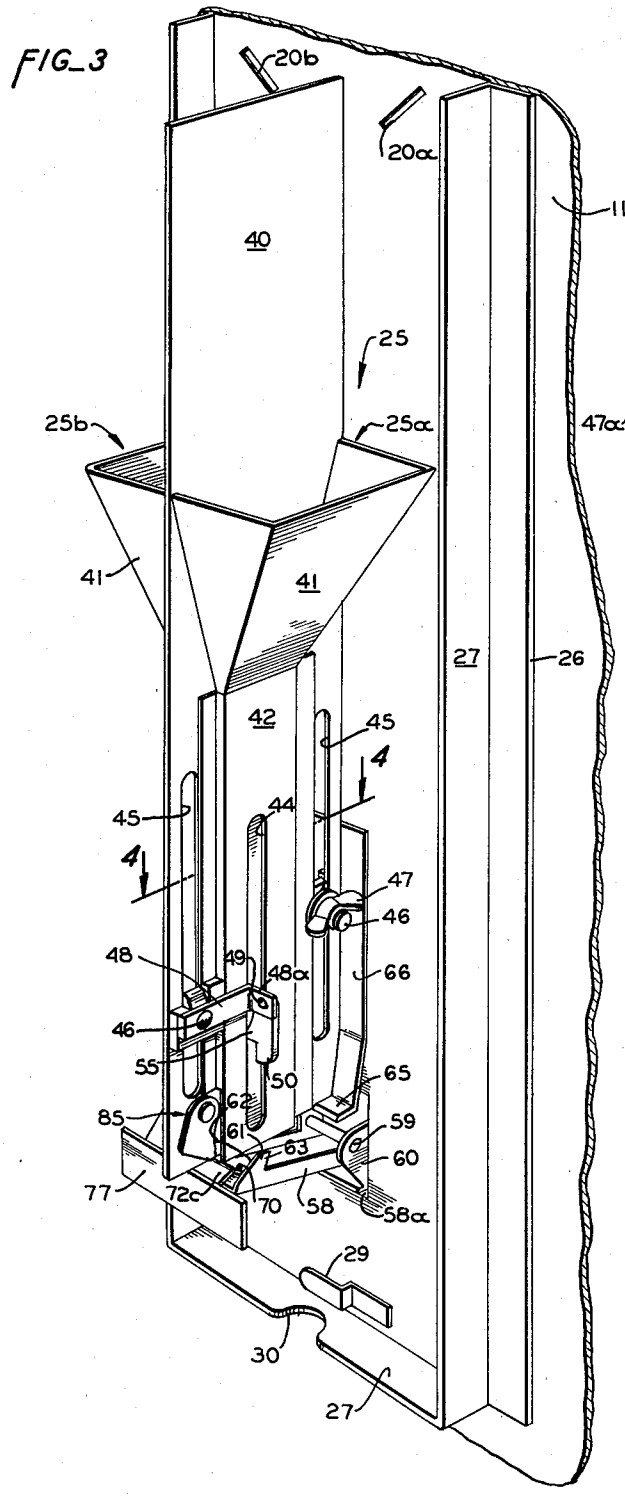
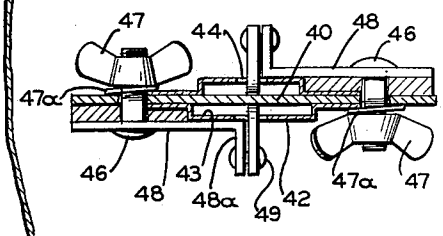


FIG_4



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Feb. 23, 1960 R. M. TERRY 2,925,898

COIN OPERATED DISPENSING DEVICE

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FIG_5

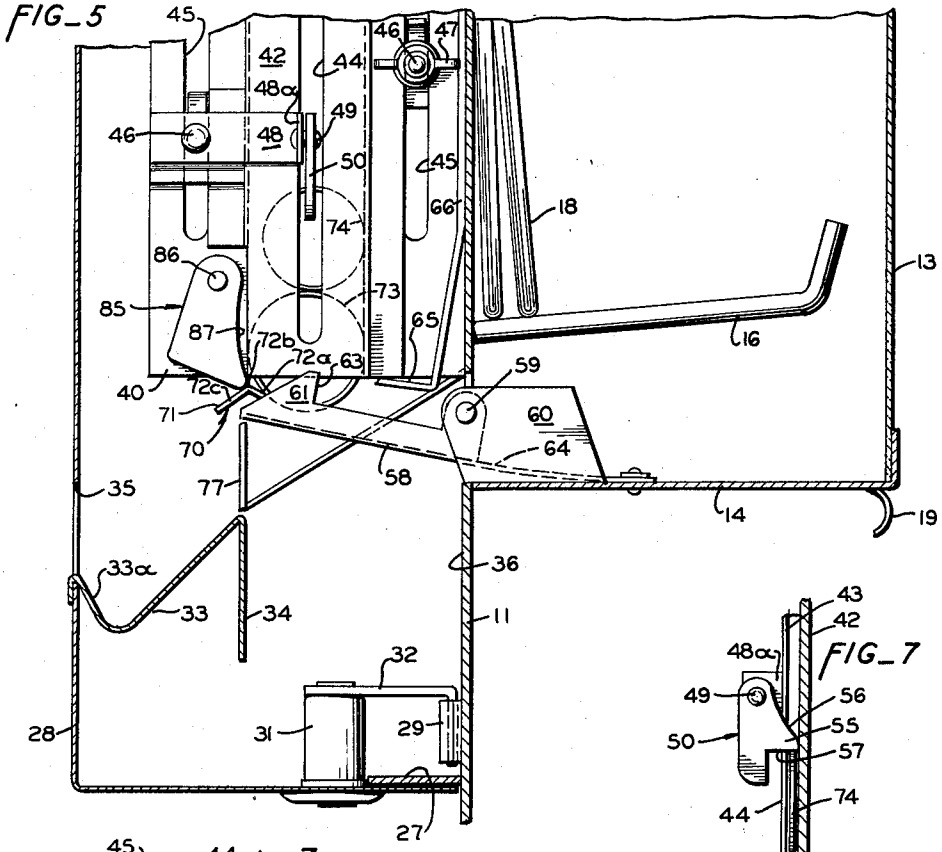


FIG_7

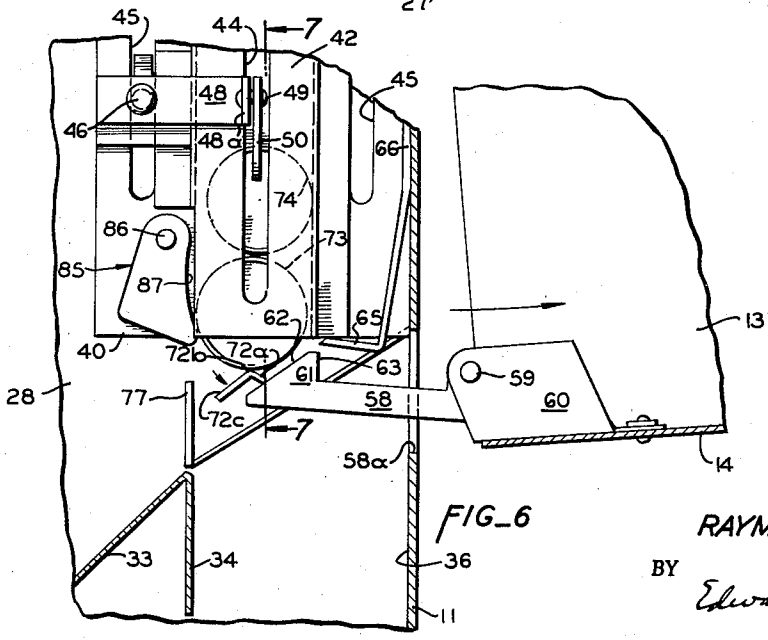


FIG_6

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COIN OPERATED DISPENSING DEVICE

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FIG_8

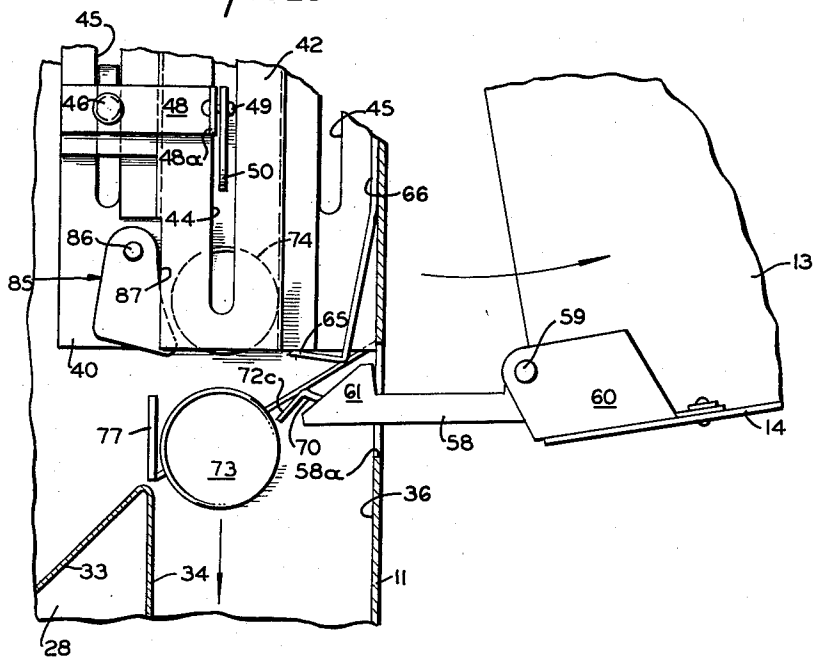
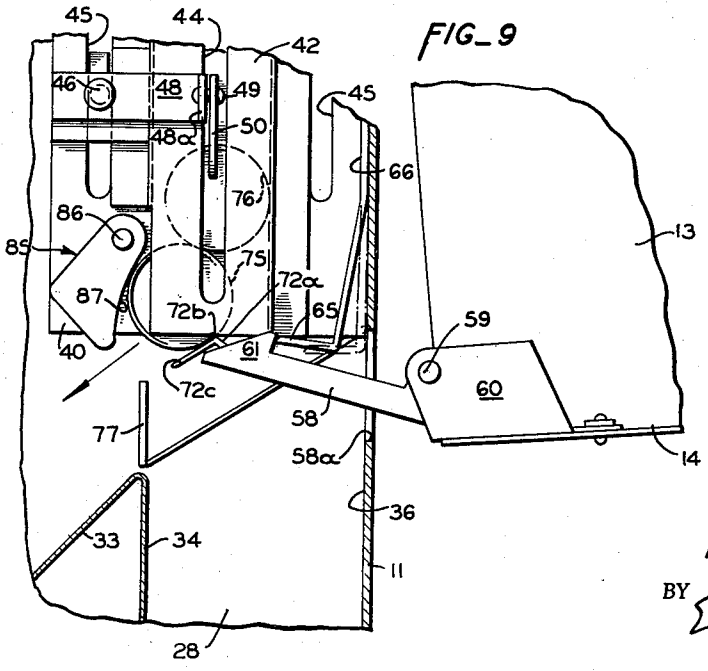


FIG_9



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United States Patent Office 2,925,898
Patented Feb. 23, 1960

2,925,898

COIN OPERATED DISPENSING DEVICE

Raymond M. Terry, Oakland, Calif.

Application December 17, 1956, Serial No. 628,856

4 Claims. (Cl. 194—54)

This invention relates to a coin operated dispensing device. More particularly it relates to a coin operated mechanism of a type suited for dispensing of newspapers or other similar articles.

In vending newspapers from untended racks, a problem exists which is of some what different character than exists in the vending of articles of relatively small size, precise dimensions and regular geometric shape, such as packages of cigarettes, candy bars and the like. Thus newspapers vary in bulk and do not lend themselves as well to ejection from a vending machine as do articles of uniform shape and dimensions. Also there is frequently a differential between the price of Sunday newspapers and weekday newspapers. Accordingly the vending machine should be one which is adjustable for Sunday use and for weekday use. It is important that such adjustment means be simple in its operation, such that adjustments can be made without any particular skill, for example, by a man who delivers newspapers and is not a skilled mechanic.

Another desideratum in newspaper vending machines is the ability to accept several combinations of coins which add up to the same total. Thus, if the price of a newspaper is ten cents, it is advantageous to employ a vending apparatus which will accept a dime, two nickels, one nickel and five pennies or ten pennies. To my knowledge no coin mechanism has been provided for newspaper vending machines which will accomplish this.

It is an object of the present invention to provide an improved coin operated dispensing mechanism.

It is a further object of the invention to provide a coin operated dispensing mechanism which is readily adjustable to operate with different coins or combinations of coins.

It is another object of the invention to provide an improved coin operated dispensing device for the dispensing or vending of newspapers.

It is a further object of the invention to provide a coin operated vending mechanism for the purpose of vending newspapers which is simple in its design, which is readily adjustable and which is simple and dependable in its operation.

A further object of the invention is to provide a coin operated mechanism for latching and unlatching a housing or cover member, such as the weather cover of a newspaper vending apparatus, which will accept several coin combinations having the same monetary value (e.g., one dime, two nickels, a nickel plus five pennies, and ten pennies) and which will reject and return all other coin combinations; such mechnaism being easily adjustable for different totals (e.g., for a ten cent price, a twenty cent price and an eleven cent price).

These and other objects of the invention will be apparent from the ensuing description and the appended claims.

One form of the invention is shown by way of example in the accompany drawings, in which

Figure 1 is a perspective view of a newspaper vending

device incorporating the coin operated dispensing mechanism of the invention.

Figure 2 is a fragmentary, rear view in perspective, of the apparatus of Figure 1, showing the coin operated dispensing mechanism attached to the rear of the apparatus and with its cover in place.

Figure 3 is a rear view in perspective of the coin operated dispensing mechanism of the invention with the cover removed.

Figure 4 is a section taken along the line 4—4 of Figure 3.

Figure 5 is a section taken along the line 5—5 of Figure 2, showing in side elevation the coin operated dispensing mechanism of the invention.

Figure 6 is a view similar to that shown in Figure 5, but showing the apparatus at a different stage of operation.

Figure 7 is a view along the line 7—7 of Figure 6 showing the gauging and locking pawl of the invention in side elevation and in contact with coins deposited in the mechanism.

Figure 8 is a view similar to Figure 6 but at a still later stage in the operation of the mechanism.

Figure 9 is a view similar to that shown in Figure 6 but showing the manner in which the mechanism operates to reject and return coins which are not of the proper selection.

Referring now to the drawings and principally to Figures 1 and 2, the coin operated dispensing mechanism of the invention is illustrated in connection with a newspaper vending apparatus which is generally designated by the reference numeral **10**. It will, however, be understood that the coin operated mechanism of the invention can be employed for many other purposes.

The newspaper vending device **10** comprises a frame **11** formed of sheet metal and having legs **11***a*. Hinged to its rear is a leg or rear brace **12** of U-shape which, together with the front legs **11***a* provides support for the apparatus. A transparent glass or plastic case or weather cover is provided at **13** which has a rigid frame member **14** which is hinged at **15** to the main frame **11** (see Figure 2). The case is pitched at an angle such that its weight normally holds it in closed position. Bottom support rods are provided at **16** which are fixed to and project forwardly from the main frame **11** and which provide bottom support for newspapers. Side bars are provided at **17** which are fixed to and project forwardly from the main frame **11** and which provide lateral support. A quantity of newspapers are shown at **18** which are supported at the bottom by the rods **16** and along the sides by the bars **17**. A handle or finger hold is provided at **19** which is fixed to the bottom of the frame **14** for the purpose of grasping to pull the case **13** outwardly and open it. Coin slots are provided at **20***a* and **20***b* above the case **13**. Each slot may be of a size to permit the insertion of coins of a certain diameter, more or less. In any event, as explained herein below, the slot **20***a* is intended to receive certain coins (e.g., dimes and pennies) and the other slot **20***b* is intended to receive other coins, e.g., nickels and pennies. Suitable instructions (not shown) will appear on the frame **11** adjacent the slots.

Referring now more particularly to Figure 3, the coin operated dispensing mechanism of the invention is there shown and is generally designated by the reference numeral **25**. It is surrounded by an angle frame **26** providing a vertical rim or guard **27** along both sides and at the bottom. A cover is provided at **28** (see Figures 2 and 5) which is of a shape and size to fit over the rim **27**. A latch member is provided in the form of a bracket **29** fixed to the rear surface of the frame member **11** just above the bottom, horizontal portion of the rim **27**. The latter is cut away at **30** to receive the barrel of a lock **31** which is fixed to and extends through the bottom of the

cover member 28. The lock 31 has a tongue 32 intended to engage the latch member 29. An authorized person having a key to fit the lock 31 may, therefore, unlock the cover 28 and remove it to collect coins, inspect the mechanism 25 and adjust it.

A baffle member 33 is fixed to the cover member 28 which has a vertical portion 34 extending downwardly as illustrated in Figure 5. The baffle member 33 provides a coin return chute 33*a* adjacent an opening 35 which is formed in the cover 28 and which is shown in Figures 2 and 5. It is the purpose of the coin return chute 33*a* to guide rejected coins to a position where they can be reached by inserting a finger in the opening 35. The manner in which improperly selected coins are rejected is described hereinafter.

The vertical portion 34 of the baffle member 33 together with the opposing rear surface of the main frame member 11, provide a coin box or receptacle for accepted coins, and it is indicated by the reference numeral 36. Access to such coins, of course, is by means of a key for the lock 31.

Referring now more particularly to Figure 3, the coin mechanism is generally designated by the reference numeral 25. It is divided, however, by a vertical plate 40 into duplicate mechanisms 25*a* and 25*b*. The plate 40 is welded or otherwise fixed to the rear surface of the main frame member 11. The reason that duplicate coin mechanisms 25*a* and 25*b* are employed will be apparent from the description hereinafter. However, it will be understood that, where conditions permit, only one coin mechanism may be employed. Alternatively, where conditions require, three or more coin mechanisms may be employed. Inasmuch as the coin mechanisms 25*a* and 25*b* are substantial duplicates, one of the other, only the mechanism 25*a* will be described in detail.

A coin hopper 41 is provided which is fixed to the plate 40 beneath the coin slot 20*a*, so that coins dropped through the slots 20*a* will drop into the hopper. Beneath the hopper 41 a channel member 42 is provided which is fixed to the plate 40 to provide a coin passage or chute 43 (see Figure 4).

The channel member 42 is formed with a vertical slot 44 having a purpose explained hereinafter. The plate 40 is formed with a slot 45 to the left of the plate 42 (as viewed in Figure 3) which is intended to receive a screw 46 which is clamped in place in any position desired by means of a wing nut 47 and lock washer 47*a*. The screw 46 carries a bracket 48 having an outwardly projecting ear 48*a*, on which a pivot pin 49 is carried. The pin 49 pivotally supports a gauging and locking pawl or trap member 50. The pawl 50 is best shown in Figure 7. It has an outwardly projecting nose 55, the upper, cam surface of which has a downward slant at 56 in the direction of the coin passage 43. The lower, trapping surface 57 of the nose 55 is horizontal. The pawl 50 swings in the slot 44 and it is counter weighted so that it normally assumes the position shown in Figure 7 with its nose 55 in the coin chute 43.

A catch lever or latch hook 58 is provided which passes through an opening 58*a* in the frame 11 and which is pivoted at 59 on a bracket 60 fixed to the frame 14. The latch 58 has a nose 61 which has a slanting edge at 62 and a vertical edge at 63. A leaf spring is provided at 64 which is fixed to the frame 14 of the case 13 and also to the hook 58. It is the function of the leaf spring 64 to hold the hook 58 normally in a relatively elevated position such that, if the handle 19 is pulled to open the case 13, the vertical surface 63 of nose 61 of the hook 58 will strike a ledge 65 on a resilient catch member 66. That is to say, the normal arc of movement of the nose 61 of hook 58 coincides with the catch member 66. Therefore, the case 13 is normally held in latched position unless and until the hook 58 is deflected downwardly against the force of the leaf spring 64 to clear the ledge 65. It is the function of the slanting surface 62 to act as a cam against the frame 11 and catch member 66 upon return of the case 13 from open position. That is, once the case is opened in the manner described hereinafter, and is then released it drops by gravity toward closed position and the slanting cam surface 62 acts against the frame 11 and catch member 66, which deflects the hook 58 downwardly. This allows the case 13 to close completely. The hook 58 then returns, under the influence of the leaf spring 64, to its normal, elevated, latching position. It will, therefore, be apparent that the hook 58 and leaf spring 64 act as a one way latch which normally acts to prevent opening but always permits closing the case 13.

The means whereby this latch is opened when a proper selection of coins has been inserted, will now be described.

A cam member or ramp 70 is provided which is fixed to the hook 58. It will be noted that only one hook 58 and one catch member 66 are provided, both of which are located on that side of plate 40 which is visible in Figure 3. Also, only one ramp 70 is provided. However, the ramp 70 bridges the two sides of the device so that it is acted upon by coins dropped into either of the mechanisms 25*a* and 25*b*. It will be seen that the ramp 70 is formed at its left-hand end (as viewed in Figures 5 and 6) with a dog leg or cam portion 71 which includes a rise portion 72*a*, a high point or peak 72*b* and a recede 72*c*. When the case 13 is in closed position, the cam portion 71 lies slightly to the left of the two coin chutes 43 as viewed in Figures 5 and 6.

Referring now to Figure 7, and assuming that the coin mechanism 25*a* is to be set for a nickel and a penny (which are shown at 73 and 74, respectively) the corresponding pawl 50 will be set as follows: The two coins (a nickel and a penny) are inserted in either order in the respective hopper 41. They will come to rest with the bottom coin on the ramp 70 and the top coin beneath the pawl 50. The wing nut 47 (see Figure 4) of the pawl 50 will be loosened and it will be adjusted up or down until it is free to swing back into the normal position shown in Figure 7 with a very small clearance (e.g., 1/16") between its horizontal surface 57 and the top coin. (In practice, each device will be supplied with a gauge strip (not shown) adjacent each slot 45 so that a person adjusting the device can adjust the pawls 50 by means of indicia on the gauge strip. This will eliminate the necessity of dropping in coins and adjusting the pawls for proper clearance.)

Assume, now, that the pawl 50 of the mechanism 25*a* has been set in the manner described for a nickel and a penny, and that a nickel and a penny have been inserted and occupy the position shown at 73 and 74 in Figure 5. When the handle 19 is pulled to open the case 13, the bottom coin 73 will ride up the rise portion 72*a* of ramp 70 until the top coin 74 contacts the horizontal surface 57 of pawl 50. Since the coins cannot move upwardly any further, continued outward movement of the case 13 will, of necessity, cause a downward deflection of the ramp 70 and the hook 58. When the high point 72*b* reaches dead center in relation to the coins 73 and 74, the hook 58 will be deflected sufficiently to clear the ledge 65 of latch member 66 and will be in the position shown in Figure 6. The case 13, can, therefore, be opened to allow access to the newspapers 18.

Not only do the proper coins act in conjunction with the pawls 50 and the ramp 70 to unlatch the case 13, but the accepted coins drop into the coin box 36. (See Figure 8.) Then, when the user extracts a newspaper and releases the handle 19, the case 13 will drop back toward closed position, and the slanting cam surface 62 of hook 58 will deflect the hook to allow the case to close completely.

It sometimes happens that a coin, in falling through the slot 43, will bounce when it strikes the ramp 70 in such a direction that it is ejected. To prevent this a pair of guard pawls 85 are provided, one of which is shown in

Figures 3, 5, 6, 8 and 9. These guard pawls are fixed to a pin **86** which is rotatably mounted in the plate **40**, one pawl being located on one side of the plate **40** and the other pawl being located on the other side of the plate **40**. The pawls **85** are free to pivot with the pin **86** but must pivot together. Each pawl **85** has an edge **87** which normally lies alongside the respective coin slot **43**. The combined mass of the pawls **85** is sufficient to rebound any coin which bounces to the left (as viewed in Figures 5, 6, 8 and 9); hence these pawls act to confine coins to the coin slot **43**.

Assume, now, that an improper coin combination (e.g., two pennies, shown at **75** and **76** in Figure 9) have been inserted. If two pennies rather than a penny and a nickel are inserted, their combined diameter will be less than the combined diameter of a nickel and a penny. Accordingly there will be an excessive clearance between the top coin **76** and the horizontal edge **57** of the pawl **50**. Therefore, when the handle **19** is pulled outwardly, the coins **75** and **76** will ride up the rise **72*a*** of the ramp **70** without contacting the pawl edge **57**. Therefore the hook **58** will remain undeflected, its vertical edge **63** will contact the ledge **65** and the case **13** will remain locked.

It is desirable, not only that an improper coin combination be rejected in this manner but also that the rejected coins be returned. This object (return of rejected coins) is accomplished in the following manner: As the peak **72*b*** of the ramp **70** reaches dead center in relation to the coins **75** and **76**, the hook **58** will engage the ledge **65**. The catch member **66** is a piece of resilient steel which is fixed at the top to frame **11** but is free at the bottom and is bent outwardly away from the frame **11**. Continued movement of the hook **58** toward the right will cause the bottom portion of catch member **66** to deflect in the same direction until it contacts the frame **11**. The peak **72*b*** therefore passes dead center in relation to the coins and the slanting recede portion **72*c*** of the ramp **70** also passes somewhat to the right of the coins, i.e., to the right as viewed in Figure 9. When the case **13** is released and returns to closed position, the recede portion **72*c*** of ramp **70** ejects the bottom coin **75**. The adjacent pawl **85** pivots aside to permit ejection. By pulling the case **13** again to partly open position and releasing, the next coin **76** is similarly ejected, and by a repeated pumping action all coins (if there are any more) are rejected.

Adjustment of the apparatus, its operation with a particular selection of coins (a nickel and a penny) and its rejection and return of a deficiency of coins (two pennies) have been described. The apparatus has, however, greater versatility, as will not be explained by several illustrations.

Suppose that the mechanism **25*a*** has been set, as described above, for a nickel and a penny, but that two nickels are inserted. The second nickel, in falling, will rock the respective pawl **50** aside. Moreover, because the pawl has been set to trap a nickel and a penny, the second nickel will extend above the normal level of the surface **57** of pawl **50** and, as a consequence, it will hold the pawl aside; i.e., the second nickel will inactivate the pawl. The hook **58** will not, therefore, deflect; the case **13** will remain locked; and the two nickels will be returned when the handle **19** is pumped, exactly as the two pennies in the illustration above.

In general, therefore, the pawl **50** will accept and operate with one particular coin combination and no other, and it will reject and return all other coin combinations.

Suppose, now, that it is desired to dispense newspapers at a price of ten cents, and that it also is desired to accept each of the following coin ten cent combinations: One dime, two nickels, one nickel plus five pennies, and ten pennies. The coin slots **20*a*** and **20*b*** (see Figure 1) are preferably of a size that the left-hand slot **20*a*** will take a dime and pennies but is not long enough to take nickels as well as pennies. Instructions will be placed on the frame **11** adjacent the slots **20*a*** and **20*b***, to insert a dime or ten pennies in the slot **20*a*** and two nickels or a nickel plus five pennies in the slot **20*b***.

Two pawls **50** will be employed for each of the mechanisms **25*a*** and **25*b***. For convenience of description, the two pawls of mechanism **25*a*** will be referred to as the "dime pawl" and the "penny pawl" and the two pawls of the mechanisms **25*b*** will be referred to as the "double nickel pawl" and the "nickel-penny pawl."

The dime pawl will be adjusted in the manner explained above (or with the aid of a gauge strip), to accept one dime; and the penny pawl will be adjusted to accept ten pennies. Similarly, the double nickel and nickel-penny pawls will be adjusted to accept two nickels and a nickel plus five pennies, respectively.

Assume now that a dime is inserted in the slot **20*a***. It will activate the dime pawl and will act to unlatch the case **13**. Meanwhile the penny pawl will be inactive because it is located far above an inserted dime. Assume, now, that ten pennies are inserted in slot **20*a***. They will activate the penny pawl. Meanwhile the bottom penny (which has a greater diameter than a dime) will inactivate the dime pawl by holding it to one side.

It will be apparent that the double nickel and nickel-penny pawls of the mechanism **25*b*** will operate similarly to accept two nickels (the nickel-penny pawl remaining inactive) or a nickel and five pennies (the double nickel pawl being held inactive).

Another facet of the versatile character of the mechanism of the invention is as follows: Suppose that the ten cent price assumed above is for weekday papers and that a Sunday paper costs twenty cents. In such case the device may be fitted with a double dime pawl, a dime-two nickel pawl, a four nickel pawl and a dime-nickel-five penny pawl. These pawls will be properly located in the adjustment slots **45**, but they will be held back in inactive positions by clamps (not shown) on weekdays. When a deliveryman delivers Sunday papers, he will release these pawls and will apply the clamps to the weekday pawls, thereby setting the machine for the four Sunday combinations, i.e., two dimes; one dime and two nickels; for nickels; and a dime-nickel-five penny combination.

It will, therefore, be apparent that a coin operated dispensing mechanism has been provided which is very simple in its construction and which has several very significant advantages. Thus, it is very easily and speedily adjusted for any particular selection of coins desired. The person making the adjustment needs no particular skill. The most he has to do is select the coins for each of the mechanisms **25*a*** and **25*b*** as desired, place them in the respective chutes **43**, then adjust the respective gauging pawls **50** to trap the proper selection of coins and deflect the hooks **58** enough to permit opening the case **13**, and then tighten the wing nuts **47** to clamp the pawls **50** in proper positions. Even more conveniently, the device may be supplied with gauging strips.

The versatility of the device is very great; it lends itself to use for newspapers of many different prices; it will accept many coin combinations; and it returns all rejected coins. The apparatus is in essence so simple and involves so few working parts that it is not likely to get out of adjustment or repair.

I claim:

1. A coin operated mechanism of the character described comprising a vertical coin chute having open upper and lower ends; a coin trap pawl located between said ends, normally lying athwart said chute, rocking to one side to permit downward passage of coins and rocking back to normal position to limit upward movement of coins in said chute, said trap pawl being adjustable lengthwise of said chute; a latch hook mounted beneath said chute for up and down movement in the direction of and away from the lower end of said chute and also for opening and closing substantially horizontal move-

ment; resilient means acting normally to hold said hook in a relatively elevated, latching position but allowing downward deflection of the hook in response to a sufficient force to an unlatched position; a cam member moving with said hook and having a rise portion underlying said chute and acting, when the hook undergoes opening movement, to lift coins in the chute, said cam member having also a recede portion acting to eject coins when the hook undergoes closing movement; and a guard pawl mounted to rock in a vertical plane adjacent one edge of the lower end of said chute, said guard pawl acting by its mass to prevent improper ejection of coins but rocking aside to permit proper ejection of coins.

2. A coin operated device of the type which accepts a predetermined coin selection and acts to return other coin selections, said device comprising: a frame having a catch member thereon; a latch mounted for forward opening movement and for retractive return movement relatively to the frame and also mounted pivotally for pivoting between a latching position wherein the latch engages the catch member during said forward movement to prevent completion of such movement and a release position wherein the latch clears the catch member during forward movement to permit complete forward movement, and means normally holding said latch in its latching position but yielding to an opposing force to allow the latch to move to its release position; an upright coin chute having an open upper end for insertion of coins and an open lower end, and a coin receptacle beneath said chute for reception of accepted coins dropping from the lower end of the chute; a lateral coin passage beneath said chute and above said coin receptacle adapted to pass and return coins dropped from the lower end of the chute and deflected laterally; a trapping pawl located between the upper and lower ends of the chute, having a normal position athwart said chute in the path of travel of coins therein, pivotally mounted so as to pass dropping coins and having a bottom contact surface engageable with coins in said chute; and cam means for pivoting said latch and for deflecting nonaccepted coins, said cam means being associated and moving with said latch, having a rise portion which acts to lift coins in said chute during forward movement of the latch and which exerts a downward thrust on the latch to move the same to its release position when a predetermined coin selection is trapped between said rise and the contact surface of said pawl, said cam means also having a deflector portion which, during return movement of the latch, while the latch is in its latching position, contacts the bottom coin in said chute and deflects the same laterally into said lateral coin passage.

3. A coin operated device of the type which accepts a predetermined coin selection and acts to return other coin selections, said device comprising: a frame having a catch member thereon; a latch mounted for forward opening movement and for retractive return movement relatively to the frame and also mounted pivotally for pivoting between a latching position wherein the latch engages the catch member during said forward movement to prevent completion of such movement and a release position wherein the latch clears the catch member during forward movement to permit complete forward movement, and means normally holding said latch in its latching position but yielding to an opposing force to allow the latch to move to its release position; an upright coin chute having an open upper end for insertion of coins and an open lower end, and a coin receptacle beneath said chute for reception of accepted coins dropping from the lower end of the chute; a lateral coin passage beneath said chute and above said coin receptacle adapted to pass and return coins dropped from the lower end of the chute and deflected laterally; a trapping pawl located between the upper and lower ends of the chute, having a normal position athwart said chute in the path of travel of coins therein, pivotally mounted so as to pass dropping coins and having a bottom contact surface engageable with coins in said chute; and cam means for pivoting said latch and for deflecting nonaccepted coins, said cam means being attached to said latch, having a rise portion which acts to lift coins in said chute during forward movement of the latch and which exerts a downward thrust on the latch to move the same to its release position when a predetermined coin selection is trapped between said rise and the contact surface of said pawl, said cam means also having a deflector portion which, during return movement of the latch, while the latch is in its latching position, contacts the bottom coin in said chute and deflects the same laterally into said lateral coin passage.

4. The device of claim 3 wherein said pawl swings in a plane transverse to the plane of the chute.

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