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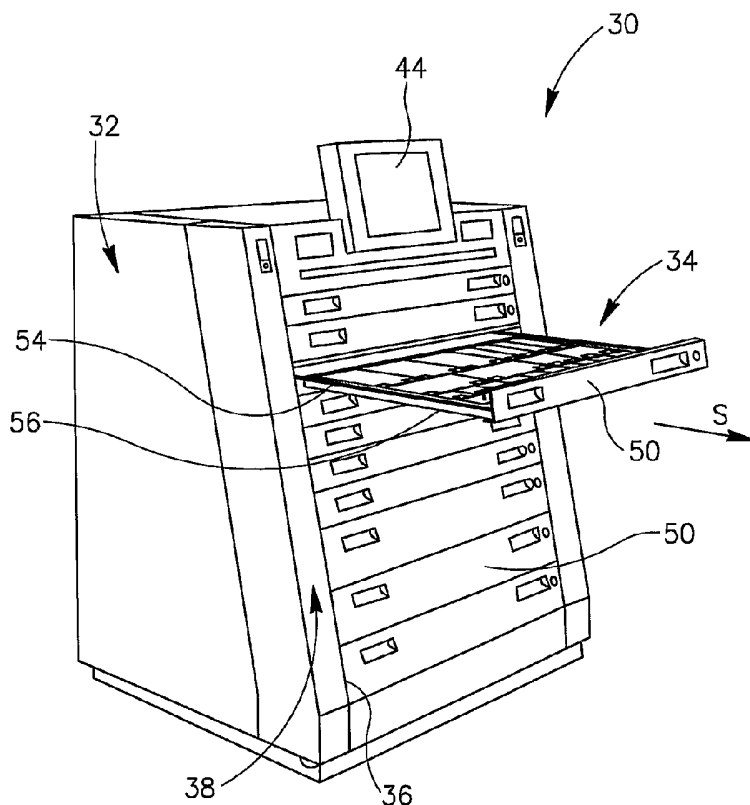
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(54) Title: DISPENSING SYSTEM



(57) Abstract: A dispensing system (30) having drawers (34) divided into bins (40) with lockable lids (42). Each drawer may be divided into a cell array (90) of M columns by N rows with each bin occupying at least one cell (92) of the cell array. The dispensing system (50) controls access to a given bin of a given drawer by means of M controllable actuators (138).

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DISPENSING SYSTEM

FIELD OF THE INVENTION

The present invention relates to dispensing systems, and particularly to controlled access dispensing systems storing tools.

BACKGROUND OF THE INVENTION

5 Such storage and dispensing systems are known, for example, from U.S. Patent No. 5,745,366, which discloses a pharmaceutical dispensing device for providing access to items to be dispensed and for maintaining an inventory of the items. A dispensing unit is provided having an enclosure with an interior and with a plurality of storage locations distributed over a surface of the enclosure. Sensors associated with
10 at least some of the individual storage locations are provided. The unit further includes a multiplicity of receptacles disposed within at least some of the storage locations. Sensors associated with at least some of the individual receptacles are provided. A processor is disposed on the enclosure and connected to receive signals from the

storage location-associated sensors and the receptacle-associated sensors to track item replenishment or removal from the receptacles.

U.S. Patent No. 4,961,507 discloses dispensing machine having various items to be dispensed arranged in a selected pattern. The system responds to a request for an item by verifying the authority of the user and dispensing the requested item. Pneumatic matrix switching is provided to control the selection and dispensing of the items. The pneumatic matrix has a plurality of fluid cylinders, each cylinder arranged to provide a dispensing stroke, is assigned a selected column address and a row address, and is maintained under an initial fluid pressure. The pneumatic matrix further has first actuator means, second actuator means, and means to selectively activate one each of said first and second actuator means. The first actuator means comprises a fluid valve for each column address connected in common fluid communication to each fluid cylinder having the same column address and operative to condition each cylinder at said column address for actuation. The second actuator means comprises a fluid valve for each row address connected in common fluid communication to each fluid cylinder having the same row address operative to condition each cylinder at said row address for actuation. The means to selectively activate one each of said first and second actuator means conditions the cylinders having one column address and one row address for actuating and activates the cylinder having said one column and said one row address to provide a dispensing stroke. The invention facilitates operating a pneumatic matrix of M columns by N rows having M x N cylinders using M + N actuators.

SUMMARY OF THE INVENTION

In accordance with the present invention, there is provided a dispensing system having at least one drawer, each drawer having a plurality of bins, each bin occupying at least one cell of a drawer cell array having an integer number M cell columns and an integer number N cell rows, wherein M and N are positive integers and M is at least two;

the bins being provided with lockable lids and being selectively transferable between bin released and bin locked positions by electrically controlled actuators associated with the drawer; wherein:

the number of actuators for said at least one drawer is not greater than M per drawer.

In accordance with the present invention, there is provided a dispensing system comprising a cabinet having at least one drawer, each drawer having a plurality of bins, each bin occupying at least one cell of a drawer cell array having an integer number M cell columns and an integer number N cell rows, wherein M and N are positive integers and each is at least two;

each bin being provided with a lockable lid and being selectively transferable between a bin released position and a bin locked position by at least one electrically controlled actuator mounted

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on the cabinet, said at least one actuator being transferable between an actuator securing position and an actuator releasing position to control said lockable lid; wherein:

the number of actuators for said at least one drawer is not greater than M per drawer; and

a plurality of lockable lids associated with different cell rows and belonging to different

5 bins are controlled by the same actuator.

In accordance with one aspect of the present invention, there is preferably provided a dispensing system having at least one drawer comprising a plurality of

bins each occupying at least one cell of a drawer cell array having M cell columns and N cell rows. The bins are provided with lockable lids and are selectively transferable between bin released and bin locked positions by actuators, wherein the number of actuators is not greater than M.

5 Preferably, the drawer comprises at most N compartments defined each between adjacent drawer dividers extending transversely to a sliding direction of the drawer.

 Further preferably, each drawer divider comprises a plurality of bin partition slots arrayed equidistantly therealong defining M equally-sized divider segments
10 thereon, each divider segment comprising spaced-apart lid hinge apertures and a locking slot located therebetween.

 Generally, each drawer divider accommodates a locking bar transferable between bar locking and bar releasing positions and comprising M locking latches extending therefrom and arrayed equidistantly therealong. Each locking latch
15 comprises a bolt portion extending parallel to the locking bar. When the locking bar is in the bar locking position, each bolt portion extends across the locking slot associated therewith, and when the locking bar is in the bar releasing position, each bolt portion is withdrawn from the associated locking slot.

 If desired, each lid is transferable from a lid closed position, in which the lid
20 covers the bin, to a lid open position, in which the lid is lifted from the bin to allow access thereto.

 If further desired, each lid is provided with at least one catch comprising a strike having a strike aperture formed therein, the strike extending forwardly through a strike slot formed at a catch front portion.

25 Typically, the catch can be transferred relative to the lid from a catch closed position to a catch open position, so that in the catch closed position, a catch top face is generally parallel to a lid top face and the catch front portion extends below a lid

bottom face. In the catch open position, the catch front portion is raised above the lid top face.

Preferably, the catch is biased towards the catch open position.

Further preferably, in the bin locked position, the lid is in a lid closed position, the catch is in the catch closed position, the strike is located in the locking slot of the divider segment adjacent thereto, and the bolt portion of the locking latch associated with the locking slot extends through the strike aperture.

Yet further preferably, when the bin is in the bin released position, the bolt portion is withdrawn from the strike aperture and the catch is transferred to the catch open position by the biasing force of the catch biasing spring.

Generally, the drawer is slidable relative to an associated drawer support fixed to a cabinet, the drawer support comprising a securing beam having a single row of M equally-spaced actuators extending transversely to the sliding direction, each actuator being transferable between actuator securing and actuator releasing positions.

If desired, each actuator is associated with a lid securing lever transferable between lever lowered and lever raised positions.

If further desired, when the lid securing lever is in the lever lowered position, and the actuator is in the actuator securing position, the lid securing lever is prevented from transferring to the lever raised position.

If yet further desired, when the lid securing lever is in the lever lowered position, and the actuator is in the actuator securing position, the lid securing lever urges lids and catches sliding adjacent thereto to the lid closed and catch closed positions.

In accordance with another aspect of the present invention, there is preferably provided a method for selectively transferring a given bin between bin locked and bin released position, the bin occupying at least one cell in a drawer cell array of M cell columns and N cell rows defined in a slidable drawer;

the method comprising the steps of:

- a. providing at least one non-sliding actuator (138) associated with the at least one cell column (96);
- b. sliding the drawer (34) from a fully pushed-in towards a fully pulled-out position; and
- c. selectively transferring the at least one non-sliding actuator (138) from an actuator securing position to an actuator releasing position as the given bin (40) slides adjacent thereto, thereby facilitating selective transferring of the given bin from the bin locked to the bin released position.

10 If desired, the given bin is defined between two adjacent drawer dividers extending transversely to a sliding direction of the slidable drawer, at least one drawer divider comprising a locking bar slidable therein between bar locking and bar releasing positions, the locking bar comprising at least one locking latch having a bolt portion extending parallel thereto, the drawer divider having at least one locking slot
15 associated with the given bin, and the lid comprising at least one strike having a strike aperture formed therein.

The method further comprising the steps of:

- d. initially positioning the lid in a lid closed position and the locking bar in the bar closed position, with the strike extending into the associated locking slot and the bolt portion extending through the strike aperture, thereby
20 positioning the bin in the bin locked position; and
- e. transferring the locking bar to the bar releasing position as the drawer slides the given bin slides adjacent to the at least one actuator, thereby withdrawing the bolt portion from the strike aperture and releasing the bin to
25 be selectively transferable to the bin released position.

Systems described herein may provide the following preferred advantages:

facilitating secured storage of items while providing controlled access thereto and dispensing thereof;

5 providing modular, easily configurable storage for a plurality of diverse items, while significantly reducing the required number of actuators needed to operate the dispensing system, by reducing electro-mechanical actuators count to M, for for a given drawer having a cell array of M columns by N rows, as compared with M x N or, at least, M + N actuators required by prior-art devices, thereby contributing to reduced costs and increased reliability of the dispensing system;

10 positioning the electro-mechanical actuators in fixed positions in the cabinet, eliminates electrical connections between stationary and movable assemblies of the dispensing system, which may further contribute to increased reliability of the dispensing system and therefor in better availability of the items stored therein.

BRIEF DESCRIPTION OF THE DRAWINGS

15 For a better understanding of the present invention and to show how the same may be carried out in practice, reference will now be made to the accompanying drawings, in which:

Fig. 1 is a perspective view of a dispensing system in accordance with the present invention;

Fig. 2 is a perspective view of a drawer and an associated drawer support of the dispensing system shown in Fig. 1;

20 **Fig. 3** is a top view of the drawer shown in Fig. 2;

Fig. 4 is a top rear perspective view of a drawer divider of the drawer shown in Fig. 2;

Fig. 5 is a front view of the drawer divider shown in Fig. 4;

Fig. 6 is detail view of the drawer divider shown in Fig. 5;

Fig. 7 is a front view of a locking bar of the drawer divider shown in Fig. 4;

Fig. 8 is a detail view of the locking bar shown in Fig. 7;

Fig. 9 is a schematic top view of a cell array of the drawer shown in Fig. 2;

5 **Fig. 10** is a top view of the drawer shown in Fig. 2;

Fig. 11 is a detail perspective view of a bin of the drawer shown in Fig. 2;

Fig. 12 is a detail top rear perspective view of a securing cross-beam of the drawer support shown in Fig. 2;

10 **Fig. 13** is a bottom front perspective view of the securing cross-beam shown in Fig. 12;

Fig. 14 is a schematic cross section of the drawer and drawer support showing a lid securing lever in a lever lowered position, taken along the plane XIV - XIV in Fig. 2;

15 **Fig. 15** is schematic cross section of the drawer and drawer support showing a lid securing lever in a lever raised position, taken along the plane XIV — XIV in Fig. 2.

DETAILED DESCRIPTION OF A PREFERRED EMBODIMENT

Attention is drawn to Figs. 1 and 2. A dispensing system **30** has a cabinet **32** accommodating a plurality of drawers **34**. Each drawer **34** slides in and out of the cabinet **32** along a rear-to-front sliding direction **S**, through a cabinet opening **36** formed at a cabinet front face **38**. The drawer **34** is continuously positionable between fully pushed-in and fully pulled-out positions. It should be noted that directional terms appearing throughout the specification and claims, e.g. "front", "rear", etc., (and derivatives thereof) are for illustrative purposes only, and are not intended to limit the scope of the appended claims. The drawer **34** stores items in a plurality of bins **40** provided with lockable and selectively-releasable lids **42**. The lids **42** are controlled by

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an access-control system (not shown). The access-control system may have, for example, a combined display and input device, e.g., a touch screen **44**, through which users may issue dispensing or restocking requests, and a user identification means (not shown) such as card readers or biometric means, so that the system may identify the user and determine whether the user is authorized to withdraw or replenish a specific item. However, the access-control system does not constitute the subject matter of the present invention, and therefore it will not be described further herein. Each drawer **34** is associated with a drawer support **46** secured to the cabinet **32** and having drawer guide wheels **48** on which the drawer **34** slides in and out of the cabinet **32**. When the drawer **34** is in the fully pushed-in position, a drawer front panel **50** is flush with the cabinet front face **38**.

As is best shown in Fig. 3, the drawer **34** has a drawer tub **52** in which the bins **34** are located. The drawer tub **52** is supported by drawer right and left side-rails **54_R**, **54_L** mounted to right and left tub sidewalls **55_R**, **55_L**, respectively. The drawer right and left side-rails **54_R**, **54_L** are connected to the drawer front panel **50** and extend rearwardly therefrom. The terms "left" and "right" are defined from a point of view of the user standing in front of the cabinet **32** and facing the cabinet front face **38**. Each of the right and left side-rails **54_R**, **54_L** is provided with a slide **56** to support the drawer **34** on the guide wheels **48** of the drawer support **46**. Each of the right and left tub sidewalls **55_R**, **55_L** has $(N + 1)$ of divider slots **59** formed therein and spaced equidistantly therealong.

Attention is additionally drawn to Figs. 4 to 10. A row of bins **40** defines a compartment **58** (see fig. 10). Each compartment is bounded by a pair of adjacent drawer dividers **60**. Each drawer divider **60** is of a generally elongated rectangular shape, extending perpendicularly to the sliding direction **S** between two opposing divider slots **59** disposed in the right and left tub sidewalls **55_R**, **55_L**. Each drawer divider **60** accommodates an elongated, flat locking bar **62** having an integrally formed releasing rod **64** extending rightwardly thereof. *M* locking latches **66** extend upwardly

from the locking bar **62** and are spaced equidistantly therealong. Each locking latch **66** is of an L-shape, and has a bolt portion **68** extending parallel to the locking bar **62**. A bar mounting slot **70** is formed in the locking bar **62**. The bar mounting slot **70** accommodates a locking spring **72** confined between a divider bolt **74** and a mounting slot right end **76**. The divider bolt **74** extends through the bar mounting slot **70** and is affixed to the drawer divider **60**. The locking spring **72** biases the locking bar **62** rightwards to a bar locking position. The locking bar **62** may be urged leftwards to a bar releasing position, as will be further discussed below. The releasing rod **64** of the drawer divider **60** protrudes through a tub right side-wall **55_R** to a side-wall outer side **80** of the drawer tub **52**.

Each drawer divider **60** has a plurality of bin partition slots **82** spaced equidistantly therealong defining *M* equally-sized divider segments **84**. Two spaced-apart lid hinge apertures **86** and one locking slot **88** located therebetween are formed in each divider segment **84**. When the locking bar **62** is in the bar locking position, each bolt portion **68** thereof extends across the locking slot **88** associated therewith. When the locking bar **62** is in the bar releasing position, each bolt portion **68** thereof is withdrawn from the locking slot **88**.

Referring now particularly to Figs. 9 and 10, the divider slots **59** and the bin partition slots **82** define a drawer cell array **90** having a plurality of identical cells **92**. The cells **92** of the cell array **90** are arranged in *N* cell rows **94** and *M* cell columns **96**. Each cell row **94** extends transversely to the sliding direction *S*. Each cell column **96** extends parallel to the sliding direction *S*. Numerals *1r*, *2r*, and *1c*, *2c*, shown in Fig.9, indicate an ordinal number of row and columns, respectively.

Each compartment **58** may extend over one or more cell rows **94**. Each compartment **58** may be divided into individual bins **40** by placing bin partitions **98** in opposing bin partition slots **82** of the two adjacent drawer dividers **60** defining the compartment **58**. All the bins **40** in a given compartment **58** extend over the same

number of cell rows **94**; however different bins **40** of the same compartment **58** may extend over differing numbers of cell columns **96**.

As is best shown in Figs. 4 and 11, the lid **42** has opposing lid top and lid bottom faces **100**, **102**. The lid **42** is hinged by a plurality of lid hinges **104** located adjacent a lid rear end **106** thereof to the drawer divider **60** adjacent the lid rear end **106**. Each lid hinge **104** is located in the corresponding lid hinge aperture **86** of the drawer divider **60** adjacent thereto. The lid **42** can be shifted from a lid closed position to a lid open position. In the lid closed position, the lid **42** covers the bin **40** and prevents access thereto. In the lid open position, the lid **42** is lifted from the bin **40** to allow access thereto and to the items stored therein.

Each lid **42** is provided with at least one catch **108** located at a catch aperture **110** formed adjacent and opening to a lid front end **112**. Generally, bins **40** extending over several cell columns **96** may be provided with lids **42** having more than one catch **108**. The catch **108** has a catch lid portion **114** having opposing catch top and bottom faces **116**, **118**. A catch front portion **120** is integrally-formed with the catch lid portion **114** and extends from the catch bottom face **118** in a direction away from the catch top face **116** perpendicularly thereto. A strike **124** having a strike aperture **126** is fixed to the catch bottom face **118** and extends forwardly from the catch front portion **120** through a strike slot **122** formed therein. The catch **108** is hinged to the lid **42** at a catch rear end **128**, and can be rotated about the catch rear end **128** from a catch open to a catch closed position. In the catch closed position, the catch top face **116** is typically flush with the lid top face **100**, and the catch front portion **120** extends below the lid bottom face **102**. In the catch open position, the catch front portion **120** is raised above the lid top face **100**. The catch **108** is biased towards the catch open position by a catch biasing spring **130**.

When the lid **42** is in the lid closed position, the bin **40** may be brought to a bin locked position, by securing the lid in the lid closed position, as will be discussed below, to prevent the lid **42** from being able to be transferred to the lid open position.

The bin **40** is brought to the bin locked position by bringing the catch **108** to the catch closed position and placing the strike **124** of the catch **108** in the locking slot **88** of the drawer divider **60** adjacent thereto (see Fig. 6). By shifting the bolt portion **68** adjacent the strike **124** to a position in which it extends through the strike aperture **126**, the catch

5 **108** is locked in position and cannot be raised to the catch open position. Consequently, the lid **42** is also locked and cannot be brought to the lid open position. In order to gain access to the bin **40**, the bin **40** is brought to a bin released position, by withdrawing the bolt portion **68** from the strike aperture **126**. The catch **108** is now free to move to the catch open position under the influence of the biasing force of the catch biasing spring

10 **130**. As soon as the catch **108** is in the catch open position, the lid **42** may be transferred to the lid open position.

Referring now to Figs. 2, **12** and **13**, the drawer support **46** has a securing beam **132** extending between right and left mounting flanges **134_R**, **134_L**. The right and left mounting flanges **134_R**, **134_L** are affixed to the cabinet **32** by any suitable means. The

15 right mounting flange **134_R** has a releasing member **136** extending inwardly therefrom. The securing beam **132** has *M* equally-spaced actuators **138** mounted thereon in a single row extending transversely to the sliding direction *S*. Preferably, the actuators **138** are of the electro-mechanical type, e.g., solenoids, and are individually connected to, and controlled by, the access-control system. Each actuator **138** has a stop member **139** in a

20 form of a short rod extending transversely to the sliding direction *S* from an actuator side surface **139'**. The stop member **139** is movable from an extended position, in which the actuator **138** is in an actuator securing position, to a retracted position (or a partially extended position), in which the actuator **138** is in an actuator releasing position. Each actuator **138** is associated with a lever through-slot **140** extending through the securing

25 beam **132** and located adjacent the actuator side surface **139'**. The lever through-slots **140** are elongated in form, each lever through-slot **140** extending parallel to the sliding direction *S*. Each lever through-slot **140** has a lid securing lever **142** located therein.

The lid securing lever **142** is rotatably secured to a plate **143** which is affixed to the securing beam **132**. The lid securing lever **142** may be rotated about an axis of rotation **A** parallel to the actuator side surface **139'** from a lever lowered position to a lever raised position. In the lever lowered position, the actuator **138** may be brought to the actuator securing position, to prevent the lid securing lever **142** from moving to the lever raised position. Bringing the actuator **138** to the actuator releasing position allows the lid securing lever **142** to move to the lever raised position. The lid securing lever **142** is biased towards the lever lowered position by its weight.

Attention is now drawn to Figs. 14 and 15. The method of operation of the dispensing system **30** will be discussed below with respect to a given bin **40** occupying a single cell **92**. The given bin's **40** lid **42** has a single given catch **108**. It will be appreciated that the method of operation applies equally well to bins extending over several cell columns and / or having lids provided with several catches. Initially, the drawer **34** is in the fully pushed-in position with all its bins **40** in the bin locked position. As the drawer **34** is pulled out from the cabinet **32**, the given catch **108** slides forwardly under the corresponding lid securing lever **142**. The locking bar **62** adjacent the given catch **108** passes along, and is engaged by, the releasing member **136**. The releasing member **136** pushes against the releasing rod **64** and shifts the locking bar **62** to the bar releasing position. However, as long as the access-control system determines that the given bin **40** should be kept in the bin locked position, the actuator **138** associated with the lid securing lever **142** remains in the actuator securing position. In this position, the stop member **139** is in the extended position and is located directly above the lid securing lever **142** (see Figs. 12, 14), thereby preventing upward movement of the lid securing lever **142**. Thus, the lid securing lever **142** is forced to remain in the lever lowered position. When in the lever lowered position, the lid securing lever **142** abuts the catch top face **116**, thereby preventing the given catch **108** from moving from the catch closed position. As the drawer **34** is drawn further forwardly, the releasing rod **64** clears the releasing member **136**, the biased locking bar **62** returns to the bar locking position, and the given catch **108** is again secured in

the catch closed position, thereby securing the lid **42** in the lid closed position and the bin **40** in the bin locked position.

If, however, the access-control system determines that the given bin **40** is to be opened it transfers the actuator **138** associated with the lid securing lever **142** to the
5 actuator releasing position, as the given catch **108** slides forwardly under the associated lid securing lever **142**. With the actuator **138** in the actuator releasing position, the stop member **139** is in the retracted position, so that it is no longer located directly above the lid securing lever **142**. Consequently, upward movement of the lid securing lever is no longer prevented. When the locking bar **62** is shifted to the bar releasing position, as it
10 engages the releasing member **136**, the catch **108** is released and urged by the catch biasing spring **130** to the catch open position. As the given catch **108** is urged to the catch open position, it urges the lid securing lever **142** to the lever raised position, against the biasing weight thereof (see Fig. 15), as the upward movement of the lid securing lever **142** is no longer inhibited when the actuator **138** is in the actuator
15 releasing position, with the stop member **139** being in the retracted position.

As the drawer is pulled further forwardly to the fully-opened position the releasing rod **64** clears the releasing member **136** and the biased locking bar **62** returns to the bar locking position. However, since the given catch **108** is in the catch open position, and is raised (see Fig. 15), its strike **124** is above the drawer divider **60**
20 adjacent thereto and the bolt portion **68** of the locking bar **62** associated therewith. Therefore, as the biased locking bar **62** returns to the bar locking position, the bolt portion **68** does not pass through the strike aperture **126**, but instead passes below the strike **124**. When the now-released catch **108** clears the associated lid securing lever **142**, the lid securing lever **142** returns to the lever lowered position by own
25 biasing weight, allowing the control system to return the actuator **138** to the actuator securing position by extending the stop member **139** to the extended position. The catch **108** remains in the catch open position, with its strike above the associated bolt

portion 68, indicating that the given bin 40 is released and the lid 42 thereof may be opened to gain access to the items stored in the given bin 40.

When the given drawer 34 is urged rearwardly into the cabinet 32 to the drawer pushed-in position, the given bin 40 passes under the securing beam 132. The lid securing lever 142 associated with the given bin 40, and now locked by the actuator 138 in the lever lowered position, urges the given lid 40 and catch 108 to the lid and catch closed positions, respectively. As the releasing rod 64 engages the releasing member 136, the locking bar 62 is urged to the bar releasing position against the biasing force of the locking spring 72, causing the bolt portion 68 to withdraw from the locking slot 88. Consequently, the strike 124 of the given catch 108 can enter its locking slot 88. Further rearwards movement of the given drawer 34 causes the releasing rod 64 to clear the releasing member 136. The biased locking bar 62 then returns to the bar locking position while the lid securing lever 142 keeps the given catch 108 in the catch closed position. The bolt portion 68 can then pass through the strike aperture 126, thereby securing the bin 40 in the bin locked position. The present invention, therefore, facilitates independent and individual locking and releasing of a plurality of bins 40 of a given drawer 34 configured in an N x M cell array by employing only M individually-controlled actuators.

Although the present invention has been described to a certain degree of particularity, it should be understood that alterations and modifications to the present invention may possibly be made without departing from the scope of the invention as hereinafter claimed.

In the claims which follow and in the preceding description of the invention, except where the context requires otherwise due to express language or necessary implication, the word “comprise” or variations such as “comprises” or “comprising” is used in an inclusive sense, i.e. to specify the presence of the stated features but not to preclude the presence or addition of further
5 features in various embodiments of the invention.

It is to be understood that, if any prior art publication is referred to herein, such reference does not constitute an admission that the publication forms a part of the common general knowledge in the art, in Australia or any other country.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A dispensing system having at least one drawer comprising a plurality of bins each occupying at least one cell of a drawer cell array having $M \geq 2$ cell
5 columns and $N \geq 2$ cell rows, wherein
the drawer comprises at most N compartments, each compartment comprising at least one cell row and being defined between adjacent drawer dividers extending transversely to a sliding direction of the drawer, wherein
each drawer divider comprises a plurality of bin partition slots arrayed
10 equidistantly therealong defining M equally-sized divider segments thereon,
each divider segment comprising spaced-apart lid hinge apertures and a locking slot located therebetween, wherein
each drawer divider accommodates a locking bar transferable between bar
locking and bar releasing positions and comprising M locking latches arrayed
15 equidistantly therealong;
each locking latch comprises a bolt portion extending parallel to the locking bar so that when the locking bar is in the bar locking position, each bolt portion extends across the locking slot associated therewith; and when the locking bar is in the bar releasing position, each bolt portion is withdrawn from the associated
20 locking slot, so that in the locking or releasing position the bins being provided with lockable lids are selectively transferable by actuators associated with the drawer between a bin released position in which the lids are transferable to a lid open position and a bin locked position in which the lids are in a lid closed position wherein
25 the number of actuators is not greater than M .
2. The dispensing system in accordance with claim 1, wherein each lid is transferable from a lid closed position, in which the lid covers the bin, to a lid open position, in which the lid is lifted from the bin to allow access thereto.
- 30 3. The dispensing system in accordance with claim 2, wherein each lid is provided with at least one catch comprising a strike having a strike aperture formed

therein, the strike extending forwardly from a catch front portion.

4. The dispensing system in accordance with claim 2, wherein the catch can be transferred relative to the lid from a catch closed position to a catch open position;

in the catch closed position, a catch top face is generally parallel to a lid top face, and the catch front portion extends below a lid bottom face; and in the catch open position, the catch front portion is raised above the lid top face.

5. The dispensing system in accordance with claim 4, wherein the catch is biased towards the catch open position.

6. The dispensing system in accordance with claim 5, wherein in the bin locked position, the lid is in a lid closed position, the catch is in the catch closed position, the strike is located in the locking slot of the divider segment adjacent thereto, and the bolt portion associated with the locking slot extends through the strike aperture.

7. The dispensing system in accordance with claim 6, wherein when the bin is in the bin released position, the bolt portion is withdrawn from the strike aperture and the catch is transferred to the catch open position by the biasing force of the catch biasing spring.

8. The dispensing system in accordance with claim 7, wherein the drawer is associated with a drawer support fixed to a cabinet and accommodated therein, the drawer support comprising a securing beam having a single row of M equally-spaced actuators extending transversely to the sliding direction mounted thereon, each actuator being transferable between actuator securing and actuator releasing positions.

9. The dispensing system in accordance with claim 8, wherein each actuator is associated with a lid securing lever transferable between lever lowered and lever raised positions.

10. The dispensing system in accordance with claim 9, wherein when the lid
securing lever is in the lever lowered position, and the actuator is in the actuator
securing position, the lid securing lever is prevented from transferring to the
5 lever raised position.
11. The dispensing system in accordance with claim 10, wherein when the lid
securing lever is in the lever lowered position, and the actuator is in the actuator
securing position, the lid securing lever urges the lids and catches sliding
10 therebelow to the lid closed and catch closed positions.
12. The dispensing system in accordance with any one of claims 1 to 11, wherein
each drawer divider comprises the plurality of bin partition slots arrayed
equidistantly therealong defining M equally sized divider segments therealong.
15
13. A method of using the dispensing system according to claim 1 for selectively
transferring a given bin between the bin locked and the bin released position,
wherein the given bin is any bin defined in the drawer cell array;
the method comprising the steps of:
20 sliding the drawer from a fully pushed-in towards a fully pulled-out position;
and
selectively transferring the actuator associated with said given bin from an
actuator securing position to an actuator releasing position as the given bin
slides adjacent thereto, thereby facilitating selective transferring of the given bin
25 from the bin locked to the bin released position, wherein the method further
comprises the steps of:
initially positioning the lid associated with said given bin in the lid closed
position and the associated locking bar in the bar closed position, with the
associated strike located in the associated locking slot and the associated bolt
30 portion of the associated locking latch extending through the associated strike
aperture, thereby positioning the given bin in the bin locked position; and
transferring the associated locking bar to the bar releasing position as the drawer
slides and thus the given bin slides adjacent to the associated actuator, thereby
withdrawing the associated bolt portion from the associated strike aperture and

releasing the given bin to be selectively transferable to the bin released position.

14. A dispensing system or method of using a dispensing system, substantially as herein described with reference to the accompanying drawings.

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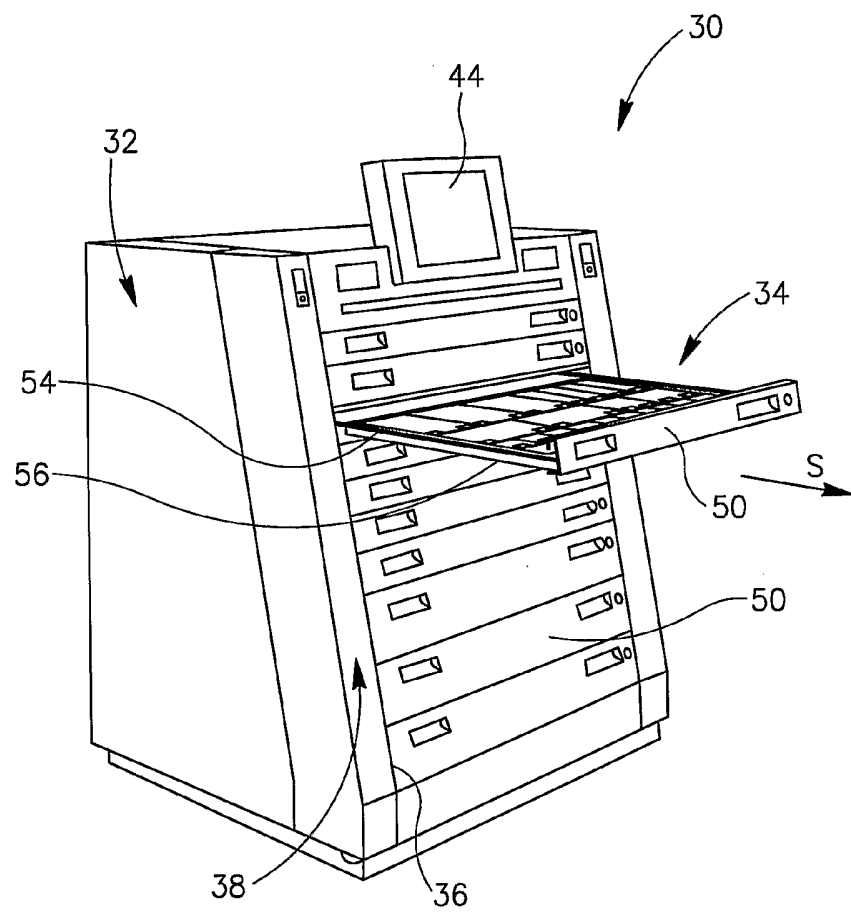


FIG. 1

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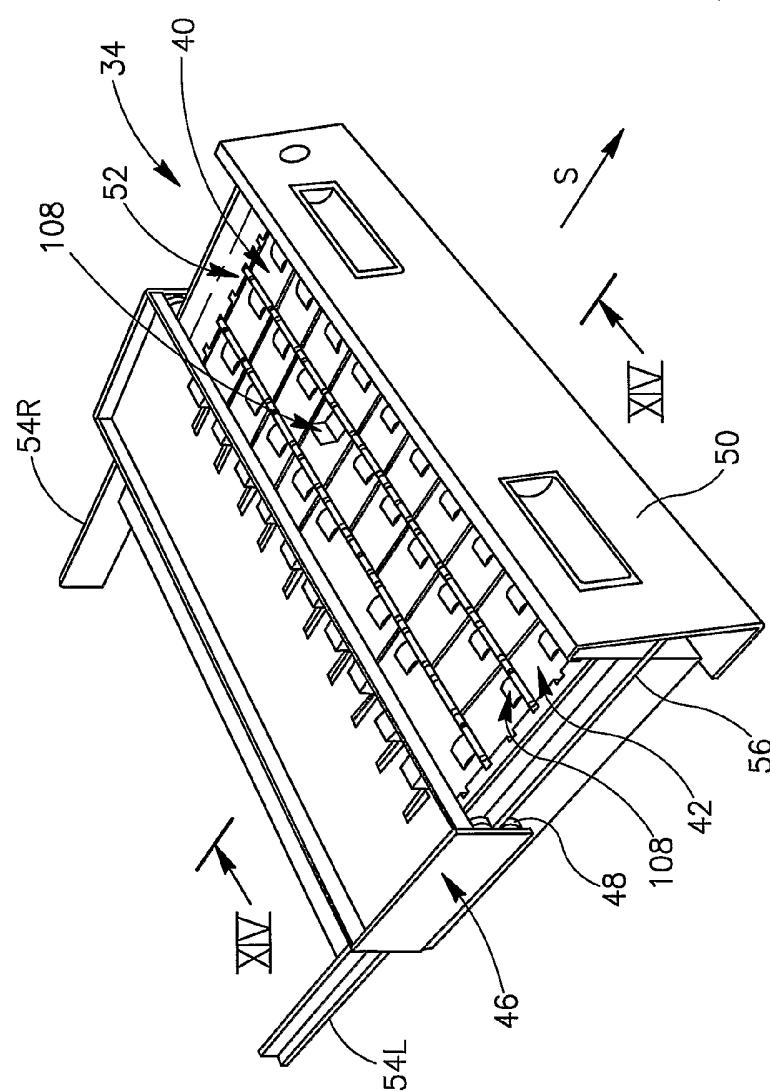


FIG. 2

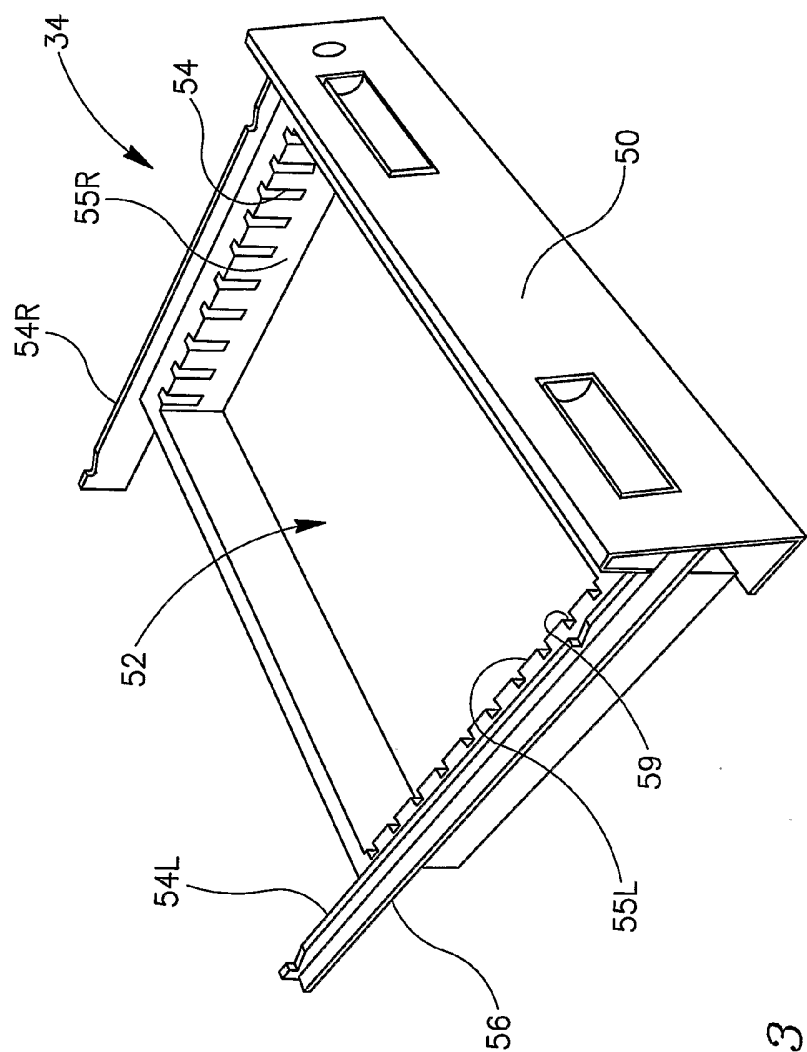


FIG. 3

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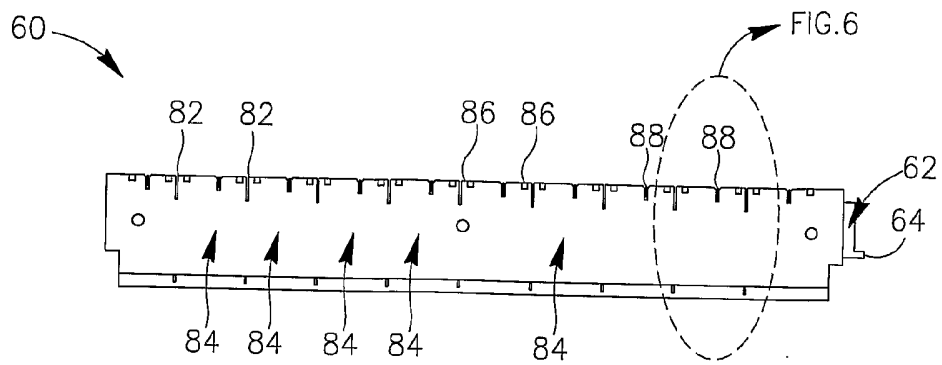


FIG. 5

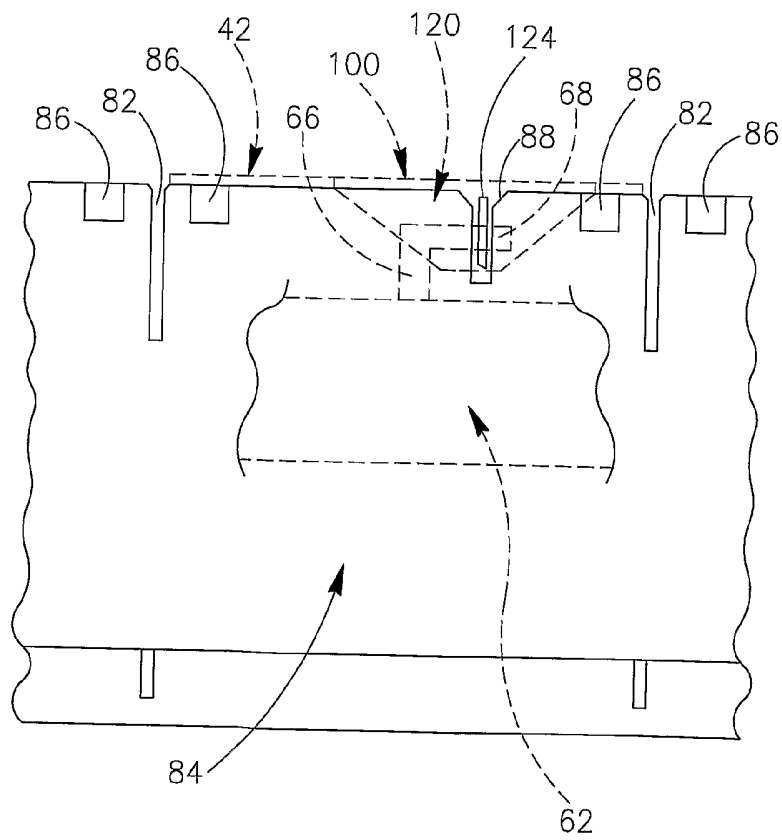


FIG. 6

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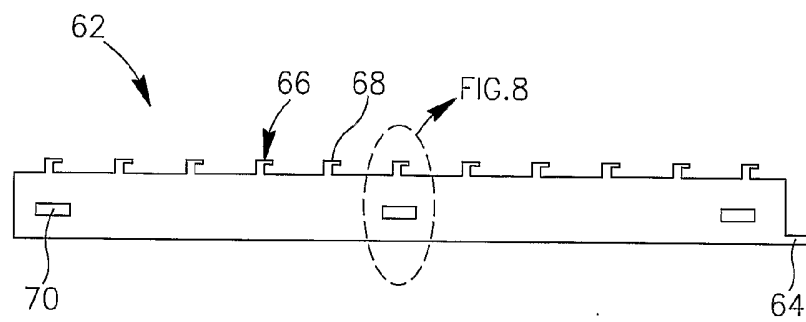


FIG. 7

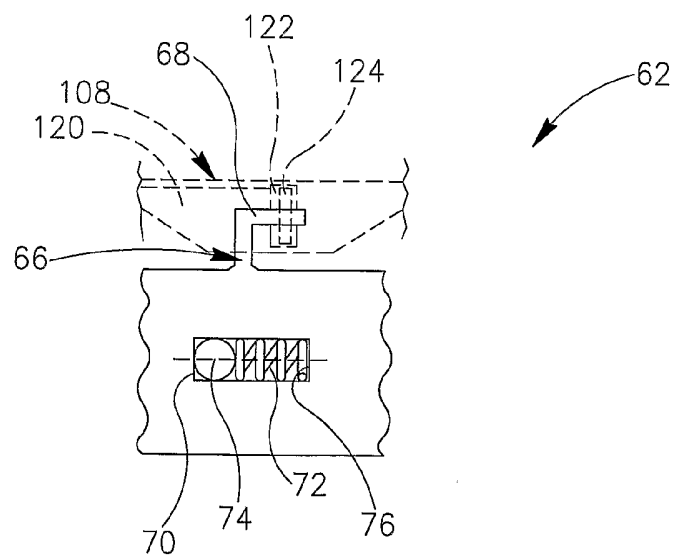


FIG. 8

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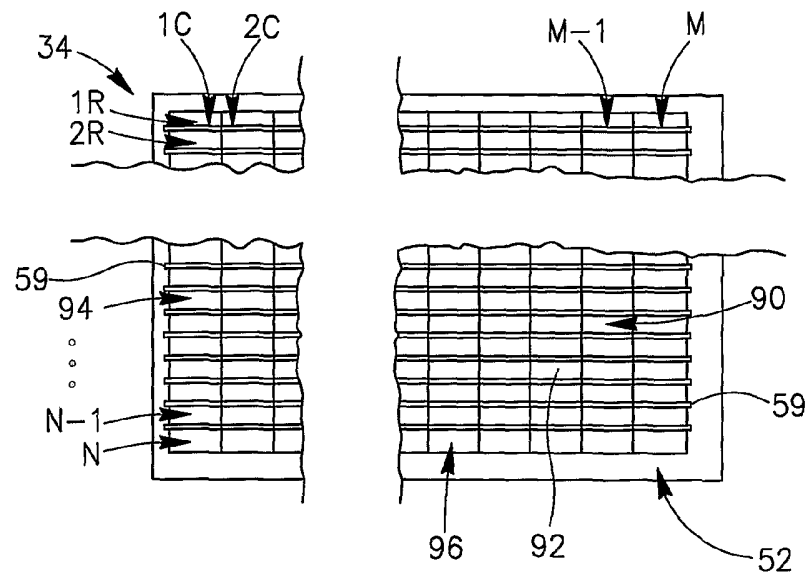


FIG. 9

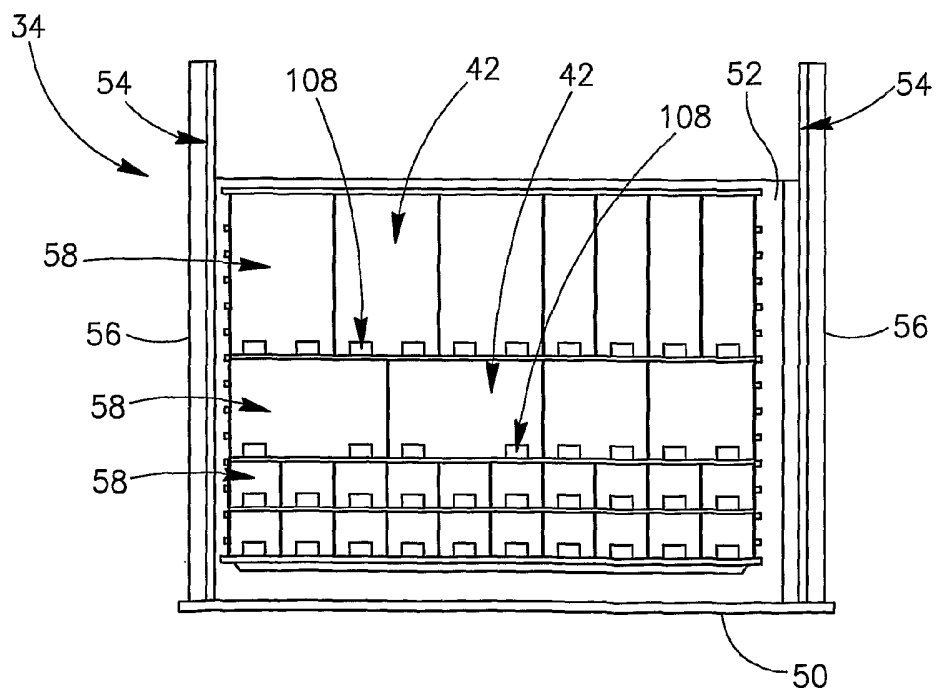


FIG. 10

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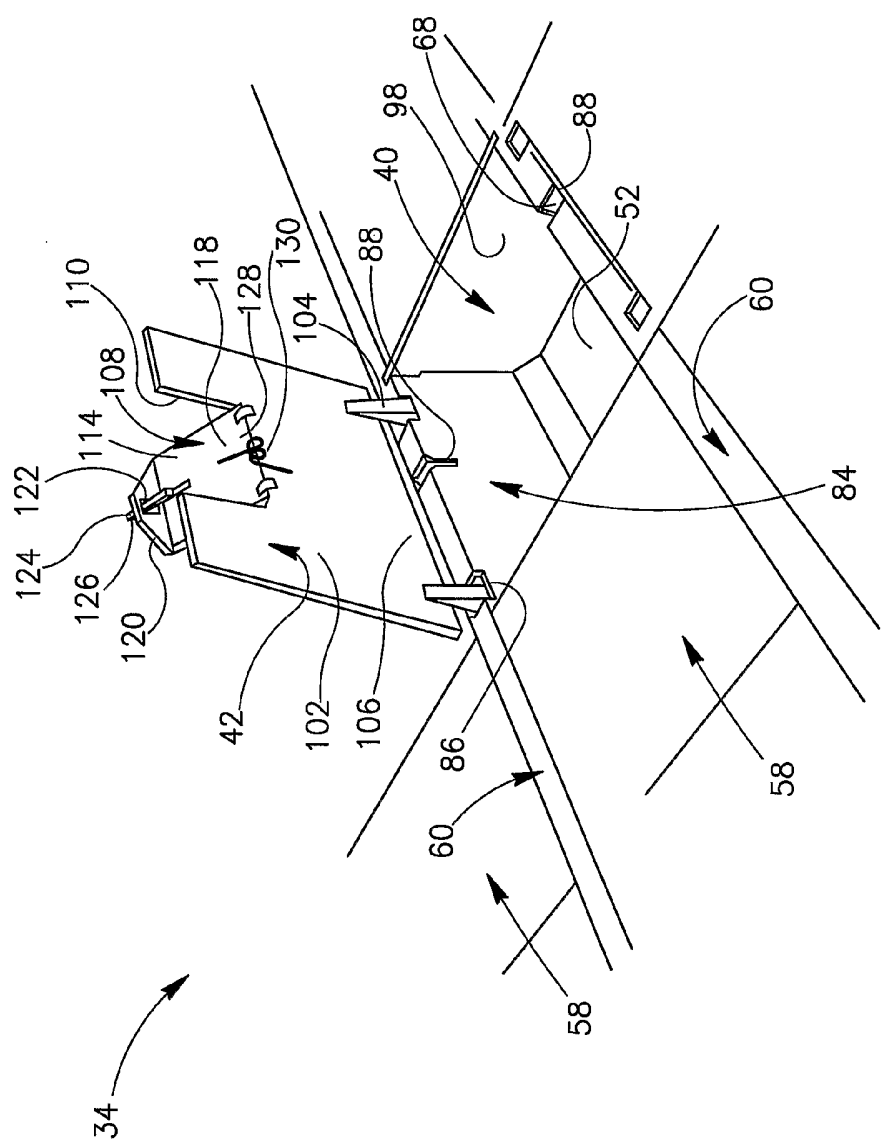


FIG. 11

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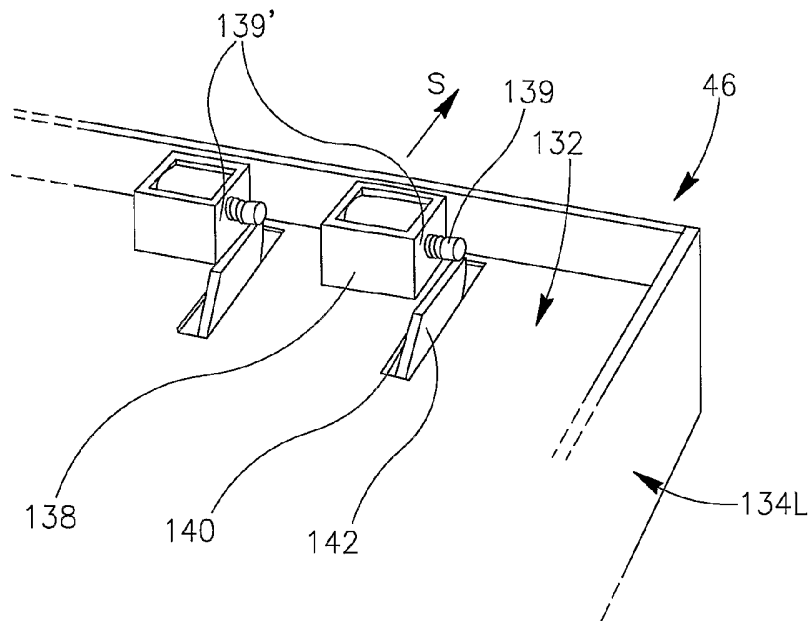


FIG. 12

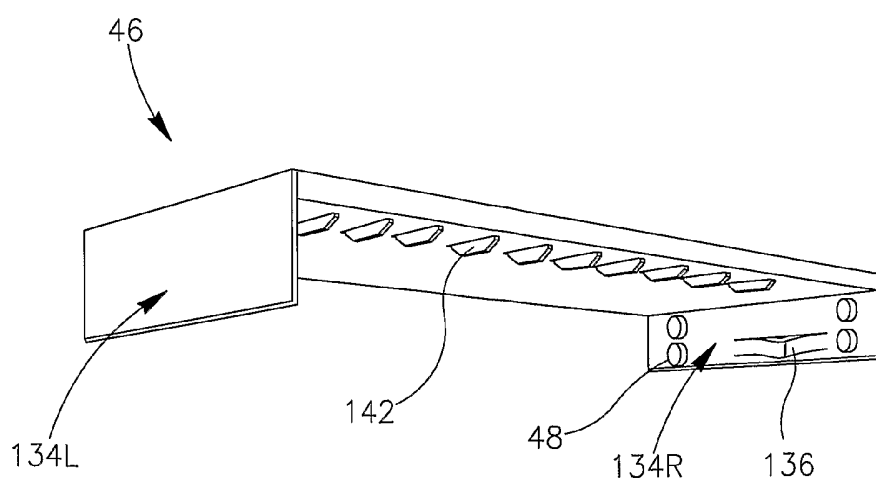


FIG. 13

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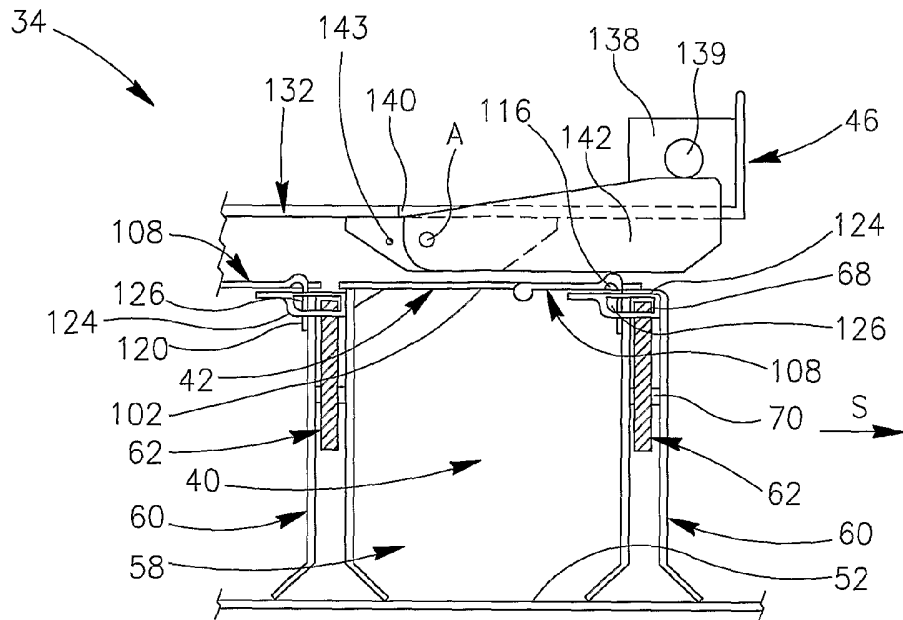


FIG.14

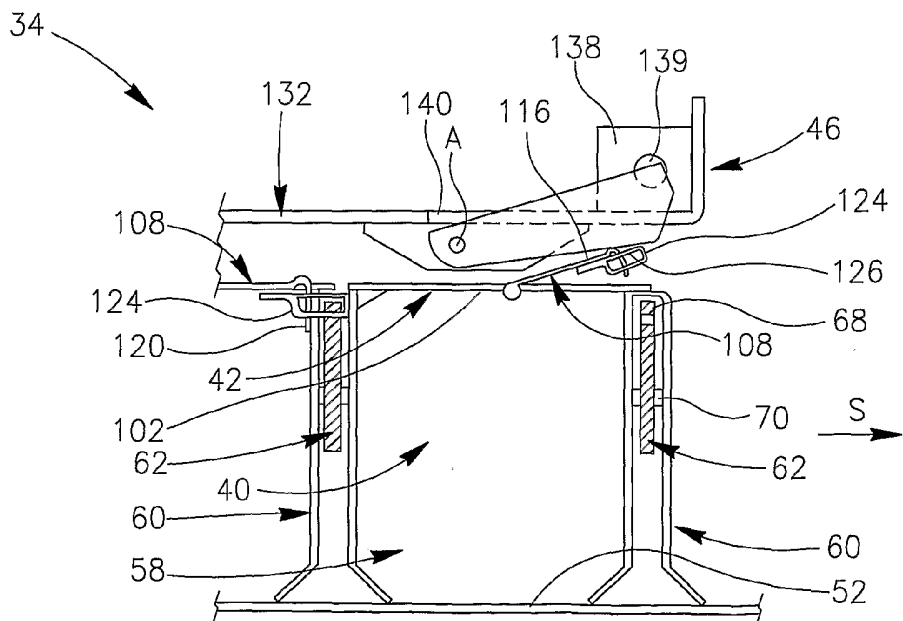


FIG.15