Oct. 14, 1958 R. S. CANTRELL 2,856,182

NEWSPAPER STUFFING MACHINE

Filed Jan. 28, 1954 4 Sheets-Sheet 1

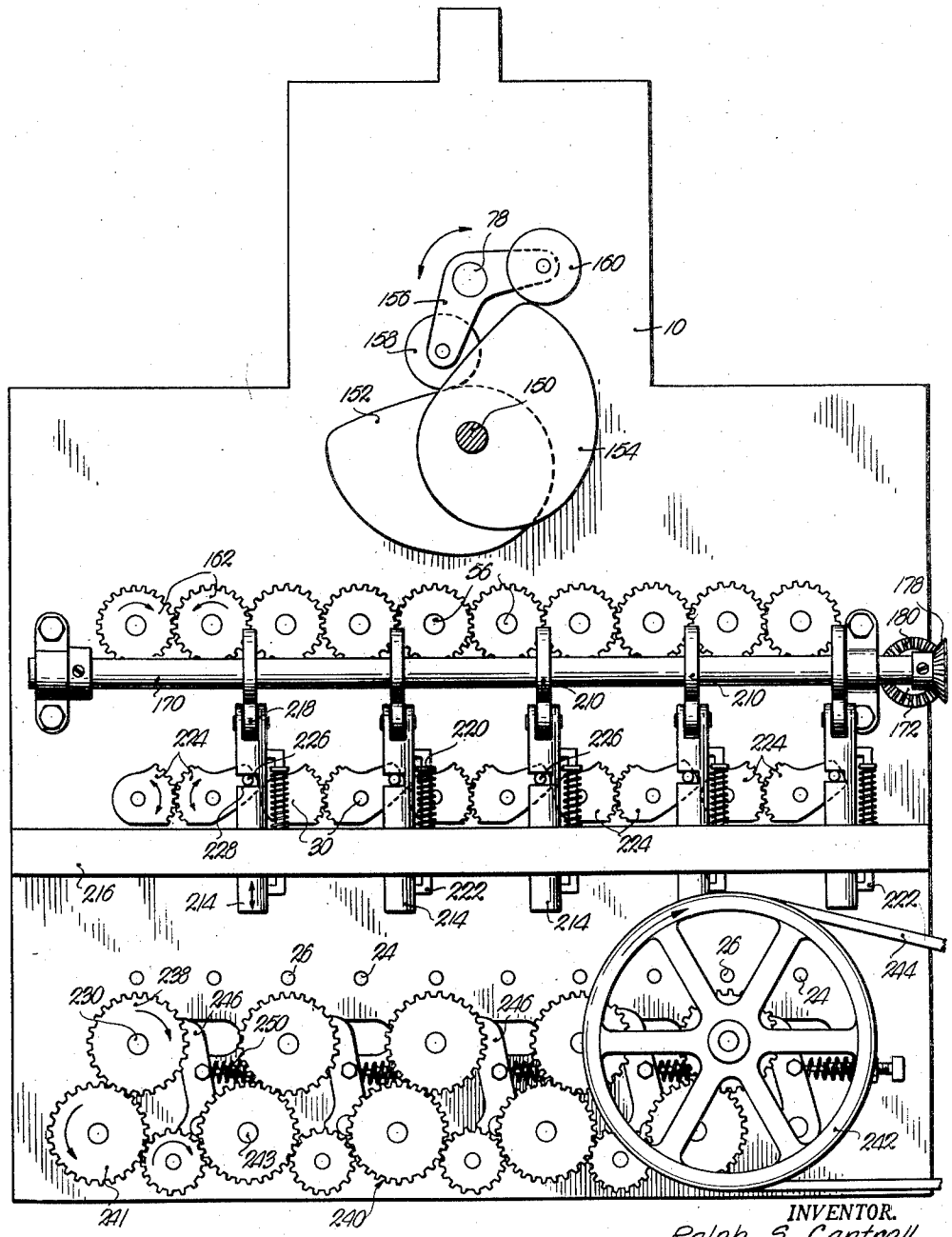


Fig. 1.

INVENTOR.
Ralph S. Cantrell

BY

ATTORNEY.

Oct. 14, 1958 R. S. CANTRELL 2,856,182

NEWSPAPER STUFFING MACHINE

Filed Jan. 28, 1954 4 Sheets-Sheet 2

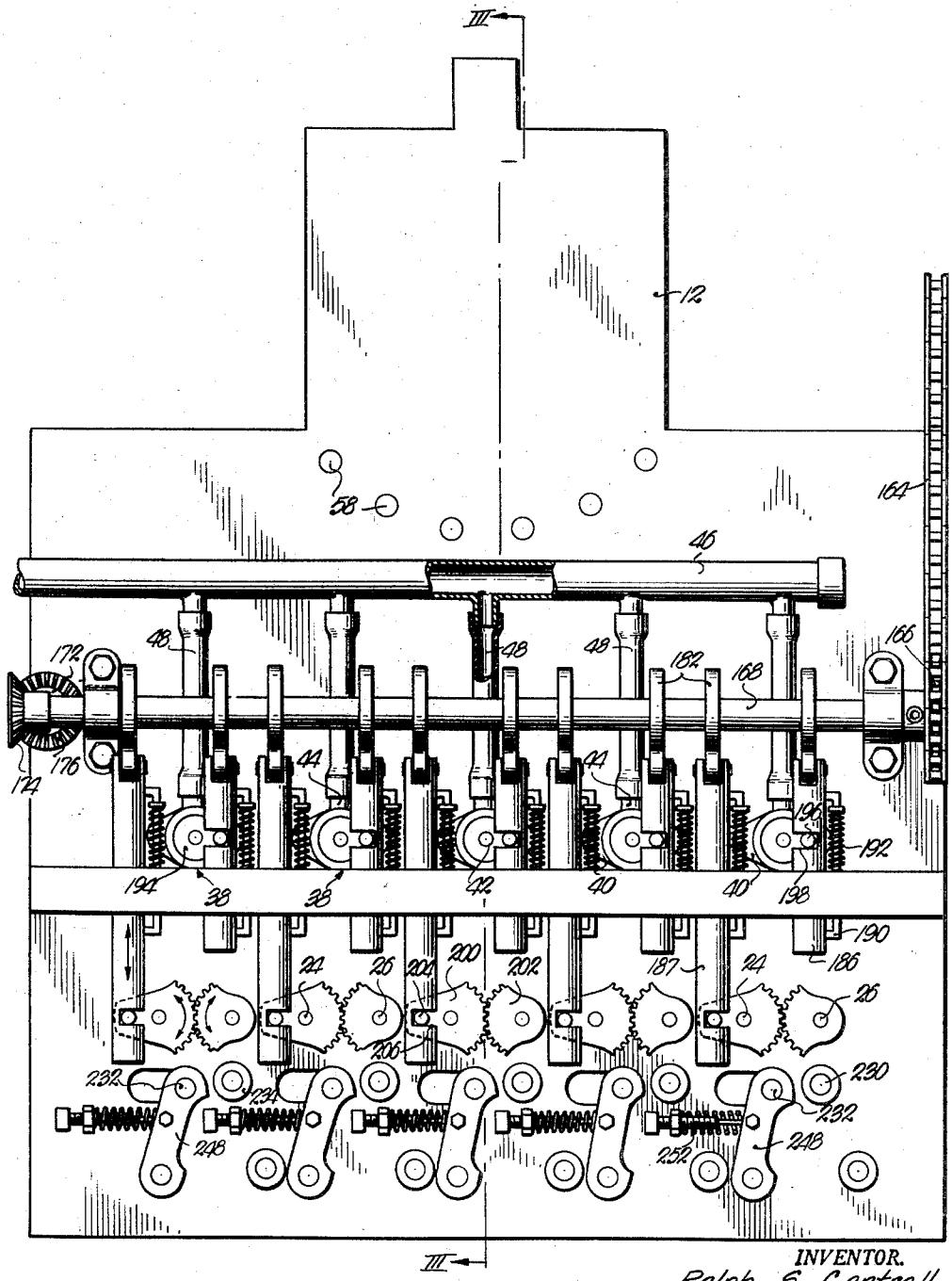


Fig. 2.

INVENTOR.
Ralph S. Cantrell
BY
ATTORNEY

Oct. 14, 1958 R. S. CANTRELL 2,856,182

NEWSPAPER STUFFING MACHINE

Filed Jan. 28, 1954 4 Sheets-Sheet 3

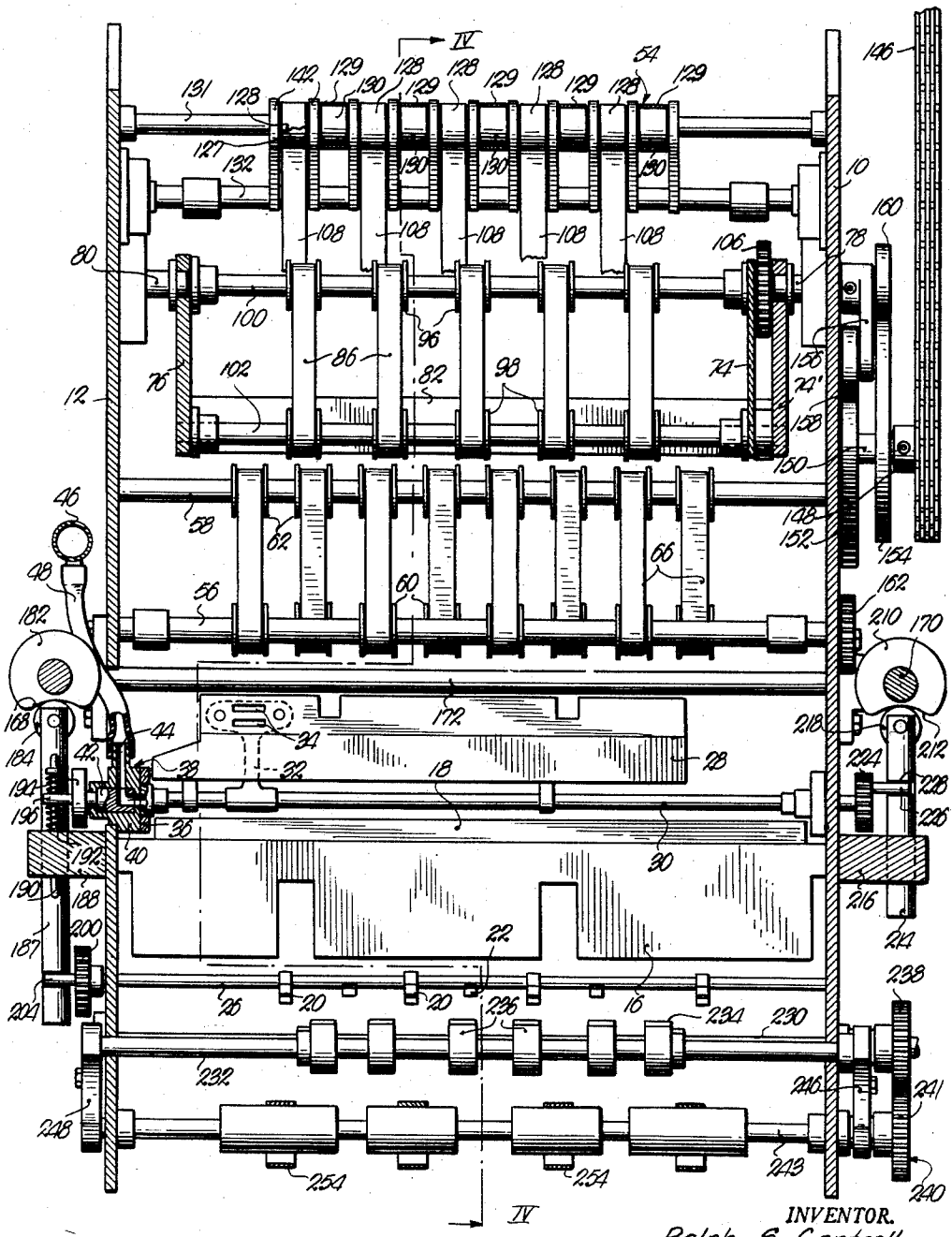


Fig. 3.

INVENTOR.
Ralph S. Cantrell
BY
ATTORNEY.

Oct. 14, 1958 R. S. CANTRELL 2,856,182

NEWSPAPER STUFFING MACHINE

Filed Jan. 28, 1954 4 Sheets-Sheet 4

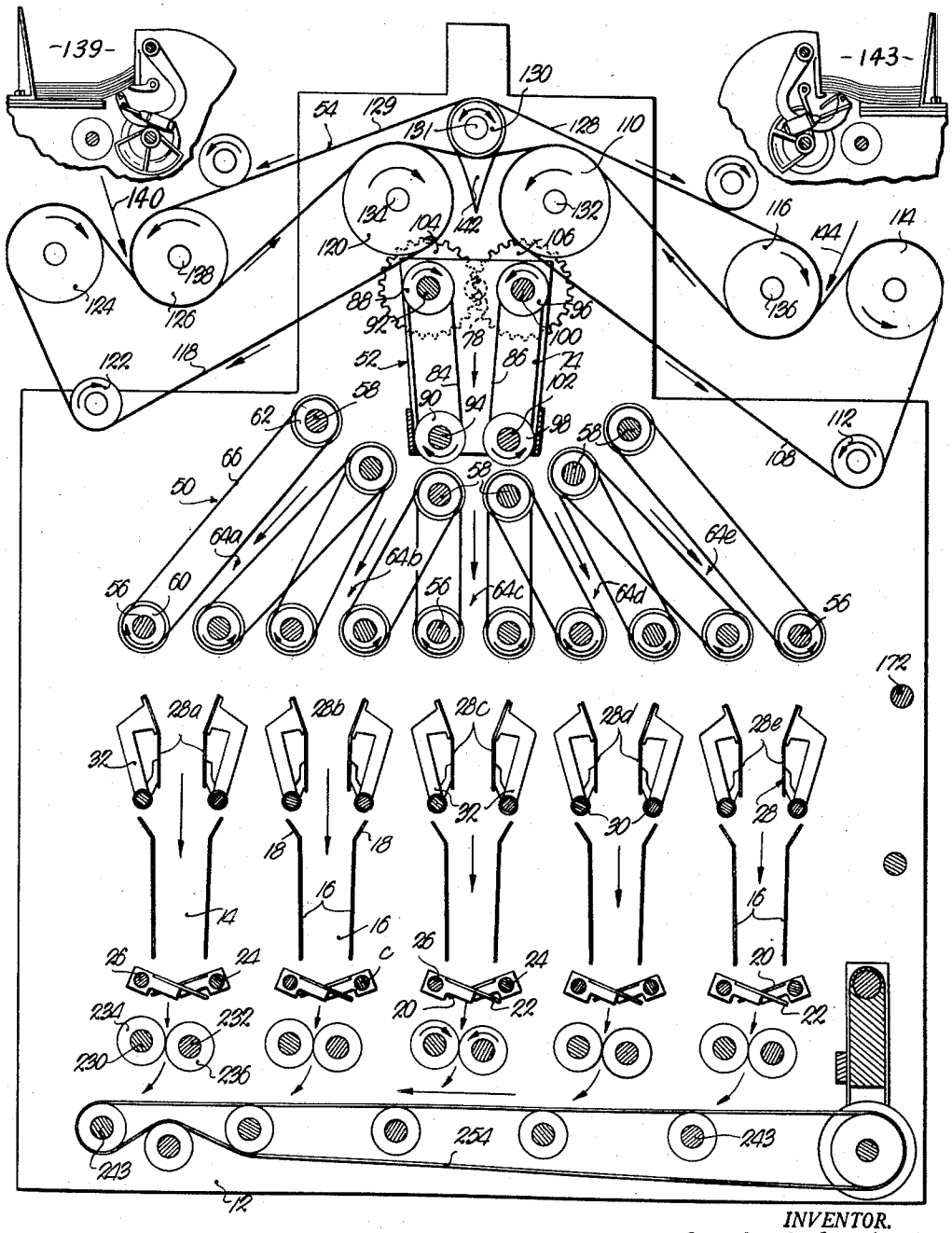


Fig. 4.

INVENTOR.
Ralph S. Cantrell
BY
ATTORNEY.

United States Patent Office 2,856,182 Patented Oct. 14, 1958

2,856,182

NEWSPAPER STUFFING MACHINE

Ralph S. Cantrell, Kansas City, Mo.

Application January 28, 1954, Serial No. 406,628

21 Claims. (Cl. 270—57)

This invention relates to a machine for handling folded sections such as those forming a part of a newspaper, the primary object being to provide improved mechanism for feeding the sections into nested relationship so that all of the sections are contained within an outermost section in the finished newspaper.

The newspaper industry has always been confronted with the baffling problem of "stuffing" newspaper sections one within the other, and while machines have heretofore been suggested for automatically accomplishing the stuffing operation, and although to a very limited extent machines of such character are being used today, for the most part the operation is being performed by hand throughout the country because of the impracticability of the prior machines from the standpoint of expense, slowness and troublesome operation.

It is the most important object of the present invention, therefore, to provide a stuffing machine for newspapers and the like that is not only relatively inexpensive to manufacture, operate and maintain, but which will effectively and satisfactorily handle a large number of newspaper sections and stuff the same in nested relationship without operational break-down and at a speed which will render the use thereof advantageous to the newspaper industry.

The machine forming the subject matter of the present invention is in many respects similar to that which forms the subject matter of U. S. Letters Patent No. 1,951,300, dated March 13, 1934, and it is a very important object of the present invention to improve thereon by substantial alteration of the principles of the machine disclosed in said patent and thereby render the ideas and concepts therein set forth, operable and practical from a commercial standpoint.

The machine about to be described contemplates the use of a plurality of open-top pocket members differentiating from those disclosed in said patent in that the same are stationary and arranged in aligned series. The machine of the present invention includes also improved means for delivery of the sections successively to the pocket members and having a swingable conveyor that is brought into successive alignment with the open tops of the pocket members. By proper synchronization of the various parts of the machine, retaining gates at the bottoms of the pockets are opened automatically for gravitation of the nested sections to an underlying horizontal conveyor which carries the completed newspaper laterally from the machine. Interposed between the swingable conveyor and the pocket members, and forming a part of the aforesaid means for delivering the sections to the open tops of the pocket members, are a plurality of secondary conveyors for receiving the sections from the swingable conveyor and depositing the same into the pocket members.

In view of the foregoing it is, therefore, seen that the present invention has for an important object an arrangement of parts and means of operation which will cause the depositing of a first section into each of the pocket

members, and automatic opening of the first sections so that additional sections fed into the pocket members by the swingable and secondary conveyor means become nested within the first section, all in timed relationship to opening of the gate means for gravitation of the nested sections to the conveyor means which underlies the pocket members.

Other important objects of the present invention are to provide improved valve means for admitting vacuum to nozzles mounted on swingable wings at the uppermost ends of the pocket members, which nozzles operate to open the first section as aforementioned; improved cam means for opening and closing the valves in timed sequence; novel mechanism associated with the said cam means for opening and closing the gates of the pocket members; the provision of an additional arrangement for swinging the said wings toward and away from each other in timed relationship with operation of the valves and gates; and the provision of unique structure for swinging the primary conveyor in successive alignment with the secondary conveyors and in such manner as to properly feed the sections to the pocket members after delivery thereof to the swingable conveyor from an assembly that receives the folded sections from a number of stacks thereof.

The above objects and many additional more minor objects including important details of construction will be made clear or become apparent as the following specification progresses, reference being had to the accompanying drawings, wherein:

Figure 1 is a side elevational view of a newspaper stuffing machine made pursuant to my present invention.

Fig. 2 is an elevational view showing the opposite side of said machine.

Fig. 3 is a vertical, cross-sectional view taken on line III—III of Fig. 2, looking in the direction of the arrows; and

Fig. 4 is a schematic, cross-sectional view taken at right-angles to Fig. 3 and substantially on line IV—IV of Fig. 3, looking in the direction of the arrows.

The various parts of the stuffing machine shown in the drawings may be supported by any suitable framework and, therefore, there has been shown a pair of spaced, vertical walls **10** and **12** that may be rigidly interconnected in any desired manner (not shown). All of the mechanism of the machine is either carried by the walls **10** and **12** therebetween or adjacent the outer surfaces thereof.

A series of side-by-side, aligned pocket members **14** (Fig. 4) are rigidly mounted on the walls **10** and **12** therebetween. The pocket members **14** are open at the uppermost and lowermost ends thereof and defined by a pair of parallel, transversely vertical, spaced-apart plates **16** spanning the distance between the walls **10** and **12**. Plates **16** are provided with outwardly flared flanges **18** at the uppermost ends thereof, presenting an inlet mouth for receiving folded sections as will hereafter be made clear.

Gate means is provided for each pocket member **14** respectively, at the open bottom thereof including a plurality of fingers **20** and **22** rigidly secured to horizontal pins **24** and **26** respectively, spanning the distance between the walls **10** and **12** and rotatably carried thereby. Fingers **20** extend toward the fingers **22** in overlapping relationship thereto when the gate means are closed, as shown in Fig. 4, thereby holding any folded sections in the pocket members **14** against gravitation therefrom because of the fact that the lengths of the fingers **20** and **22** are greater than the widths of the pocket members **14**. When the folded sections are within the pocket members **14** they rest directly upon the fingers **20** and **22** at the lines of fold of the sections.

Means for opening the first folded section delivered to the pocket members 14 is provided for each pocket member 14 respectively and located directly above the mouths thereof defined by the outwardly flared flanges 18. Each of such opening means includes a pair of elongated wings 28 rigidly mounted on horizontal tubes 30 rotatably carried by the walls 10 and 12, the wings 28 being therefore, swingable toward and away from each other upon rotation of the tubes 30.

Each wing 28 is provided with at least one vacuum nozzle 32 swingable therewith and opening at the innermost faces of the wings 28 by the provision of ports 34. Each nozzle 32 communicates with its tube 30 and the tubes 30 are rotatable at one end thereof within bearing plates 36. The opposite ends of the tubes 30 are closed.

A control valve 38 is provided for each pocket member 14 respectively, and therefore, for each pair of tubes 30 respectively. Each valve 38 consists of a hollow casing 40 rigidly carried by the wall 12 and a valve member 42, rotatably carried by the casing 40. There is a plate 36 for each valve 38 respectively, placing a pair of tubes 30 into communication with the casing 40. When the valve members 42 are in the position shown in Fig. 3 of the drawings, branches 44 of casings 40 are in register with the corresponding pair of tubes 30.

A manifold 46 common to the valves 38 may be carried by the wall 12 in any suitable manner along the outer face thereof, and is coupled with a source of vacuum (not shown) and with the branches 44 of the valves 38 by conduits 48.

The folded sections of newspapers or the like are deposited into the pocket members 14 by a secondary conveyor system broadly designated by the numeral 50, are fed to the conveyor system 50 by movable feeder means 52 in the nature of a swingable primary conveyor, and are delivered to the feeder means 52 by a system of belts broadly designated by the numeral 54.

The conveyor system 50 includes a lowermost row of horizontal shafts 56 and an uppermost arcuate row of horizontal shafts 58. The shafts 56 are rotatably carried by the walls 10 and 12 therebetween and each are provided with a number of spaced pulley wheels 60 rigidly secured thereto. The shafts 58 are likewise provided with a number of pulley wheels 62 either rotatable thereon or rigid to the shafts 58, and in the latter event, shafts 58 will be rotatably carried by the walls 10 and 12.

A plurality of flexible, continuous belts 66 interconnect the pulley wheels 60 with corresponding pulley wheels 62, presenting a number of secondary conveyors designated by the numerals 64*a*, 64*b*, 64*c*, 64*d* and 64*e*. As seen in Fig. 3 of the drawings, each of the five secondary conveyors is composed of a pair of rows of the spaced belts 66.

The primary swingable conveyor or feeder means 52 consists of a pair of end plates 74—74′ and 76 rigid to stub shafts 78 and 80 that are in turn rotatably mounted on walls 10 and 12 respectively, and interconnected by one or more bars 82. Two spaced rows of spaced, continuous flexible belts 84 and 86 form a part of the primary conveyor 52. Belts 84 interconnect pulley wheels 88 and 90 on shafts 92 and 94 respectively. Belts 86 interconnect pulley wheels 96 and 98 on shafts 100 and 102 respectively. The four parallel shafts 92, 94, 100 and 102 are carried by the plates 74 and 76, shafts 92 and 100 being rotatable and having their pulley wheels 88 and 96 respectively rigidly joined thereto. The pulley wheels 90 and 98 may rotate freely on their shafts 94 and 102 respectively. Intermeshing gears 104 and 106 rigid to shafts 92 and 100 respectively, may be continuously driven in a manner (not shown) such as to permit free oscillatory movement of the secondary conveyor 52 on the aligned, horizontal axes of stub shafts 78 and 80.

The belt system 54 is arranged to receive the folded newspaper sections and to this end, there is provided a series of continuous belts 108 each trained over pulley wheels 110, 112, 114 and 116, rotatable on horizontal axes.

A similar series of belts 118 are each carried by pulley wheels 120, 122, 124 and 126 by pulley wheels.

A third series of belts 129 pass over pulley wheels 130 on shaft 131, 120 on shaft 134, and 126 on shaft 138.

A fourth series of belts 128 pass over pulley wheels 127 on shaft 131, over pulleys 110 on shaft 132 similar to pulleys 120, and over pulleys 116 on shaft 136. Belts 108 and 128 overlap between pulleys 110 and 116 and are offset relative to belts 118 and 129 which overlap between pulleys 120 and 126.

It is thus seen that folded sections fed to the belt system 54 in the direction of arrow 140 (Fig. 4) are received between belts 118 and 129, pass under pulleys 126, thence upwardly and over the pulleys 120, and thence downwardly on one side of dividers 142 to the primary conveyor 52 between belts 84 and 86 thereof. Folded sections fed to the belt system 54 in the direction of arrow 144 pass between the belts 108 and 128, beneath the pulleys 116, thence upwardly and over the pulleys 110 and thereupon, downwardly on the opposite side of the dividers 142 into the primary conveyor 52 between belts 84 and 86.

Any desired means (not shown) may be utilized for operating the belt system 54 continuously so as to rotate all of the pulley wheels thereof in the direction of the arrows shown in Fig. 4.

Assemblies 139 and 143 for delivering the folded newspaper sections to the belt system 54, form no part of the present invention and have, therefore, been illustrated schematically in Fig. 4. By way of explanation, reference may be had to the aforementioned patent No. 1,951,300 incorporated herein by reference for an understanding of one manner of arranging a supply of folded sections above the belt system 54 and feeding the sections in predetermined order thereto. In the said patent there is illustrated a series of stacks of newspaper sections, together with means for feeding the sections consecutively from the stack to a pair of feed rollers for each stack respectively and located immediately below the stacks.

While the present invention contemplates in its broad aspects the feeding of a number of folded sections to the pocket members 14 before releasing the gates which consist of fingers 20 and 22, the machine as chosen for illustration is adapted to receive folded sections alternately from a pair of stacks. By proper timing and synchronization, the means 139—143 for removing the papers from the stacks may deliver the folded sections first from one stack in the direction of arrow 140 and thereupon alternately from the other stack in the direction of arrow 144.

In Fig. 3 of the drawings, there is shown a continuous chain 146 operably coupled with a source of power (not shown) and with a sprocket wheel 148 rigidly secured to a stub shaft 150 (see also Fig. 1) upon which is also rigidly mounted a pair of cam elements 152 and 154.

A crank 156 rigid to the stub shaft 78 is provided with horizontally off-set rollers 158 and 160 in peripheral engagement with cam elements 152 and 154 respectively. Continuous operation of the drive chain 146 therefore, to rotate the stub shaft 150, imparts rotative movement to the cam elements 152 and 154 which in turn act upon the rollers 158 and 160 respectively to swing the crank 156, oscillate the stub shaft 78 and swing the entire primary conveyor 52 on the horizontal axes of stub shafts 78 and 80 as shown by the arcuate arrow in Fig. 1 adjacent the crank 156.

The belts 66 of the secondary conveyor system 50 are driven continuously in a direction to feed the folded sections from the primary conveyor 52 downwardly and into the pocket members 14 by driving the shafts 56, each of which is provided with a gear 162 on one end thereof adjacent the outer face of wall 10. The gears 162 are in

intermeshing relationship as shown in Fig. 1 and, therefore, by driving one of the gears **162** by any suitable means (not shown), all of the shafts **56** are rotated simultaneously and all of the belts **66** of the secondary conveyor system **50** are advanced in the proper direction.

As shown in Fig. 2 of the drawings there is provided a drive chain **164** operably coupled with a source of power (not shown) and with a sprocket wheel **166** on a horizontal cam shaft **168** rotatably carried by the wall **12** on the outermost face thereof. A second horizontal cam shaft **170** (Fig. 1) rotatably carried by the wall **10** on the outermost face thereof (shafts **168** and **170** being shown in section in Fig. 3) is operably connected with the shaft **168** by a cross shaft **172** seen in Figs. 1 to 3 inclusive. Bevel gears **174** and **176** on shafts **168** and **172** respectively, are in meshing relationship as shown in Fig. 2 and intermeshing bevel gears **178** and **180** on shafts **170** and **172** operably connect these two last mentioned shafts as shown in Fig. 1.

The shaft **168** is disposed to operate the valves **38** and to this end, it is provided with a plurality of spaced cam elements **182** rigid thereto and in peripheral engagement with corresponding rollers **184** therebelow. Rollers **184** are in turn mounted on corresponding actuators **186** and **187** that pass through a bar **188** mounted on the outer face of wall **12** adjacent to and immediately below the valves **38**. The actuators **186** and **187** are vertically reciprocable in the bar **188** and are held against rotation by brackets **190** thereon which also reciprocate vertically within the bar **188**. Springs **192** on the brackets **190** in overlying engagement with the bar **188**, yieldably hold the brackets **190** and the actuators **186** and **187** at the uppermost ends of their paths of travel and therefore, yieldably hold the rollers biased in engagement with the peripheries of their corresponding cam elements **182**.

Valve members **42** are each provided with a disc **194** exteriorly of the casings **40** that are in turn provided with outwardly extending pins **196** eccentric to the axes of rotation of the discs **194** and the valve members **42** and extending into notches **198** within the actuators **186**.

Pins **24** and **26** are provided with intermeshing gear segments **200** and **202** respectively, rigid thereto as shown in Figs. 2 and 3, and each of the gear segments **200** is provided with a laterally extending pin **204** eccentric to the axis of oscillation of the pin **24** projecting into notches **206** of corresponding actuators **187** which extend appreciably further below the bar **188** than the actuators **186** as seen in Fig. 2.

The gates for the pocket members **14**, each of which consists of fingers **20** and **22**, are open only when the rollers **184** of actuators **187** are within concavities **208** of corresponding cam elements **182** as shown in Fig. 3. The cam elements **182** corresponding to the actuators **186** for operating the valves **38**, are provided with concavities similar to concavities **208** and when the rollers **184** of the actuators **186** are within their corresponding concavities, the valves **38** are open as shown in Fig. 3.

Shaft **170** is provided with a series of cam elements **210** (Figs. 1 and 3) having concavities **212**. An actuator **214** underlies each cam element **210** respectively and is vertically reciprocable in a bar **216** mounted on the outer face of the wall **10**. Each actuator **214** has a roller **218** held in peripheral arrangement with corresponding cam elements **210** by springs **220** on brackets **222** secured to actuators **214** and reciprocable therewith to hold the actuators **214** against rotation. Brackets **222** are vertically reciprocable within the bar **216** in the same manner as brackets **190**.

Tubes **30** are provided with intermeshing gear segments **224** rigid thereto, one of which has an eccentrically disposed pin **226** extending into notch **228** of the corresponding actuator **214**. The wings **28** are swung apart as shown in Fig. 4 except when the rollers **218** are within the corresponding concavities **212**, at which time the wings **28** therefore, are in close proximity to each other.

A pair of horizontal shafts **230** and **232** rotatably carried by the walls **10** and **12** are disposed immediately below each pocket member **14** respectively, each of which is in turn provided with a number of friction rollers **234** and **236** respectively. Rollers **234** and **236** are in opposed interengagement and rigid to their shafts **230** and **232**. Each shaft **230** is provided with a gear **238**, and gears **238** are driven by a gear train broadly designated by the numeral **240** and including gears **241** on shafts **243**.

Means such as a drive pulley **242** (Fig. 1) rigid to one of the shafts **230** and operably coupled with a source of power (not shown) by means of belt **244**, may be provided to cause simultaneous rotation of all of the shafts **230** and therefore, the rollers **234** thereon. The shafts **232** are carried by arms **246** and **248** at the ends thereof, which are in turn swingably mounted on walls **10** and **12** respectively as shown in Figs. 1 and 2. Springs **250** and **252** whose tension may be adjusted in the manner shown in Fig. 2 of the drawings, are mounted on walls **10** and **12** respectively, and operably connected with the arms **246** and **248** respectively, to yieldably hold the shafts **232** biased toward the shaft **230** and therefore, to hold the rollers **236** against the rollers **234**.

Newspaper sections emanating from between the rollers **234** and **236** are directed to underlying conveyor belts **254** disposed to direct the finished newspapers horizontally and laterally from one end of the machine, belts **254** being driven from shafts **243** and gears **241** of the gear train **240**.

During operation, belts **108**, **118**, **128** and **129** are driven continuously and for purposes of explanation, it will be assumed that an "outer" section is fed in the direction of arrow **140**, and thereupon, an "inner" section is fed in the direction of arrow **144**.

It will be recalled further that by action of cams **152** and **154** on continuously rotating shafts **150**, driven by chain **146**, the primary conveyor **52** will oscillate and, therefore, be brought into successive alignment with conveyors **64***a*, **64***b*, **64***c*, **64***d* and **64***e*.

Assuming that at the beginning of operation conveyor **52** is aligned with conveyor **64***a*, the first outer section fed at arrow **140**, will be directed into conveyor **64***a* and thence between the underlying wings **28** and into the corresponding pocket member **14**. By the time the first inner section traveling along arrow **144** is fed by conveyor **52**, the latter will have swung to a position in alignment with conveyor **64***b* and the latter will receive such inner section. Conveyor **64***c* will receive an outer section, conveyor **64***d* will receive an inner section, and conveyor **64***e* will receive an outer section from the conveyor **52**. Conveyor **52** will thereupon swing back to a position in alignment with conveyor **64***a* and deliver an inner section thereinto.

During the second swinging movement of conveyor **52** from left to right, viewing Fig. 4, outer sections will be delivered to conveyors **64***b* and **64***d*, whereas inner sections will be delivered to conveyors **64***c* and **64***e*. It is understood that all of the belts **66** are driven continuously by virtue of driving of the gear train **162**.

When the first sections are received by the pocket members **14**, fingers **20** and **22** thereof are closed to retain the first section against gravitational movement from the pocket members **14**. While the first sections are so held by the fingers **20** and **22**, and prior to delivery of the second folded newspaper section into the pocket members **14**, shaft **168** driven by chain **164** will rotate shaft **170** through connecting shaft **172** to move the actuators **214** downwardly through cams **210** and rollers **218**. This actuates gear segments **224** and causes the wings **28** to move together into engagement with the first section within the pocket members **14**.

It is to be understood at this point that the wings **28** close successively by proper offsetting of the cam elements **210** on shaft **170**, the wings **28***a* closing first, the

wings **28***c* closing next, then wings **28***e*, wings **28***b*, and finally wings **28***d*.

At about the time of closing of the wings 28 against the outer sections within the pocket members 14, suction will draw the section against the inner faces of the wings **28** and this is accomplished by the action of cams 182 corresponding to actuators 186. As the valves 38 are successively opened to place the nozzles 34 into communication with the manifold 46, cams 210 will again operate to separate the wings 28 to the position shown in Fig. 4 of the drawings, thereby opening the outer sections within the pocket members 14.

Fingers 20 and 22 are opened by actuators 187 acting on gear segments 200 and 202 substantially at the same time as an inner newspaper section is delivered into the open outer section so that the force of downward movement of the inner section will tend to force both sections downwardly out of the pocket members 14 and to a position between corresponding rollers 234 and 236. These last mentioned rollers operate continuously in opposite directions by action of a prime mover coupled with pulley **242**, through belt **244** and by virtue of the gear train shown best in Fig. 1 of the drawings. As soon as the stuffed newspaper is delivered to the belts 254, this lowermost conveyor will discharge the newspapers from the left end of the machine viewing Fig. 4.

At this juncture it is recognized that inasmuch as conveyors **64***b* and **64***d* initially receive an inner section and thereupon an outer section, the first papers delivered thereby are discarded. Thereafter, the machine will operate continuously with all five pocket members 14 delivering complete newspapers having an inner section stuffed within an outer section consecutively in the order of closing and opening of the wings 28 as above outlined.

It is not meant by the above that the invention is limited to the utilization of five discharge assemblies, but any odd number of pocket members 14 may be utilized.

Having thus described the invention what is claimed as new and desired to be secured by Letters Patent is:

1. In a machine of the kind specified, a series of stationary pocket members; movable feeder means; means for receiving sections and delivering the same to said feeder means; mechanism for continuously moving the feeder means into alignment with the pocket members in predetermined order; structure for continuously actuating the feeder means to deposit the sections therefrom into the pockeet members when in alignment therewith; and means for releasing the sections from the pocket members after deposit of a predetermined number of sections into the pocket members by said feeder means while the latter is in movement and during operation of said structure.

2. In a machine of the kind specified, a series of stationary pocket members; a single, movable feeder means; means for receiving folded sections and delivering the same to said feeder means; mechanism for moving the feeder means into alignment with the pocket members in predetermined order; and means for actuating the feeder means to deposit the sections therefrom into the pocket members when in alignment therewith, each pocket member being provided with structure for opening the first section deposited thereinto whereby sections thereafter deposited in the pocket members are fed into the opened section in nested relationship thereto.

3. In a machine of the kind specified, a number of stationary feeding assemblies, each containing a supply of folded sections and each having means for extracting said sections one after another from said supply; a series of stationary pocket members; movable feeder means; means for receiving folded sections from said assemblies and delivering the same to said feeder means; mechanism for moving the feeder means into alignment with the pocket members in predetermbined order; means for actuating the feeder means to deposit the sections therefrom into the pocket members when in alignment therewith, each pocket member being provided with structure for opening the first section deposited thereinto whereby sections thereafter deposited in the pocket members are fed into the opened section in nested relationship thereto; and means operably coupled with said structures for operating the same in predetermined order.

4. In a machine of the kind specified, a number of stationary feeding assemblies, each containing a supply of folded sections and each having means for extracting said sections one after another from said supply; a series of stationary pocket members; movable feeder means; means for receiving folded sections from said assemblies and delivering the same to said feeder means; mechanism for moving the feeder means into alignment with the pocket members in predetermined order; means for actuating the feeder means to deposit the sections therefrom into the pocket members when in alignment therewith, each pocket member being provided with structure for opening the first section deposited thereinto whereby sections thereafter deposited in the pocket members are fed into the opened section in nested relationship thereto; means operably coupled with said structures for operating the same in predetermined order, each pocket member being provided with gate means for retaining the opened section therewithin for a predetermined period of time; and means operably coupled with said gate means for opening the same after the opened sections retained thereby have received a predetermined number of additional sections.

5. In a machine of the kind specified, a number of stationary feeding assemblies, each containing a supply of folded sections and each having means for extracting said sections one after another from said supply; a series of stationary pocket members; movable feeder means for receiving folded sections from said assemblies in predetermined sequence; mechanism for moving the feeder means into alignment with the pocket members in predetermined order; means for actuating the feeder means to deposit the sections therefrom into the pocket members when in alignment therewith, each pocket member being provided with structure for opening the first section deposited thereinto whereby sections thereafter deposited in the pocket members are fed into the opened section in nested relationship thereto, each pocket member being provided with gate means for retaining the opened section therewithin for a predetermined period of time; and means operably coupled with said gate means for opening the same after the opened sections retained thereby have received a predetermined number of additional sections.

6. In a machine of the kind specified, a number of stationary feeding assemblies, each containing a supply of folded sections and each having means for extracting said sections one after another from said supply; a series of stationary pocket members; movable feeder means for receiving folded sections from said assemblies in predetermined sequence; mechanism for moving the feeder means into alignment with the pocket members; means for actuating the feeder means to deposit the sections therefrom into the pocket members in predetermined order, each pocket member being provided with structure for opening the first section deposited thereinto whereby sections thereafter deposited in the pocket members are fed into the opened section in nested relationship thereto, each pocket member being provided with gate means for retaining the opened section therewithin for a predetermined period of time; means operably coupled with said gate means for opening the same after the opened sections retained thereby have received a predetermined number of additional sections; and conveyor means for receiving the nested sections from the pocket members as the gate means thereof are opened to release said nested sections from the pocket members.

7. In a machine of the kind specified, a number of stationary feeding assemblies, each containing a supply of folded sections and each having means for extracting said sections one after another from said supply; a series of stationary pocket members; conveyor means for each pocket member respectively; movable feeder means for receiving sections from said assemblies in predetermined sequence; mechanism for moving the feeder means into alignment with the conveyor means in predetermined order; means for actuating the feeder means to advance the sections therethrough; and means for actuating the conveyor means to deposit the sections therefrom into the pocket members in predetermined order.

8. In a machine of the kind specified, a number of stationary feeding assemblies, each containing a supply of folded sections and each having means for extracting said sections one after another from said supply; a series of stationary pocket members; a primary swingable conveyor; secondary conveyor means for each pocket member respectively; means for receiving sections from said assemblies and delivering the same to said primary conveyor; mechanism for swinging the primary conveyor means into alignment with the secondary conveyor means in predetermined sequence; means for actuating the primary conveyor means to deposit the sections therefrom into the secondary conveyor means when in alignment therewith; and means for actuating the secondary conveyor means to deposit the sections therefrom into the pocket members in predetermined order.

9. In a machine of the kind specified, a number of stationary feeding assemblies, each containing a supply of folded sections and each having means for extracting said sections one after another from said supply; a series of stationary pocket members; a primary swingable conveyor; secondary conveyor means for each pocket member respectively; means for receiving sections from said assemblies and delivering the same to said primary conveyor; mechanism for swinging the primary conveyor means into alignment with the secondary conveyor means in predetermined sequence; means for actuating the primary conveyor means to deposit the sections therefrom into the secondary conveyor means when in alignment therewith; means for actuating the secondary conveyor means to deposit the sections therefrom into the pocket members in predetermined order; and means for releasing the sections from the pocket members after deposit of a predetermined number of sections into the pocket members by said secondary conveyor means.

10. In a machine of the kind specified, a number of stationary feeding assemblies, each containing a supply of folded sections and each having means for extracting said sections one after another from said supply; a series of stationary pocket members; a swingable conveyor; means for receiving folded sections from said assemblies and delivering the same to said conveyor in predetermined sequence; mechanism for swinging the conveyor into alignment with the pocket members in predetermined order; means for actuating the conveyor to deposit the sections therefrom into the pocket members in predetermined order, each pocket member being provided with structure for opening the first section deposited thereinto whereby sections thereafter deposited in the pocket members are fed into the opened section in nested relationship thereto; and means operably coupled with said structures for operating the same in predetermined order.

11. In a machine of the kind specified, a number of stationary feeding assemblies, each containing a supply of folded sections and each having means for extracting said sections one after another from said supply; a series of stationary pocket members; a swingable conveyor; means for receiving folded sections from said assemblies and delivering the same to said conveyor in predetermined sequence; mechanism for swinging the conveyor into alignment with the pocket members in predetermined order; means for actuating the conveyor to deposit the sections therefrom into the pocket members in predetermined order, each pocket member being provided with structure for opening the first section deposited thereinto whereby sections thereafter deposited in the pocket members are fed into the opened section in nested relationship thereto; means operably coupled with said structures for operating the same in predetermined order; each pocket member being provided with gate means for retaining the opened section therewithin for a predetermined period of time; and means operably coupled with said gate means for opening the same after the opened sections retained thereby have received a predetermined number of additional sections.

12. In a machine of the kind specified, a series of stationary pocket members; a swingable conveyor; means for receiving folded sections from a number of stacks thereof and delivering the same to said conveyor in predetermined sequence; mechanism for swinging the conveyor into alignment with the pocket members in predetermined order; means for actuating the conveyor to deposit the sections therefrom into the pocket members in predetermined order, each pocket member being provided with structure for opening the first section deposited thereinto whereby sections thereafter deposited in the pocket members are fed into the opened section in nested relationship thereto; means operably coupled with said structures for operating the same in predetermined order, each pocket member being provided with gate means for retaining the opened section therewithin for a predetermined period of time; means operably coupled with said gate means for opening the same after the opened sections retained thereby have received a predetermined number of additional sections; and conveyor means for receiving the nested sections from the pocket members as the gate means thereof are opened to release said nested sections from the pocket members.

13. In a machine of the kind specified, an aligned series of open top, stationary pocket members; a swingable conveyor; means for receiving folded sections from a number of stacks thereof and delivering the same to said conveyor in predetermined sequence; mechanism for swinging the conveyor into alignment with the pocket members in predetermined order; means for actuating the conveyor to deposit the sections therefrom into the pocket members in predetermined order, each pocket member being provided with structure for opening the first section deposited thereinto whereby sections thereafter deposited in the pocket members are fed into the opened section in nested relationship thereto, each pocket member being provided with gate means at the bottom thereof for retaining the opened section therewithin for a predetermined period of time; and means operably coupled with said gate means for opening the same after the opened sections retained thereby have received a predetermined number of additional sections.

14. In a machine of the kind specified, an aligned series of open top, stationary pocket members; a swingable conveyor; means for receiving folded sections from a number of stacks thereof and delivering the same to said conveyor in predetermined sequence; mechanism for swinging the conveyor into alignment with the pocket members in predetermined order; means for actuating the conveyor to deposit the sections therefrom into the pocket members in predetermined order, each pocket member being provided with structure for opening the first section deposited thereinto whereby sections thereafter deposited in the pocket members are fed into the opened section in nested relationship thereto, each pocket member being provided with gate means at the bottom thereof for retaining the opened section therewithin for a predetermined period of time; means operably coupled with said gate means for opening the same after the opened sections retained thereby have received a predetermined number of additional sections; and horizontal conveyor means for receiving the nested sections gravi-

tating from the pocket members as the gate means thereof are opened to release said nested sections from the pocket members.

15. In a machine of the kind specified, a number of stationary feeding assemblies, each containing a supply of folded sections and each having means for extracting said sections one after another from said supply; an aligned series of open top, stationary pocket members; conveyor means for each pocket member respectively; movable feeder means; means for receiving sections from said assemblies and delivering the same to said feeder means in predetermined order; mechanism for moving the feeder means into alignment with the conveyor means in predetermined order; and means for actuating the conveyor means to deposit the sections therefrom into the pocket members in predetermined order.

16. In a machine of the kind specified, an aligned series of open top, stationary pocket members; a primary swingable conveyor; secondary conveyor means for each pocket member respectively; means for receiving folded sections from a pair of stacks thereof and delivering the same to said primary conveyor in predetermined order; mechanism for swinging the primary conveyor means into alignment with the secondary conveyor means in predetermined order; means for actuating the primary conveyor means to deposit the sections therefrom into the secondary conveyor means in predetermined order; means for actuating the secondary conveyor means to deposit the sections therefrom into the pocket members in predetermined order, each pocket member being provided with structure for opening the first section deposited thereinto whereby sections thereafter deposited in the pocket members are fed into the opened section in nested relationship thereto, each pocket member being provided with gate means at the bottom thereof for retaining the opened section therewithin for a predetermined period of time; means operably coupled with said gate means for opening the same after the opened sections retained thereby have received a predetermined number of additional sections; and horizontal conveyor means for receiving the nested sections gravitating from the pocket members as the gate means thereof are opened to release said nested sections from the pocket members.

17. In a machine of the kind specified, a series of stationary, open top pocket members; a movable feeder for receiving sections and discharging the same into said pocket members through said open tops thereof; means for moving the feeder into alignment with said open tops of the pocket members a predetermined plurality of times and in predetermined sequence, each pocket member being provided with a normally closed gate means for receiving the sections as they gravitate into the pocket members and retaining the same therewithin for a predetermined period of time; and means operably coupled with the gate means for releasing the same after the pocket members have received a predetermined number of sections and as a section drops into the pocket members, whereby the gravitational force of the last-mentioned section, acting on the gate members, tends to open the same.

18. In a machine of the kind specified, a series of stationary pocket members; a movable feeder for receiving sections and discharging the same into said pocket members; means for moving the feeder into alignment with the pocket members in predetermined sequence, each pocket member being provided with a normally closed gate means for retaining the sections therewith for a predetermined period of time; and means connected with the gate means for opening the same in predetermined order, each gate means including a pair of opposed series of fingers normally disposed with the fingers of one series extending toward the fingers of the other series within the path of travel of the sections through the pockets and swingable away from each other to release the sections from the pockets.

19. In the invention as set forth in claim 17 wherein each gate means includes a pair of opposed series of fingers normally disposed with the fingers of one series extending toward the fingers of the other series in overlapping relationship thereto, forming a substantially V-shaped trough within the path of travel of the sections through the pockets, said fingers being swingable away from each other to release the sections from the pockets.

20. In a machine of the kind specified, a series of stationary, open top pocket members; a feeder above said members swingably mounted for oscillatory movement about a horizontal axis through an arcuate path of travel and having an upright passage therethrough; means separate from the feeder for receiving sections and delivering the same into said passage at the uppermost end of the latter; and mechanism for continuously swinging the feeder into alignment with the pocket members in predetermined order for dropping said sections into the pockets through the open tops thereof as the sections gravitate from the passage through the lowermost end of the latter.

21. In a machine as set forth in claim 20 wherein said feeder is provided with a pair of spaced belts adapted to advance the sections through the feeder, said passage being between the belts.

References Cited in the file of this patent

UNITED STATES PATENTS

399,987	Goss	Mar. 19, 1899
1,809,456	Streeter	June 9, 1931
1,929,204	Jeffrey et al.	Oct. 3, 1933
2,288,149	Williams	June 30, 1942
2,288,755	Taggart	July 7, 1942
2,634,971	Schweizer	Apr. 14, 1953