United States Patent [19]

Knickerbocker

[11] **3,747,733**

[45] **July 24, 1973**

[54] **NEWSPAPER DISPENSING MACHINE WITH MEANS TO COMPENSATE FOR DECREASING SUPPLY**

[76] Inventor: **Karl Knickerbocker,** 400 Baycrest Dr., Venice, Fla.

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[21] Appl. No.: **3,623**

[52] **U.S. Cl.** **194/10,** 221/103, 221/155, 221/230, 221/241, 221/244, 221/281

[51] **Int. Cl.** **G07f 11/40**

[58] **Field of Search** 194/10, 54, 71; 221/92, 100, 103, 110, 209, 227, 230, 241, 244, 281, 155, 4, 304

[56] **References Cited**

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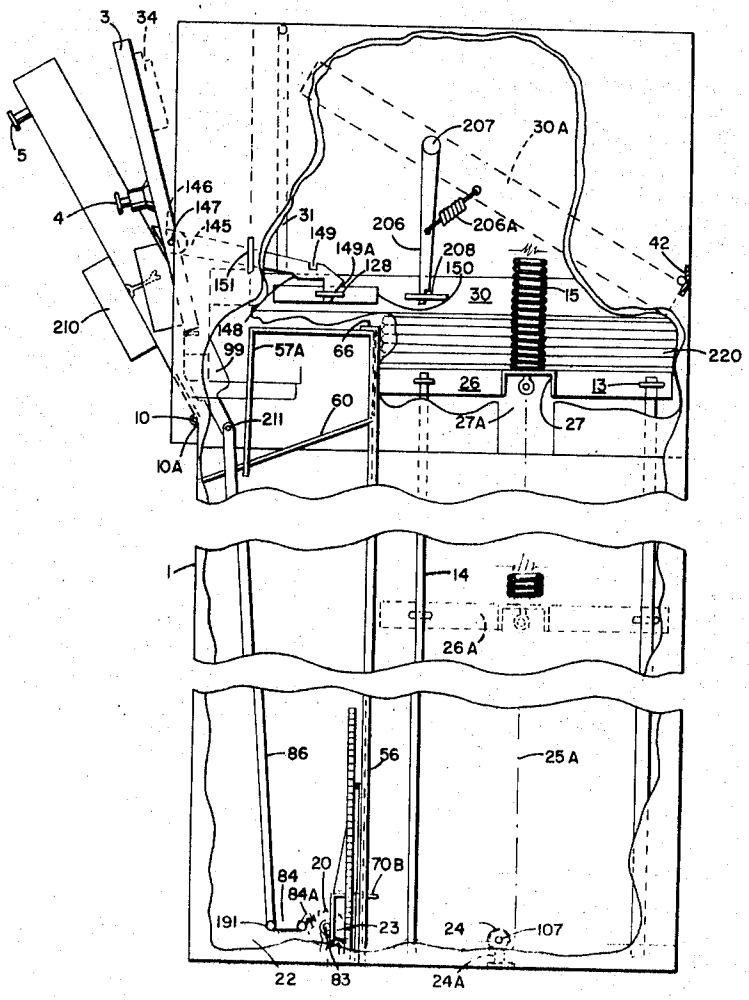
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Primary Examiner—Robert B. Reeves
Assistant Examiner—David A. Scherbel

[57] **ABSTRACT**

This invention relates to a newspaper or periodical dispensing mechanism, wherein the dispensing operation is under the control of a coin operated mechanism of any approved type which may be purchased on the open market and specifically comprehends mechanism for regulating the size of the dispensing opening in accordance with the thickness of the newspaper or other periodical to be dispensed, which mechanism is manually adjustable by the person supplying the dispenser with a charge of periodicals, and also includes mechanism for regulating or controlling pressure on the stack of periodicals being dispensed to prevent excessive pressure against the paper in dispensing position so as to allow its easy and not mutilated withdrawal from the mechanism, and includes a display panel wherein one of the periodicals is locked in a display panel in clear unimpeded view for a prospective purchaser, together with means locking said display periodical in display position until the last periodical in the mechanism has been dispensed, at which time the mechanism locking the display periodical in position is in such position as to be unlocked when the proper coinage is inserted in the coin controlling mechanism to release the display periodical for dispensing.

6 Claims, 13 Drawing Figures



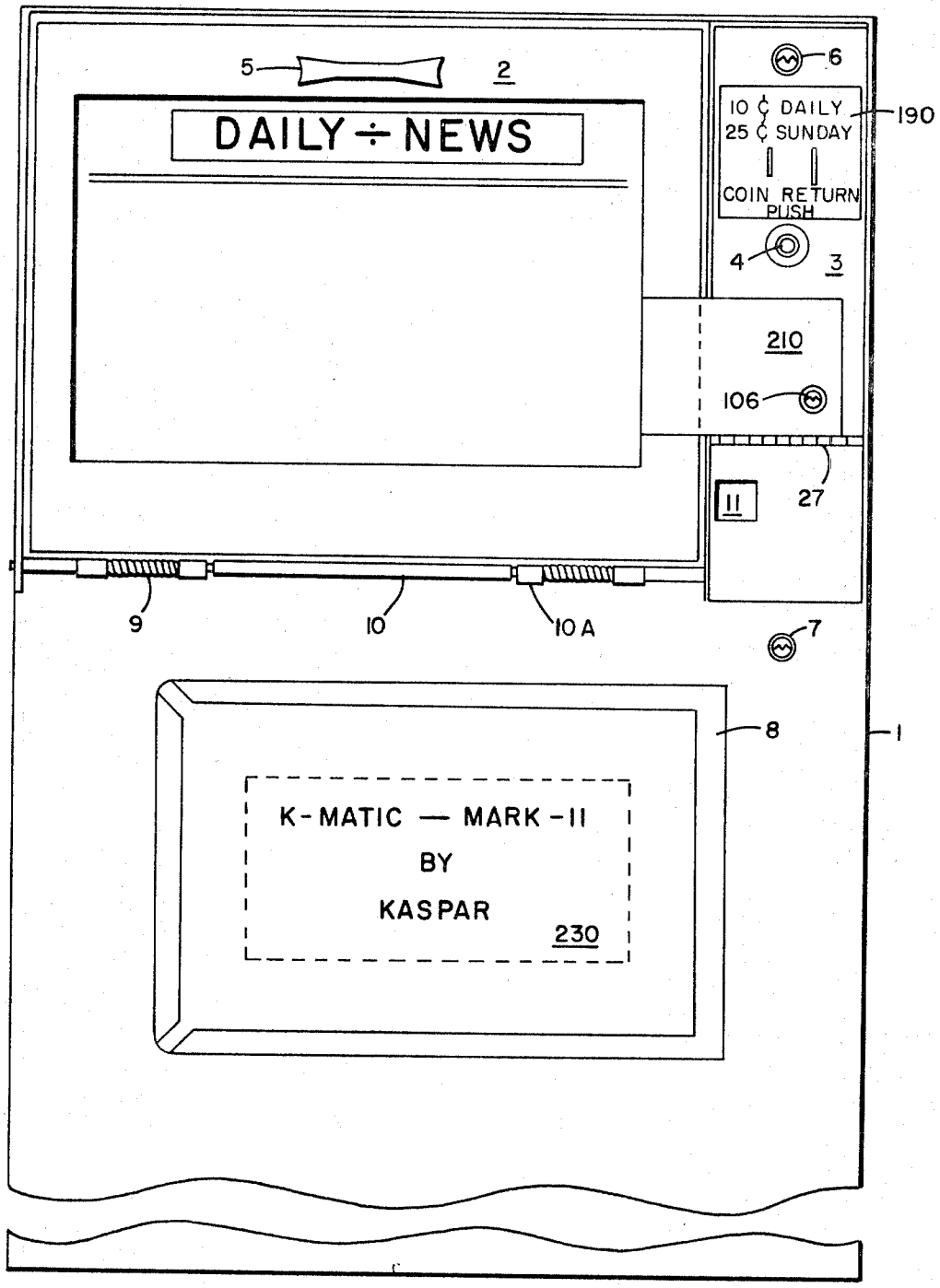


Fig. 1

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10 Sheets-Sheet 2

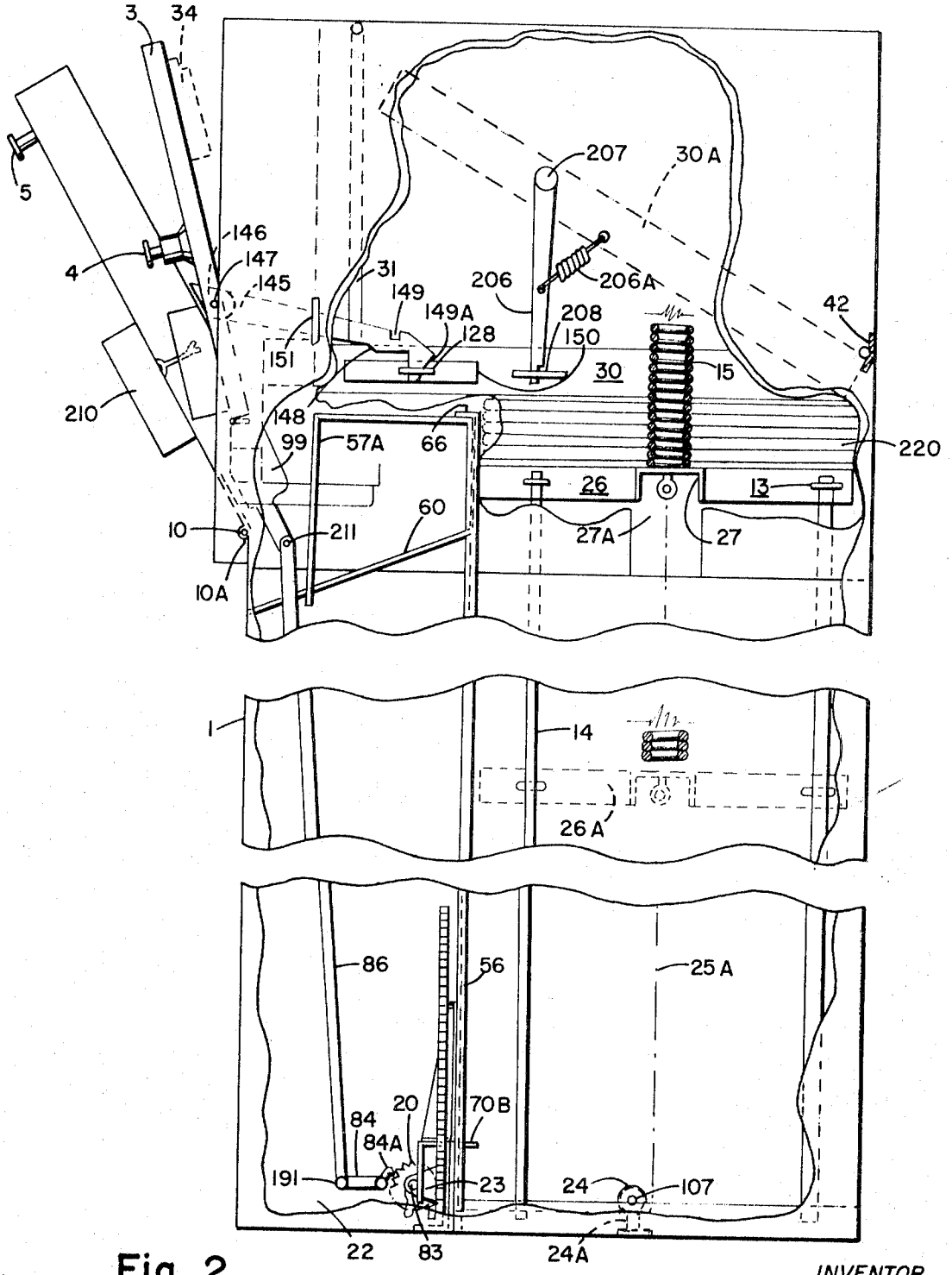


Fig. 2

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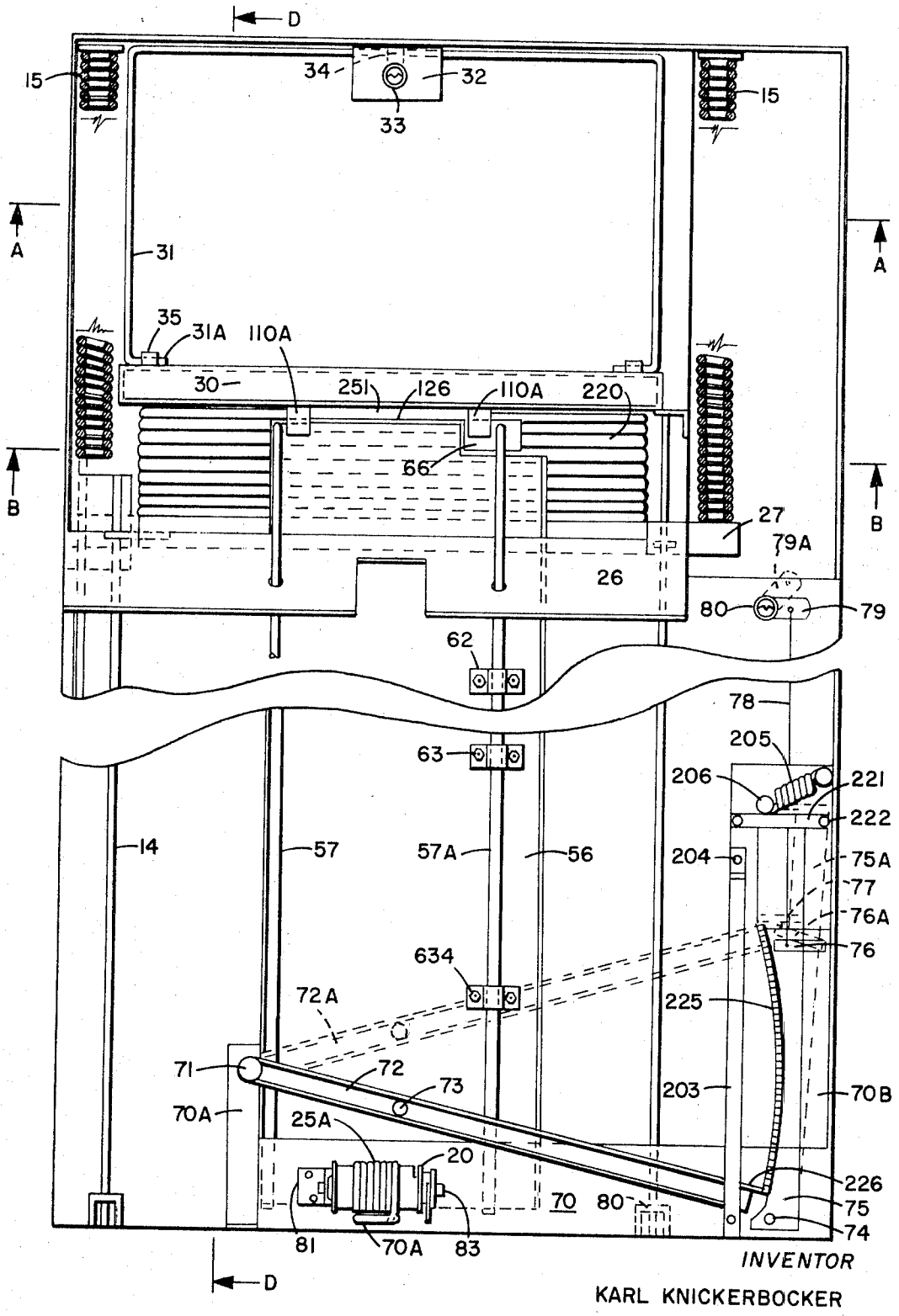


Fig. 3

10 Sheets-Sheet 4

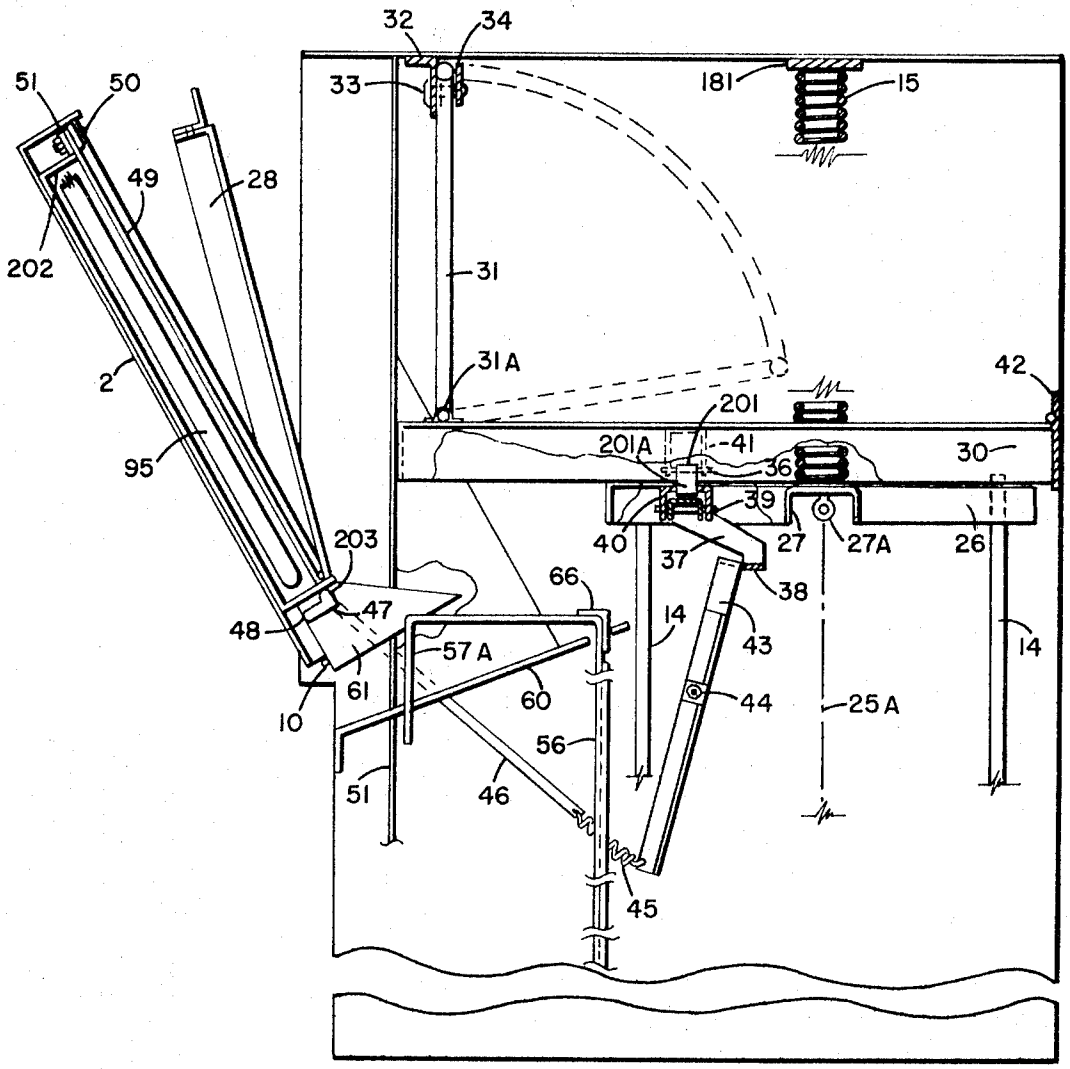


Fig. 4

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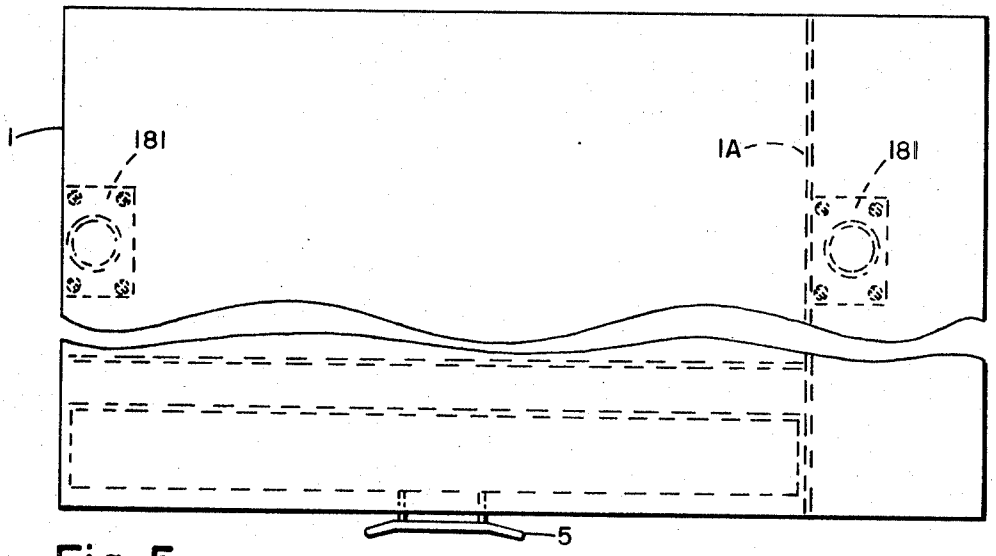


Fig. 5

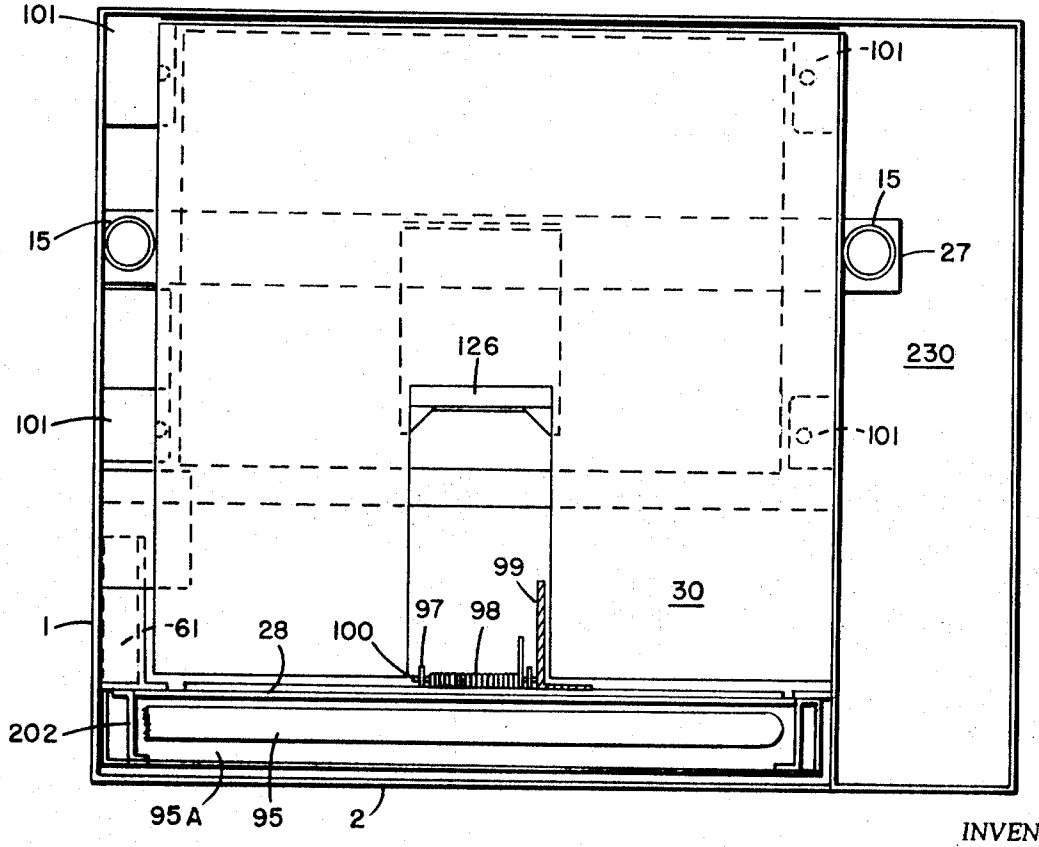


Fig. 6

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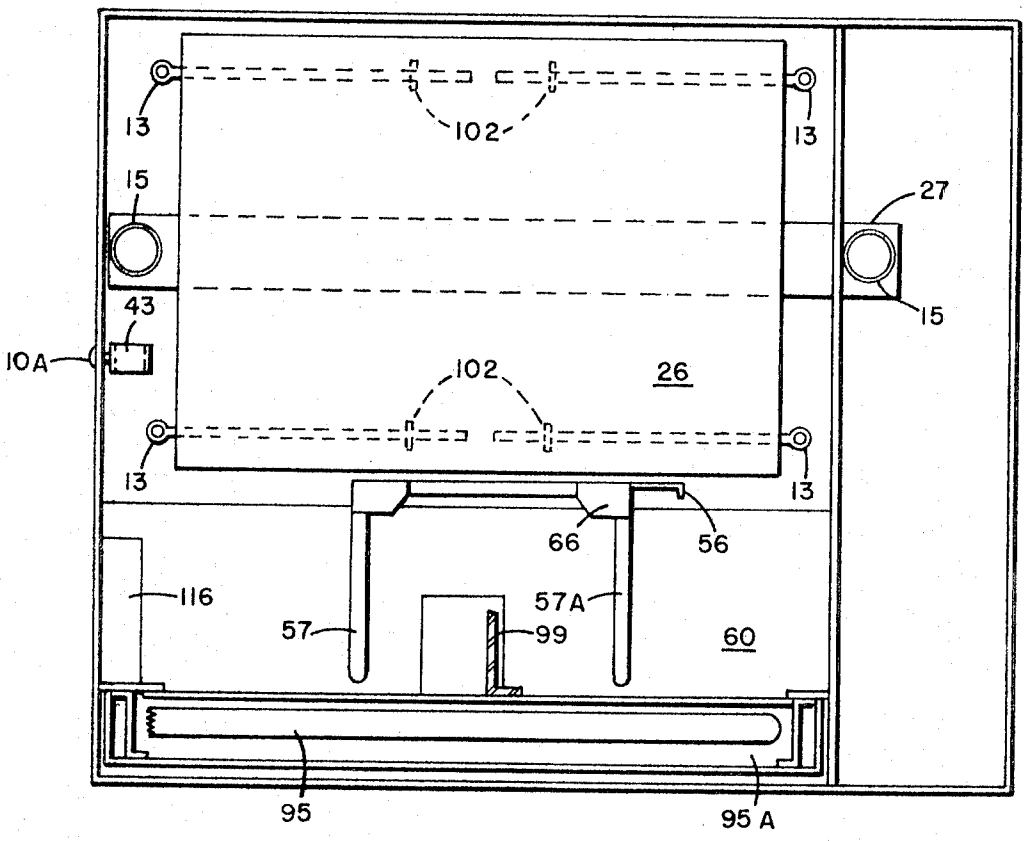


Fig. 7

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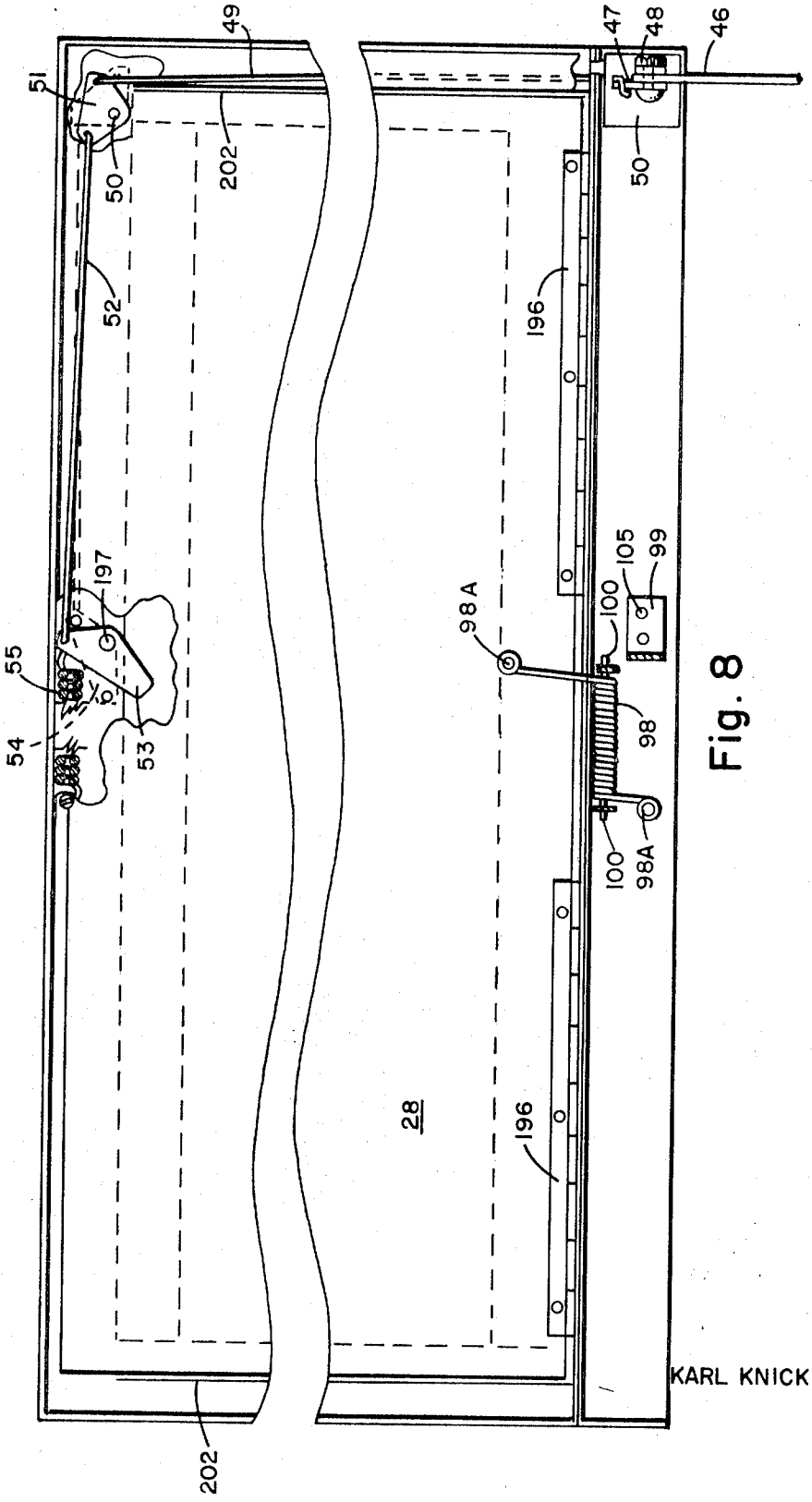


Fig. 8

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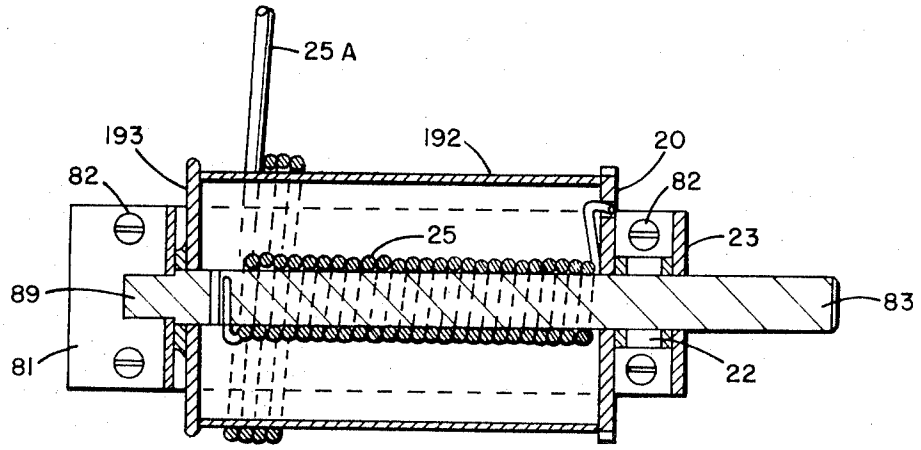


Fig. 9

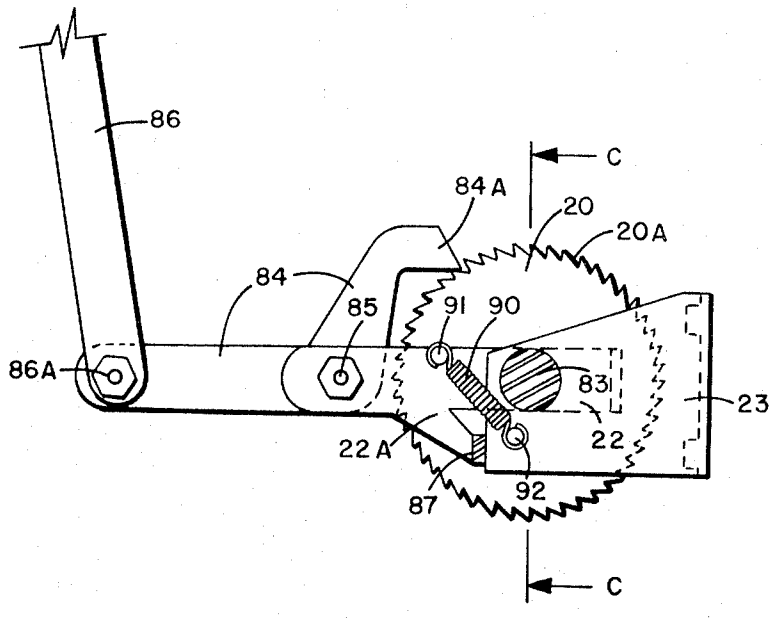


Fig. 10

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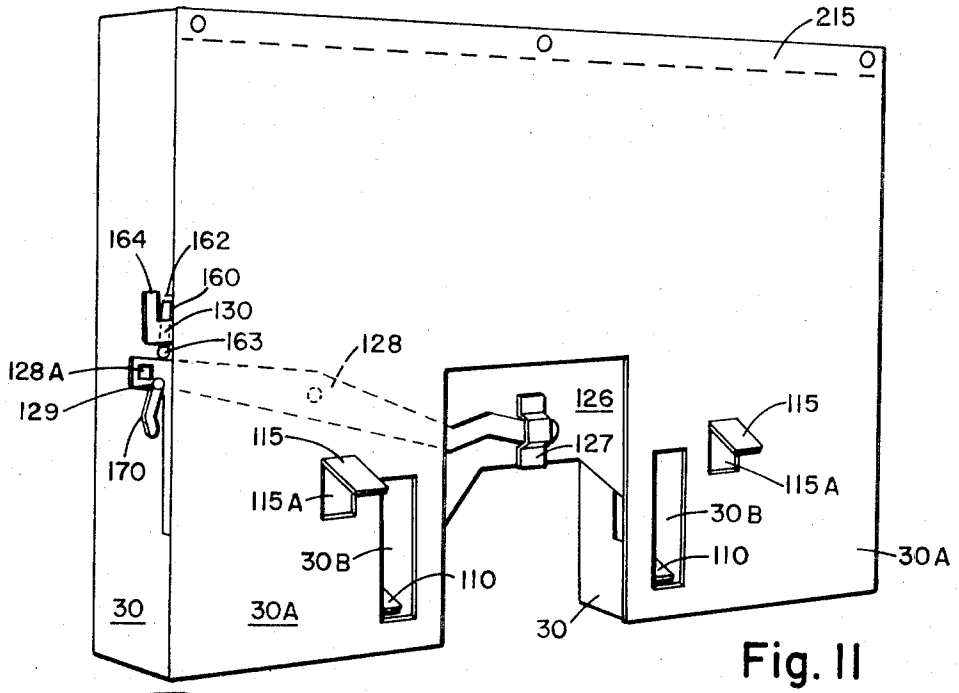


Fig. 11

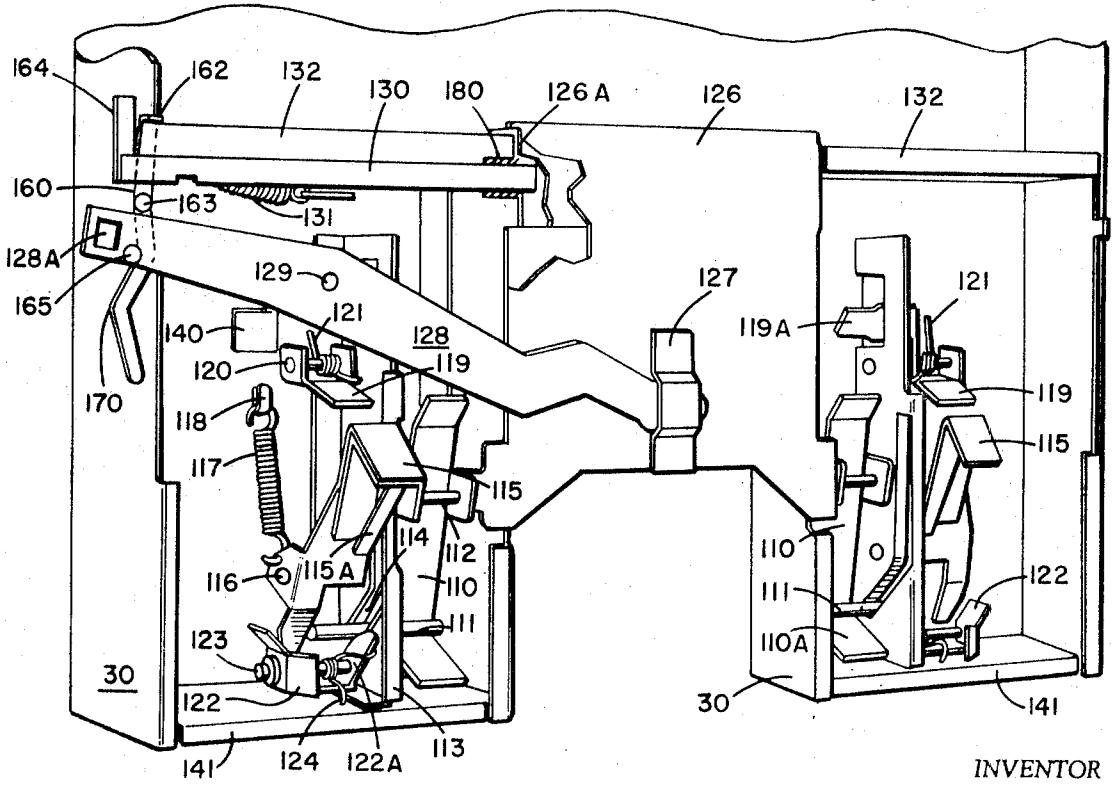


Fig. 12

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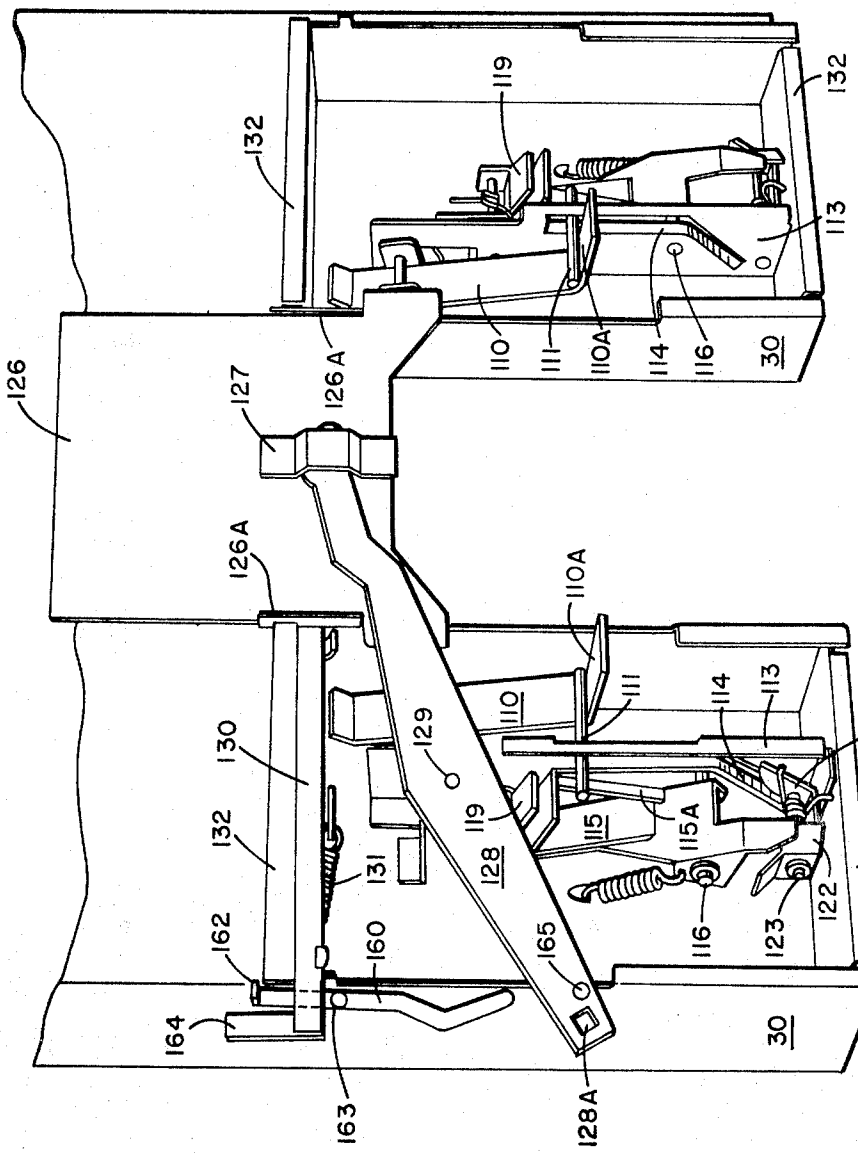


Fig. 13

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NEWSPAPER DISPENSING MACHINE WITH MEANS TO COMPENSATE FOR DECREASING SUPPLY

The present invention relates to a coin operated newspaper dispensing machine for dispensing newspapers, magazines, or the like, in such a manner that a single newspaper or periodical is released for dispensing or removal from the machine when a coin or the proper amount of coins are inserted in the machine's coin receiver openings.

The present invention comprises a weather proof cabinet of suitable proportions to provide storage of a quantity of newspapers or periodicals to be dispensed.

An important feature of the present invention is that one of the current newspapers or periodicals being offered for sale is displayed through a suitable window located within the structure of the newspaper dispensing and loading door. The front page of the displayed newspaper is seen by a potential customer through the window in the same manner one would see it on a news stand. A very important feature of the newspaper display case is that the displayed paper cannot be removed from the display case until after the last newspaper has been withdrawn from the storage compartment. When the last newspaper is dispensed or withdrawn from the storage compartment, the mechanisms that control the unlatching of the display case access door are triggered to unlatch the door the next time the newspaper withdrawal and loading access door is opened. Thus the customer will remove his purchased newspaper from the display case. When the display newspaper is removed from the display case, a Sold Out sign mounted on the rear wall of the display case will be visible to potential purchasers through the display window.

In the present machine the newspapers or periodicals to be dispensed are stacked in a horizontal position in the storage compartment of the dispensing cabinet and are moved by suitable means to continuously maintain a newspaper or other periodical in dispensing position relative to a suitable dispensing slot or opening in the machine. However, it is well known that the thickness of newspapers and periodicals to be dispensed vary in thickness from issue to issue and it is therefore an object of the present invention to provide manually operated means operable by the person placing a supply of newspapers or other periodicals in the storage compartment of the cabinet of the mechanism to regulate the size of the dispenser slot or opening in accordance with the thickness of the specific issue to be dispensed, thus not only permitting easy and unmutilated dispensing of each newspaper or periodical but also preventing the dispensing of more than one periodical upon each operation of the mechanism.

The present invention includes tensioned means acting upon the stack of newspapers or periodicals in the storage compartment to force the periodical in the stack into dispensing position and an important object of the present invention comprehends and includes means for controlling the tension pressure on the stack of periodicals to prevent excessive pressure on the periodical in dispensing position which would prevent its free and easy withdrawal from the mechanism while at the same time exerting sufficient pressure to always maintain the uppermost periodical in dispensing position.

A coin mechanism is mounted on the inner side of a swing-out door, located in the upper right corner of the

cabinet proper. This feature provides for quick, easy servicing of the coin mechanism. The door when closed forms the front wall of the coin mechanism and coin storage compartment. The coin control mechanism is shown in phantom in the drawings, however it will not be described herein, inasmuch as it is not a feature of this invention, a suitable type of coin mechanism can be purchased on the market. The coin control mechanism controls the opening of the paper withdrawal and loading access door. In general the dispensing machine of the present invention is composed of a newspaper or periodical storage cabinet, having an access door through which the storage compartment is charged with a supply of newspapers or periodicals to be dispensed. This access door, when closed, looks in the closed position to seal the newspapers in the cabinet's storage compartment. When the paper access door is swung open, the top newspaper or periodical in the storage compartment of the cabinet is released for dispensing or removal. When the top newspaper or the like is removed from the cabinet, all remaining mewspapers are locked in the storage compartment. Therefore it will require a new cycle, starting with the insertion of coins to release the paper dispenser door for the dispensing or withdrawal of additional newspapers.

A further object of the present invention is to provide a newspaper or periodical dispensing mechanism,including a suitable cabinet and dispensing mechanism which are designed and constructed to provide a dispensing mechanism which may be manufactured and consequently sold at a cost considerably less than comparative mechanisms now on the market and one which through its design and construction may contain a sufficient number of newspapers or periodicals to supply customer demand for the current issue with only one servicing.

Numerous other objects, features and advantages of the present invention will be apparent from consideration of the following specification taken in conjunction with the accompanying drawings in which:

FIG. 1 is a front view of the dispenser cabinet.

FIG. 2 is a view of the right side of the dispenser cabinet.

FIG. 3 is a front view of the dispenser cabinet with the entire front wall of the cabinet eliminated to expose the dispenser's inner working components.

FIG. 4 is a right side cross section of the dispenser cabinet taken on line DD of FIG. 3.

FIG. 5 is a top plan of the dispenser cabinet.

FIG. 6 is a plan view of the dispenser cabinet taken on line AA of FIG. 3.

FIG. 7 is a cross section plan view of the dispenser cabinet taken on line BB of FIG. 3.

FIG. 8 is an inside view of the dispenser cabinet paper loading and withdrawal access door 2.

FIGS. 9 and 10 are views of the mechanism for relieving and controlling the pressure on the newspapers or periodicals to be dispensed.

FIG. 11 is a perspective view of the paper withdrawl control panel housing.

FIG. 12 is a perspective view of the inner working components of the paper withdrawal control panel.

FIG. 13 is a view showing the manner of dispensing a newspaper or periodical.

Referring more particularly to the drawings:

FIG. 1 is a front view of the dispenser cabinet. The following listed dispenser components are shown: 1

cabinet, 2 cabinet loading and dispensing access door, 3 coin mechanism compartment access door, 4 coin return actuator, 5 paper access door pull, 6 coin mechanism compartment door lock, 7 paper thickness gauge lock, 27 coin mechanism compartment door hinge, 106 cabinet loading and dispensing access door release lock, 230 shown in phantom is a service access opening cut through front wall of the dispenser cabinet, 190 insuction plate, 9 paper access door closing springs, 10*a* cabinet access door hinge, 10 access door hinge shaft, 8 is the display card holder, 11 coin return receiver.

FIG. 2 is a view of the right side of the dispenser cabinet. Sections of the cabinet walls are shown cut away to reveal the following listed dispenser working components therein. 1 dispenser cabinet, 2 newspaper dispensing and loading door, 3 coin mechanism compartment door, 3*a* coin mechanism location shown in phantom, 4 coin return actuator, 13 elevator platform guides, 14 elevator platform vertical guide rods, 26 elevator platform assembly, 27 elevator platform stiffener channel, 27*a* elevator platform pressure relief cable 25*a* attaching ring, 26*a* elevator platform is shown in phantom partially raised, 25*a* elevator pressure relief cable, 24 elevator pressure relief cable pulley, 24*a* pulley mounting bracket, 107 elevator pressure relief pulley shaft, 20,22,23,83, 84,85,86,191 are components of the elevator pressure relief winch, 17,18, 70*b*, 56 are components of the newspaper thickness gauge, 60 is a partition that separates the newspaper dispensing area from the storage area, 99 is an extension rigidly secured to the paper dispensing and loading access door, providing means for actuating elevator pressure relief winch, 211 is a connecting pin for components 99 and 86, 220 shows stored newspapers, 30*a* is the newspaper dispensing or withdrawal control panel in raised position for loading newspapers into the dispenser's storage compartment, 206 is a plate swingably mounted to the right side of newspaper dispenser control panel by shoulder stud 207, the lower end of plate 206 is entered through a cam slot in angle bracket 208 that is rigidly secured to a partition of the cabinet(not shown). When the newspaper dispensing control panel 30 is swung upward as shown in 30*a* and plate 206 is swung rearward, a notch cut in the lower end of the plate 206 moves over the unslotted portion of bracket 208 to secure the control panel in loading position. 15 is an expansion spring, the top end of the spring is secured to the lower side of the dispenser cabinet top. The lower end of expansion spring 15 is secured to the upper side of the elevator stiffener channel 27. There is one spring 15 mounted as outlined in FIG. 3 on each side of the elevator platform. These springs bias the elevator and the newspapers loaded thereon to be forced upward and against the lower side of the dispenser control panel 30. 145 is a shaped plate swingably mounted to the right side of paper dispenser door 2 by shoulder stud 147 and bracket 146 that is rigidly secured to door 2. The inner end of plate 145 is guided by bracket 151 which is rigidly secured to an inner partition of the cabinet (not shown). The outer end of plate 145 is shaped to form hook 149*a* and it will be obvious that hook 149*a* has entered an opening in the outer end of walking beam 128. Ramp shaped portion 148 of plate 145 cams plate 145 upward as the paper dispenser and loading access door is swung outward on shaft 10 causing hooked portion of plate 145 to disengage from walking beam 128. Notch 149 of plate 145 provides means for holding the paper dispensing access door in an open position for serviceing when the outer end of plate 145 is manually swung upward and notch 149 engages bracket 151. A rectangular opening 150 is shown cut in the right side of dispenser control panel 30 providing space for the arcuate motion of walking beam 128. Ramp shape portion 149 of plate 145 cams the outer end of plate 145 upward when paper access door is swung from open to closed position, thus allowing hook portion of plate 145 to drop into opening 128*a*, (not shown) located in the outer end of walking beam 128. 42 control panel,30 hinge, 26*a* spring, 56 paper thickness gauge base.

FIG. 3 is a front view of the dispenser cabinet with the entire front wall of the cabinet eliminated, in order that the dispenser's inner working components can be revealed. 15 is the elevator lifting expansion springs. 31 is a U-shaped crank formed from round stock. The lower ends of 31*a* are formed inward to provide means for the swingable mounting of the crank to the dispenser control panel 30, by journal plates 35. Angle plate 32 is rigidly secured to the top inside wall of the dispenser cabinet to provide means for stopping crank 31 and mounting lock 33. 34 is the lock cam plate shown in phantom. The purpose of crank 31 and its associated components is to lock the paper dispenser or the withdrawal panel down in normal operating position, best shown in FIGS. 3 and 4, by swinging the U-shaped crank 31 upward counter clockwise to attain a vertical position. When the top horizontal section of crank 31 rests against angle stop 32, crank 31 is secured in this position by actuating lock 33 to cause the top of lock cam plate 34 to pass back of crank 31 and prevent any clockwise motion.

56 is the rectangular channel base of the vertically adjustable paper thickness gauge assembly. In addition to providing means for mounting the various components of the base, it also forms the front vertical wall of the dispenser storage compartment, best seen in FIG. 2. The paper thickness gauge assembly is made of the following listed components: 56 base, 57 is a U-shaped stiffener and base guide rod formed from round stock, rigidly secured to the left side of base 56. 57*a* is a duplicate of rod 57. Plates 62 are rigidly secured to rod 57*a*. Plates 62 are provided with rectangular openings on each outer end to allow for the required vertical adjustment of the rod, when mounted to base 56 on weld studs 63 and securing nuts 63*a*. Angle plate 66 is rigidly secured to the top of rod 57a to provide more area and a square corner. The reason for the adjustable feature of rod 57*a* is to overcome inaccuracies encountered in manufacturing and allow for obtaining an equally space opening 251 between the top end of the paper thickness gauge assembly 56 and the lower side of the paper withdrawal control panel 30. The purchaser of a paper manually withdraws the paper from the dispenser storage compartment through this opening. It is therefore important that the opening be adjusted to a width that will permit the withdrawal of only one newspaper at a time. The lower ends of the U-shaped rods 57–57*a* extend through guide holes provided in channel section 70 of the paper thickness gauge actuating assembly best seen in FIGS. 2 and 3. The lower outer vertical ends of the U-shaped rods 57 and 57*a* extend through guide holes provided in apron partition 60. The top horizontal sections of rods 57 and 57*a* form the paper withdrawal support rails. The paper thickness gauge as-

sembly is best shown in FIGS. 2 and 3. 110*a* and 126 shown in FIG. 3 are components of the paper withdrawal control panel and will be explained in detail later on in the application.

The paper thickness gauge actuating base assembly is made up of horizontal base channel 70, vertical angle section 70*a* and vertical angle section 70*b*. This base assembly is rigidly mounted to the bottom of the dispenser cabinet as shown in FIGS. 2 and 3. The paper thickness gauge actuating components are also shown. 72 is the paper thickness gauge assembly walking beam. The left end of walking beam 72 is swingably mounted to vertical angle section 70*a* by shoulder stud 71. Walking beam 72 is pivotally connected to base plate 56 of the paper thickness gauge assembly by shoulder stud 73, the right end of the walking beam 72 is movably held against vertical angle section 70*b* of the actuating base 70 by guide strap 203. The upper and lower ends of strap 203 is secured to angle section 70*b* by machine screws 204. Space bushings (not shown) located between angle section 70*b* and retainer strap 203, provide space for the arcuate travel of walking beam 72 that is shown with the right end in the locked-down position. The walking beam is shown in phantom with the right end in the up-unlocked position (see 72*a*). Index plate 75 is swingably mounted at the lower end to angle section 70*b* by shoulder stud 74, the top end of index plate 75 is guided to maintain a swingable position by retainer strap 221 that is secured to vertical angle section 70*b* by machine screws 222. Spacer bushings (not shown) located between angle section 70*b* and retainer strap 221 provide space for the swinging movement of the top end of index plate 75. Expansion spring 205 having one end secured to tab 206 that is formed outward on index plate 75 and the opposite end secured to vertical angle section 70*b* to swing clockwise away from the right end of walking beam 72.

It will be noted that the left side of index plate 75 is notched to form gear shaped teeth 225, these teeth provide means for locking the right end of walking beam 72 by means of entering the tang 226 of walking beam 72 between teeth 225 of index plate 75, and locking the plate in a desired position. The locking of plate 75 in fixed position is accomplished by crank 76, that is swingably mounted at the base to vertical angle section 70*b* mounting (not shown). Crank 76 is actuated by lock 80 to cause index plate 75 to assume a locked or unlocked position, 79 shows the plate locked in normal position, 79*a* shows the lock cam plate in unlocked position, 78 is an actuating link that connects the crank 76 to lock cam plate 79. It will be obvious that when lock 80 is unlocked cam plate 79 will swing upward as shown in 79*a*, therefore connecting link will swing crank 76 upward to a position shown in phantom 76*a*, portion of crank 76 that is 77 shown in phantom will move away from index plate 75 and allow the top end of index plate 75 to swing clockwise, therefore tang 226 of walking beam 72 will be disengaged from the teeth 225. To set or adjust the newspaper thickness gauge so that only one newspaper can be dispensed or withdrawn from the dispenser's storage compartment at a time, the following sequence is employed: 1) Dispenser operator unlocks lock 80 with key to free index plate 75, paper thickness gauge assembly will automatically drop downward. 2) Operator manually pulls the top newspaper from the dispenser storage compartment forward approximately three inches. 3) Operator manually raises paper thickness gauge assembly upward until the top end presses against the bottom side of the partially pulled out newspaper, turns lock 80 with key to locked position. Thus the paper thickness gauge assembly will be locked in position and the paper withdrawal opening will be just wide enough to allow for the withdrawal of only one newspaper at a time. The paper thickness gauge actuating assembly is best shown in FIGS. 2 and 3.

FIG. 4 is a right side cross section view of the dispenser cabinet taken through line DD of FIG. 3. The paper withdrawal and loading access door 2 is shown partially open. The paper display compartment 95*a* that is fabricated on the inner side of the access door is shown with the display paper 95 therein. Paper display compartment access door 28 is shown partially open. Components that control the unlatching of the display compartment door 28 after the last paper has been withdrawn from the dispenser storage compartment and their functions are hereinafter described. Normally the angle section 201*a* of the paper detector plate 201 that is swingably mounted to the inner side of the top wall of the paper withdrawal control panel 30 by mounting base 41 and shaft 36, comes to rest against the top side of the top paper located on the elevator platform 26. In this instance there is no paper to support detection plate 201, therefore, angle section 201*a* of the plate swings downward through an opening cut in the top wall of the elevator platform 26, contacts plate 37 and rocks the outer right end of that plate downward to a position where the lower right end angle section 38 of plate 37 passes back of crank 43 that is swingably mounted to the inside of the left vertical wall of the dispenser cabinet by shoulder stud 44. Paper detector plate 201 is biased by tortional spring (not shown) to swing downward. Plate 37 is biased by an expansion spring to swing upward. When there is a paper or papers present between the lower side of the paper withdrawal control panel and the top of the elevator platform, angle 38 of plate 37 maintains a swungup position to clear the top end of crank plate 43. The lower end of crank plate 43 is connected to paper access door by link 46, cushion spring 45, shoulder stud 203, and junction crank plate 47, that is swingably mounted to the lower side of the door by shoulder stud 48. The lower end of link 49 is connected to crank plate 47, the upper end of 49 is connected to linkage junction plate 51 that is swingably mounted to paper access door 2 by shoulder stud 50. The right end of link 52 is connected to junction plate 51, the left end is connected to latch plate 53 that is swingably mounted to paper access door 2 by shoulder stud 197. Display paper access door 28 latch and latch actuating components are shown in their normal latched position in FIG. 8. Unlatched position is also shown in phantom.

It is obvious that the display compartment access door latch 53 will be rocked clockwise by linkage 49, 51, 52. When crank plate 47 is swung clockwise by link 46, cushion spring 45 and link pin 203 to unlatch the door, when the top end of crank plate 43 is prevented from swinging clockwise by the presence of the swung-down angle section 38 of plate 37 blocking the passage.

FIG. 5 is a top plan view of the dispenser cabinet, 181 are the elevator lift spring mounting plates shown in phantom on the inside top wall of the dispenser cabinet. 1*a* coin mechanism compartment partition. 5 door pulls.

FIG. 6 is a plan view of the dispenser cabinet taken through line AA of FIG. 3. The newspaper dispenser or withdrawal control panel 30 is shown. Paper lock in door 126, a component of the control panel is shown partly in phantom. Display newspaper 95 is shown in the display compartment 95*a* that comprises the rear inner section of the dispenser cabinet paper access and loading door 2, best shown in FIG. 2. Newspaper display compartment door 28 is shown in the normal closed position. 98 is the display compartment door closing tortional spring, 97 is the spring mounting base, 100 is the spring mounting shaft, 27 is the elevator platform stiffener channel, 15 is the elevator lift springs, 101 shown in phantom are mounting brackets for elevator platform vertical guide rods 14, 1 is the dispenser cabinet outer wall. 230 is the coin mechanism compartment, 99 is a bracket extension secured to the paper access door 2.

FIG. 7 is a cross section plan view of the dispenser cabinet taken through line BB of FIG. 3. 56, 57, 57a, and 66 are components of the paper thickness gauge assembly, 26 is the elevator platform, 27 is the elevator platform stiffener channel, 13 are elevator platform guides, 102 are elevator platform guide mounting brackets shown in phantom. 60 is an apron or partition, "purpose" seal paper storage compartment from dispensing section, 116 is an opening in apron 60 to receive linkage shield 61 shown in FIG. 4. Display paper 95 is shown in display compartment 95*a*.

FIG. 8 is an inside view of the dispenser cabinet paper loading and withdrawal access door 2. 28 is the display compartment access door that is mounted on paper access door 2, by hinge 196 best shown in FIG. 4. 97, 98, 100, 98*a* are components of the display door 28 tortional door closing spring. 53 is the display door 28 latch plate shown in normal latched position, swingably mounted on shoulder stud 197, that is secured to access door 2. Latch plate 53 is also shown in 54 in unlatched position in phantom, 51 is a junction linkage connecting plate swingably mounted to paper access door 2 by shoulder bushing 50. 47 is a function linkage connecting plate swingably secured to outer wall of dispenser's paper access door 2 by shoulder bushing 48. 55 is an expansion spring having one end secured to latch plate 52 and the opposite end secured to the paper access door 2. The purpose of spring 55 is to bias latch plate 53 counterclockwise to maintain a latched position. Linkage 46, 49 and 52 shown in phantom are connected to plates 47, 41, 53 to provide means for the unlatching of the display paper compartment door 28. Z sections 202 are cover plates that seal in the display compartment door 28 latch and actuating linkage in a manner that same cannot be actuated by a customer or competitor when the paper access door is opened. Cover channel section 61 is secured to the bottom side of the dispenser paper access door 2 to prevent manual activating of the latch linkage 46.

FIGS. 9 and 10. The elevator pressure relief winch is shown in FIG. 3 mounted to horizontal channel 70 of the paper thickness actuating assembly. The winch is best shown in FIGS. 9 and 10. The purpose of the winch is to provide means for relieving the upward pressures exerted to the elevator and the newspapers stored thereon, against the bottom side of the paper withdrawal control panel by springs 15.

Considering the weights of the variable supply of newspapers stored on the elevator platform between serviceings, it is obvious that it would be impractical to depend entirely on the lift springs 15 to provide the exact required lifting pressures to the elevator to assure that the newspapers loaded thereon would not be forced against the bottom of the newspaper withdrawal control panel so hard that the topmost newspaper could not be withdrawn. The pressure relief winch prevents this situation in the following manner.

The elevator pressure relief winch is made up of a cylindrical drum 192, end plate 193 is rigidly mounted to the left end of the drum 192, ratchet gear plate 20 is removably mounted to the right end of the drum 192. Suitable holes in the centers of plates 193 and 20 provide means for the rotatable mounting of the assembled drum 192 on shaft 83. Drum shaft 83 is supported by base 23 and base removable base end section 81. It will be noted that the left end of drum shaft 83, number 89, is made flat on two sides to prevent rotation of the shaft in the mounting assembly. Shaft support left end section 81 is provided with an elongated slot to receive the flat left end 89 of drum shaft 83. Tortional spring 25 is mounted on drum shaft 83, the left end of the spring is rigidly secured to the shaft 83 by threading the end of the spring wire through a hole in the shaft as shown in FIG. 9. The right end of spring 25 is anchored to ratchet gear plate 20 by threading the end of the spring wire through a hole in the plate. 82 are mounting screws used to secure winch assembly to paper thickness actuating assembly channel 70. Winch actuating crank plate 22 is rotatably mounted on winch drum shaft 83 between the right end of the drum and left side of drum mounting base, angle 23. Suitable holes are provided in the U-shaped end of crank 22 to facilitate mounting. A portion of 22a and 87 winch actuating crank 22 provide means for stopping the counter-clock rotation of the crank, that is biased by expansion spring 90 having the upper end secured to the crank by tab 91, and the lower end of the spring secured to drum mounting base angle 23 by tab 92, it will be noted that 87 is an angle shaped section formed outward from 22*a* to contact the lower left corner of stationary winch drum mounting base angle 23 which is the normal operating position of the crank. Ratchet plate 84 is swingably mounted to the outer end of winch drum crank 22 by shoulder stud 85. The upper right portion of the ratchet plate 84a is shaped to enter the ratchet teeth 20*a* of plate 20. When the outer left end of ratchet plate 84 is rocked clockwise on shoulder stud 85, portion 84*a* of the ratchet plate will enter ratchet teeth 20*a* of ratchet gear 20. It is understandable that when the clockwise rotation of ratchet plate 84 and 84*a* is stopped by contact with ratchet gear plate 20, added clockwise rotation of ratchet plates 84 will cause the winch drum to rotAte clockwise. Cable 25*a* rotate one end secured to winch drum 192, the cable is then wound counter clockwise around the outer side of the drum, the free end of the cable is then threaded through elongated slot 70*a* of channel 70 best seen in FIG. 3. From this point the cable 25*a* is threaded under cable pulley 24 that is mounted to the floor of the dispenser cabinet 1 by mounting base 24*a* and pulley shaft 107. From that point cable 25*a* runs upward and is rigidly secured to attaching ring 27*a* of the elevator platform.

The elevator pressure relief winch operates in the following manner: Drum cable 25*a*,before being secured to 27*a*, is wound around winch drum 192 counter clockwise with a predetermined number of turns to

wind tortional spring **25**. The loose end of the cable **25***a* is then pulled away from the drum, thus causing tortional spring **25** to be wound. Loose end of the cable **25***a* is then threaded through the prepared openings and pulleys, the loose end is secured to ring **27***a* that is rigidly secured to channel section **27** of the elevator platform. The elevator platform is in the upmost position when cable **25***a* is attached to ring **27***a*. Therefore it is obvious that cable **25***a* will be held taut as the elevator platform is moved downward by the rewinding of cable **25***a* on the winch drum **192** powered by tortional spring **25**. The outer end of ratchet plate **84** is connected to outer end of bracket **99** that is mounted to the lower side of the dispenser cabinet newspaper loading and dispensing access door **2** by connecting link **86**, best seen in FIG. **2**. When the access door is swung outward the outer end of bracket **99** rotates counter clockwise. Connecting link **86** shoulder stud **86***a* and **211** that connects **86** and ratchet plate **84** causes ratchet plate **84** to swing clockwise on shoulder stud **85** until portion **8***a* of the plate engages the winch drum ratchet gear **20** and rotates the winch drum clockwise, rewinds winch cable **25***a* on the drum thus pulling elevator platform downward and relieve the upward pressure of the elevator. When paper access door **2** is closed, ratchet plate **84** is disengaged from ratchet gear **20**, winch drum is free to rotate and provide a required amount of cable **25***a* to allow the elevator to reassume normal operating position. The elevator pressure relief winch is best illustrated in the cross section of drawing of FIG. **9**, taken on line CC of FIG. **10**.

FIG. **11** is a view of the paper withdrawal control panel housing **30** taken in perspective to show the bottom side and right end of the assembly. **30** is the panel housing, **126** is the paper lock-in door, **127** is a saddle that provides means for movably connecting door **126** to actuating walking beam **128**. **110** are cam plates swingably mounted on each lower bottom corner of the door **126** (mounting not shown). Cam plates **110** are shown in retracted or cammed-in position. **115** are paper lock-in cam plates swingably mounted to an inner bracket of the control panel housing **30**, (mounting now shown) they are shown in cammed-out, paper lock-in position. **115***a* and **110***a* are openings out through paper control panel enclosure plate **30***b*. **130** is a lock-down bar for door **126**. **160** is an actuating crank mounted to housing **30** by shoulder stud **171***a*. **171** is the camming stud of **126** that actuates crank **160**. **128***a* is an opening cut through walking beam **128**. **215** is a spacer support channel shown in phantom secured to the inner top side of housing **30** to support and secure cover plate **30***a*. The function of the above listed paper withdrawal control panel components will be described in detail later on in the specification.

FIG. **12** illustrates in perspective the inner working components of the paper withdrawal control panel **30**. Enclosure plate **30***a* has been eliminated in order that the components therein can be seen in their normal respective mounted working positions when the paper lock-in door **126** is in the locked-down position as shown. This view was arranged to show the control panel from the bottom right side. Considering the horizontal mounting of the panel in the dispenser cabinet. With the exception of the walking beam **128** and its associated components **180, 130, 160, 162, 164, 163, 171, 165, 170, 129, 127**, and **126**. The inner working components of the paper withdrawal control panel shown on the left side of door **126** are the same as those shown on the right side of the door with the exception that they are formed right and left. However, their purposes and functions are the same. Considering this fact, only components located on the left side of paper lock-in door **126**, as shown in FIG. **13**, will be considered and explained.

FIG. **13**: When a paper is manually withdrawn from the dispenser storage compartment through opening **251** (best shown in FIG. **3**) that is formed between the lower side of the front end of paper withdrawal control panel **30** and the top end of the vertically mounted paper thickness gauge assembly **56** (best shown in FIG. **2**). Paper lock-in door **126** is pulled down by the paper's contact with angle sections **110**a of cam plates **110** that are swingably mounted on shafts **112**, the inner ends of shafts **112** are secured to the lower corners of door **126**. Angle portions **110***a* of cam plate **110** normally extend outward from the control panel **30** in front of the topmost papers in the dispenser storage compartment. As door **126** is pulled downward by the withdrawal of the paper, cam plate **110** is cammed inward and out of the path of the paper by shaft **111** secured to the cam plate **110** and extending outward from the cam plate through cam slot **114** of camming channel section **113**, that is mounted to the inner side of the top wall of panel **30**. Paper lock-in cam plate **115** is swingably mounted to camming channel **113** by shoulder stud **116**. Expansion spring **117**, having the upper end secured to a shear from **118** in the housing wall **30**, the lower end of the spring is secured to lock in cam plate **115** above stud **116** to provide means for swinging the plate clockwise. However, shaft **111** and lock plate **122** prevents the cam plate **115** from swinging. When paper lock-in door **126** is pulled down by the withdrawal of the paper, shaft **111** moves away from ramp **115***a* of cam plate **115**, and actuates lock plate **122**. Cam plate **115** swings clockwise, the top end of the cam plate comes to rest on the paper that is being withdrawn. When the paper is completely withdrawn, the top end of cam plate **115** swings clockwise, passes across paper withdrawal opening **251**. Lock plate **119** swingably mounted to camming channel **113** by shoulder stud **120** is biased to swing clockwise by tortional spring **121** that is mounted on stud **120**, the outer end of the plate **119** will pass behind the upper end of paper lock-in cam plate **115** to prevent the cam plate from being manually forced counter clockwise from its normal paper lock-in position, thus preventing the unauthorized removal of additional papers. The lower end of paper lock-in cam plate **115** is prevented from prematurally swinging from unlocked to paper lock-in position by lock plate **122** that is swingably mounted on shoulder stud **123** secured to side of camming channel **113**, lock plate **122** is biased to swing counter clockwise by tortional spring **124** also mounted on stud **123**. When the paper lock-in door **126** is pulled down, the outer end of shaft **111** of cam plate **110** contacts leg **122***a* of cam plate **122**, rocks the plate clockwise and releases the lower end of cam plate **115** from locked-in position(as shown in FIG. **13**)to locked-out position (as shown in FIG. **12**). When paper lock-in door **126** is pulled upward by walking beam **128**, the outer end of shaft **111** of cam plate **116** will come in contact with ramp **115***a* of cam plate **115**, rock the plate counter clockwise, the top end of the cam plate **115** will swing counter clockwise from its paper lock-in positIon

across the paper removal opening **251.** When the proper coin or combination of coins are inserted in the coin mechanism shown in phantom at **3***a* of FIG. **2,** the dispenser cabinet paper withdraw and loading access door **2** will be unlatched, allowing the top of the door to be swung counter clockwise to paper access or open position. When the door **2** is swung out counter clockwise plate **145** that is swingably mounted to the right side of access door **2** by bracket **146** and shoulder stud **147,** and the outer end hook portion end of the plate **149***a* hooked through opening **128***a* that is located in the left end of walking beam **128.** It is obvious that walking beam **128** will be rocked counter clockwise on its pivot mounting **129** by the right end of walking beam **128** that is connected to paper lock-in door **126** by saddle strap **127** to force the door upward in the door guides **126**a. To come to rest in unlocked position and allow for the authorized removal of a paper from the dispenser cabinet. Hook portion **149***a* of plate **145** will be cammed out of opening **171** of walking beam **128,** when the ramp cam **148** of plate **145** comes in contact with guide plate **151** by the continued forward motion of plate **145.** Considering the fact that the paper lock-in door **126** was locked in the normal locked-down position by lock bar **130** at the start of the above described cycle, it would therefore be necessary to unlock the door before same could be moved upward. The unlocking of the door is accomplished in the following manner: Crank plate **160,** swingably mounted to the right end of paper withdrawal control panel housing **30** by bracket (not shown) and shoulder stud **163** is rocked counter clockwise when stud **165** of walking beam **128** contacts and swings past the ramp camming section **170** of crank plate **160.** At that time angle section **162** of crank **160** comes in contact with vertical extension **164** of lock bar **130,** moves lock bar **130** to the left, the right end of bar **130** will move out of the upward path of door **126. 141** are support channels mounted to the inner wall of housing **30** whose purpose is to support the lower end of housing **30** cover plate **30***a*.

SUMMARY

The following summation covers one cycle of the dispenser operation from the loading of a current issue of a newspaper into the dispenser storage compartment by the service attendant through the normal functions of the dispensers assemblies and components when a paper is purchased.

1. Service attendant unlocks dispenser paper access loading and withdrawal door **2** by inserting the proper amount of coins in the dispenser coin slots or by actuating door release lock **106,** shown in FIG. **1.**
2. Swing access door **2** outward, manually swings plate **145** upward until notch **149** of plate **145** straddles plate **151** to hold access door in open position.
3. Unlocks paper withdrawal control panel **30,** hold down crank **31** by actuating lock **33,** swings crank **31** rearward, crank will come to rest horizontally against the top wall of the control panel **30.**
4. The front end of control panel **30** is then swung upward, plate **206** swingably mounted to the right side of the panel. The lower end of plate **206** will be biased by spring **206***a* to swing rearward, notch in lower end of plate will pass over guide plate **208** and hold the panel in up or servicing position.
5. Release paper thickness gauge from locked position by activating lock **7,** the assembly will drop downward.
6. Remove unsold papers, if any, from the storage compartment and reload the compartment with the current issue. Papers loaded in the dispenser storage compartment are supported by elevator platform **26.** The elevator platform and the papers loaded thereon, if forced downward as the papers are loaded will maintain the desired down-position and facilitate the unobstructed loading of additional papers.
7. After loading, paper withdrawal control panel **30** is freed to swing downward by manually swinging hold-up plate **206** forward to disengage guide plate **208.** When the control panel **30** comes to rest horizontally on support brackets **101** U-shaped panel lock-down crank **31** is swung upward on its pivots, the top horizontal section of the crank will come to rest against angle stop plate **32.** When lock **33** is actuated lock cam plate **34** will swing back of the hold-down crank to lock it in the normal operating position.
8. Manually pull top paper from storage compartment forward approximately three inches. Grasp the paper thickness gauge assembly at top horizontal section of rod **57***a*, pull the assembly upward until the top of the assembly comes in contact with the bottom of the pulled out paper, actuate lock **80** to lock the assembly in this position.
9. Place current issue of paper in display compartment and close compartment door. Close paper withdrawal and loading door **2.** The dispenser is now ready for normal operation.

It will be apparent that in the practice of the invention numerous changes, modifications, variations of the design of the total machine, as well as the individual operating parts is contemplated, therefore numerous changes, modifications and the full use of equivalents may be resorted to without the departure from the spirit or scope of this invention as outlined in the appended claims.

What is claimed is:

1. In a newspaper or periodical dispensing machine, a cabinet having a periodical dispensing opening in the cabinet, an access and dispensing door carried by the cabinet, said cabinet having a storage compartment for periodicals to be dispensed formed therein, means within said storage compartment for supporting a plurality of periodicals in flat horizontal position, tensioned means for moving the stack of periodicals to place the uppermost periodical in the stack in position for dispensing through said dispensing opening, and means associated with the tensioned motivating means for the periodical stack moving means to regulate the pressure on the periodicals to permit free and easy dispensing of the uppermost periodical through the dispensing opening, wherein said pressure release means comprises means actuated upon operation of said dispensing door for relieving the stack of periodicals in the compartment of moving force of said tensioned means, and means for restoring the motivating pressure of said stack of periodicals upon closing of the access door.

2. A periodical dispensing machine as claimed in claim **1,** including adjustable means for regulating the

size of the dispensing opening in accordance with the thickness of the periodical to be dispensed.

3. In a newspaper or periodical dispensing machine, a cabinet including a storage compartment for newspapers or periodicals to be dispensed, said cabinet having a dispensing opening, means for moving the periodicals into dispensing position relative to said dispensing opening, adjustable means for regulating the size of said dispensing opening in accordance with the thickness of each periodical being dispensed, including means for displaying one of the periodicals to be dispensed, means for locking said displayed periodical in said display means and means for releasing said locking means upon the dispensing of all other periodicals in the storage compartment to permit dispensing of the displayed periodical, said cabinet having a coin receiving slot therein and embodying an access door to permit placing of a quantity of periodicals in the cabinet and dispensing of the periodicals, latch means under control of a coin operated mechanism for locking the access door closed and permitting opening of the door upon depositing of proper coinage in the coin slot, triggering mechanism operable upon movement of the access door while dispensing the last periodical in the storage compartment to unlock the locking mechanism of the display means and permit dispensing of the displayed periodical upon the next operation of the access door.

4. A newspaper or periodical dispensing meachine, including a cabinet having an access door and a coin receiving slot and a storage compartment for periodicals to be dispensed in the cabinet, an elevator platform in said storage compartment upon which periodicals to be dispensed are placed, a partition in said cabinet sealing said storage compartment from said access door and having a periodical dispensing opening therein located so that the uppermost periodical on said supporting platform will be placed in dispensing position relative to the opening, tensioned means for moving said elevator platform and periodicals thereon upward to locate the uppermost periodical in dispensing position relative to said opening, counter tensioned means connected to said cabinet, means for regulating the action of said counter tensioned means in accordance with the weight of periodicals on said elevator platform and means operable during the dispensing of a periodical to relieve the periodical being dispensed of pressure of said elevator moving tensioned means during dispensing of a periodical, wherein said tension release means comprises means actuated upon operation of said dispensing door for relieving periodicals on the elevator platform of the moving force of said tensioned means, and means for restoring the motivating pressure on the periodicals on the elevator platform upon closing of the access door.

5. A newspaper or periodical dispensing machine, as claimed in claim 4, including means for displaying one of the periodicals to be dispensed, means for locking said displayed periodical in said display means, latch means under control of a coin operated mechanism for locking the access door closed and permitting opening of the door upon depositing of proper coinage in the coin slot, triggering mechanism operable upon movement of the access door while dispensing the last periodical in the storage compartment to unlock the locking mechanism of the display means and permit dispensing of the displayed periodical upon the next operation of the access door.

6. A newspaper or periodical dispensing machine, as claimed in claim 5, including a movable element for regulating the size of said dispensing opening, swingable means for moving said element to regulate the size of said dispensing opening, and means for locking said swingable element in adjusted position.

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