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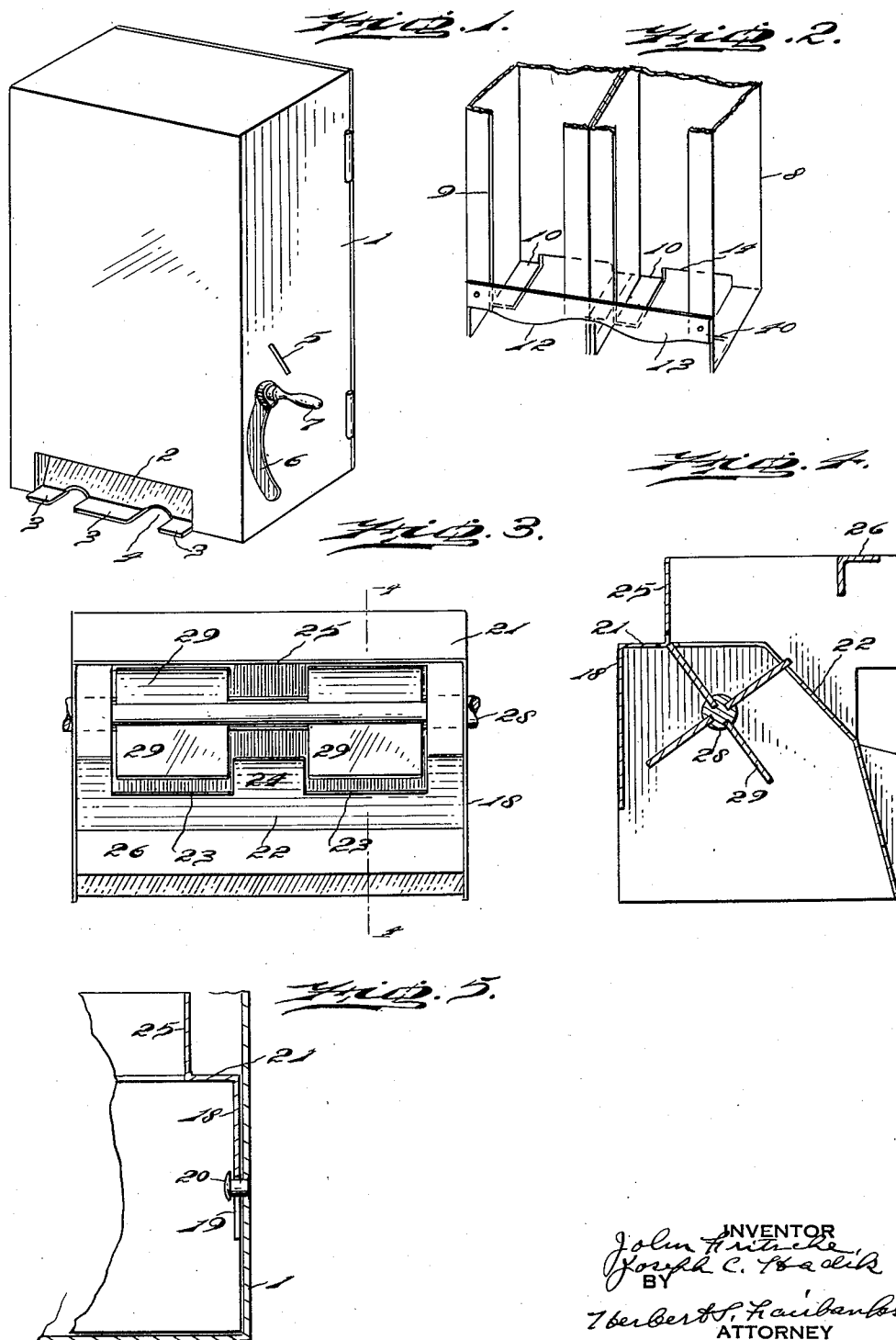
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MATCH VENDING MACHINE

Filed May 19, 1933

2 Sheets-Sheet 1



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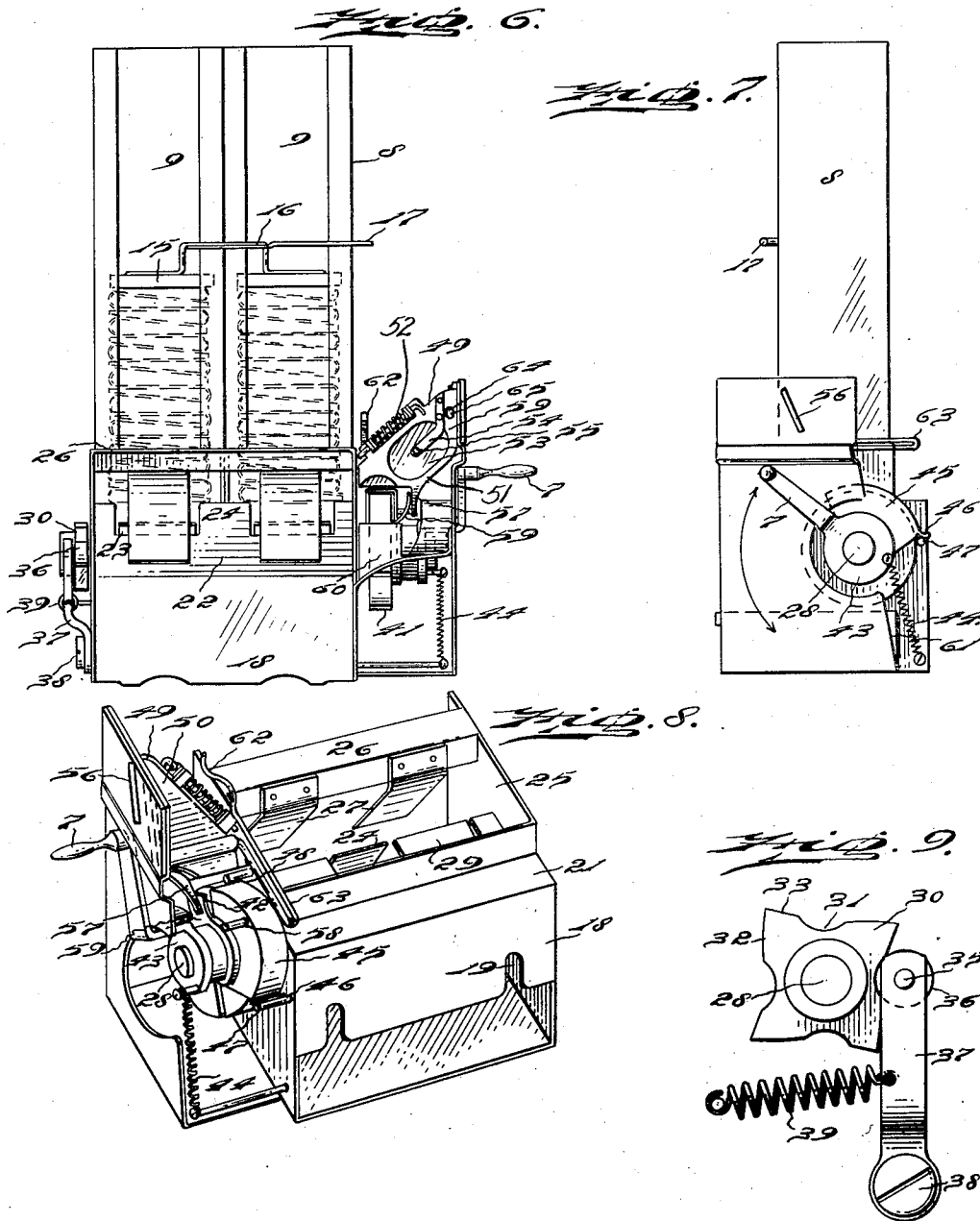
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MATCH VENDING MACHINE

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3 Claims. (Cl. 312—63)

The object of this invention is to devise a novel vending machine wherein a plurality of articles can be simultaneously vended, and more particularly a machine wherein the articles are supported in a plurality of columns and provision is made for simultaneously vending an article from each column.

A further object of the invention is to devise novel vending mechanism and novel aligning means which in the case of over-running or under-running of the shaft which carries the delivery mechanism will automatically position such shaft for the next vending operation.

A further object of the invention is to devise a novel vending machine wherein the articles to be vended are supported and delivered in a novel manner and wherein provision is made for preventing the operation of the machine when the last article has been vended.

With the above and other objects in view, which will hereinafter more clearly appear, our invention comprehends a novel vending machine.

It further comprehends a novel vending machine for vending a plurality of articles at a time and a novel aligning means for aligning the mechanism for the next operation.

It further comprehends a novel vending machine wherein a novel delivery member is employed for simultaneously effecting the ejection of an article from each of several columns.

Other novel features of construction and advantage will hereinafter appear in the detailed description and the appended claims.

For the purpose of illustrating the invention, we have shown in the accompanying drawings a preferred embodiment of it, which, in practice, will give satisfactory and reliable results. It is, however, to be understood that this embodiment is typical only and the various instrumentalities of which our invention consists can be variously arranged and organized, and the invention is not limited to the exact arrangement and organization of these instrumentalities as herein set forth.

Figure 1 is a perspective view of a vending machine embodying our invention.

Figure 2 is a perspective view of the lower portion of the article carrier.

Figure 3 is a top plan view of a portion of the housing.

Figure 4 is a section on line 4—4 of Figure 3.

Figure 5 is a detail of the cabinet.

Figure 6 is a front elevation of the vending mechanism.

Figure 7 is a side elevation of the vending mechanism.

Figure 8 is a perspective view of the vending mechanism housing.

Figure 9 is an end elevation, on an enlarged scale, of aligning mechanism.

Similar numerals of reference indicate corresponding parts.

Referring to the drawings:—

The vending mechanism is concealed within a vending cabinet having any desired contour in cross section. For convenience of illustration I have shown the cabinet 1 as having the top, bottom, side and front walls closed, and the rear wall is hinged to a side wall and adapted to be locked in its closed position in any desired manner. The front wall is provided at its lower end with a vending opening 2 and a portion of the material cut out to form such opening is deflected laterally to form a continuation of the bottom of the cabinet and supporting members 3 which extend beyond the front wall of the cabinet. The bottom of the cabinet between these supporting members is cut out as indicated at 4. A side wall of the cabinet is provided with the coin receiving opening 5 and also the curved slot 6 through which is adapted to extend the operating handle 7 of the vending mechanism so that the latter is always in a position which is readily accessible to the intending purchaser.

8 designates an article carrier in the form of an open ended casing having the front slots 9 through which the articles to be vended are visible. The bottom of the article carrier has the intumed flanges 10 which serve to support the articles in their respective columns. As illustrated, the article carrier is formed of two rectangular casing members secured together in any desired manner. The front flanges 11 are cut away at their lower ends to form a delivery opening 12 and a bar 13 extends across the front face of the article carrier to form the upper wall of the delivery opening and is provided at its lower edge with rounded portions which serve as stop members to prevent the ejection of more than one article at a time from its respective column. The rear wall of the article carrier at the lower end of each column is cut away as indicated at 14. The downward feed of the articles in their respective columns is facilitated by means of the weights 15 which are connected by a bar 16 and provided with a projecting arm 17, the purpose of which is to effect the closing of the coin chute when the last articles have been vended and thus render the machine inoperative, as will hereinafter be fully explained.

18 designates the vending housing, the rear wall of which is cut away and provided with the slots 19 which are adapted to engage the supporting members 20 carried by the rear wall or door of the cabinet. The housing 18 is preferably formed from sheet metal and is provided with a cut out top member 21 having flanges at its end which contribute to support the article carrier. The front wall of the housing at its upper end is inclined forwardly as at 22 to form a delivery chute and is cut out as at 23 to form a clearance and at its central portion it is provided with an upwardly extending flange 24. Above the top member 21 is a rectangularly shaped housing portion 25 adapted to receive the article carrier and its front wall is formed by an angle bar 26 having springs 27 which extend downwardly and forwardly and serve to guide the articles being delivered to cause them to pass to the delivery openings of the cabinet.

The end walls of the housing have journaled therein a conveyor shaft 28 which is slotted to receive conveying blades 29 secured therein in any desired manner. As illustrated, a shaft is provided with four circumferentially spaced blades for each column of the article casing. In order to cause the conveyor shaft to be automatically aligned, it has fixed to it a cam member 30 of novel contour having circumferentially spaced recesses 31, and between juxtaposed recesses, the cam member 30 is provided with the outwardly projecting cam portions having reversely inclined cam faces 32 and 33, one of which is longer than the other. A pin 35, carrying a roller 36, see more particularly Figure 9 is fixed to the upper end of a lever 37, the lower end of which is fulcrumed at 38 to an end wall of the housing. A spring 39 has one end connected with the lever 37 intermediate its roller and fulcrum and the opposite end is secured to the end plate so that the tendency of such spring is to always move the roller towards the cam. The conveyor shaft at its opposite end has fixed to it a coin wheel 41 having circumferentially spaced coin receiving slots 42. This provides means for interconnecting the coin mechanism with the conveyor shaft in order to effect the operation of the latter.

The operating handle 7 is connected with a collar 43 loosely mounted on the conveyor shaft 28. A spring 44 has one end connected to the collar 43 and the opposite end to a fixed point whereby the operating handle is normally retained in its upward position. The collar 43 has secured to it a plate segment 45 which overhangs the coin wheel and is provided with an outwardly deflected portion 46 at the lower end of the segment which is adapted to engage a stop member 47. A pin 48 carried by an end wall of the housing cooperates with the deflected portion 46 to limit the movement of the segment and thereby of the handle in the opposite direction. The forward end of the plate segment moves in the path of a coin in the coin wheel thus interlocking the handle with the coin wheel which is fixed to the conveyor shaft.

49 designates a coin chute having a fixed side 50 and a movable side 51 hinged to the fixed side. A spring 52 is provided tending to close the movable side of the coin chute. The movable side of the coin chute is recessed as at 53 and an arm 54 fixed at its upper end to the movable side of the coin chute is provided at its lower end with an inwardly extending pin 55 which tends to receive and support a washer or other apertured

bogus coin or check which has been introduced into the machine through the coin slot.

It will be understood that the coin slot in the wall of the cabinet is in alignment with a coin slot 56 which leads to the coin chute so that if the proper coin has been inserted into the machine it will pass directly into a slot in the coin wheel. The movable side of the coin chute is provided with a downwardly extending spring arm 57 which is in the path of a pin 58 extending outwardly from the plate segment. The plate segment has an upwardly extending arm 59. The housing is provided with a plate curving upwardly and outwardly as shown at 60 in order to direct improper coins to the delivery opening of the cabinet and beneath this plate is a chamber adapted to receive a money box 61.

In order to prevent the insertion of a coin into the vending machine when all of the articles in the machine have been vended we provide a lever 62 preferably in the form of a rod having a hook shaped portion at one end to be in the path of the arm 17. The lever 62 is doubled upon itself as at 63 in order to provide a weight which normally holds the hook shaped portion in its upward position. This lever 62 is fulcrumed on the fixed plate of the coin chute and at its outer end is provided with a hook shaped portion 64 which is adapted to enter an opening 65 so that it extends across the slot in the coin chute and prevents the insertion of a coin through the coin slots into the coin chute.

The operation of our novel vending machine will now be apparent to those skilled in this art and is as follows.

We have preferred to illustrate our invention as adapted to vend book matches but it is to be understood that it is not limited to such use but may be used to vend any desired articles. The book matches are nested in pairs in the article carriers, juxtaposed book matches being placed in reversed position. The weights 15 are then placed on top of the stacked book matches and the door is closed and locked and the vending machine is ready for operation.

Assuming now that an intending purchaser desires to obtain matches from the machine he inserts a coin of the proper denomination, for example, a one cent piece, through the coin receiving opening 5 and if the coin is of the proper denomination it passes through the coin chute and into a coin receiving slot 42 of the coin wheel 41. This coin is arrested therein and prevented from passing through the coin receiving slot by the juxtaposed wall of the housing. The purchaser now draws downwardly on the handle 7 thereby moving forwardly the plate segment 45 and since the coin in the coin wheel is in the path of movement of such segment, the conveyor shaft will be interlocked with the handle and the conveyor shaft will be partially rotated in a forward direction. The ejector blades or plates of each set of ejector members will contact with the lowermost book match in the column above it and cause two book matches to be simultaneously ejected through the common delivery opening 12 and will pass through the vending opening 2 of the cabinet.

As the conveyor shaft revolves the cam member 30 revolves in unison with it thereby moving outwardly the roller 36 which rides up the cam face 33 and passes along the cam face 32. The spring 39 connected with the lever which carries the roller causes the roller to enter the circular recess 31 so that if the conveyor shaft over-runs or

under-runs it will be positively positioned for the next vending operation so that a conveyor blade of each set will be in rear of the lowermost article above it and in proper position for ejecting such articles.

A coin of improper denomination will not pass through the coin receiving opening 5. If a person tries to operate the machine by means of a washer, the washer will be received on the spring mounted pin 58 and cannot enter the coin wheel to interlock the conveyor shaft with its actuating mechanism. The coin chute is provided with a movable side which is moved into its open position when the coin mechanism is operated so that any check or coin retained therein will be returned to the intending purchaser through the article delivery opening of the cabinet.

As the coin wheel revolves the coin therein will be discharged into the coin box. The operating handle 7 is returned to its normal position by means of the spring 44 and at the same time the plate segment is returned to its normal position, as is apparent, stops being provided to limit the forward and rearward movement of the plate segment.

For purpose of illustration we have shown the article carrier as providing two columns in which the articles are stacked but it will be apparent that any desired number of columns may be employed so that a plurality of articles are simultaneously vended from the machine. These articles may be of the same character or of different characters.

In accordance with our present invention we have devised a novel construction of a vending machine which can be economically manufactured and which will not easily get out of order. The operating parts are concealed within the cabinet so that an unauthorized person cannot tamper with it.

It will be apparent that as the packages are vended the weights move downwardly and as soon as the last article in the column is vended the arm 17 rocks the lever 62 and causes the hook shaped portion to enter the coin chute and thus prevent the insertion of a coin into the machine when all of the articles have been vended.

It will now be apparent that we have devised a new and useful match vending machine which embodies the features of advantage enumerated as desirable in the statement of the invention and the above description, and while we have, in the present instance, shown and described a preferred embodiment thereof which will give in practice satisfactory and reliable results, it is to be understood that this embodiment is susceptible of modification in various particulars without departing from the spirit or scope of the invention or sacrificing any of its advantages.

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

1. In a vending machine, a vending sheet metal housing having a delivery chute, an article carrier in the form of an open ended casing having at its bottom inturned article supporting flanges and having its front wall cut away at its lower end to form a delivery opening, a cabinet within which said housing and article carrier are disposed and having a delivery opening in registry with the delivery chute of the vending housing, said housing having at its upper end a rectangularly shaped portion to detachably receive said article carrier and provided with flanges and an angle bar on which the carrier rests, means to eject articles from the article carrier through its delivery opening, and means to guide an ejected article from the delivery opening of the article carrier to the delivery chute of the vending housing which leads to the delivery opening of the cabinet.

2. In a vending machine, a vending sheet metal housing having a delivery chute, article carriers seated upon the upper portion of said housing in the form of open ended casings having at their bottoms inturned article supporting flanges and having delivery openings, said housing having at its upper portion a housing to surround the lower ends of the article carriers and having flanges on which the article carriers rest whereby they are readily detachable from the housing, means to eject articles from said article carriers through their delivery openings, means on the vending housing to guide ejected articles to its delivery chute, and a cabinet enclosing said vending housing and article carriers and having in its front wall a delivery opening registering with the delivery chute of the housing and forming article supporting members which extend beyond the front wall of the cabinet.

3. In a vending machine, a vending sheet metal housing having a delivery chute, article carriers comprising open ended casings supported on said housing and having inturned article supporting flanges at their lower ends and having delivery openings, said housing having at its upper portion a housing to surround the lower ends of the article carriers and having flanges on which the article carriers rest whereby they are readily detachable from the housing, spaced guides to guide articles from the delivery openings of the article carriers to the delivery chute of the housing, means to eject articles from said casings, and a cabinet enclosing said housing and article carriers and having a delivery opening in registry with the delivery chute of said housing.

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