No. 642,894. Patented Feb. 6, 1900.

M. BUNKER.

DISPLAY CABINET.

(Application filed Nov. 9, 1898.)

(No Model.)

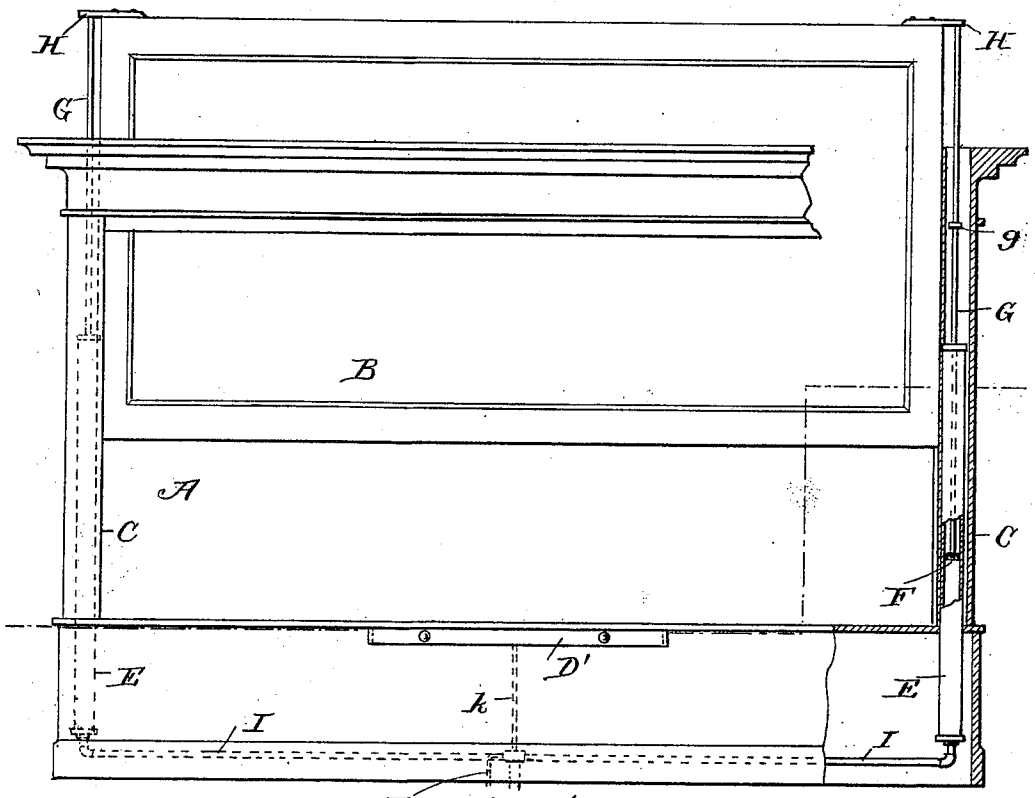


Fig. 1.

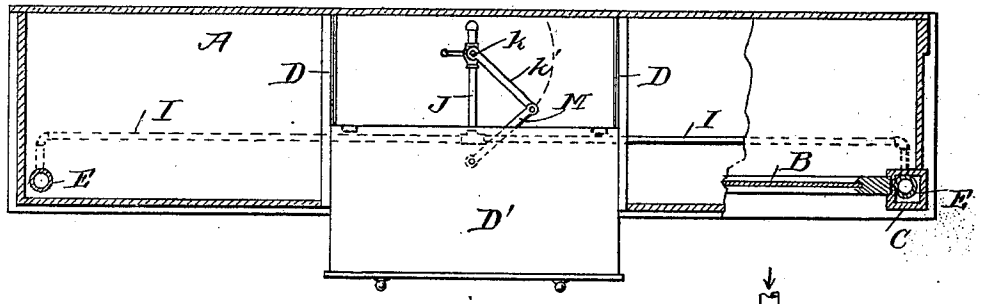


Fig. 2.

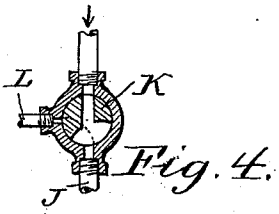


Fig. 4.

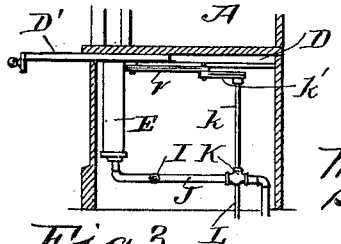


Fig. 3.

Witnesses,
D. C. Simmons.
Chas. W. Parker.

Inventor,
Melville Bunker,
By
T. S. Bacon
Atty.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

MELVILLE BUNKER, OF DAVENPORT, IOWA.

DISPLAY-CABINET.

SPECIFICATION forming part of Letters Patent No. 642,894, dated February 6, 1900.

Application filed November 9, 1898. Serial No. 695,916. (No model.)

To all whom it may concern:

Be it known that I, MELVILLE BUNKER, a citizen of the United States, residing at Davenport, in the county of Scott and State of Iowa, have invented certain new and useful Improvements in Display-Cabinets; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The invention relates to display-cabinets, and particularly to such cabinets which are upright or vertical and have a large and heavy vertically-operated door or window.

One object of the invention is to provide means for opening and closing the door or window which will relieve a person operating the same from the exertion necessary usually to raise and lower such a door or window without in any way disfiguring the display-cabinet or providing operating means which shall be in view and give an ungainly or unsightly appearance to the cabinet.

A further object is to provide such a cabinet having a vertically-moving door or window with a horizontally-movable slide or shelf adapted to be drawn out to a position in front of the cabinet for supporting articles taken from the cabinet and mechanism operated by the movement of said slide or shelf for operating the door or window.

A further object is to provide such a cabinet provided with a door or window with a slide or shelf adapted by the movement thereof to operate the door-raising means, which slide shall operate easily irrespective of the weight or size of the door or window.

A further object is to provide such a cabinet having a door or window and a slide or shelf with fluid-operated pistons for opening and closing the door, fluid-supply pipes for said pistons, and a cock or valve for controlling the fluid-pressure, which cock or valve is operated by the movement of said slide or shelf.

A further object is to provide such a cabinet having a door and a slide or shelf with fluid-operated means for raising and lowering the door or window, which means are controlled by the movement of the slide or shelf and which means are all hidden from view in the cabinet.

With such and other objects in view the invention is embodied in the several parts, arrangement, and combinations of parts hereinafter described, and particularly set forth in the claims.

In the accompanying drawings I have shown a display-cabinet provided with door-operating means embodying my invention; but I desire it understood that I do not limit the invention to the construction therein shown for the purpose of giving a proper understanding of the invention.

In the drawings, Figure 1 is a front elevation, partly in section, of a display-cabinet provided with my improvements. Fig. 2 is a horizontal section. Fig. 3 is a transverse vertical section showing the slide and its connections with the supply cock or valve. Fig. 4 is a detail sectional view of the supply cock or valve.

Referring to the drawings, wherein similar reference characters refer to like parts throughout the several views, A indicates an upright display-cabinet or show-case provided with a vertically-sliding front door or window B, which is guided in suitable ways in the framework or corner-posts C of the cabinet. Horizontally slidably mounted in suitable ways or guides D in the lower or pedestal part of the cabinet is a shelf or slide D', adapted when drawn out to support articles—for instance, when taken from the show-case or cabinet.

Conveniently at each side of the door or window B and incased in the upright frame or corner-post C is a cylinder E, extending from near the bottom of the cabinet a considerable distance vertically. In each cylinder is a piston F, connected to a piston-rod G, extending up through the top of the cylinder E. Each piston-rod is adapted when its piston is moved upwardly by fluid-pressure in the cylinder to engage with a part carried by the side of the door or window adjacent said rod, which part is shown as being a plate H, secured to the top or upper part of the door or window

at the side and above the piston-rod. If desired, suitable guide-bearings *g* for the piston-rods may be secured to the cabinet-casing to prevent lateral movement or bending of the piston-rods, which are of comparatively small cross-section. It is evident that fluid under pressure admitted to the cylinders below the pistons will cause the latter to move upwardly in the cylinders, and the piston-rods engaging the brackets H on the door the latter will be moved upwardly by the pistons and will be retained in elevated position as long as the pressure is retained in the cylinders. If desired, suitable stops may be provided for limiting the upward movement of the door; but, as shown in the drawings, the cylinders are of a length to limit the upward-and-downward movement of the pistons, thereby effecting the same result.

I indicates pipes leading from the lower ends of the cylinders E to a central or intermediate branch pipe J, which latter may be connected to any suitable supply-pipe for admitting fluid under pressure to the same and the cylinders—as, for instance, the water-service pipe in the house. In the pipe J is a suitable coupling provided with a three-way cock or valve K, having ports adapted in one position of the cock to admit the fluid to the pipes I to raise the pistons and in another position of the cock to connect the pipes I through the connecting portion of the pipe J to a waste or discharge pipe L of considerably smaller capacity than the pipes I and J. It will thus be seen that when the cock is in one position water is admitted under a sufficient head to the cylinders to raise the pistons, and when in the other position the water will discharge slowly through the waste-pipe L, thereby permitting a slow or gradual descent of the pistons and the door operated thereby and preventing a sudden drop of the door.

The cock or valve J is provided with an upwardly-extending operating rod or stem *k*, which at its upper end is rigidly secured in any preferred manner to a horizontal arm or plate *k'*. Pivotally connected to the said arm is a link M, which is pivotally connected at its opposite end to the under side or rear edge of the slide or shelf D' in such a manner that by the movement of the slide or shelf in or out the cock K will be moved to its closed or open position. Preferably the cock is turned to admit water to the cylinders on the outward movement of the slide and to connect the cylinders with the discharge or waste pipe *l* on the inward movement of the slide or shelf. It is evident that adjusting means may be provided in the connection between the valve and the slide to insure the proper movement of the valve by the movement of the slide.

It is believed from the foregoing description that the purpose and operation of the invention will be clearly understood.

If desired, suitable stops may be provided to limit the inward and outward movement of the slide or shelf. In the drawings the shelf is shown as having a front molding or bead to limit its inward movement by engaging the cabinet-facing and projections or stops on the rear part thereof to limit the outward movement of the shelf or slide.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a display-cabinet or show-case, the combination of a vertically-slidable door or window, a horizontally-movable shelf, fluid-operated means for operating said door, a controlling-valve for the fluid, and operative connections between the same and said shelf, substantially as described.

2. In a display-cabinet or show-case, the combination of a vertically-sliding door or window, a horizontally-sliding shelf or slide, fluid-cylinders, pistons in said cylinders, and having piston-rods extending without the cylinder and adapted to engage parts carried by said door, fluid-supply pipes connecting with said cylinders, a waste-pipe, a valve controlling the admission of fluid to the cylinders and discharged therefrom through the discharge-pipe, and connections from said valve to said shelf or slide, substantially as described.

3. In a display-cabinet or show-case, the combination of a vertically-sliding door, a horizontally-sliding shelf, fluid-operating means for operating said door, a valve for controlling the supply and discharge of the fluid, and a connection from the slide or shelf to said valve, which is hidden in the cabinet or show-case, substantially as described.

4. In a display-cabinet or show-case, the combination of a vertically-slidable door or window, a slide or shelf, fluid-operating means for opening or closing a door, controlling means for the fluid, and operative connections between said slide and said controlling means, all hidden within the display-cabinet or show-case, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

MELVILLE BUNKER.

Witnesses:
I. C. ANDERSON,
M. A. BLAIR.