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LIBRARY CONVEYER SYSTEM

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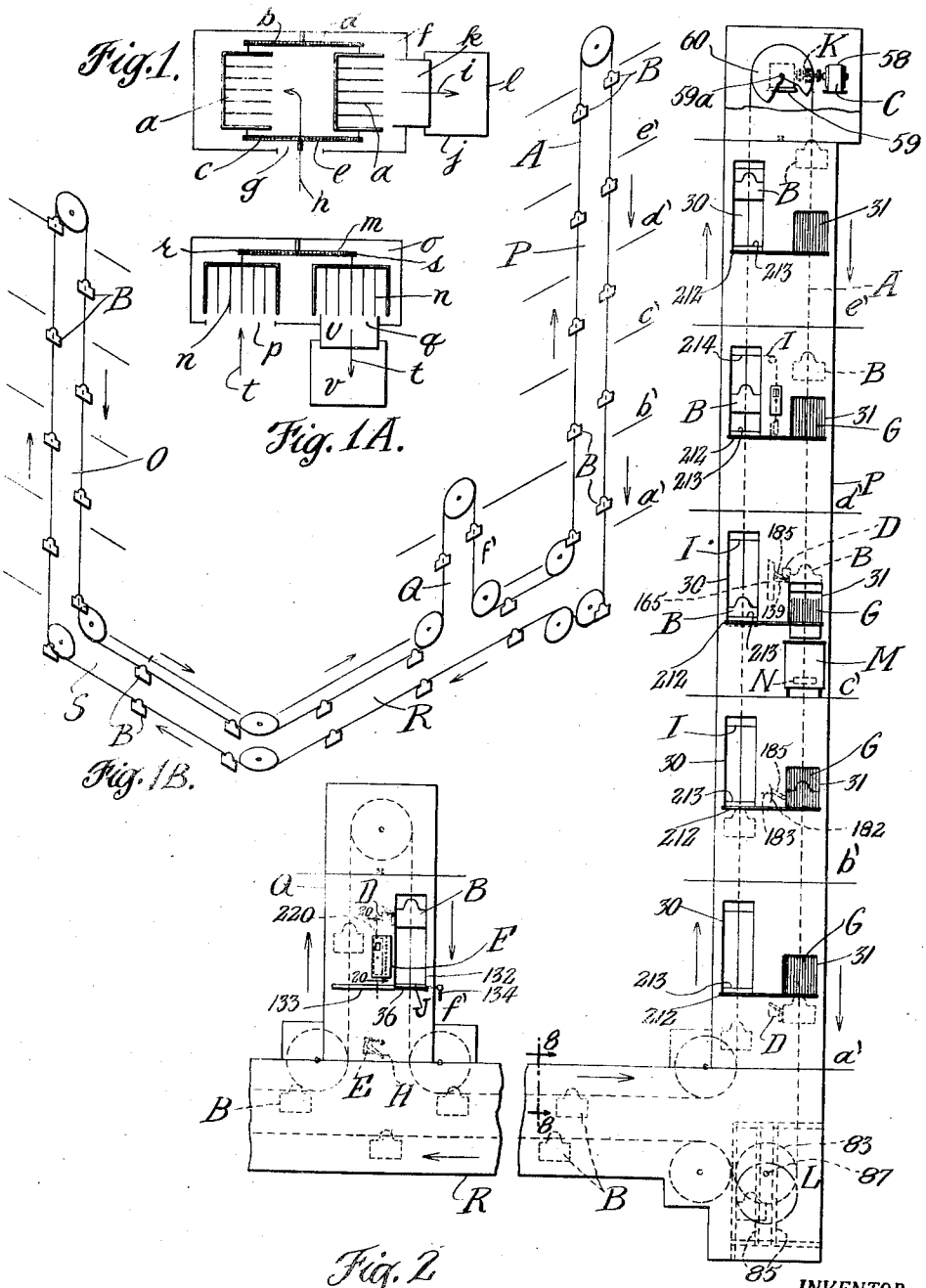

Fig. 1.

Fig. 1A.

Fig. 1B.

Fig. 2.

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LIBRARY CONVEYER SYSTEM

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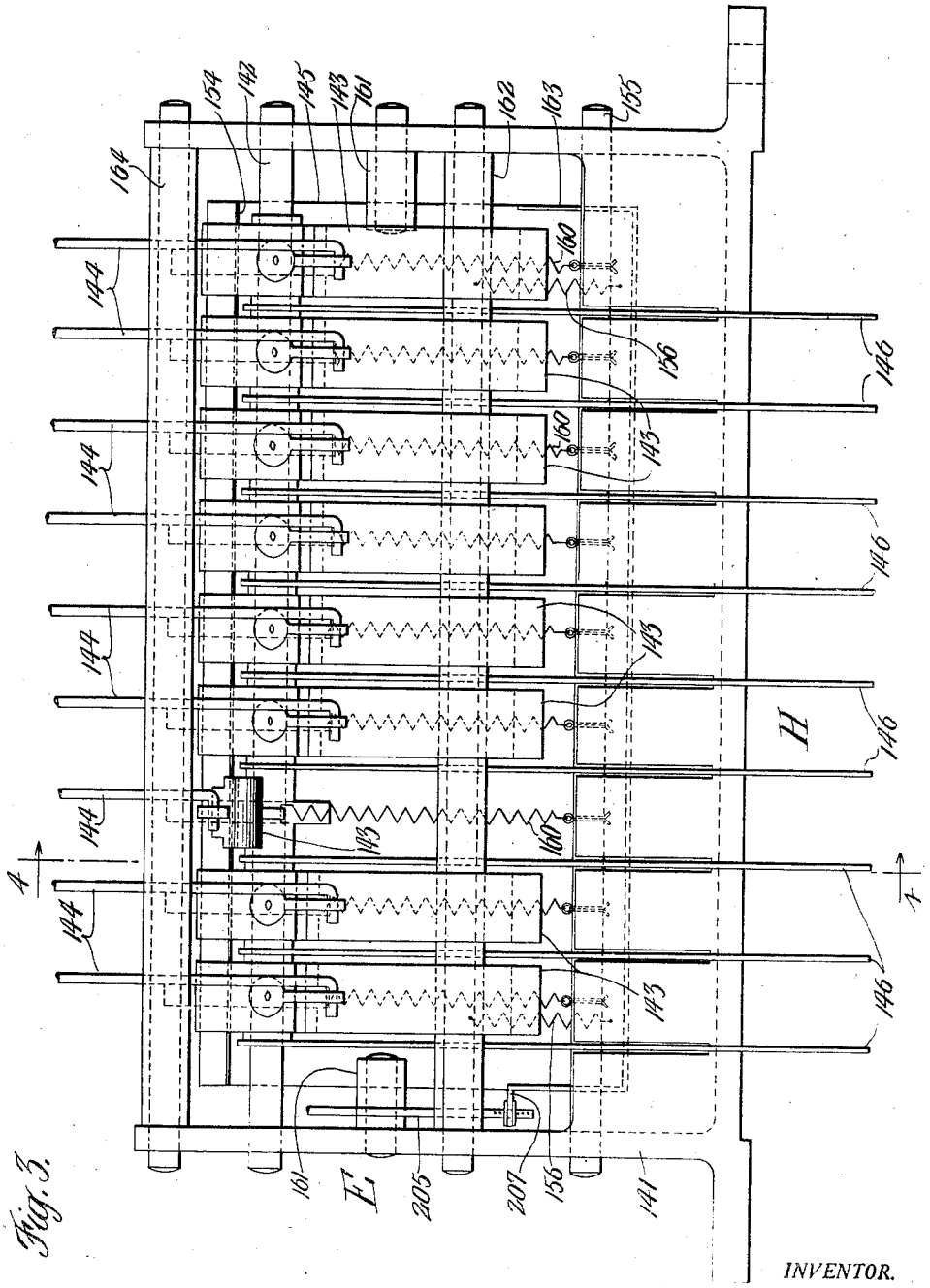

Fig. 3.

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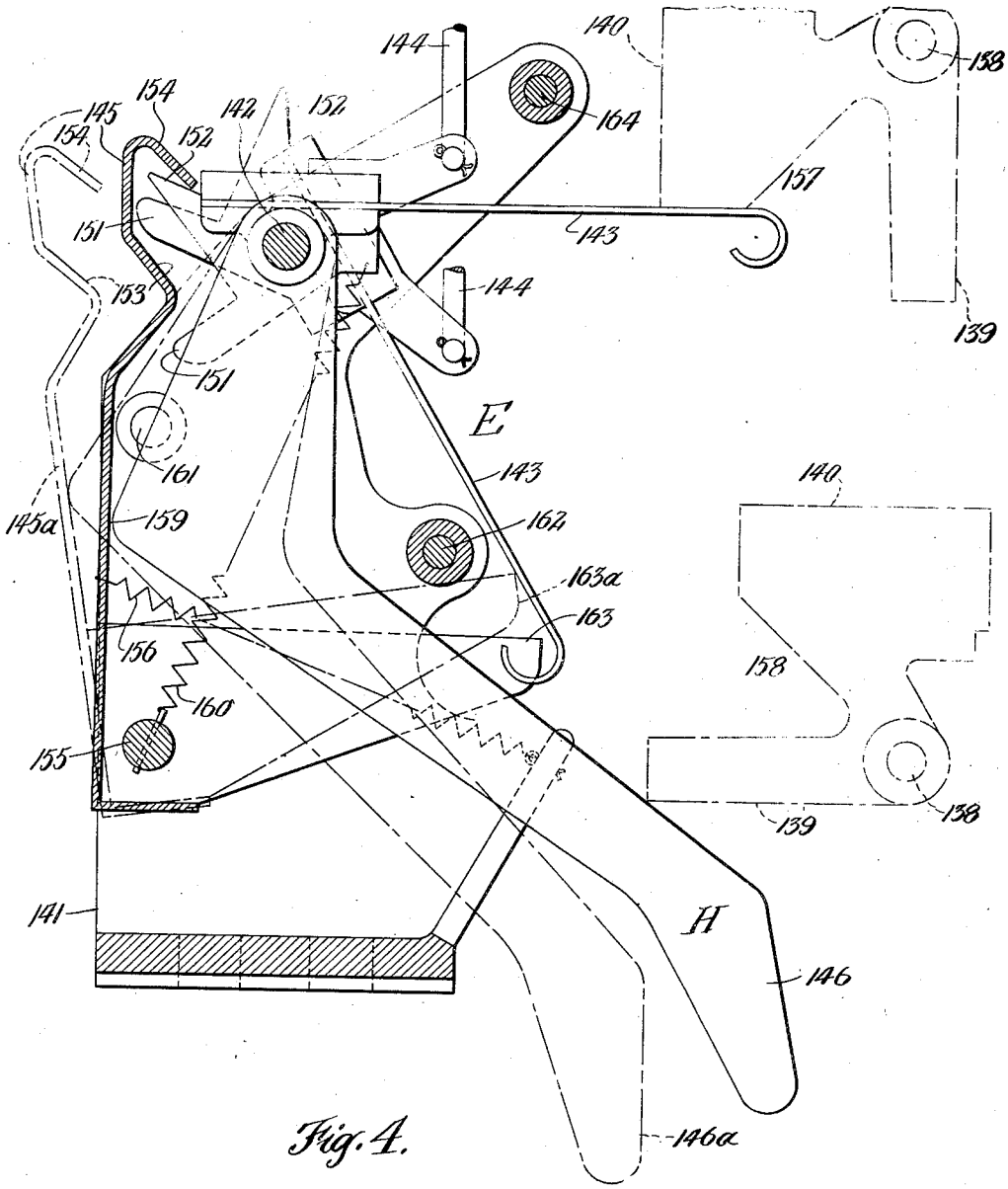

Fig. 4.

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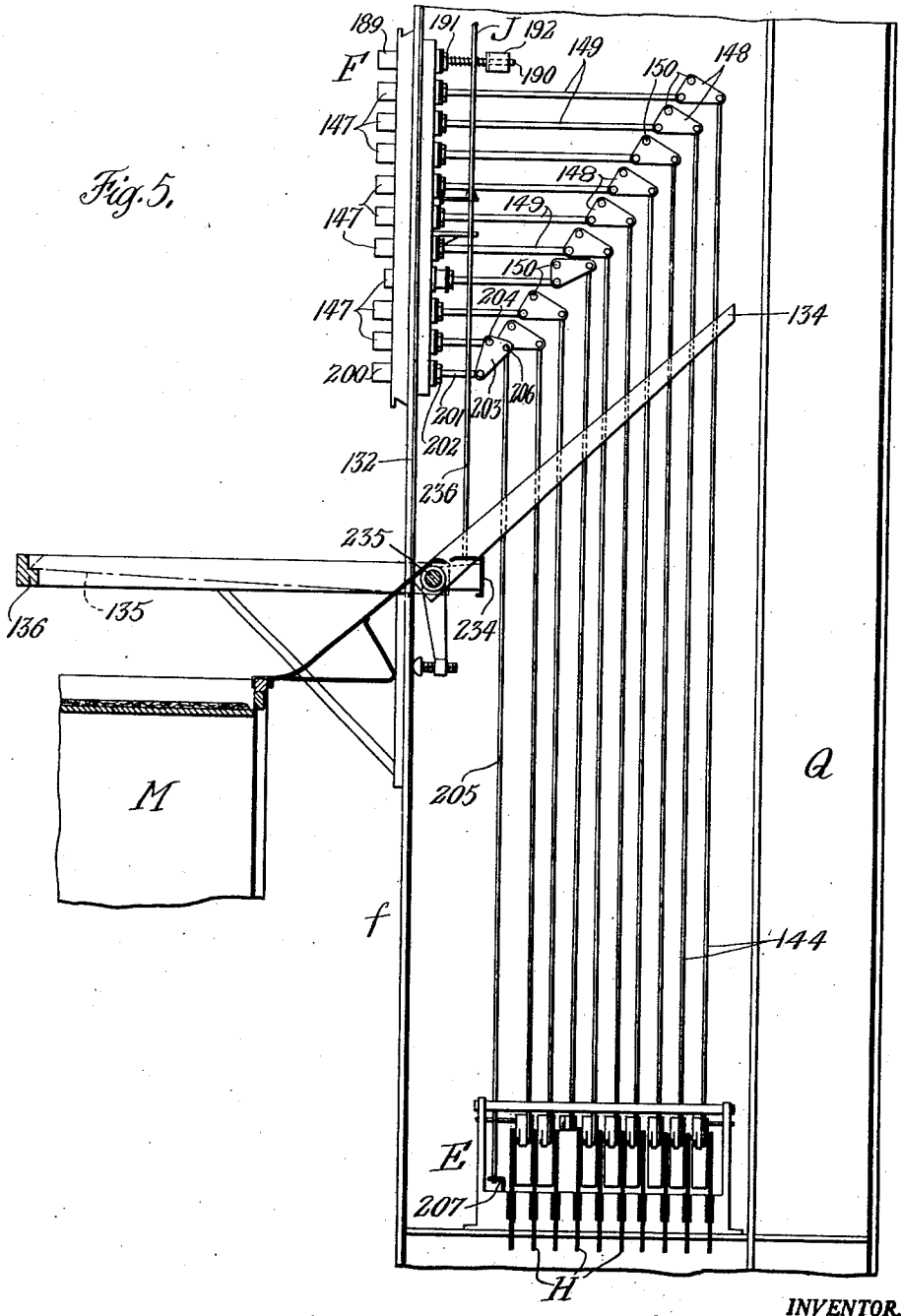
Fig. 5.



INVENTOR.
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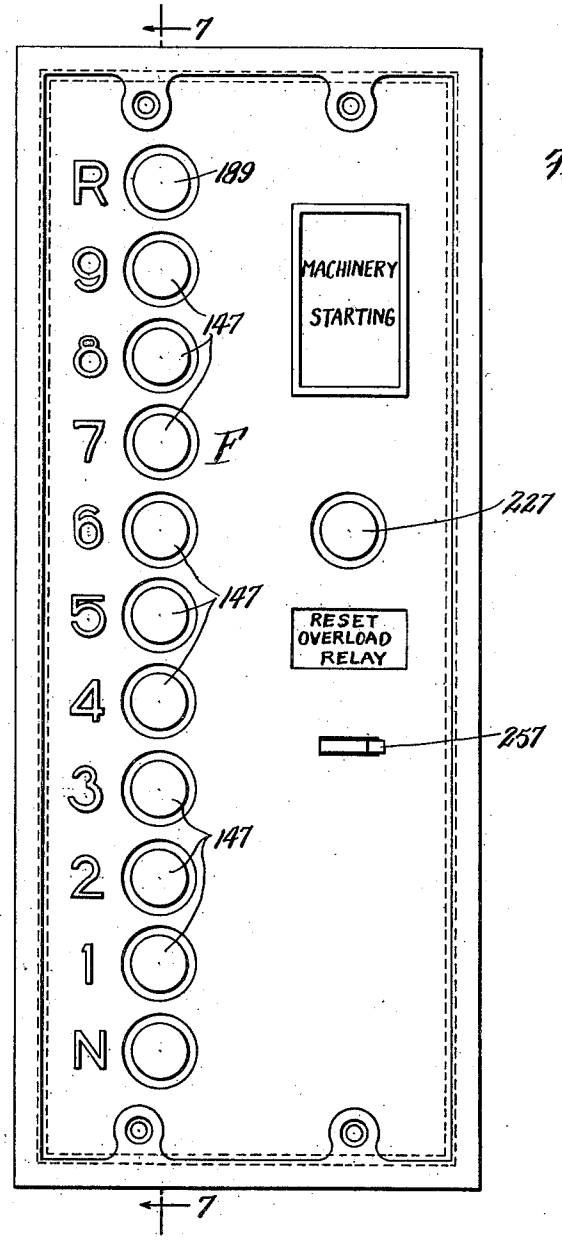

Fig. 6.

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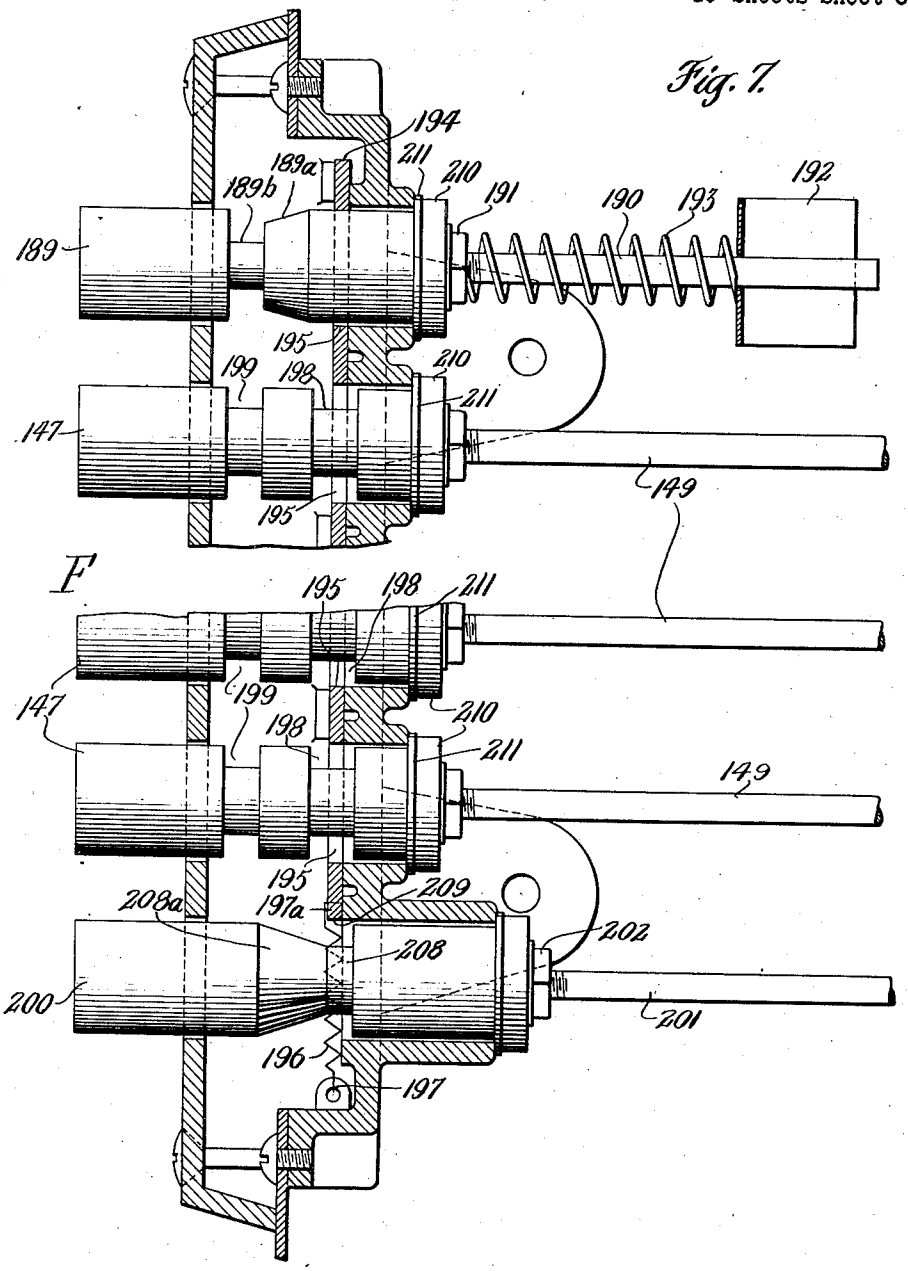
Fig. 7.



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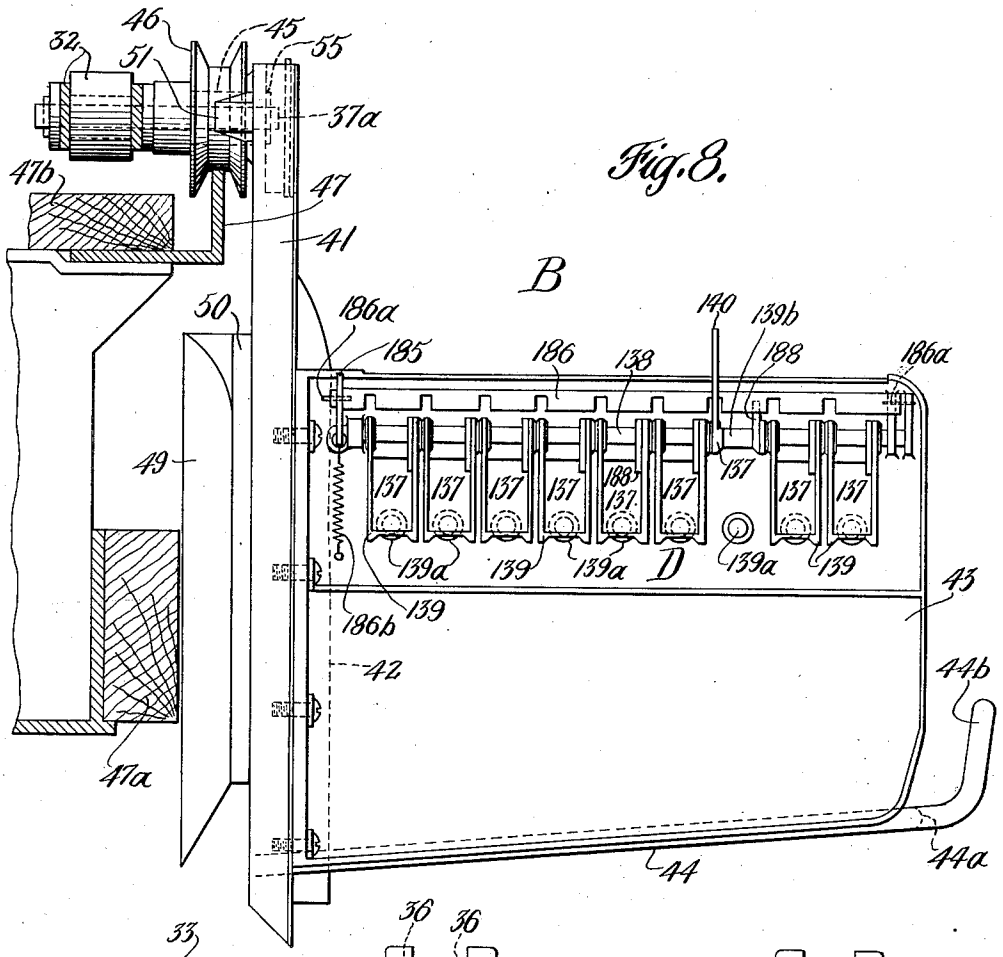

Fig. 8.

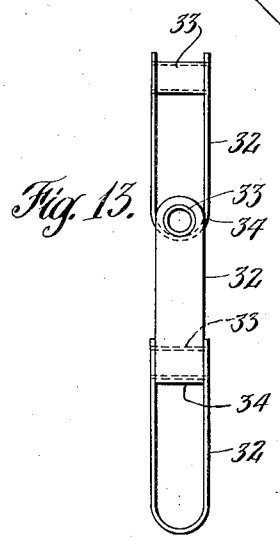

Fig. 13.

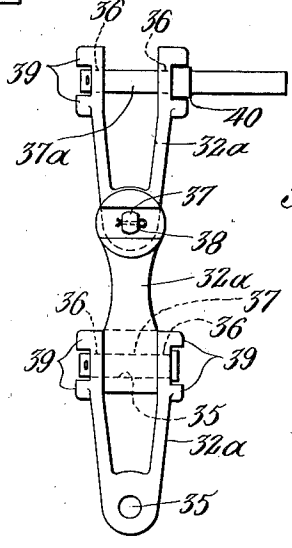

Fig. 12.

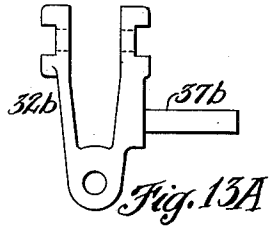

Fig. 13A

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Fig. 9.

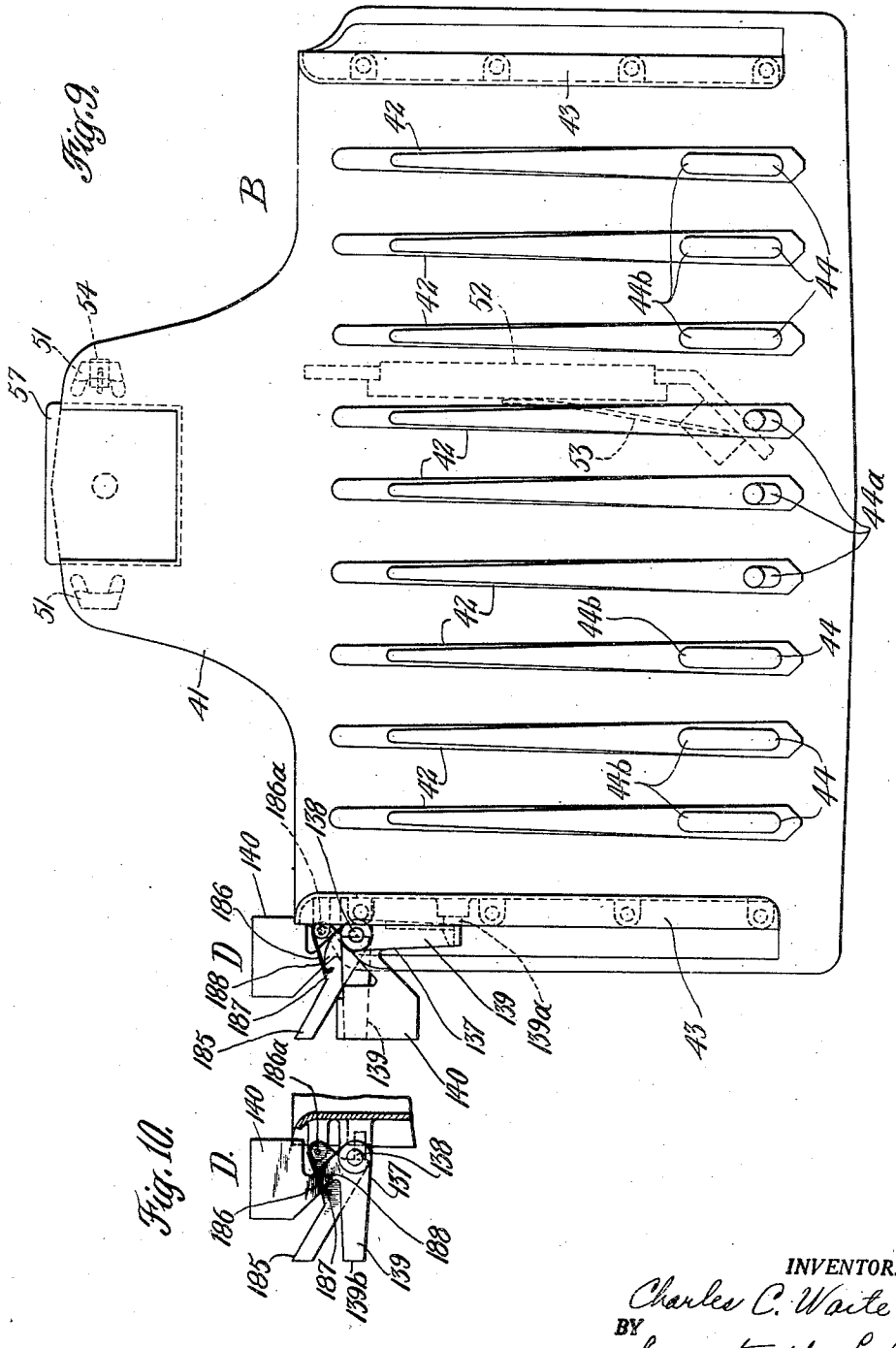

Fig. 10.

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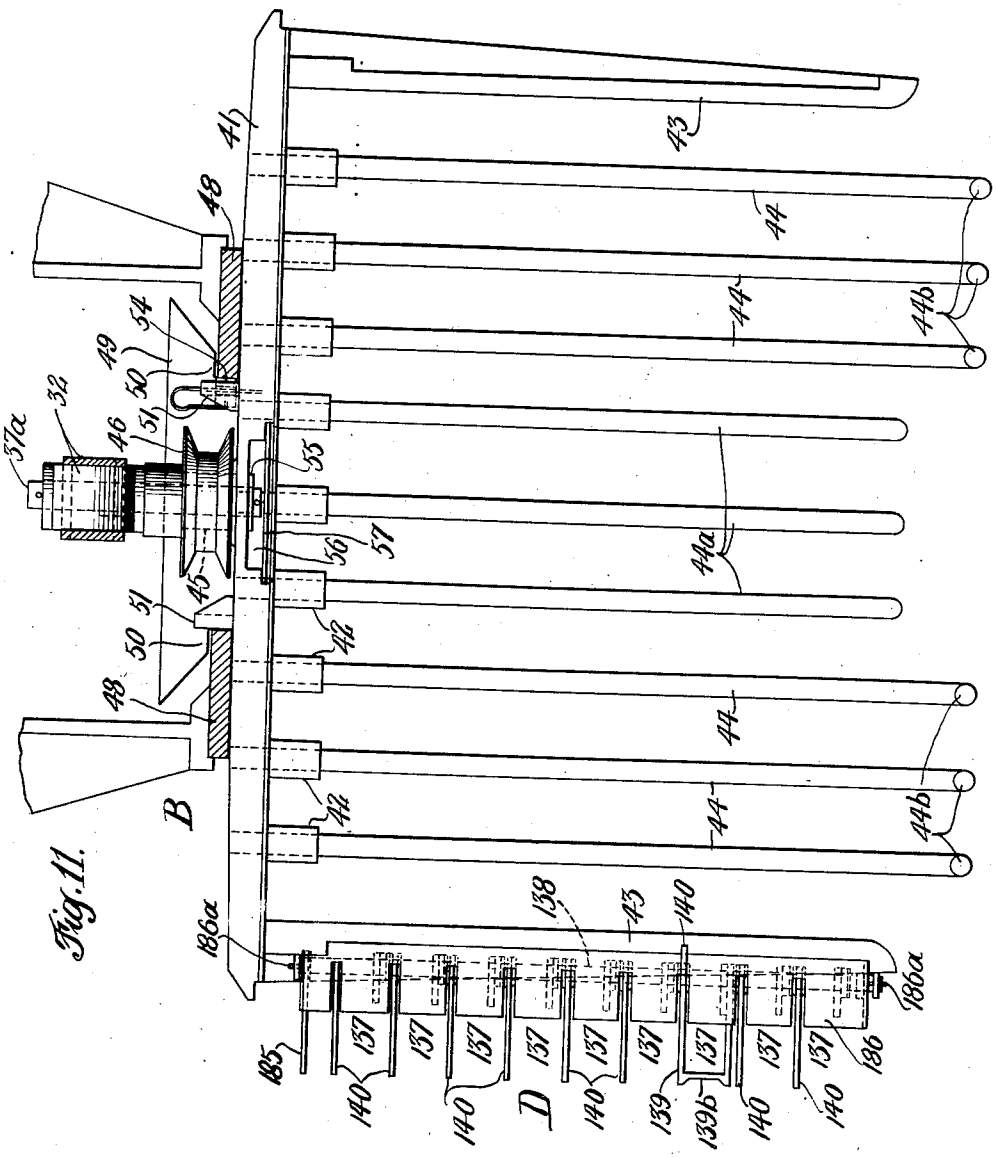

Fig. 11.

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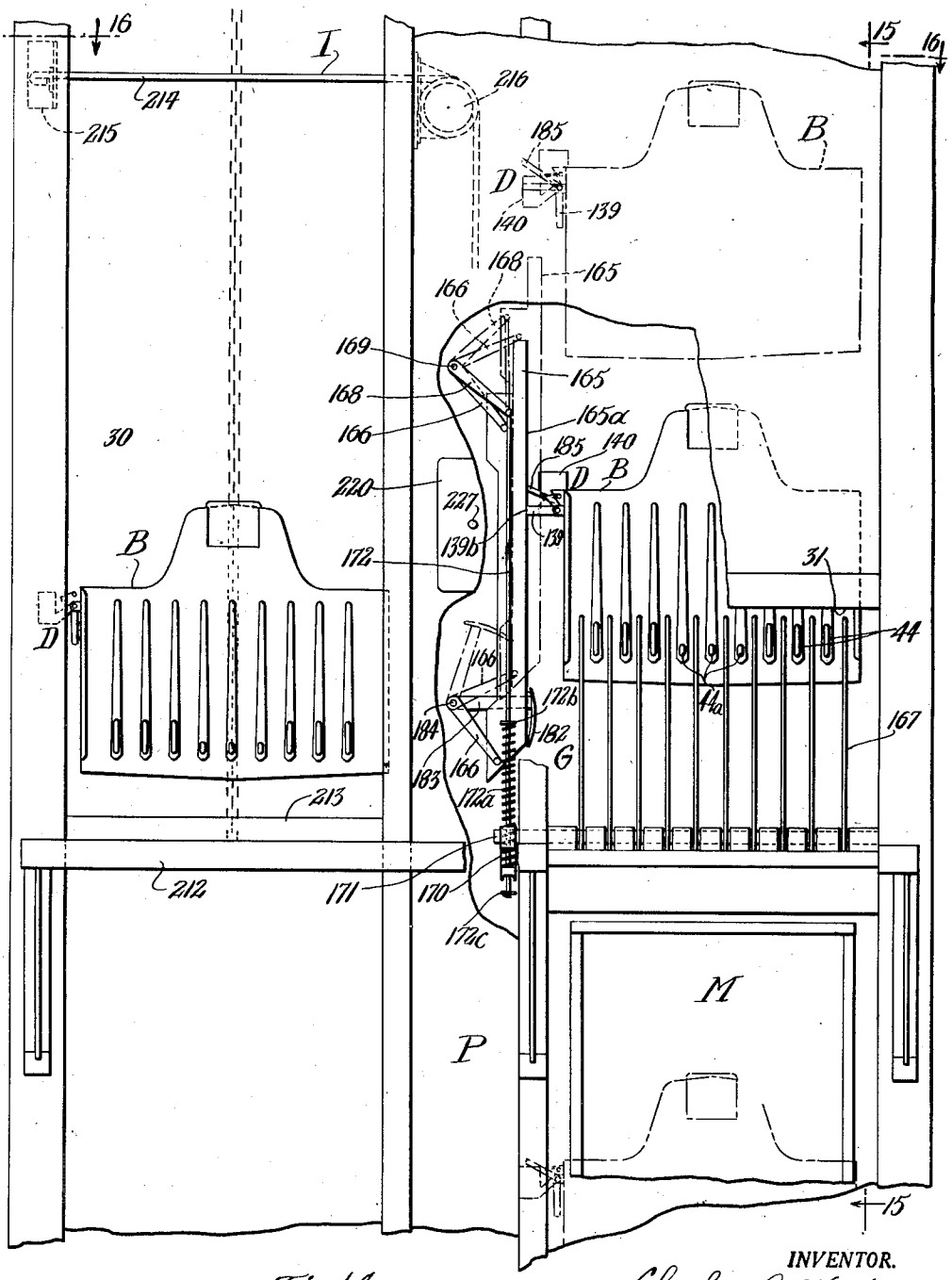

Fig. 14.

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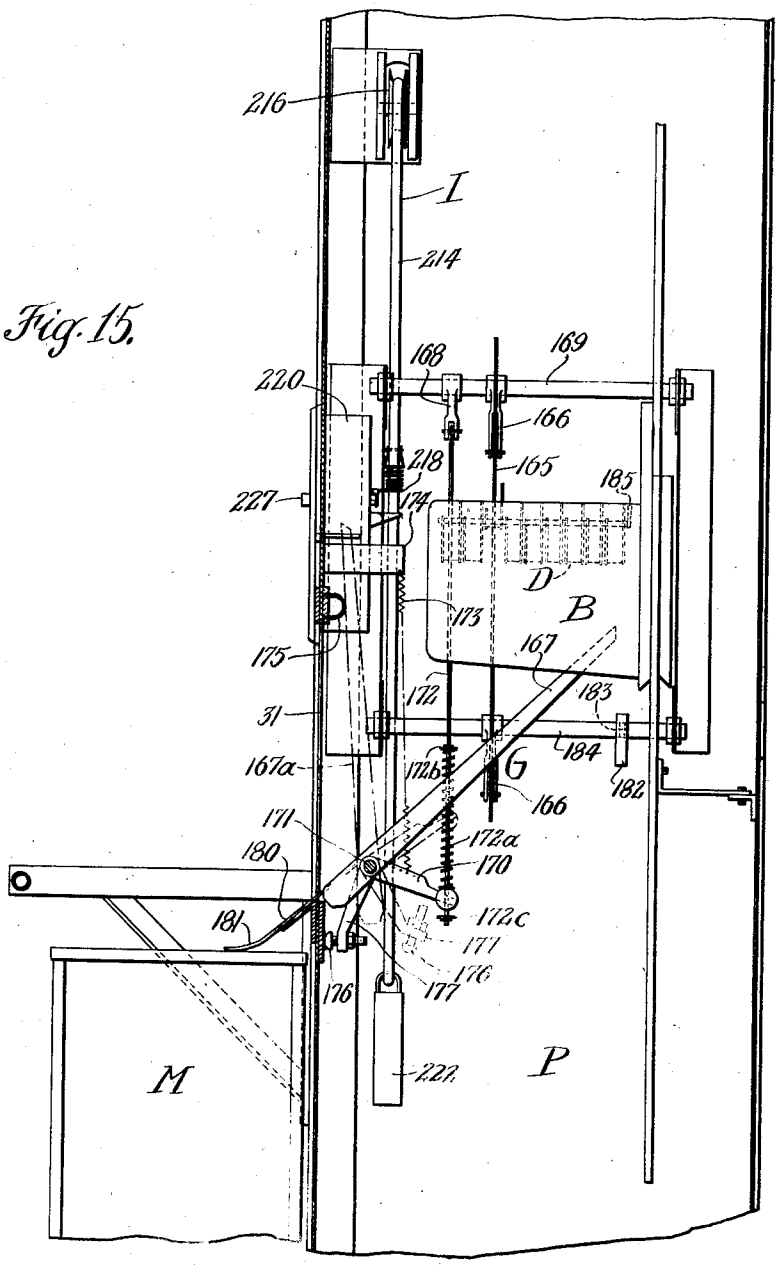
Fig. 15.



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Filed April 17, 1931 19 Sheets-Sheet 12

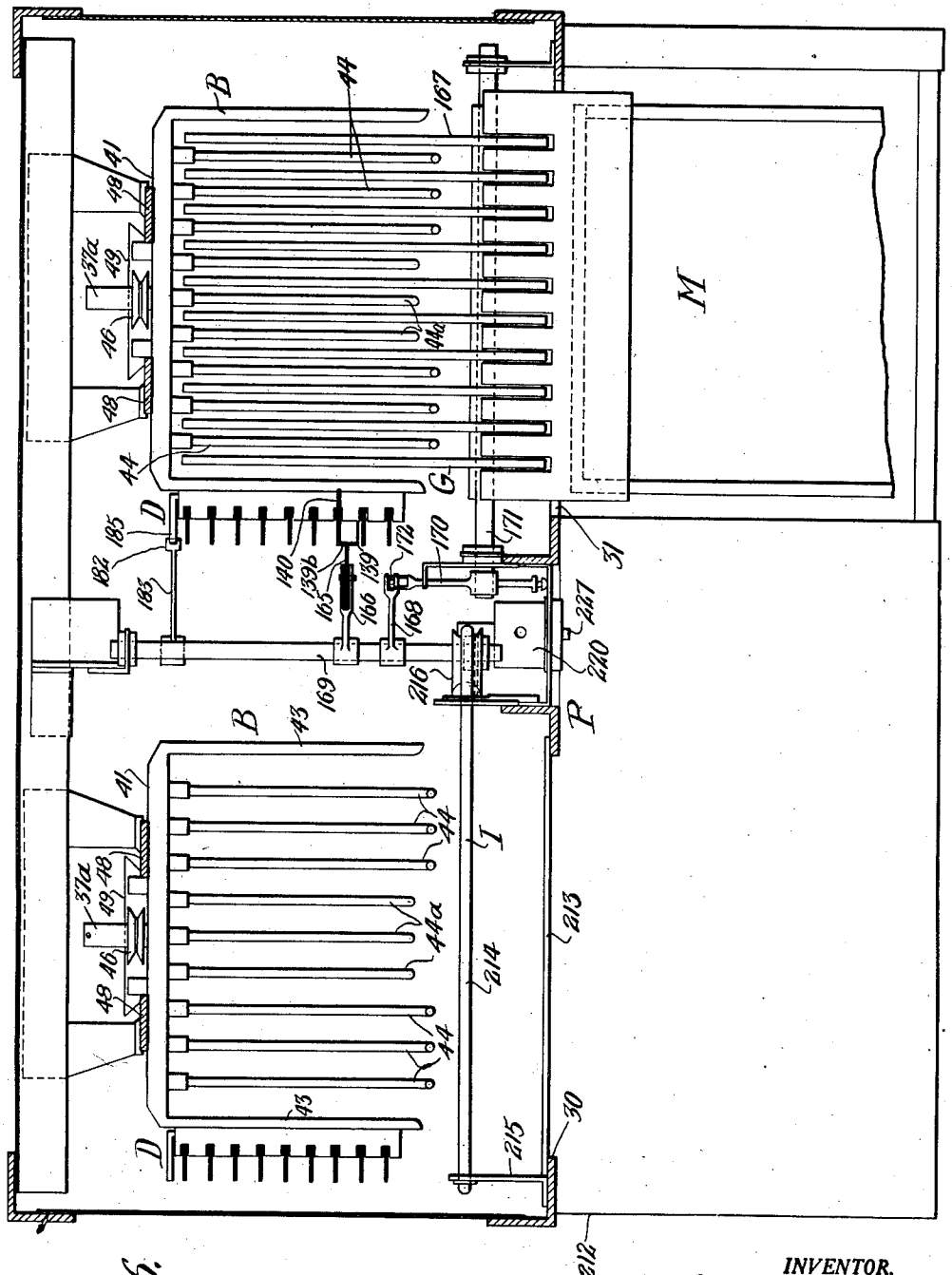

Fig. 16.

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Feb. 12, 1935. C. C. WAITE 1,991,237

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Fig. 17.

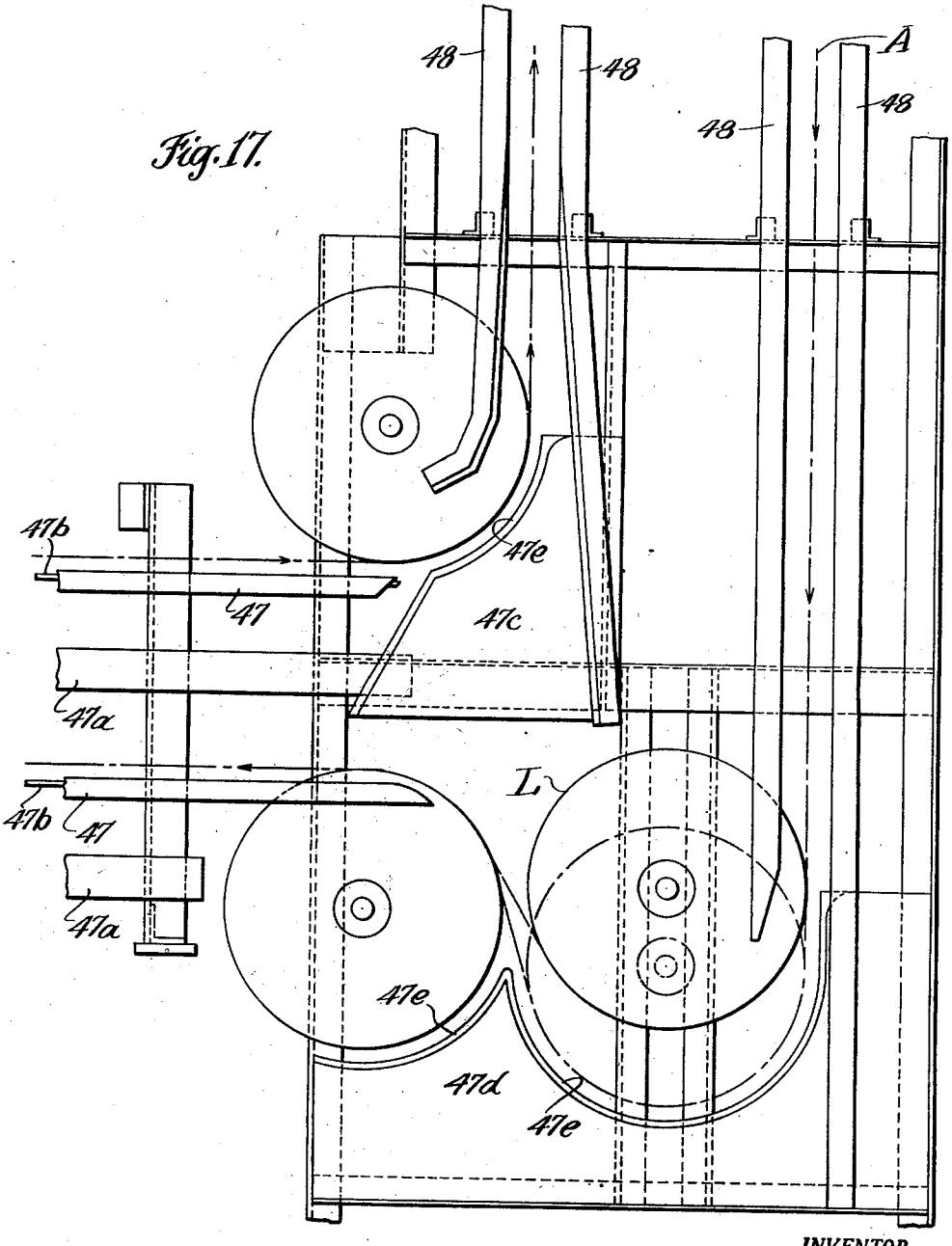

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Fig. 19.

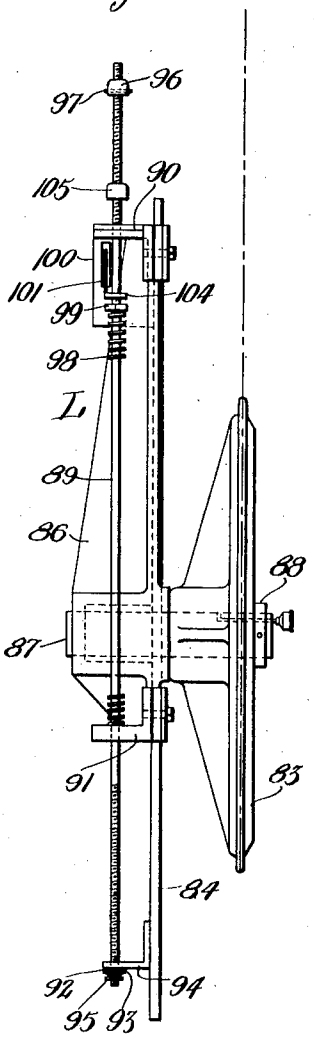

Fig. 18.

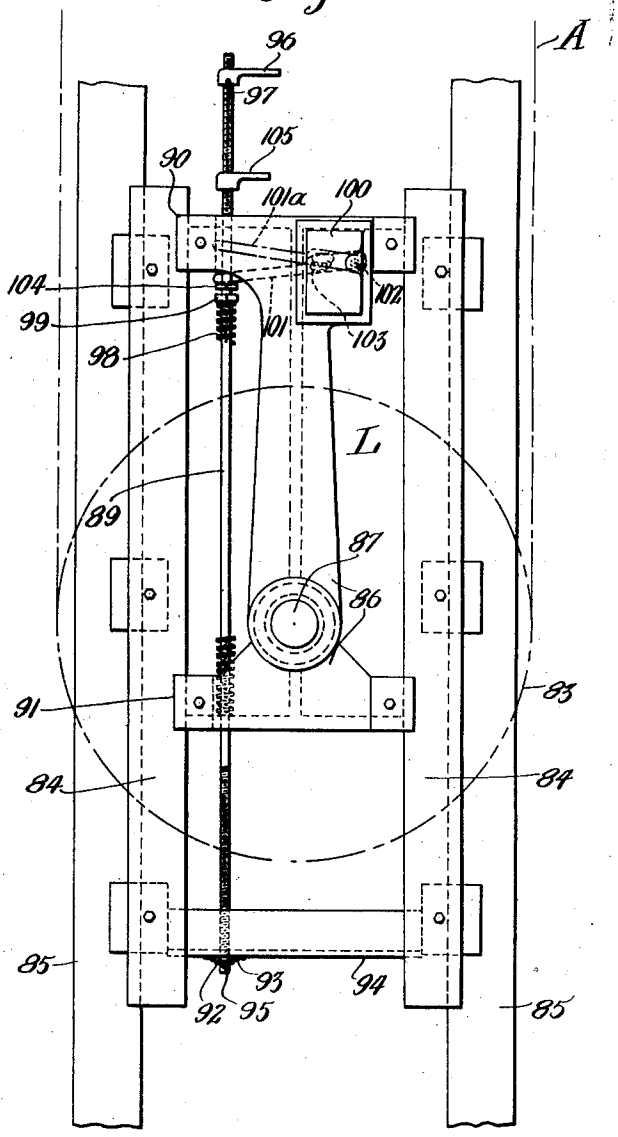

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Fig. 20.

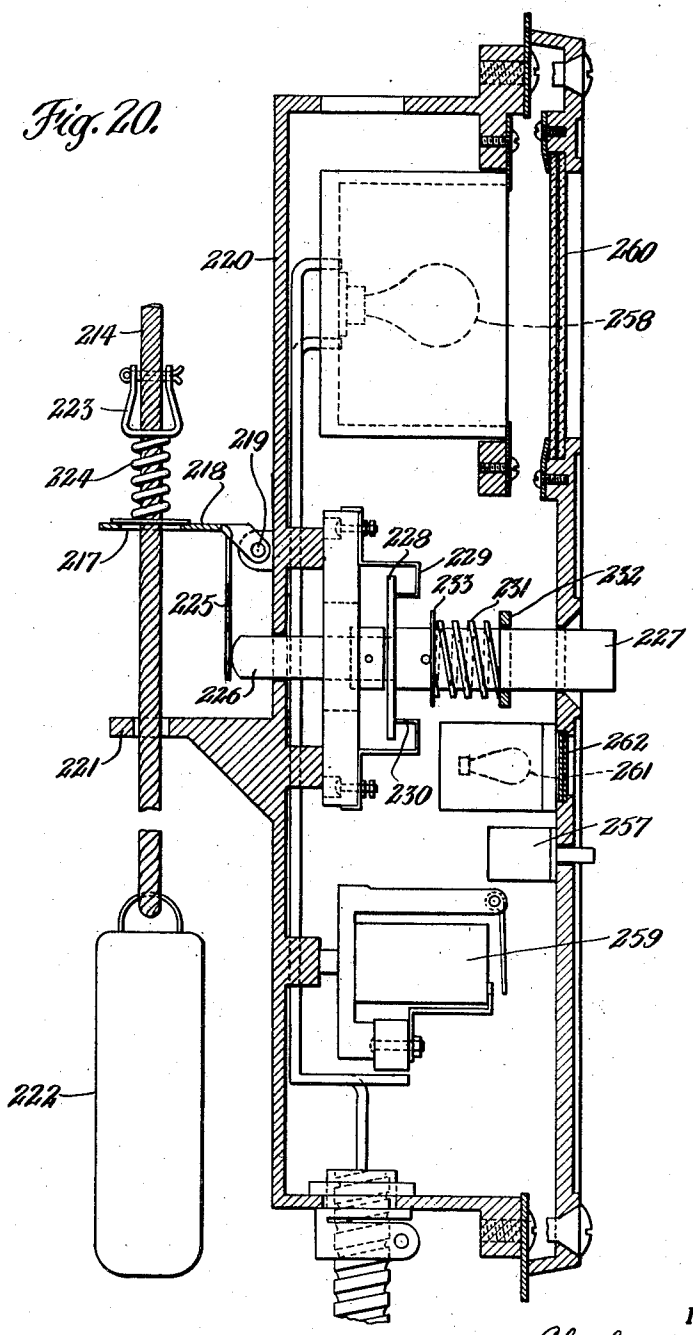

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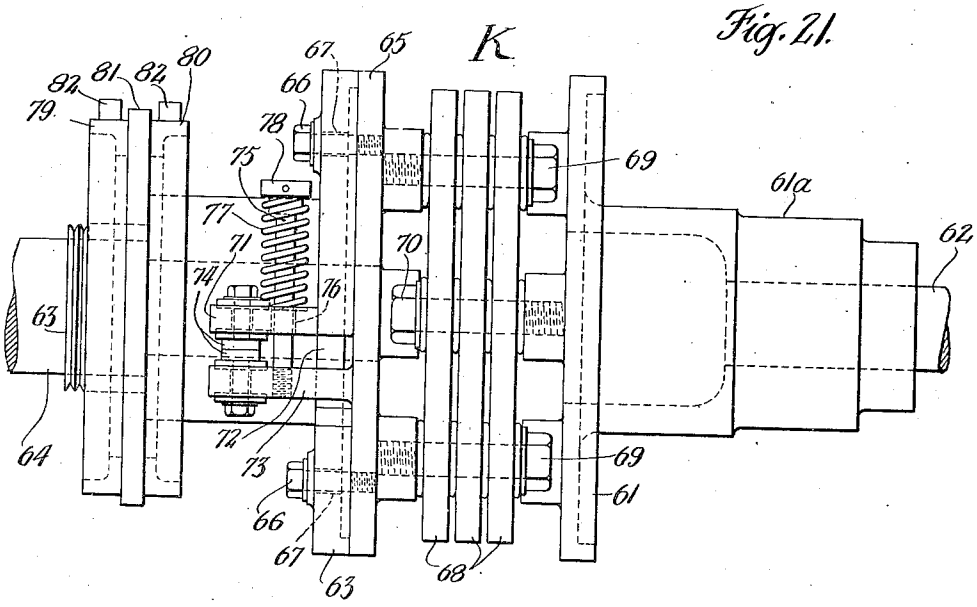
Fig. 21.



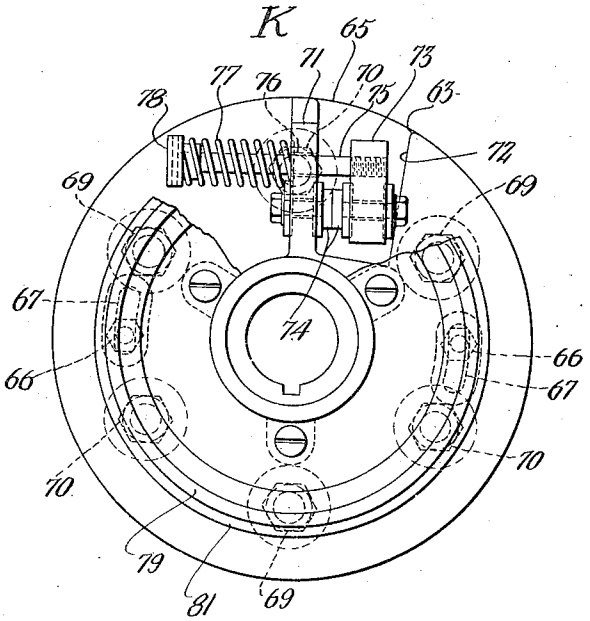


Fig. 22.

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Feb. 12, 1935. C. C. WAITE 1,991,237

LIBRARY CONVEYER SYSTEM

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Fig. 23.

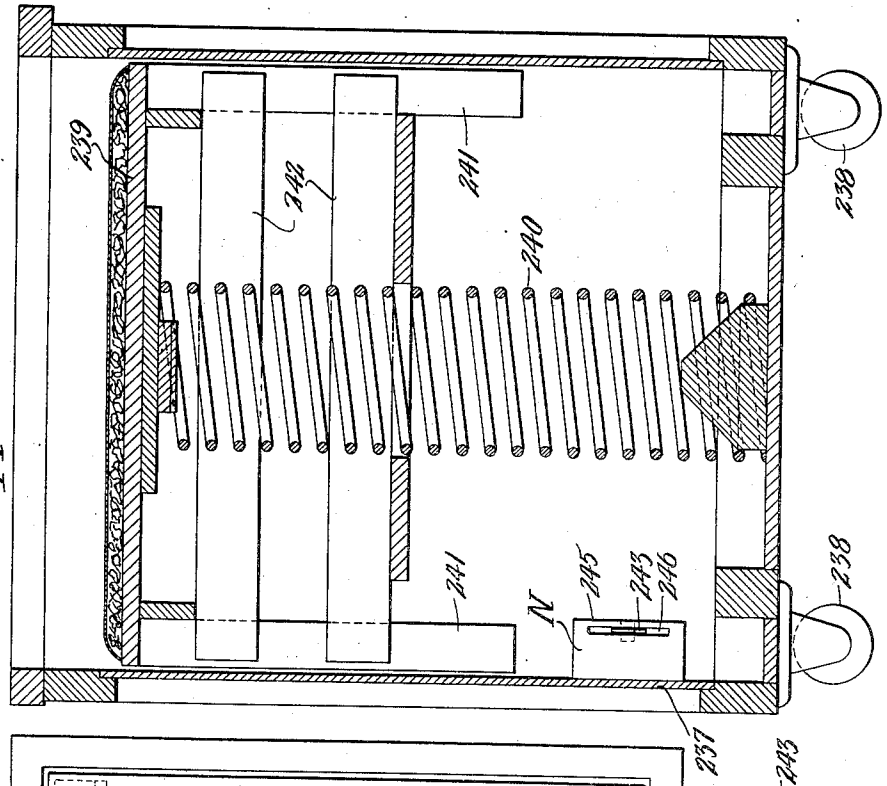

Fig. 24.

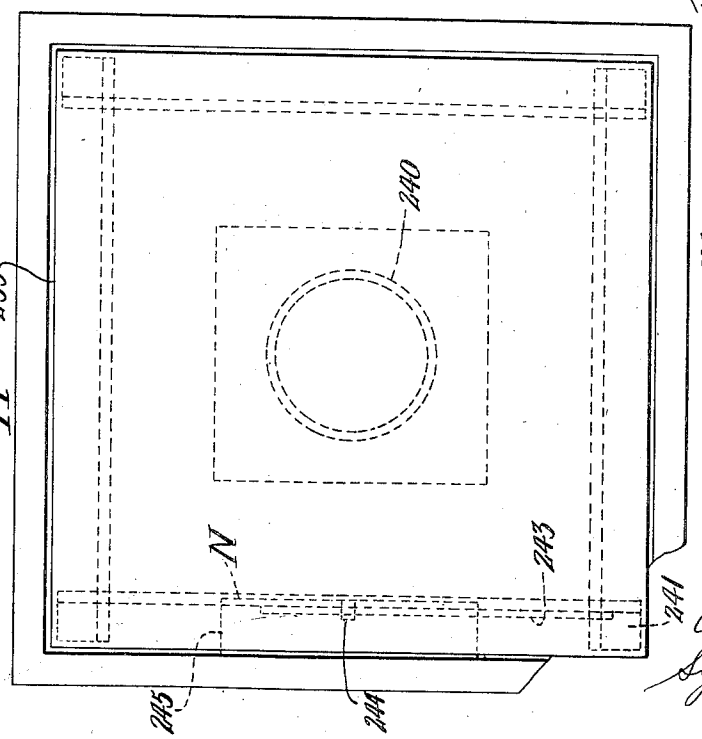

Fig. 25.

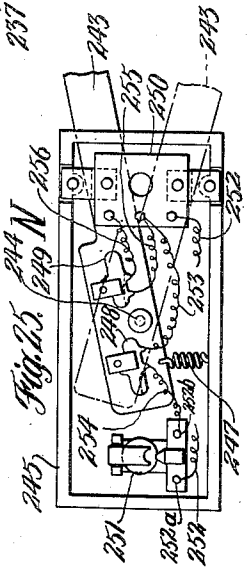

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Fig. 26.

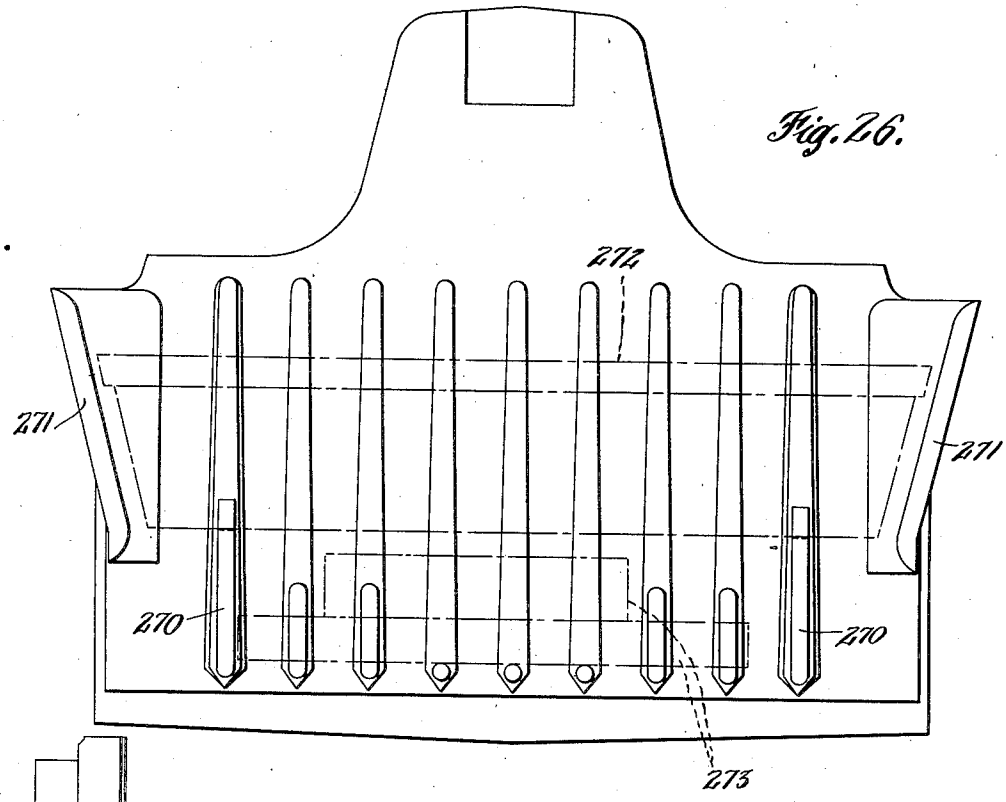

Fig. 27

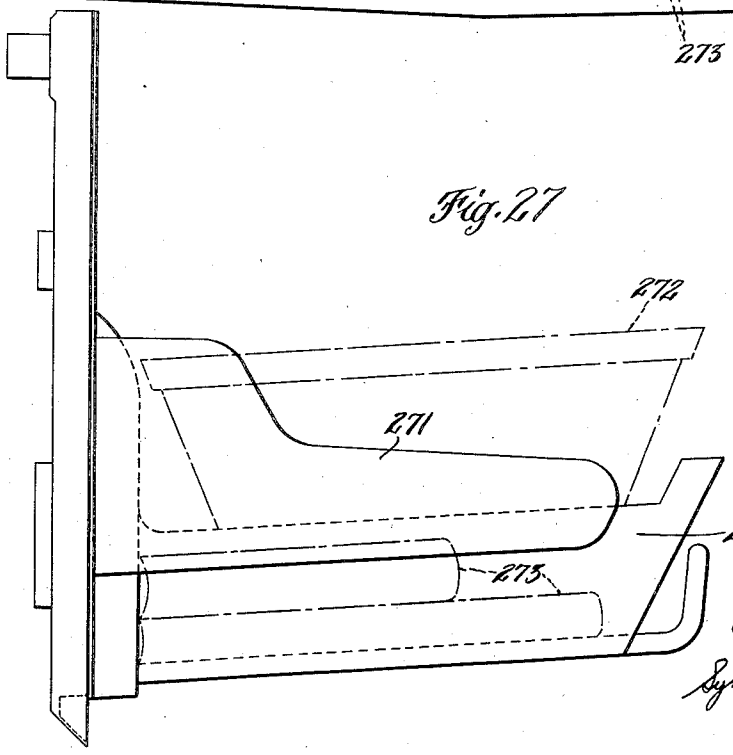

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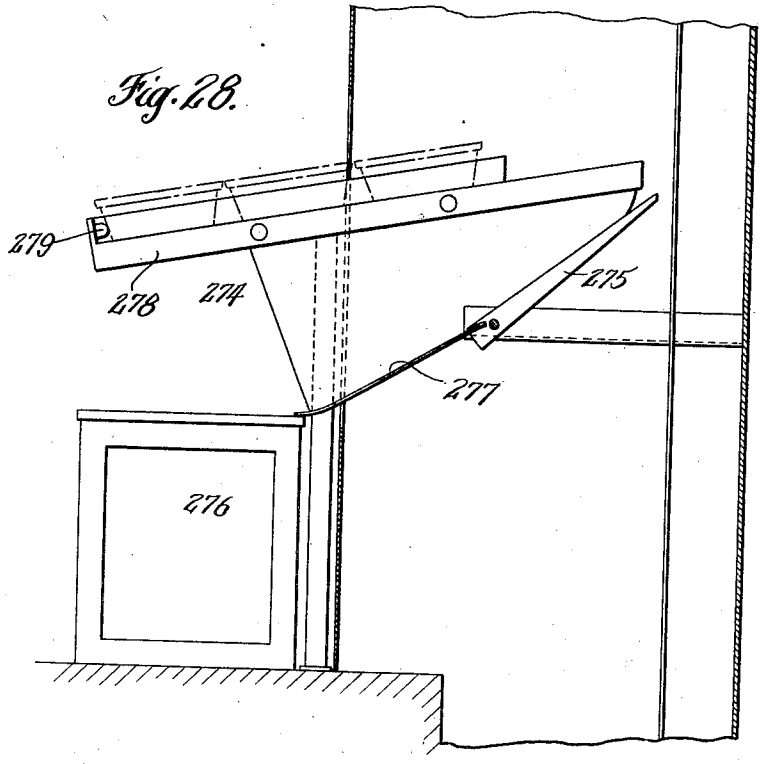
Fig. 28.



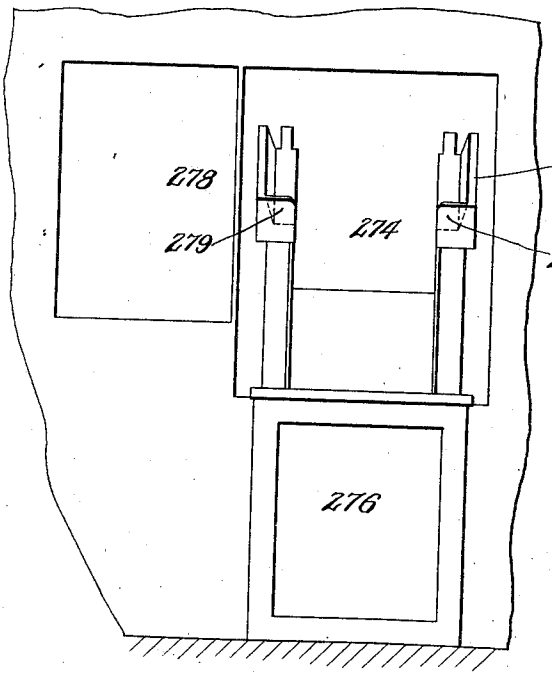


Fig. 29.

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Patented Feb. 12, 1935 1,991,237

UNITED STATES PATENT OFFICE

1,991,237

LIBRARY CONVEYER SYSTEM

Charles C. Waite, Roselle Park, N. J., assignor to Snead & Company, Jersey City, N. J., a corporation of New Jersey

Application April 17, 1931, Serial No. 530,777

18 Claims. (Cl. 214—11)

This invention relates to library conveyers, and certain of its objects and advantages will be clear from the following.

Heretofore, in library conveyers it has been the practice to use two chains between which the carriers for the books have been supported. Among the disadvantages of this arrangement are the following: A relatively deep conduit or shaft is required to house the conveyer and loading must be accomplished first by movement through a suitable opening, in a direction at right angles to the plane of the oppositely moving sections of the chains, followed by a movement at right angles to the first movement, i. e., by a movement in a direction parallel to the said plane. Unloading has to take place in a direction parallel to said plane, and in addition suitable space must be provided to the side of the shaft for the unloading platform and book receptacles. Loading and unloading is, therefore, relatively inconvenient, and substantial space which might be otherwise utilized is required. Furthermore, the chains lengthen or stretch, unevenly cocking the carriers and introducing operating difficulties which render this type of conveyer relatively unsatisfactory.

By the present invention these difficulties are overcome and the expense of the installation very materially reduced. I propose to provide a conveyer employing a single chain with the carrier suspended from a side of the chain so that loading and unloading may take place in a direction perpendicular to the plane of the oppositely moving sections of the chain. This not only facilitates loading and unloading but reduces the size of the shaft necessary. The shaft may be located in the wall, and the only space required for the unloading platform or receptacle is that which is immediately in front of the shaft. Stated in another way, the shafts may be very shallow as compared to the shafts required in the construction previously described, and no space need be provided in the wall to accommodate unloading devices or to provide room for the attendants.

My invention also contemplates the provision of a novel conveyer chain especially adapted for use in conveyer systems of the character described.

Another object of the invention is the provision of a conveyer system in which books or the like may be automatically discharged at preselected points in the system.

More specifically, it is an object of the invention to provide a conveyer system having a central distributing station and a plurality of discharging stations, any one of which may be selected for the discharge of books to be distributed by control from the distribution station, thus enabling the distribution of books to various points in the system to be at the command of a single operator.

A further object resides in the provision of a conveyer system having carriers adapted to selectively actuate automatic unloading devices located at various points in the system.

The invention also contemplates apprising an operator of operating conditions in the system.

Another object of the invention is the provision of a conveyer system in which the carriers for the books being handled are mounted in a novel manner to prevent displacement of the books as the carrier traverses the system.

Among the more specific objects of the invention are the provision of novel devices of the following character: Selector devices, a selector setting device, a control device for the setting device, unloading devices, devices for restoring the selector devices to normal position, safety devices to prevent injury to operators as well as to the system, an overload device, a take-up device, receptacles for books discharged from the system, signal devices, and motor control devices. Various objects and advantages, as well as the operation of the above devices, will be readily understood as the description of the invention proceeds.

How the foregoing, together with such other objects and advantages as may hereinafter appear, or are incident to the invention, are realized, is illustrated in preferred form in the accompanying drawings, wherein—

Fig. 1 is a plan section diagrammatically illustrating the old type of two chain conveyer referred to above.

Fig. 1A is a plan section diagrammatically illustrating the single chain conveyer of my invention.

Fig. 1B is a diagrammatic perspective view illustrating a general layout of a conveyer system in accordance with the invention.

Fig. 2 is a diagrammatic fragmentary elevational view of a portion of a conveyer system constructed in accordance with the invention.

Fig. 3 is a front elevational view of a selector setting device.

Fig. 4 is a cross section taken on the line 4—4 of Fig. 3 with a selector member illustrated in dot-and-dash lines in its normal position and in its set or selective position.

Fig. 5 is a sectional elevation view of what may be termed the reading or delivery room station of the system and illustrating the manner of con-

necting a control device to the selector setting device of Fig. 3.

Fig. 6 is a face view of the control device shown in Fig. 5.

Fig. 7 is a fragmentary vertical section through the control device illustrated in Figs. 5 and 6 and taken substantially on the line 7—7 of Fig. 6.

Fig. 8 is a side view of the book carrier employed in the system with certain horizontal supporting and guiding mechanism for the carrier shown in cross section substantially on the line 8—8 of Fig. 2.

Fig 9 is a face view of the carrier shown in Fig. 8.

Fig. 10 is a fragmentary view illustrating a second position of a selector device which is mounted on the carrier.

Fig. 11 is a plan view of the carrier shown in Fig. 8 with vertical guides therefor illustrated in cross section.

Figs. 12 and 13 are detailed views of the novel conveyer chain which may be employed in the system.

Fig. 13A is a detailed view of a modified form of link.

Fig. 14 is a front elevational view of what may be termed a stack room station of the system with certain portions broken away to better illustrate the operating parts of a book unloading device.

Fig. 15 is a vertical section through a stack room station taken substantially on the line 15—15 of Fig. 14.

Fig. 16 is a plan section through a stack room station taken substantially on the line 16—16 of Fig. 14.

Fig. 17 is a fragmentary elevational view illustrating in detail the construction at the lower right hand corner of the system shown in Fig. 1B and in general is typical of the arrangement of parts where the conveyer changes from vertical to horizontal runs. A take-up device is indicated at the particular corner illustrated.

Fig. 18 is a front elevational view of a take-up device employed in the system.

Fig. 19 is a side view of Fig. 18.

Fig. 20 is a sectional elevation of a safety device, the section being taken substantially on the line 20—20 of Fig. 2.

Fig. 21 is a detailed view of an overload coupling device employed in association with the driving mechanism of the system.

Fig. 22 is an end view of Fig. 21 with certain parts broken partly away to more clearly show other parts.

Fig. 23 is a sectional elevational view through a novel form of book receptacle.

Fig. 24 is a plan view of Fig. 23.

Fig. 25 is an enlarged detailed view of an automatic signal and motor control device located in the receptacle of Fig. 23.

Fig. 26 is a front elevational view of a modified form of carrier.

Fig. 27 is a side view of the carrier shown in Fig. 26.

Fig. 28 is a fragmentary side elevational view of a modified unloading device to be employed with carriers such as shown in Figs. 26 and 27.

Fig. 29 is a fragmentary front view of the device shown in Fig. 28.

Referring to Fig. 1, I have diagrammatically illustrated therein the arrangement of the chains, carriers, loading and unloading elements of a two-chain library conveyer such as heretofore used. The carriers *a* are supported between the two chains *b* and *c*, and the chains pass over sprocket wheels *d* and *e* respectively. The conduit or shaft *f* for housing the conveyer is relatively deep for it must accommodate two chains *b* and *c* plus the width of the carriers *a*. Loading of the carriers must be accomplished first by movement through a suitable loading opening *g* in a direction at right angles to the plane of the oppositely moving sections of the chains followed by movement at right angles to the first movement as indicated by the arrow *h*. Unloading must take place in a direction parallel to said chain as indicated by the arrow *i*, and in addition suitable space at *j* must be provided to the side of the shaft *f* for the unloading platform *k* and book receptacle *l* as well as space for the attendant.

Referring now to Fig. 1A, it will be seen that I provide a conveyer employing a single chain *m* having the carriers *n* suspended or hung from the side thereof so that loading and unloading may take place from the front of the shaft or conduit *o*. The shaft *o* is provided with loading and unloading openings *p* and *q* in its front face. It will thus be seen that loading and unloading takes place in a direction perpendicular to the plane of the oppositely moving sections *r* and *s* of the chain as indicated by the arrows *t*, and that the shaft may be relatively shallow as compared to shafts previously employed in library conveyers. The unloading devices *u* and the book receptacles *v* are located at the front of the shaft. Through this arrangement, no space need be provided in the wall for the devices *u* and *v* or for attendants.

Referring now more particularly to Figs. 1B and 2, the conveyer system comprises in general a conveyer A having a plurality of spaced book carriers B, driving mechanism C for the conveyer, selector devices mounted on the carriers B, a selector setting device E, a control device F for the setting device E, unloading devices G, devices H for restoring the selector setting devices to their normal positions, safety devices I and J for preventing injury to operators as well as to the system, an overload device K associated with the driving mechanism C, a take-up device L associated with the conveyer A, receptacles M for books discharged from the system, a signal and motor control device N in the book receptacles, and other signal, safety and motor control devices to be described hereinafter.

The conveyer A with its book carriers may be arranged to run in a single vertical shaft or in a shaft arrangement such as illustrated in Figs. 1B and 2 in which each of the vertical shafts O and P are provided with a plurality of book receiving openings 30 and book discharging or unloading openings 31, and which will hereinafter be referred to as the stack room stations of the system. The stack room stations of the shaft P are designated by the reference characters *a'*, *b'*, *c'*, *d'*, and *e'*. The upright shaft Q will hereinafter be referred to as the reading or delivery room station *f'*. The vertical shafts O, P, and Q are connected by horizontal shafts R and S, the latter in this instance extending at right angles to the former in the same horizontal plane.

The conveyer A may comprise an endless chain such as illustrated in Figs. 12 and 13, composed of a plurality of U-shaped links 32, having bushings 33 at the open ends of the U. Alternate links are disposed at right angles to each other so that the bushing 33 of one link seats in the U bent portion 34 of the adjacent link, thus pro-

viding a flexible chain having capacity to bend in two directions.

Another form of chain is illustrated in Fig. 12 in which the links 32*a* are also of U shape and are formed with a hole 35 in the bend of the U, and with holes 36 in the legs of the U. The shape of these links is such that the bend of the U fits in between the legs of the next link, and the links are connected by pins 37 and 37*a*, fitting the holes 35 and 36. The hole in one of the legs of the link is made of a shape to correspond to the shape of the end of the pin as indicated at 38, so that the pin is prevented from turning in the link. The link pins may be retained in place as by means of cotter pins. In order to protect the ends of the pins from wear, projections 39 may be provided on the links. The pins 37*a* are longer than the remaining pins of the chain and, therefore, project from the side face of the chain for the purpose of supporting the book carriers. These longer pins are provided at spaced intervals along the length of the chain. Flanges 40 are provided on the pins 37*a* and these flanges bear against the side face of one of the legs of the links.

Although special pins 37*a* are employed in certain of the links, it is to be noted that all of the links are of the same form. In Fig. 13A, however, I have illustrated a modified form of link 32*b* which may be employed where carriers are to be attached. A pin or lug 37*b* is provided for the carrier.

Referring now particularly to Figs. 8, 9, and 11, the carriers B are each provided with a back plate 41 having spaced vertical ribs 42 formed on its front face, and with side plates 43. The bottom of the carrier is formed of a plurality of rods or bars 44 and 44*a* which are spaced apart so as to provide a comb-like bottom of the carrier. The rods 44 have their front ends 44*b* bent up to prevent books from falling out of the carriers, and the rods 44*a* are shorter than the rods 44 to facilitate loading of the books.

The back plate 41 of the carrier is provided with a hub 45 at its upper portion, on which is mounted a wheel 46. This hub is provided with a bore adapted to receive the pin 37*a* of the conveyer chain. The wheel 46 is adapted to run on a horizontal rail 47 when the carrier is traveling in a horizontal run of the system, and a horizontal guide bar 47*a* is provided below the rail 47 against which the back of the carrier rubs in its horizontal run. A horizontal bar 47*b* is located in back of the rail 47 for preventing excessive sag of the chain.

The carrier is guided in its vertical run by a pair of rails 48, the carrier having a member 49 on the rear face of its back plate 41, provided with grooves 50 engaging the rails. The back 41 also has a pair of lugs 51 formed on its rear face and located above the member 49, and in line with the bottom of the grooves 50. The lower edge and sides of the back plate, and the sides, top, and bottom edges of the member 49 are beveled so as to facilitate entry of the carrier onto the rails as the carrier changes either from horizontal runs to vertical runs, or from a vertical run in one direction to a vertical run in another direction. The various rails are tapered at the ends where the carriers enter and leave them to ensure smooth action as illustrated in Fig. 17. At the points where the carriers leave one set of rails and enter the other set they slide on the faces of the sprocket wheels and on the plates 47*c* and 47*d* held in the same plane as the face of the wheels. These plates may be provided with beveled edges 47*e*.

A floating bar 52 is provided in the bottom of one of the grooves 50, in this instance the right hand groove of Figs. 9 and 11, and this bar is pressed against its adjacent rail 48 by means of a spring 53, thus steadying the carrier as it slides along the rails. Similarly a spring pressed pin 54 is provided in the right hand upper lug 51 above referred to. It will thus be seen that the arrangement is one by which shimmying of the carrier will be prevented.

In order to hold the carrier on the pins 37*a*, from which they are hung, a cotter pin held washer 55 is provided as illustrated in Fig. 11. At the point where the pin is attached to the back plate 41, a groove 56 is provided and a cover plate 57 is placed in this groove and in front of the projecting end of the pin 37*a*. This plate may be marked with the identification number of the carrier.

The ribs 42 above referred to are provided in order to prevent the books loaded on the carriers from sliding all the way back against the front face of the back plate. Thus spaces are left between the ribs and behind the rear edges of the books, to enable the tips of the fingers of the unloading combs, to be hereinafter described, to enter freely in back of the books and thereby facilitate unloading. The ribs 42, as well as the edges of the carriers, are well rounded to prevent injury of the books.

The driving mechanism C for the conveyer is preferably located at the top of the vertical conveyer shaft P and comprises an electric motor 58, a speed reducing device 59, and an overload coupling device K, the coupling K being located between the motor 58 and the speed reducing device 59. The driven shaft 59*a* of the speed reducing device carries a sprocket wheel 60, over which the conveyer chain runs.

Referring now more particularly to Figs. 21 and 22, the overload coupling device K comprises a coupling member 61, secured to the motor shaft 62. The coupling member 61 may include a run wheel 61*a* to which any suitable form of brake mechanism may be applied. A second coupling member 63 is located in spaced relation to the coupling member 61 and is secured to the fast running or driving shaft 64 of the reducing device 59. A third coupling member 65 is movably attached to the coupling member 63 by means of bolts 66, which pass through slots 67 in the member 63, so that the members 63 and 65 may have a limited rotative movement relative to each other. The member 65 is secured to a plurality of flexible discs 68 by means of bolts 69. These flexible discs are also bolted to the coupling member 61 by means of bolts 70 which are staggered with respect to the bolts 69. A flexible connection is thus provided between the coupling members 61 and 65. The member 63 has a projecting lug 71 next to which there is a cut away portion 72 through which a corresponding projecting lug 73 carried by the member 65 extends. Each of these lugs carries an electric terminal 74, the terminals being electrically insulated from their respective lugs. Since the coupling members 63 and 65 are adapted to have relative movement with respect to each other, it will be seen that the electrical terminals may be brought together or moved away from each other.

These terminals are normally kept in contact with each other by a bolt 75, which is screwed

into the lug 73, and which passes through an opening 76 in the lug 71. The bolt 75 carries a spring 77, the spring being compressed between the head 78 of the bolt, and the lug 71. The tension of the spring 77 may be varied to give the desired force by loosening or tightening the bolt 75.

The coupling member 63 has mounted thereon a pair of collector rings 79 and 80, which are insulated from each other by means of an insulating disc 81. Current from the motor control circuit is carried to the collector rings 79 and 80 as by means of shoes 82, and the collector rings are electrically connected to the terminals 74 by means of suitable wires.

When the terminals 74 are in contact with each other the circuit for the motor is closed, and when the terminals are separated or out of contact the motor circuit is opened, thus stopping the motor.

In normal operation the torque is carried from the motor through the members 61, 68, and 65, and from thence to the member 63 by means of the spring 77 and bolt 75, and since the member 63 is connected to the reducing device, drive is effected from the motor shaft to the sprocket wheel 60 carried by the driven shaft of the speed reducing device. The spring 77 is adjusted to keep the terminals 74 in contact under normal loads on the sprocket wheel 60.

In the event that the chain or the carriers which are mounted on the chain meet with any obstacle that puts the chain under a strain greater than normal, this strain is carried to the sprocket wheel 60, and through the reducer back to the spring 77, thus comprissing the spring with the result that the terminals 74 become separated and break or open the motor circuit, thus causing the motor to stop.

Since the driving mechanism will be put under strain above normal when it is started up, and thus cause a separation of the terminals 74, an electric bypass through a relay may be introduced into the motor circuit in order to enable the device to be started, even if the terminals are separated, but this relay will be thrown out of operation as soon as the driving mechanism gets into operation, and thereafter any separation of the terminals will cause the motor to stop.

In some instances the flexible discs 68 may be dispensed with, and in such case the members 65 and 61 would be combined as one member.

In order to take up any slack or stretch occurring in the conveyer chain, an automatic take-up device L is provided in the system. The device L is preferably located at the bottom of the shaft P and in association with the first sprocket wheel 83, over which the chain passes after leaving the driving sprocket wheel 60. Referring now to Figs. 18 and 19 it will be seen that the take-up device L comprises a pair of rails 84 rigidly attached to suitable frame work 85 in the lower portion of the shaft P and on which a bearing device 86 for the shaft 87 is adapted to slide. The sprocket wheel 83 is mounted to rotate freely on the shaft 87 and is held thereon by means of a collar 88. A vertically extending rod 89 extends through holes in the top and bottom flanges 90 and 91 respectively, of the bearing device 86. The rod 89 is threaded at both ends and the lower end is screwed into a nut 92 mounted against turning in a bracket 93 carried by a fixed cross member 94. A cotter pin 95 is provided at the lower end of the rod 89 to prevent its being screwed out of the nut.

A wrench 96 engaging a pin 97 at the upper end of the rod 89 is provided for the purpose of turning the rod. A spring 98 is mounted on the rod 89 and engages the lower flange 91 of the bearing device 86 at its lower end and a collar 99 secured to the rod at its upper end.

It will thus be seen that tension on the chain is obtained partly from the weight of the sprocket wheel 83 and the weight of the bearing device 86 and partly from the compression of the spring 98, the amount of this compression being controlled by screwing the rod 89 down through the nut 92.

As the chain stretches, the bearing device 86 will move down on the rails 84, thus reducing the pressure which the spring 98 exerts on the bearing device, but as the spring is only one of the forces that keeps the chain taut, this will not influence the combined forces materially, since the expansion of the spring is limited by the action of a switch 100 incorporated in the bearing device 86, and now to be described.

The switch 100 is carried by the bearing device 86 at its upper portion and comprises a lever 101 hinged at 102 and projecting toward the rod 89. The lever 101 carries a mercury connector 103 of any well-known form, which is connected in series in the motor control circuit. When the lever 101 is in the lower position indicated in Fig. 18, the mercury connector 103 is tilted in a direction to cause the motor control circuit to be closed. As the chain stretches and the bearing device 86 moves downwardly the lever 101 engages a collar 104 attached to the rod 89, and as the chain stretches still more, the collar will cause the lever 101 to move upwardly to the position indicated at 101*a*, thus tilting the mercury connector 103 in a direction to break the electrical circuit and stop the motor. Although a mercury switch has been described, any other suitable form of switch may be employed. The main action of the spring 98 is to give the take-up device a cushioning effect. In order to limit the flexibility of the take-up device, so that it will not reach dangerous proportions, the upward movement may be checked by an adjustable nut 105 screwed on the rod 89.

After slack has been taken out of the chain in the manner just described, the take-up device may be reset for further automatic take-up by screwing the rod 89 down through the nut 92 a sufficient amount to enable the collar 104 to again clear the lever 101, when it is in its down position. After such adjustment has been made, automatic take-up will again be effected as above described.

Referring now to the delivery room station *f'* in the vertical shaft Q illustrated in Fig. 5, it will be seen that an opening 132 is provided through which access may be had to the carriers B as they pass the opening in their downward run. A fixed shelf 133 (see Fig. 2) may be provided at one side of the opening 132 for the convenient handling of the books.

Assuming, now, that it is desired to deliver books from the station *f'* to any of the stack room stations of the system, the operator will first move the hand operated unloading device 134 of the delivery room station to the position indicated in dot-and-dash lines at 135 in Fig. 5, and in which position the unloading device engages a rail 136, so that it will constitute a table at the bottom of the opening 132 for supporting books. The unloading device 134 is in the form of a swingable comb of similar construction to

other unloading combs to be hereinafter fully described. When a carrier B reaches the opening 132 the books which are to be distributed are placed thereon and carried to the particular stackroom station selected for discharge of the books. Each of the stackroom stations is provided with an automatic unloading device G. These unloading devices are automatically moved to unloading position through the medium of selection which is to be made at the delivery room station. The mechanism and operation thereof for accomplishing this result will now be described.

Each of the book carriers B has mounted thereon a selector device D comprising a plurality of selector members 137 (see particularly Figs. 8 to 11), independently pivotally mounted on a shaft 138, which is supported from the carrier in any suitable manner. Each selector member is provided with a selector arm 139 and an indicating arm 140 which for convenience may be termed a flag. The flags of each selector member may be marked with an identification number corresponding to the stack room station at which it will cause the books to be unloaded. Normally the selector members each assume a non-selective position in which the arm 139 extends downwardly as indicated in Figs. 8, 9, and 11, and in which the flag 140 is in its down or non-indicating position. The selector members when in their normal positions rest against rubber bumpers 139*a* mounted on the side of the carrier. In the particular system illustrated in the drawings each selector device D is provided with nine selector members which correspond in number to the number of stackroom stations in the system. It is also to be understood that a single selector member placed in different positions to operate the different station unloading devices may be employed.

The selector members 137 are adapted to be moved to their selective positions by means of a setting device E which is preferably located at the bottom of the delivery room station *f'* as diagrammatically illustrated in Fig. 2. Referring to Figs. 3 and 4, the setting device E comprises a support 141, a shaft 142, a plurality of trip members 143 independently pivoted on the shaft 142, a plurality of operating rods 144, one connected to each trip member, a latch member 145 and a plurality of arms 146 pivoted on the shaft 142 and adapted to release the latch member 145, there being one arm 146 for each trip member 143. Although the arms 146 are shown independently pivoted, they may be connected together to swing as one arm.

The operating rods 144 are actuated by a control device F located at the delivery room station *f'* adjacent the opening 132. The control device F is provided with a plurality of push buttons 147 (see Fig. 5) which are operatively connected to the upper ends of the operating rods 144 by means of bell crank levers 148 and rods 149, the bell crank levers being pivoted at 150 on a fixed support. The rods 149, provided with lock nuts, are threaded into the push buttons 147 to provide adjustment. The number of trip members 143 and arms 146 employed in the setting device E correspond to the number of selector members employed in the selector devices, and since there are nine stack room stations in the particular system illustrated, there will, of course, be nine selector members 137, nine trip members 143, nine arms 146, and nine control buttons 147 for actuating the trip members 143.

Assuming, now, that the operator at the delivery room station desires to deliver books to stack room station *c'* he will then depress the button corresponding to this stackroom station and shown depressed in Fig. 5, which lifts its connected trip member 143 from its inclined or non-tripping position to its horizontal or tripping position, as shown in Figs. 3, 4, and 5. Each trip member 143 is provided with a lug 151 and a pawl 152. The lug 151 is adapted to engage a projection 153 on the latch 145 when the trip member is moved from its non-tripping position to its tripping position so as to move the latch member 145 rearwardly to a position in which the pawl 152 will clear the lip 154 of the latch member. When the trip member approaches its tripping position, the lug 151 snaps past the projection 153 on the latch member 145 which causes the latch to move to the full line position indicated in Fig. 4 and thereby engage the pawl 152 and thus hold the trip member in its tripping position. The latch member 145 is mounted to pivot at 155 and is releasably held in its latching position by means of a spring 156.

The setting device E is so located within the conveyer shaft relative to the selector devices D that the selector members will clear the trip members when they are in their non-tripping position, but that any particular trip member which is moved to its tripping position will lie in the path of its corresponding selector member. The relation of these parts is clearly illustrated in Figs. 2 and 4.

As a carrier approaches the setting device E the flag 140, of the selector member corresponding to the selected trip member, engages said trip member as indicated at 157 in Fig. 4, and as the carrier proceeds this selector member is rocked on its pivot to its selective position as indicated at 158. As the carrier proceeds further the selector arm 139 of the selector member engages the arm 146 of the setting device corresponding to the trip member which has been set and rocks this arm to the dot-and-dash position indicated at 146*a*, which, in turn, causes the arm 146 to engage the latch member at 145 at 159 and rock it to the position shown in dot-and-dash lines at 145*a*. This releases the pawl 152 and allows the previously set trip member to move to its non-tripping position under action of a spring 160. This also moves the button that was pushed back to its normal position. When the selector member has moved past the arm 146 the arm will be returned to its normal position under the influence of the spring action of the latch member 145. A stop member 161 is provided to limit the latch member in its movement to latching position and a stop member 162 is provided to limit the latch member in its movement to unlatching position, the latch member being provided with an arm 163 which is engageable with the pin 162 when the latch member is in its unlatched position as indicated in dot-and-dash lines at 163*a*. The stop member 162 and the stop member 164 extend across the device E and restrict the movement of the trip members 143. The stop members 161, 162, and 164 are preferably rubber-covered in order to reduce noise.

With the parts of the setting device E in the position just described, it will be seen that as following book carriers B pass the setting device there will be no actuation of the selector devices of said carriers. After the carrier B on which selection has been made, leaves the setting device E, it passes along the horizontal run of the system

and then vertically upward past the various book loading openings of the vertical shaft P exposing the identification number on the flag to view, and then passes downwardly in said shaft, and, as it reaches the station *c'* which has been selected for book removal, the arm 139 of the selector member which has been set, engages a parallel bar 165 which normally assumes the position indicated in dot-and-dash lines in Fig. 14. This engagement moves the bar downwardly to the position shown in full lines.

The parallel bar 165 is carried by a pair of arms 166, pivoted to a fixed support in the distributor shaft. As the book carrier proceeds, the edge 139*b* of the arm 139 rides along the front face 165*a* of the bar 165, thus holding the bar in the position indicated in full lines. The bar 165 is operatively connected with a book unloading comb 167, in such a manner that the comb is moved from its non-unloading position, indicated in dot-and-dash lines at 167*a* in Fig. 15, to its unloading position, shown in full lines in that figure, the operative connections being as follows: An arm 168 is secured to the rock shaft 169 on which the arm 166 is secured, and, therefore, any movement which is transmitted to the arm 166 by the parallel bar 165 is also transmitted to the arm 168. The arm 168 is connected to a lever 170, which is secured to the rock shaft 171 of the comb 167, by means of a link 172 and compression spring 172*a*. The spring engages the lever 170 at its lower end, and at its upper end it engages a collar 172*b* which is secured to the link 172, the link being free to slide through a hole in the lever 170 and thus compress the spring to take up any over travel. A washer 172*c* is secured to the lower end of the link 172 to prevent its displacement from the lever 170.

The parts just described are so arranged that when the parallel bar 165 is in the dot-and-dash position shown in Fig. 14 the comb 167 will be in a position to be clear of the book carriers.

When the parallel bar 165 is in the full line position shown in Fig. 14, the comb 167 is moved into the conveyer shaft as shown in full lines in Fig. 15, this position being the book unloading position of the comb. As soon as the selector device of the carrier leaves the parallel bar 165, this bar together with the unloading comb and associated mechanism will be returned to their normal positions under the influence of a spring 173 (see Fig. 15) which spring is connected at its lower end to the lever 170 and at its upper end to a fixed support 174. Thus the parallel bar 165 will again be in a position to be operated upon by the next set selector member corresponding to the bar and the unloading comb will be in a substantially vertical position in which it acts as a closure for the unloading opening 31. By referring to Fig. 15, it will be seen that a cushioned stop 175 is provided for the comb when in its substantially vertical position, and that an adjustable stop member 176 is provided for positioning the comb in its unloading position, the stop member 176 being carried by an arm 177 which is secured to the shaft 171. In this connection it is pointed out that the bars of the comb-like bottom of the carriers B are spaced sufficiently apart to allow the fingers of the unloading comb 167 to freely pass there-between.

As the book carrier continues in its downward movement any books which are carried thereby are combed off, so to speak, by the comb 167 so that the books ride down the inclined face of the comb and discharge through the unloading opening 31 of the shaft P into a book receptacle M suitably located below the comb. It is to be noted that unloading of the books takes place while the arm 139 of the selector device D is still in contact with the front face 165*a* of the parallel bar 165, which contact is maintained for a short period of time after the book carrier has passed the unloading comb. A polished slide or apron 180 forms a continuation of the comb at its lower end. This slide is curved at 181 so that when the books leave it they will assume a horizontal position to facilitate proper loading in the book receptacle.

As the selector device D approaches the lower end portion of the bar 165, a cam surface 182 carried by an arm 183 which is secured to the rock shaft 184 of the lower lever 166 is engaged by a projecting arm 185 associated with the selector device D. By referring more particularly to the Figs. 8, 9, 10, and 11, it will be seen that the arm 185 is formed on a latch 186. The latch 186 is pivotally mounted on the carrier at 186*a* and has a hooked end 187 adapted to engage projections 188 provided on the selector members 137, there being one such projection on each selector member. The latch 186 only engages the projection 188 when the selective members have been moved to their selective positions and, therefore, operates to hold the selector members in their selective position until it is released. It is pointed out that the latch 186 is of such length as to engage any selector member of the set and that it is yieldingly held in its engaging position by a spring 186*b*.

When the projecting arm 185 engages the cam 182 above referred to, it will be rocked upwardly thus lifting the latch 186 clear of the projection 188 of the member which had previously been selected. This releases the selected member and allows it to drop to its normal or non-selective position.

After the above operations have taken place, the book carrier continues in its traverse of the system and finally returns to the delivery room station.

As thus far described the operation of the system is as follows—First the books are placed on the carrier at the delivery room station, then a button of the control device F is depressed, which sets one of the trip members of the selector setting device E, then as the carrier containing the books reaches the setting device one of its selector members is moved to its selective position by the trip member which has been set, and as the carrier passes the setting device, the previously set trip member is returned to its normal position, and when the carrier reaches the selected station the set selector member engages the parallel bar 165 of that station and causes movement of the unloading device to its unloading position. As the carrier proceeds the books are discharged into the book receptacle, and as the book carrier leaves the selected station the previously set selector member and the unloading device are returned to their normal positions.

In some instances it may be desirable to send several book carriers to the same stack room station, and in order to be enabled to do this without having to push the control button of that particular station for each carrier, a repeat button 189 is provided in the control device F. This button is indexed by the letter "R" on the cover plate, as shown in Fig. 6. Referring now more particularly to Figs. 3, 4, 5 and 7, it will be seen

that the push button 189 is provided with a rearwardly extending rod 190, which is screw threaded into the button, and locked in place by a nut 191. The rod 190 is guided at its rear end by means of a fixed support 192. A compression spring 193 is mounted on the rod between the nut 191 and the fixed support 192, and tends to maintain the button 189 in its non-depressed position. A locking bar 194 is located within the control box and is hung on the push button 189 and is adapted to slide in suitable guides.

The locking bar is provided with a series of holes 195, one for the button 189 and one for each of the station selecting buttons 147. A spring 196 attached at its lower end to the control box at 197 and at its upper end to the locking bar at 197*a* is provided to pull the bar downwardly. When it is desired to send several successive carriers to the same stack room station, the button for the particular station selected is depressed, causing actuation of the selector setting device E in the manner above described. Then the repeat button 189 is depressed which causes the locking bar 194 to slide downwardly on the tapered portion 189*a* of the button 189, and into the groove 189*b* of the button, the spring 196 acting to pull the bar downwardly.

The station control buttons 147 are each provided with a pair of grooves 198 and 199, the grooves 198 being so located that they register with the locking bar 194, when the buttons are in their normal or nondepressed positions, and the grooves 199 being so located that they will be in registry with the bar 194 when the buttons are depressed.

It will be seen that when the repeat button 189 is depressed the locking bar moves into the grooves 198 of the non-depressed station buttons 147, and into the groove 199 of the depressed station button 147. This locks all of the buttons against further actuation, and therefore the particular trip member of the selector setting device E which was actuated is held in its tripping position until the control device F is operated in a manner to nullify the repeat action.

As long as the control device F is set as just described, the particular selector member 137, corresponding to the set trip member, of each carrier that passes the setting device E will be moved to its selective position. In this connection it is pointed out that although the set selector members of the carriers will actuate the arm 146 of the setting device E shown in Fig. 4, and thus cause the latch member 145 to be moved out of engagement with the pawl 152 of the trip member which has been set, this trip member, however, will not fall to its non-trip position by reason of the fact that the rod 144 and its corresponding station button 147 are in locked position.

In order to be enabled to return the control device F to its normal position, after the desired number of carriers have passed the setting device E, a neutral button 200 is provided in the control device, this button being indexed by the letter "N" on the cover plate, and being located at the bottom of the control box. A rod 201 is screwed into the back of the button 200 and locked in place by a nut 202. The other end of the rod 201 is connected to the lower end of a bell crank lever 203 which is pivoted at 204 on a fixed support as illustrated in Fig. 5. A rod 205 is connected at its upper end to the other arm 206 of the bell crank lever 203, and at its lower end to a lug 207, provided on the latch member 145 (see Fig. 3).

The neutral button 200 is provided with a groove 208 and a tapered portion 208*a* leading to the groove. When this button is in its non-depressed position the groove 208 registers with the lock bar 124, it being pointed out that when the locking bar is in the down position above described the lower edge 209 thereof will seat in the bottom of the groove 208. When the button 200 is depressed the locking bar 194 is moved upwardly by the tapered portion 208*a*. This moves the locking bar out of the grooves of all of the other push buttons. The spring 193 will then push the repeat button 189 to its non-depressed position, so that this button will again carry the locking bar. Depression of the neutral button 200 also moves the latch member 145 of the setting device E to the dotted position indicated ta 145*a* in Fig. 4 and thus releases the set trip member 143 from its set position to its normal position and this in turn causes the particular station button which had been depressed to be returned to its non-depressed position.

In the event that an operator should inadvertently depress the wrong station button and sets the trip member which is connected to this button into operative position, this error may be remedied by depressing the button corresponding with the desired station. On pushing the correct button, the latch member 145 is moved out of engagement with the trip member which had been set by mistake, thus allowing this trip member to return to its normal position. The trip member corresponding to the second button depressed will however, be held in its tripping position.

In order to void the action of any station button which was depressed, it is only necessary to depress the neutral button 200, because actuation of this neutral button moves the latch member 145 in a direction to release any trip member which may be held thereby.

Each push button referred to is provided with a shoulder 210 for limiting the outward movement thereof, and felt washers 211 may be provided behind the shoulders for the purpose of dampening noise when the shoulders strike the control box on their return to normal position.

Assuming now that it is desired to deliver books from the stack room station to the reading or delivery room station, the operation will be as follows. A shelf 212 is provided in front of each loading opening 30 of the stack room stations and a book stop 213 is provided above this shelf to constitute a low back for the shelf, preventing books on the shelf from being accidently pushed into the distributing shaft. The books are loaded directly onto the carriers as they pass the loading openings 30, and if they are not properly loaded, i. e. if they extend outside the carrier, they will come in contact with a cord 214, flexible chain or the like, as the carrier proceeds, the cord being stretched across the upper part of the loading opening.

This cord is connected with a switch incorporated in the motor control circuit and is adapted, when stretched to break the motor circuit and stop the driving machinery. The switch is illustrated in detail in Fig. 20.

If the operator being slow in loading the books comes in contact with this cord so that it is stretched, it will have the same result, i. e. the driving machinery will be stopped. The cord 214 is fastened to a bracket 215 (see Fig. 14) at one

side of the loading opening, and passes over a pulley 216 at the other side of the loading opening, and then passes downwardly at the side of the loading opening, and through an opening 217 (see Fig. 20) in a lever 218, which is pivoted at 219 to a switch box 220. From thence the cord passes through a guide opening 221 at the side of the switch box and a weight 222 is secured to the lower end of the cord to keep it taut.

A clip 223 is fastened to the cord a short distance above the lever 218, and a compression spring 224 is mounted on the cord between clip 223 and the lever 218. The lever 218 has a downwardly projecting arm 225 adapted to engage a pin 226, formed as part of a push button 227. The push button 227 carries a plate or disc 228 constituting a contact member adapted to complete a circuit from a contact 229 to a contact 230. The contacts 229 and 230 are connected in series in the motor control circuit, and with the parts in the position shown in Fig. 20 the motor circuit is closed. When the cord 214 is pulled the pressure on the pin 226 which is in contact with the arm 225 will be released and a spring 231 mounted on the push button 227 between a fixed support 232 and a collar 233 secured on the push button, will push the pin 226 to the left, and thus open the contact between 228, 229 and 230. This same result may be obtained by depressing the push button 227 which extends through the front face of the switch box 220. The clip 223 may be moved up or down on the cord 214 to give the desired pressure to the spring 224, it being pointed out that the spring in addition to transmitting the proper pressure to the disc 228, to form an electrical contact between it and 229 and 230 also prevents shocks from the cord, when it is stretched and then released, from being carried over to the lever 217.

Each stack room station is provided with a motor control device such as just described.

Reverting now to the reading or delivery room station it is to be noted that this station also is provided with a safety device for preventing the books or operators from being injured when loading books onto the carriers. This device comprises a safety ledge 234 (see Fig. 5) hinged on the comb shaft 235, directly inside of the loading opening 132. This safety ledge is held in position by a chain or cord 236, which runs over suitable pulleys to a switch device located at the front of the delivery room station, and in this instance incorporated in the control device F.

This switch device and the manner of operatively connecting the cord 236 thereto, is the same as that just described in connection with the cord operated safety device of each stack room station and illustrated in detail in Fig. 20 of the drawings.

Referring now more particularly to Figs. 23, 24 and 25 in which the book receptacle M and associated motor control device N are illustrated in detail, it will be seen that the book receptacle 237 is mounted on wheels 238 to enable it to be moved about, and comprises a movable bottom 239, a compression spring 240 adapted to yield as books are piled on the movable bottom 239, guide members 241 for the bottom 239 and suitable bracing 242. The signal and motor control device N is mounted at the lower portion of one of the sides of the receptacle and is provided with an operating lever 243 pivoted at 244 in the switch box 245. The lever 243 projects through a slot 246 in the end of the switch box a sufficient distance so that its end lies under the adjacent guide member 241.

The lever 243 is normally held in the position shown in full lines in Fig. 25 by means of a spring 247. This lever has fastened thereto two mercury switches 248 and 249, one being located on each side of the pivot 244.

An electrical terminal bar 250 and a buzzer 251 are mounted in the switch box 245. Wires are led to the terminal bar 250 from the signal and motor control circuits. A wire 252 connects the lower terminal of the bar 250 to the terminal 252*a* of the buzzer 251 and a wire 253 connects the middle terminal of the bar 250 to one terminal of mercury connector 248, the other terminal of the mercury connector being connected to the terminal 252*b* of the buzzer 251 by a wire 254. The terminals of the mercury connector 249 are connected to the upper two terminals of the bar 250 by means of wires 255 and 256.

When the lever 243 is in its normal or upward position, the signal circuit is broken in the connector 248, and at the same time the power circuit is closed, by means of the connector 249. As the book receptacle approaches fullness, the bottom 239 moves downwardly thus causing the guide 241 to engage the lever 243, and when this lever assumes a substantially horizontal position, the mercury in the connector 248 will form an electrical connection between the wires 253 and 254 in the signal circuit and cause the buzzer to sound, thus giving a warning to the operator that the books should be removed. With the lever in this horizontal position, the power circuit which is under control of the mercury connector 249 remains closed. If the buzzer warning is not heeded and more books are loaded onto the movable bottom, it will move still lower down and tilt the lever 243 beyond its horizontal position, as shown in dot and dash lines. This causes the circuit to be broken in the mercury connector 249 with the result that the motor circuit is opened, and the driving mechanism of the system stopped. The books must now be removed from the receptacle before the driving mechanism can be started again.

The purpose of stopping the conveyer when the receptacle is fully loaded is to prevent books from piling up in the receptacle to the point where they will overflow and fall on the floor, and thus either be injured or pile up to the point where they would project into the distributor shaft and get caught between one of the combs and a moving carrier. This would cause injury both to the books and to the mechanism of the system.

The spring 240 is of such tension that the movable bottom 239 will be held in a position close to the top of the receptacle when no books are loaded thereon. It is also pointed out that the capacity of the spring is such that it will be compressed an amount about the thickness of each book, as the books are loaded onto the movable bottom, so that the top of the book always will be at the same level as the bottom 239 when free of books. This ensures proper loading of books in the receptacle. In order to prevent injury to the books the top face of the movable bottom may be provided with a layer of felt or other cushioning material, having a protective cover thereover.

The conveyer driving mechanism C is started by means of a switch 257 (see Fig. 6) located in the switch box 220 of the reading or delivery room station *f'*. This switch is connected in the motor starting circuit and actuates a time relay that may be adjusted to delay starting of

the driving mechanism to a set time. Signal lamps 258 and buzzers 259 are included in the motor starting circuit and the switch box 220 of each station includes such a lamp and buzzer. A translucent plate 260 reading "Machinery starting" is provided in front of each signal lamp. These plates 260 will be illuminated by the lamps, and the buzzers 259 will sound during the delayed starting period.

The switch box 220 of the reading or delivery room station *f'* also includes a signal lamp 261, which is incorporated in the motor control circuit. This signal lamp will light and illuminate a plate 262, reading "Reset overload relay", when the driving mechanism has been put to a strain sufficient to cause the overload device K to operate in the manner pointed out hereinbefore to stop the driving motor.

The overload relay in the motor control circuit must now be reset before the driving mechanism may be again started. This is a precautionary measure to compel operators to make an investigation to determine the cause of the excess strain on the driving mechanism.

While the conveyer system has been described as having loading openings at the upward moving side of the conveyer, and unloading openings at the downward moving side of the conveyer, it is to be understood that both the loading and unloading openings and associated devices, may be located at the downward moving side, in which case the unloading devices would be located above or below the loading openings. The operation of the various devices of the system would be the same as that described above.

It is pointed out that in systems embodying a large number of stack room stations, selector devices D may be provided at both sides of the carrier. In such instances two selector setting devices E would be employed, one for each selector device D, and the unloading devices operated thereby would be suitably located in the distributor shaft.

The brake mechanism above referred to as applied to the run wheel 61*a* may be electrically operated, and may be so connected into the motor circuit that the brake will be applied when the motor circuit is opened.

Referring now to the modified form of carrier shown in Figs. 26 and 27 and to the modified form of unloading device shown in Figs. 28 and 29, it will be seen that the carrier is provided with spaced support members 270 and side guide members 271 for supporting and guiding boxes 272 in which the books or other material being handled may be carried. These parts are so arranged that books may also be placed directly on the carriers independently of the boxes if desired, as indicated in dot and dash lines at 273 in Figs. 26 and 27. The side guide members 271 may be adjusted as desired.

The unloading device 274 comprises a comb-like member 275 which cooperates as before with the comb-like bottom of the carriers to discharge the books carried directly by the carrier into a suitable receptacle 276 by sliding along the upper surface of the member 275 and the apron 277. The boxes 272, however, engage a pair of spaced inclined guides 278 of the unloading device as illustrated in Figs. 28 and 29. Stops 279 are provided at the bottom of the incline of the guides 278 to prevent the boxes from sliding off the guides. It will thus be seen that the books which are carried directly in the carriers are separated in unloading from the boxes.

While a system has been described in which the various stack room stations are provided with automatic unloading devices, it is also contemplated in some instances to employ hand operated unloading combs similar to the comb 134 shown in Fig. 5 at the various stations. In instances where it is desired merely to send books or other material from a number of stations to a central station selective and unloading devices such as above described are not employed, but a fixed comb is employed at the central station to serve as a discharging means.

Although the invention has been described as having a single setting device E located at a central station, it is to be understood that similar setting devices may be located at any or all stations of the system to enable the sending of books or other material from any station to any other station.

I claim:—

1. A conveyer system for libraries including a plurality of book discharging stations, a conveyer having a book carrier adapted to traverse said stations, a normally inactive book unloading device at each station, a plurality of selector members on said carrier, one for each unloading device, and each adapted to move a different unloading device to its unloading position and to so hold it for a predetermined period of time, and means for setting any selector member in position to actuate its corresponding unloading device.

2. A conveyer system for libraries including a plurality of book discharging stations, a conveyer having a book carrier adapted to traverse said stations, a normally inactive book unloading device at each station, and a plurality of selector members on said carrier, one for each unloading device, each selector member being selectively movable to a position to actuate a different unloading device and each selector member being adapted to hold its unloading device in unloading position while the carrier traverses the station at which unloading is to be effected.

3. A conveyer system for libraries including a plurality of book discharging stations, a conveyer having a book carrier adapted to traverse said stations, a normally inactive book unloading device at each station including means adapted to be selectively actuated for moving said device to unloading position, a plurality of selector members on the carrier, one for each discharging station, the aforesaid means of the unloading device being so proportioned and said selector members being so relatively positioned that each selector member is adapted to actuate a different one of said means and to hold said means in its actuated position for a predetermined length of time, and means for setting any selector member to actuate its corresponding unloading device moving means.

4. A conveyer system for libraries including a plurality of book discharging stations, a conveyer having a book carrier adapted to traverse said stations, a book unloading device at each station including a tray and a selectively actuated parallel bar for moving said tray to unloading position, a selector device including selector members for determining which parallel bar is to be actuated, and means for setting said selector device.

5. A conveyer system for libraries including a plurality of book discharging stations, a conveyer having a book carrier adapted to traverse said stations, a book unloading tray at each sta-

tion selectively actuated bars for moving said trays to unloading position, and selective mechanism for determining which unloading tray shall be moved to unloading position including a plurality of movable members on the carrier, one for each unloading tray, and each adapted to be moved into position to engage and have sliding contact with the bar of a particular unloading tray and thereby hold said tray in unloading position for a predetermined interval of time, a plurality of setting members, one for each movable member on the carrier, and operating means for moving any setting member into its position for setting its corresponding carrier member to its actuating position.

6. A conveyer system for libraries including a delivery room station and a plurality of stack room stations, a conveyer having a book carrier adapted to traverse said stations, a normally inactive book unloading device at each stack room station including a parallel bar movable in a direction to bring the device into active position, a plurality of selector members pivotally mounted on the carrier and corresponding in number to the number of stack room stations in the system, said selector members having selective and non-selective positions, said parallel bars being so located with respect to the selector members that each is operable by a different selector member when in selective position, means for moving any one of the selector members to selective position comprising a plurality of trip members one located in the path of each selector member when in their tripping positions, and control means at the delivery station for moving any one of the trip members to its tripping position, said trip members acting on the selector members as the carrier reaches them, and said selector members acting on the unloading devices as the carrier reaches them.

7. A conveyer system for libraries including a plurality of book discharging stations, a conveyer having a plurality of spaced book carriers adapted to traverse said stations, a selectively operable book unloading device at each station, a plurality of selector members on each carrier, one for each unloading device, and a central control device including a plurality of trip members, one for each selector member, a controller for each trip member, means connecting the controllers to the trip members, each controller being operable to set its connected trip member in position to trip its corresponding selector member into selective position as the carrier passes the control device, releasable latch means for holding the trip members in tripping position, a member associated with each trip member and arranged to project into the path of the carrier when the trip member is in tripping position and located beyond the trip member so that it will be engaged by the carrier after trip selection has been made and moved in a direction to release the latch means to allow the trip member to return to its normal position, and a controller operatively connected to the latch means for manually releasing the latch means.

8. In a conveyer system of the character described, a device for setting selective members including a support, a shaft carried by said support, a plurality of trip members pivotally mounted on said shaft, means for moving any trip member to tripping position, a holding pawl and a releasing lug carried by each trip member, a latch adapted to engage the holding pawl of any trip member when such member is moved to tripping position, and said releasing lug being adapted to move the latch in a direction to release any other trip member which at that time is being held in tripping position.

9. In a conveyer system of the character described, a device for setting selective members including a support, a shaft carried by said support, a plurality of trip members pivotally mounted on said shaft, means for moving any trip member to tripping position, a holding pawl and a releasing lug carried by each trip member, a latch adapted to engage the holding pawl of any trip member when such member is moved to its tripping position and thereby hold the trip member in such position, and means on said latch adapted to be engaged by the releasing lug of any trip member when such member is moved to tripping position to move the latch in a direction to release any trip member which at that time is being held in tripping position, together with other means for moving said latch to releasing position.

10. A conveyer system for libraries including a conveyer having a book carrier adapted to traverse the system, a plurality of selector members on said carrier, a plurality of trip members one for each selector member, a support for said trip members, means for mounting the trip members on said support for movement from non-tripping to tripping positions, said support being so located relative to the conveyer that the trip members when in tripping position lie in the path of travel of the selector members, an operating member for each trip member, means for releasably holding any trip member in its tripping position when so moved by its operating member, a releasing member adjacent each trip member, said releasing members being movably mounted on the support and having portions projecting into the path of travel of the selector members, said projecting portions being spaced apart from the aforesaid trip members in the direction of travel of the conveyer, means on each carrier selector member adapted to engage its corresponding trip member when the trip member is in tripping position and thereby trip the selector member to selective position as it passes the trip member, and means on each selector member adapted to engage its corresponding releasing member when the selector member is in selective position and thereby move the releasing member to a position to release the aforesaid holding means as said selector member passes the releasing member and thereby return the trip member to its non-tripping position.

11. In a conveyer system of the character described, a device for controlling the setting of a plurality of selectors including a plurality of push buttons one corresponding to each selector, a plurality of selector setting members, one for each selector, means connecting the push-buttons to the setting members, a locking plate having an inactive and a locking position, locking grooves in said push buttons adapted to receive the locking plate when in its locking position, a push button for actuating the locking plate from inactive to locking position, said last mentioned push button having a locking groove adapted to receive the locking plate when the button is depressed and thereby retain said button in depressed position, and another push button having a groove for receiving the locking plate when said button is in normal position and having a cam surface adjacent the groove for removing the locking plate from the groove when said button is depressed and at the same time un-

locking the selector push buttons and releasing the locking plate actuating button, said last mentioned button having a spring associated therewith to return it to normal position.

12. In a conveyer system of the character described, a device for controlling the setting of a plurality of selectors including a plurality of push buttons one corresponding to each selector, a plurality of selector setting members, one for each selector, means connecting the push-buttons to the setting members, a locking plate having an inactive and a locking position, locking grooves in said push buttons adapted to receive the locking plate when in its locking position, a push button for actuating the locking plate from inactive to locking position, said last mentioned push button having a locking groove adapted to receive the locking plate when the button is depressed and thereby retain said button in depressed position, and another push button having a groove for receiving the locking plate when said button is in normal position and having a cam surface adjacent the groove for removing the locking plate from the groove when said button is depressed and at the same time unlocking the selector push buttons and releasing the locking plate actuating button, said last mentioned button having a spring associated therewith to return it to normal posiion, said locking plate having apertures through which the push buttons extend, and said locking plate actuating button having a surface engaged by the locking plate when said button is in normal position to hold the plate in inactive position with the apertures in registry with the selector buttons.

13. A conveyor system for libraries including a conveyer chain arranged to travel in vertical and horizontal runs, book carriers mounted directly on said chain with freedom to remain in book holding position throughout the run of the chain, a purality of book loading and unloading stations, unloading devices at the unloading stations, a device for determining which unloading device is to be operated, said device having a plurality of setting members, a plurality of selector members mounted on each carrier in position to be selected by the setting members, and means included in each unloading device adapted to be actuated by a selected member of any carrier to move the unloading device to unloading position, and guide means associated with the carriers for maintaining their selector members in position for proper registry with the setting members and the unloading device means actuated thereby, including guide rails and spring pressed shoes on the carriers cooperating with the guide rails.

14. A conveyer system for libraries including a central despatching station, a plurality of stack room stations having loading and unloading openings, a conveyer having a book carrier adapted to traverse said stations, a book unloading device at each unloading opening, and means for selectively actuating said unloading devices including a plurality of selector members on said carrier, one for each unloading device, a shaft on which said selectors are pivotally mounted to be moved from selective to non-selective positions, said selector members having an arm for setting them in selective position, and an arm for actuating the unloading device, said setting arm serving to designate the unloading device to be actuated.

15. A conveyer system for libraries including a plurality of book discharging stations, a conveyer having a book carrier adapted to traverse said stations, a normally inactive unloading tray at each station, actuating means for each tray for actuating it to unloading position including a movable bar and connections therefrom to said tray, and a plurality of selector members on said carrier, one for each movable bar, said bars being constructed and arranged to remain in the path of selected members for a predetermined interval of time.

16. A conveyer system for libraries including a book discharging station, a conveyer having a book carrier, a normally inactive unloading tray, and means for moving and positively holding said tray in unloading position while the carrier is traversing said discharging station, said means including a selector member on the carrier, and a movable bar positioned at said discharging station to be slidably engaged by said selector member until the carrier has passed the unloading tray.

17. A conveyer system for libraries including a plurality of book discharging stations, a conveyer having a book carrier adapted to traverse said stations, means at each station movable to a position relative to the carrier to engage and remove books therefrom, and selector members on said carrier engageable with said means to cause movement thereof to its position of effecting removal of books and adapted to positively hold said means in such position while the carrier is traversing the station selected for book removal.

18. A conveyer system for libraries including a plurality of book discharging stations, a conveyer having a book carrier adapted to traverse said stations, means at each station movable to a position relative to the carrier to engage and remove books therefrom, and selector members on said carrier engageable with said means to cause movement thereof to its position of effecting removal of books and adapted to positively hold said means in such position while the carrier is traversing the station selected for book removal, together with means for effecting preselection of the selector members.

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