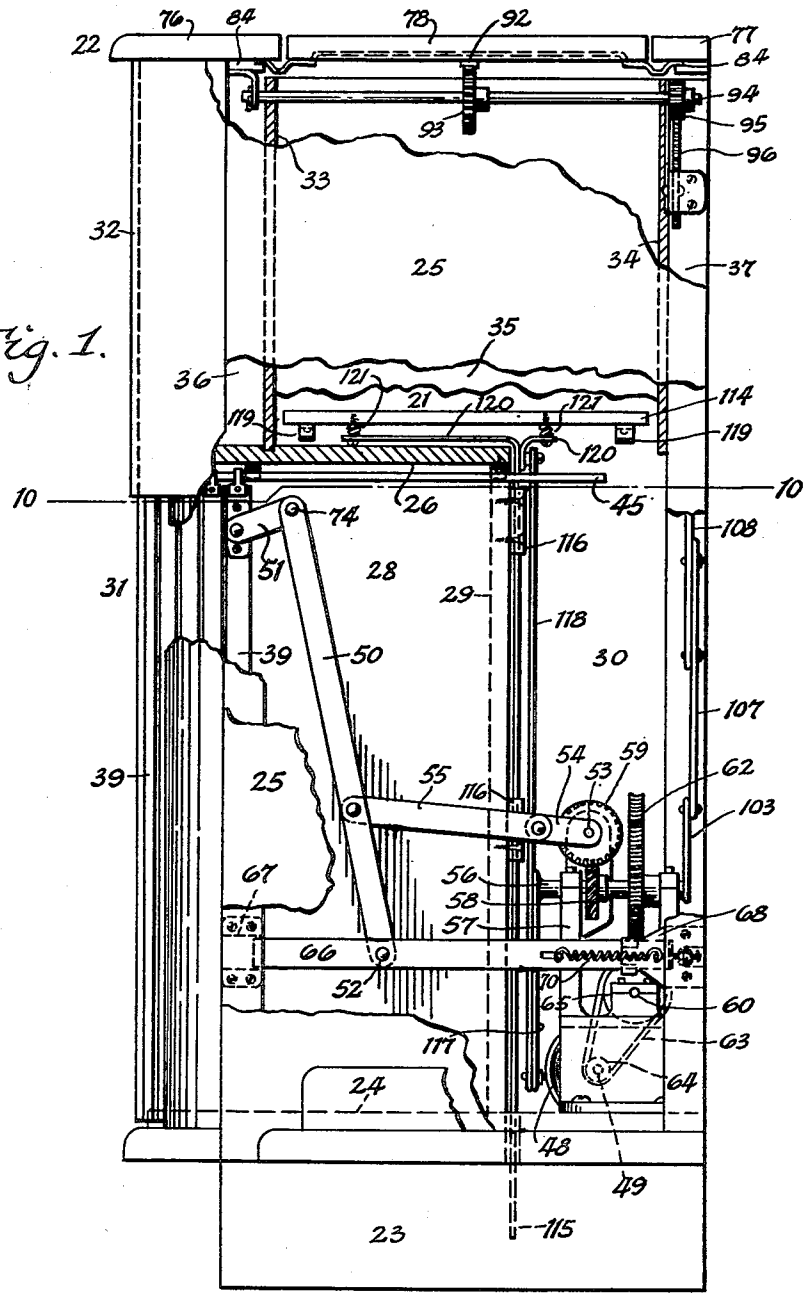
Aug. 31, 1954 O. A. GIPPLE 2,687,934

VERTICALLY MOVABLE TRAY ARRANGEMENT FOR DISPENSING CABINETS

Original Filed Sept. 23, 1946 4 Sheets-Sheet 1

Fig. 1.



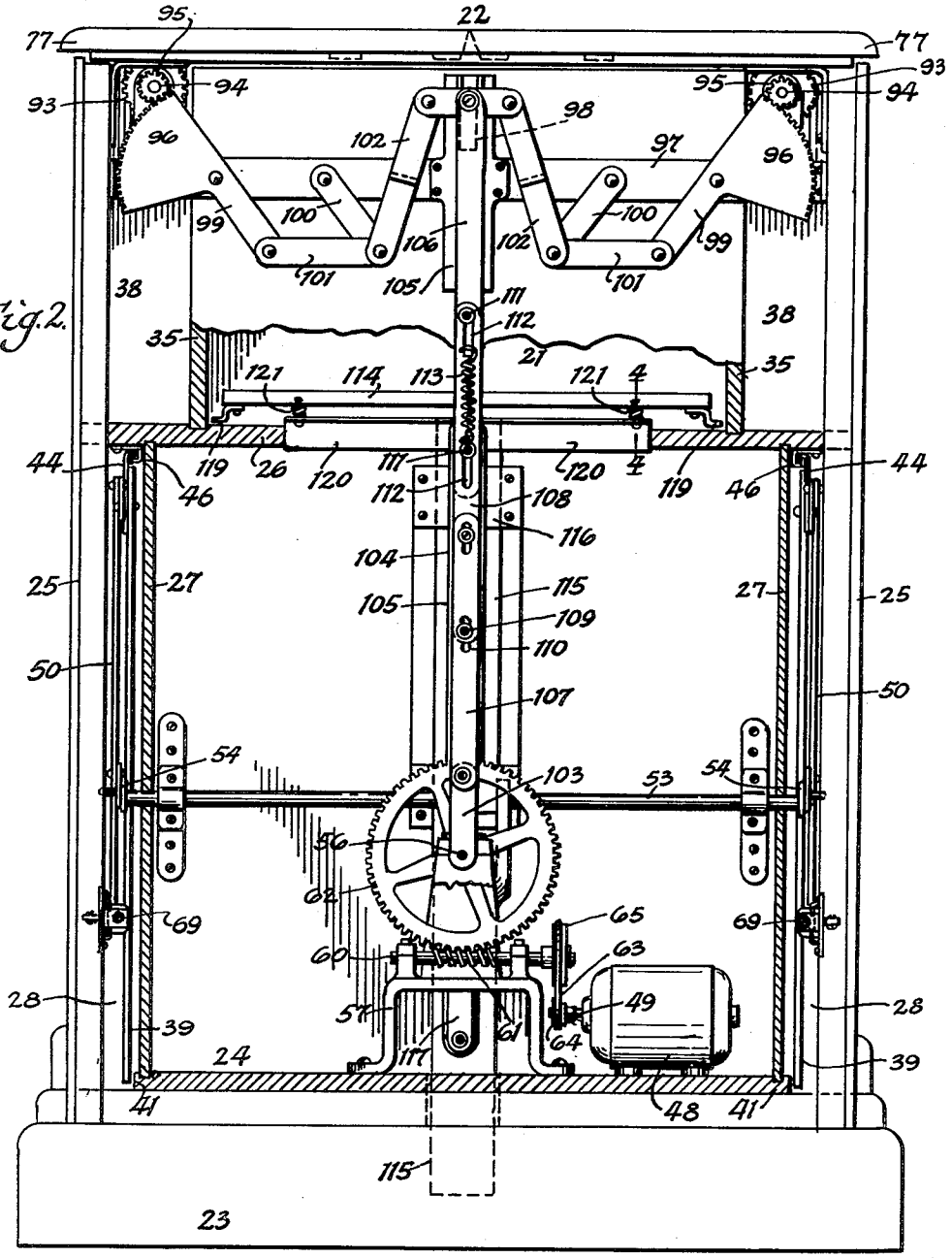
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Original Filed Sept. 23, 1946 4 Sheets-Sheet 2

Fig. 2.

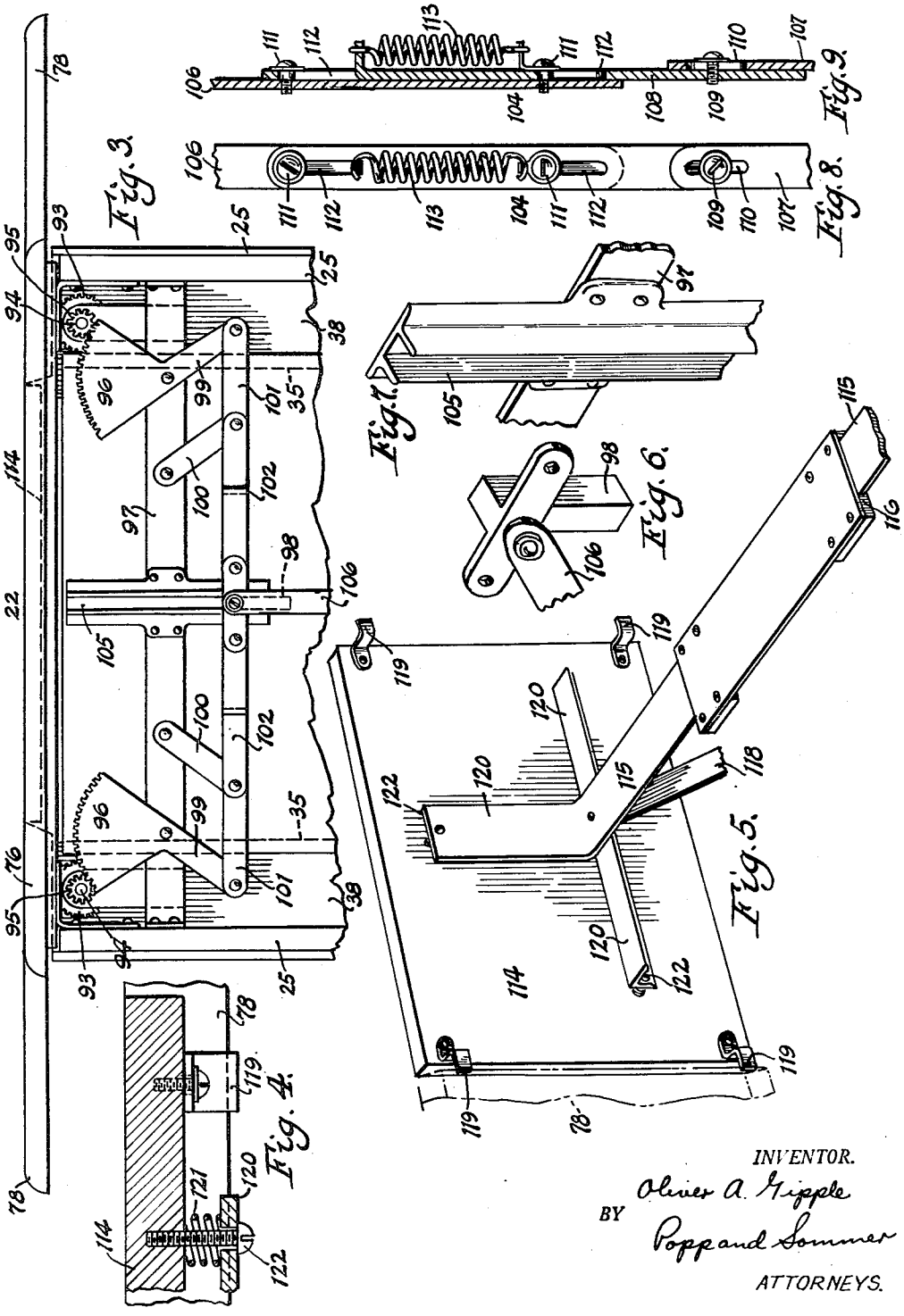


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VERTICALLY MOVABLE TRAY ARRANGEMENT FOR DISPENSING CABINETS

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VERTICALLY MOVABLE TRAY ARRANGEMENT FOR DISPENSING CABINETS

Original Filed Sept. 23, 1946 4 Sheets-Sheet 4

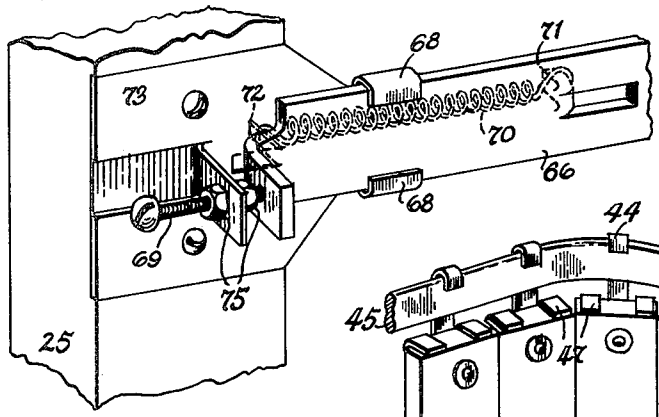


Fig. 11.

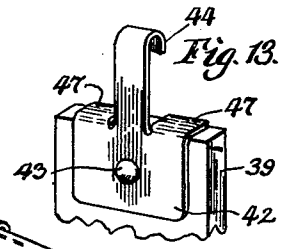


Fig. 13.

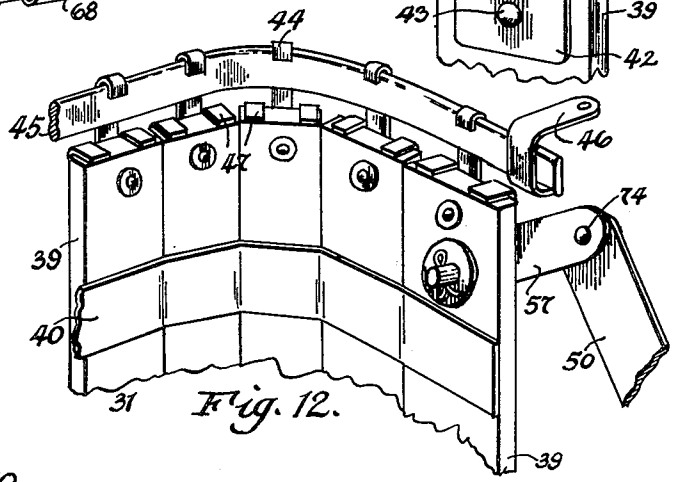
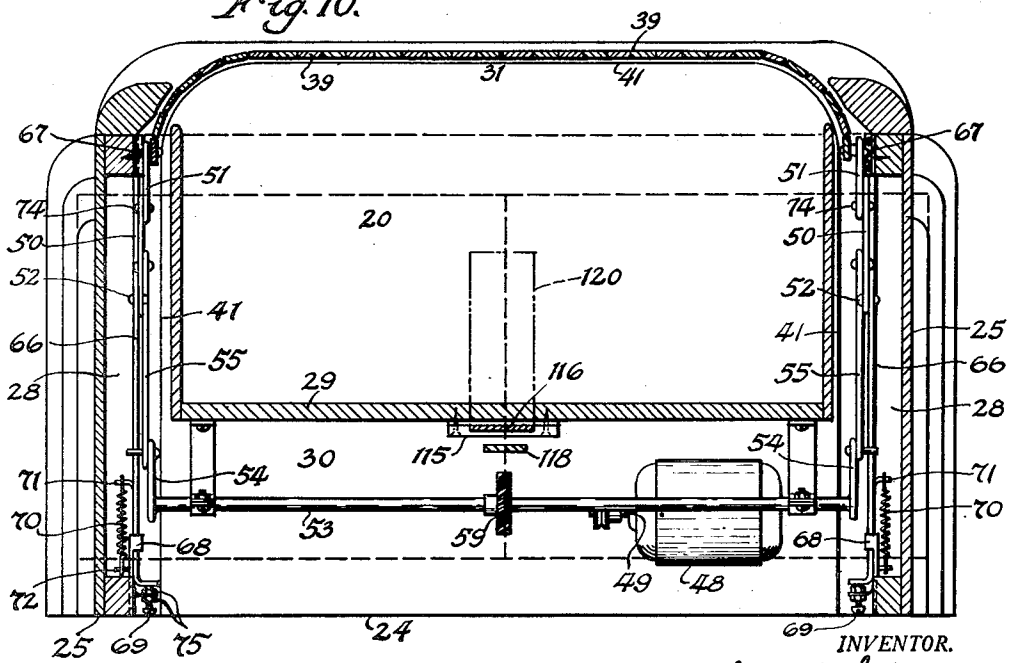


Fig. 12.

Fig. 10.



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Patented Aug. 31, 1954 2,687,934

UNITED STATES PATENT OFFICE

2,687,934

VERTICALLY MOVABLE TRAY ARRANGEMENT FOR DISPENSING CABINETS

Oliver A. Gipple, Buffalo, N. Y.

Original application September 23, 1946, Serial No. 698,620, now Patent No. 2,561,358, dated July 24, 1951. Divided and this application July 23, 1951, Serial No. 238,084

1 Claim. (Cl. 312—282)

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This invention relates to a dispensing cabinet for storing and displaying various refreshments, beverages, supplies and equipment for cocktail parties and the like and more particularly to such a dispensing cabinet having a vertically movable tray mounted therein.

This application is a division of my copending application, Serial No. 698,620, filed September 23, 1946 for Closure Operator, now Patent Number 2,561,358, dated July 24, 1951.

One of the principal objects of the present invention is to provide a dispensing cabinet having a tray mounted for vertical movement in the upper portion thereof whereby the glasses and other equipment for serving the beverages and refreshments may be compactly stored and concealed in a lowered position when not in use and quickly elevated and exposed for convenience in utilizing the equipment when serving guests.

Another object is to provide a dispensing cabinet which presents an ornate appearance so as to be used as an article of furniture whenever desired.

Other objects and advantages of the invention will appear from the following detailed description and accompanying drawings wherein:

Fig. 1 is a side elevation of a dispensing cabinet embodying this invention with parts broken away to show the internal construction of the cabinet.

Fig. 2 is a rear elevation of the same with parts broken away to show the adjacent mechanism within the cabinet.

Fig. 3 is a similar view of the upper part of the dispensing cabinet but showing the mechanism in a position in which the table is expanded to increase its supporting area.

Fig. 4 is a fragmentary vertical section, on an enlarged scale, taken on line 4—4, Fig. 2.

Fig. 5 is a perspective view of the central liftable section of the table and parts of the mechanism for moving the same vertically.

Figs. 6 and 7 are fragmentary perspective views of parts of the mechanism for expanding and contracting the table sections.

Fig. 8 is a fragmentary elevation of the compensating means whereby a yielding connection is provided between the mechanism which expands and contracts the table and the power operated mechanism which actuates the same.

Fig. 9 is a vertical section of the compensating means shown in Fig. 8.

Fig. 10 is a horizontal section taken on line 10—10, Fig. 1.

Fig. 11 is a fragmentary perspective view of the compensating means whereby a yielding connection is obtained between the mechanism which operates the sliding door sections of the beverage and supply storage compartment and the power operated mechanism which actuates the same.

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Figs. 12 and 13 are fragmentary perspective views of parts of the flexible door or closure for said storage compartment and the means for guiding and actuating the same.

In the following description similar reference characters indicate like parts in the several figures of the drawings.

In general this invention comprises a housing which provides a supply compartment 20 having a front entrance and adapted to store various beverages, refreshments and the like, an equipment chamber 21 in which glassware and the like are stored, and a serving table 22 adapted to support the glasses while the refreshments are being served.

In the preferred construction this housing comprises a lower base 23 adapted to rest on the floor, a horizontal floor 24 resting on the base and two upright side walls 25 connected at their lower ends with the floor and supporting parts of the table 22 at their upper ends. The space within the outer enclosure of the housing is divided by a horizontal partition 26 arranged between the floor 24 and the table 22 so as to form the top of the refreshment chamber 20 and part of the bottom of the equipment chamber and this partition is connected with the floor 24 by two upright side partitions 27 which are spaced from the housing side walls 25 so as to form two lower side pockets 28 in which part of the operating mechanism of the cabinet is arranged, and this horizontal partition 26 is also connected at its inner or rear end with the floor 24 by an upright transverse partition 29 which is spaced from the rear side of the cabinet housing so as to form the inner or back wall of the equipment chamber 20 and also a pocket 30 in the rear part of the cabinet for receiving other parts of the operating mechanism.

The front side of the refreshment storage chamber 20 is opened and closed by a slidable folding door 31. The upper part of the front side of the cabinet is closed by a front transverse wall 32 and the space within the upper part of the housing contains transverse front and rear partitions 33, 34 and two longitudinal side partitions 35, 35 which form front and rear pockets 36, 37 and two side pockets 38 within the upper part of the cabinet housing for the reception of some of the operating mechanism.

The door 31 of the refreshment storage chamber 20 preferably comprises two horizontally slidable folding sections which are adapted to meet at the center of the front side of this chamber when the same are in a closed position and to separate and move respectively into the pockets 28 of the cabinet when in an open position. Each of the door sections of the refreshment storage chamber comprises a plurality of upright slats 39 arranged edge to edge in a horizontal row and

connected with each other by flexible bands 40 so as to permit the same to fold horizontally relative to each other and move in unison in a straight line into and out of the respective side pocket 38 and into and out of a position across the front side of the chamber 20 and also turn the corner between the front side of this chamber 20 and the respective pocket 38. During this movement of the slats 39 of each of these door sections the lower ends of these slats engage with an outwardly facing guide way 41 formed on the longitudinal side edges and the transverse front edge of the floor 24 of the refreshment storage chamber, as shown in Figs. 1, 2 and 10, and these slats are supported and guided at their upper ends by means of a plurality of hangers each of which has a lower attaching plate 42 secured by a rivet 43 to the inner side of the respective slat and an upper hook 44 which slides on an upper horizontal track 45 extending transversely across the front side of the chamber 20 and lengthwise of the upper part of the respective pocket 38 and supported on the adjacent parts of the cabinet by brackets 46. Turning of these hangers about the rivets 43 is prevented by providing the upper edge of each attaching plate 42 on opposite sides of its hook 44 with retaining lips 47 which engage with the upper edge of the respective slat, as shown in Figs. 12 and 13.

Power operated means are provided for opening and closing the two folding sections of the refreshment chamber door which means are shown in Figs. 1, 2, 10, 11 and 12, and constructed as follows:

The numeral 48 represents an electrically operated motor which is mounted on the bottom 24 of the pocket 30 and supplied with electric current in any suitable manner and also controlled by switch means which may be varied. Motion is transmitted from the driving shaft 49 of this motor to each of the folding door sections of the refreshment storage chamber so that the same are opened and closed simultaneously and for this purpose each of these door sections is operatively connected with the driving shaft of the motor as follows:

The numeral 50 represents an upright rock lever arranged in each of the pockets 28 and connected at its upper end by means of a link 51 with the upper part of the rearmost slat 39 of the respective door section while its lower end is pivoted by means of a fulcrum pin or rivet 52 with a relatively stationary part so that upon swinging this lever forwardly and backwardly the respective folding door section will be moved into a closed and opened position. This rocking movement is imparted to this lever by a horizontal door operating crank shaft 53 arranged transversely in the pocket 30 above the motor 48 and provided at its opposite ends with cranks or crank arms 54 each of which is connected by a link 55 with one of the rock levers 50 between the ends of the latter, as shown in Figs. 1, 2 and 10. The crank shaft 53 is rotated by motion derived from the motor 48 through the medium of an intermediate transmitting gearing comprising an intermediate crank shaft 56 arranged in the pocket 30 and journaled in suitable bearings on an adjacent stationary bracket 57 of the cabinet, intermeshing miter gear wheels 58, 59 connected respectively with the intermediate shaft 56 and the door operating shaft 53, a worm shaft 60 journaled on the bracket 57 and having a worm 61 which meshes with a worm wheel 62 on the intermediate crank shaft 56, and a belt 63 passing around pulleys 64, 65 mounted respectively on the motor shaft 49 and the worm shaft 60. The throw of the cranks 54 and the parts associated therewith is so determined that during one-half of the rotation of these cranks on one side of the axis of the shaft 53 the rock levers will be actuated to close the sections of the door 31 and upon rotating these cranks one-half turn on the opposite side of this axis these levers will be turned in the opposite direction and open these doors. This result is obtained by turning the motor continuously in the same direction and providing means which are operated either manually or automatically for arresting the motor when the cranks 54 project horizontally forward, as shown in Fig. 1 and the doors 31 are closed and also stopping the motor when these arms project horizontally rearward from the crank shaft 53 and these doors are opened.

In order to avoid the necessity of extremely accurate workmanship in the mechanism for closing and opening the sections of the door 31 and still permit of tightly closing the same yielding compensating means are provided whereby the means for transmitting motion from the motor 48 to the door sections 31 will always overthrow or exert a tendency to move these door sections after the same have reached their closed position, and thus hold them firmly closed without liability of breaking any of the operating parts. This is preferably accomplished by supporting the pivot pins 52 of the rock levers on compensating bars 66 which are capable of floating and are yieldingly held in position so as to be capable of shifting in response to pressure on these levers after the door sections 31 have been fully closed. For this purpose each of these compensating bars is guided at its front and rear ends in guideways 67, 68 on the adjacent stationary parts of the cabinet, and each of these compensating bars is drawn rearwardly against an adjacent stop 69 by means of a spring 70 which connects lugs 71, 72 formed, respectively, on the compensating bar and its rear guideway 68, as best shown in Figs. 1, 10 and 11. This stop 69 limits the rearward movement of this compensating bar and preferably consists of a screw which works in a threaded opening on the bracket 73 which carries the rear guideway 68, thereby permitting of adjusting the open position of the respective section of the door 31. The tension of the springs 70 is such that during nearly the entire closing movement of the door sections 31 the compensating bars 66 will be held stationary in their rearmost position against the stops 69, as shown in Figs. 1, 10 and 11, but after these door sections engage each other at their front ends and the rock levers are still pressed forward for a brief time by the actuating means which connect the same with the motor shaft the compensating bars 66 are permitted to move forwardly due to the yielding of the springs 70, during which time the lower pivot pins 52 of the rock levers move forward while the fulcrum of these levers is temporarily transferred to the pins 74 which pivotally connect the upper ends of the rock levers with the links 51. During the initial part of the subsequent opening movement of the doors 31 the rock levers first turn on the link pins 74 as fulcrums until the compensating bars 66 have moved backwardly into engagement with the stops 69 after which these levers turn on the pivot pins 52 as fulcrums. It will be noted that by these means a tight closure of the doors 31 may be obtained without accurate workman-

ship in the mechanism which operates these doors. After the stop screws 69 have been adjusted to the desired position the same are held rigidly in place on the brackets 73 by means of jamb nuts 75, as shown in Figs. 10 and 11.

The serving table 22 which forms the top of the cabinet comprises front and rear fixed sections 76, 77 which are mounted lengthwise in any suitable manner on the upper ends of the upright fixed walls of the cabinet so that these sections are spaced fore and aft from each other and two extensible end sections or panels 78, 78 which are slidably mounted in any suitable manner between the opposing respective ends of the longitudinal table sections so that these end sections may be slid inwardly for engaging their opposing inner ends and thus produce a continuous contracted table top with the longitudinal table sections and which closes the upper end of the equipment chamber 21 or these end table sections may be moved apart so as to uncover the upper end of the equipment chamber.

Power operated means are provided for opening and closing the movable end sections of the table which means are preferably actuated by the same motor which actuates the front door of the refreshment chamber so that the top of the equipment chamber and the front of the refreshment chamber are opened and closed simultaneously. In their preferred form the means for actuating the end table sections are constructed as follows:

The numeral 92 represents a gear rack secured lengthwise to the underside of each of the end table sections 78 and a gear wheel 93 meshing with this rack. Across the outer upper parts of the equipment chamber are two horizontal gear shafts 94 each of which is journaled in bearings on adjacent stationary parts of the cabinet and has secured thereto one of the gear wheels 93 so that these members turn together. At its rear end each of the gear shafts 94 is provided with a gear pinion 95 which meshes with the teeth of a gear segment 96 pivoted on the adjacent part of a stationary longitudinal supporting bar 97 mounted on the upper part of the cabinet housing, as shown in Figs. 1, 2 and 3. The two gear segments 96 are caused to rock in unison in opposite directions by motion derived from a vertically movable slide 98 which is guided in a guideway 105 arranged on a stationary part between these segments and operatively connected with a rock arm 99 projecting downwardly from each segment by means of a guide arm 100 pivoted at its upper end on the supporting bar 97, a parallel link 101 connecting the lower end of the guide arm 100 with the lower end of the segment arm 99 and a shifting link 102 connecting the lower end of the guide link 100 and the inner end of the parallel link 101 with one side of the slide 98. Upon raising the slide 98 to its highest position, as shown in Fig. 2, the gear segments 96 will be turned so that both of the end table sections 78 are simultaneously moved inwardly into their closed position and upon moving this slide downwardly to its lowermost position, as shown in Fig. 3, these gear segments will be turned simultaneously in the opposite direction, thereby moving both of these end table sections 78 into their outermost open position.

The slide 98 is reciprocated for this purpose by motion derived from the motor 48 and this is preferably accomplished by transmitting means comprising a crank 103 connected with the rear end of the crank shaft 56 and an upright connecting rod or bar 104 which is pivotally connected at its lower and upper ends respectively with the crank 103 and the slide 98. When the crank 103 is in a full upright position, as shown in Fig. 2, both end table sections are closed and when this crank projects fully downwardly these table sections are closed so that during each complete rotation of the crank shaft 56 these table end sections are opened and closed and therefore may be retained in either of these positions by stopping the operation of the motor when the crank 103 is either straight up or straight down.

In order to insure tight engagement of the inner ends of the table end sections 78 and a full closure at the top of the equipment chamber 21 the means for actuating these table sections are so constructed that the same tend to move these table end sections more than is necessary to close the same and means are therefore provided to compensate for this overthrow or excess of the actuating means in order to avoid breaking any of the parts of this mechanism. This is preferably accomplished by constructing the connecting rod or bar 104 in sections and yieldingly connecting these sections.

In the preferred construction the connecting rod 104 comprises an upper section 106 which is pivotally connected with the slide 98, a lower section 107 which is pivoted to the crank 103, and an intermediate section 108 which is yieldingly connected with the upper rod section 106 and adjustably connected with the lower rod section 107. The adjustable connection between the lower rod section and the intermediate rod section preferably consists of adjusting screws 109 secured to the intermediate rod section 108 and passing through longitudinal slots 110 in the lower rod section 107, and the yielding connection between the intermediate rod section 108 and the upper rod section 106 preferably comprises guide pins or screws 111 secured to the upper rod section 106 and sliding lengthwise in slots 112 in the intermediate rod section 108, and a spring 113 connecting the upper and intermediate rod sections, as shown in Figs. 2, 8 and 9.

The upward movement of the upper rod section 106 relative to the intermediate section 108 under the pull of the spring 113 is limited by stop means which preferably consist of the screws 111 engaging with the upper ends of the slots 112, as shown in Fig. 9.

The contracting movement of the several sections of the connecting rod under the pull of the spring 113 is limited by engagement of the guide pins 111 with the upper ends of the slots 112 which form stops for this purpose.

During nearly the entire throw of the crank 103 into its full upward position the several sections of the connecting rod 104 move together as a unit until the table end sections have been moved inwardly and are arrested by engagement of their inner ends and thereafter the continued lifting effect of the crank 103 in completing its upward throw only moves the lower and intermediate section 107, 108 of the connecting rod 104 independently of its upper section 106, whereby the spring 113 will be stretched slightly and stop pins 111 will be moved slightly away from the upper stop ends of the slots 112, thereby avoiding breaking any of the operating mechanism. During the subsequent downward throw of the crank 103 the lower and intermediate connecting rod sections will move independently of the upper section 106 thereof until the guide pins 111 have again engaged the upper ends of

the slots 112 after which the several connecting rods will again move in unison and operate to open both end sections of the table.

Means are provided whereby beverage serving equipment such as glasses and other articles may be lowered and stored in the equipment or utility chamber 21 when the dispensing cabinet is not in use and also elevated flush with the top of the table when it is desired to serve refreshments. In their preferred form these elevated means, as shown in Figs. 1, 2, 4 and 5 are constructed as follows:

The numeral 114 represents a horizontal elevating platform or tray which is adapted to support various kinds of beverage or refreshment serving equipment and is movable vertically in the equipment chamber between the bottom and top thereof so that any equipment, such as glasses, may be stored in the lower part of this chamber when the cabinet is not in use, and this equipment may be raised flush with the table where the same is accessible for use. This tray is preferably of rectangular form so as to substantially fit the shape of the equipment chamber when lowered and also fit the space between the opposing inner edges of the end sections 78 of the table when the latter are separated or extended. The means for guiding this tray during its vertical movement preferably comprise an upright lifting post 115 which has the form of a plate which is guided for vertical movement in a guideway 116 arranged in the pocket 30 of the cabinet and mounted on the rear wall 29 of the refreshment chamber 20 and provided at its upper end with means for supporting this tray.

Raising and lowering of the lifting post and the tray carried thereon is effected by a rotatable crank 117 connected with the front end of the intermediate crank shaft 56 and a connecting rod or bar 118 pivotally connected at its lower and upper ends, respectively, with the crank 117 and the lifting post 115.

The upward movement of the tray is preferably arrested when the upper side thereof is flush with the upper side of the table and for this purpose the tray is provided on the underside of its opposite transverse edges with stops 119 having the form of fingers which are adapted to engage with the underside of the inner edge portions of the table end sections when the latter fully spread and the tray is in its highest position, as shown in Figs. 4 and 5.

For the purpose of insuring raising the tray always to a position flush with the table without requiring accuracy in workmanship of the lifting mechanism means are provided in this lifting whereby a lifting effect is produced in excess of that necessary to bring the tray flush with the table and the excess of this lifting effect is absorbed by yielding cushioning means, thereby preventing injury to the tray lifting mechanism. This is preferably accomplished as follows:

The numeral 120 represents a plurality of supporting arms projecting laterally from the upper end of the lifting post 115 along the underside of the tray. This tray is supported on these lifting arms by a plurality of springs 121 interposed between these arms and the tray and thus provides a cushion between these members which tends constantly to move the tray upwardly from these arms. This raising effect of these springs is limited preferably by stop means consisting of screws 122 passing through these springs and secured at their upper ends to the tray while

their heads bear against the underside of the tray 114. Just before the lifting post completes its upward movement the stop fingers 119 engage the underside of the table end sections 78 and thereby arrest the tray flush with the table and as this lifting post effects the final part of its upward movement independently of the tray, the springs 121 are compressed a corresponding extent. During the initial part of the subsequent downward movement of the lifting post the tray remains at rest until the springs 121 have expanded sufficiently to take up the slack permitted by the stop screws 122 and after this slack has been taken up the tray descends in unison with the post into the lowermost position of the lifting mechanism.

The operating mechanism of this dispensing cabinet is so timed that during one-half of each complete cycle of operations the front door of the refreshment chamber is opened in unison with separation of the table end sections into an open position and elevation of the tray so that it is level with the table thereby rendering all the storage facilities of the cabinet accessible for use and placing the table in readiness for serving refreshments to guests, it being understood that the operating mechanism is arrested either manually or automatically when the several parts are in the required position.

When the repast is finished the second half of the complete cycle of the operating mechanism causes simultaneous lowering of the tray, contracting the table end sections, and closing of the front door which operation may likewise be controlled in any approved manner.

From the foregoing it will be seen that the present invention provides an attractive dispensing cabinet having a vertically movable tray mounted therein which may be lowered to provide a concealed storage shelf or elevated to provide additional table surface.

I claim:

A dispensing cabinet comprising a storage chamber having an entrance at its top, a table section movable horizontally into and out of a position across said entrance, a tray movable upwardly and downwardly in said chamber, stops arranged on said tray and adapted to engage said table section for limiting the upward movement of said tray flush with said table section, a vertically movable post upon which said tray is mounted, a crank connected by a link with said post, and yielding compensating means for permitting said post to effect the last part of its upward movement independently of said tray including a plurality of supporting arms projecting laterally from said post along the underside of said tray, springs interposed between said arms and said tray, and stop screws secured to said tray and passing through said springs and having heads bearing against the underside of said arms.

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