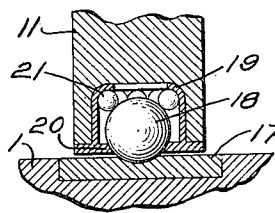
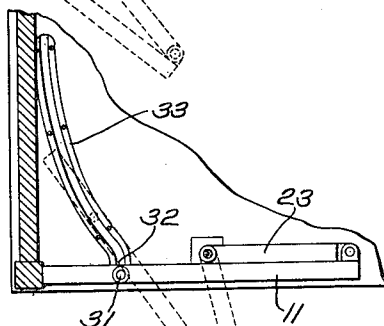
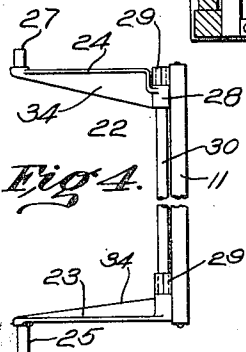
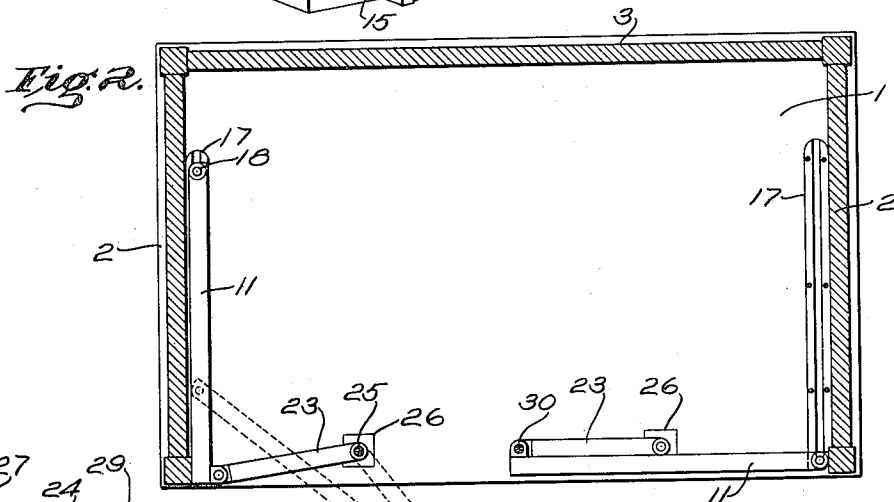
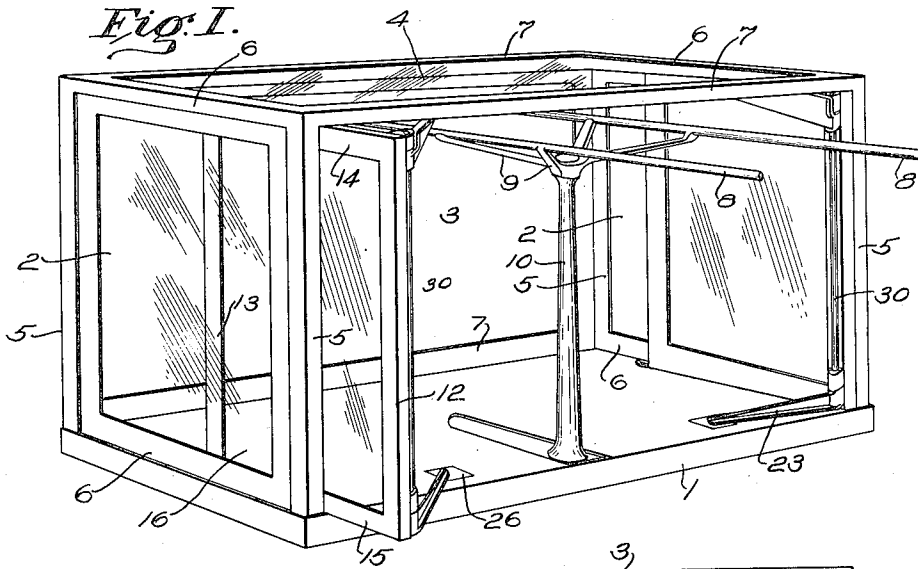


O. L. SMITH.
SHOW CASE.
APPLICATION FILED DEC. 9, 1911.

1,219,404.

Patented Mar. 13, 1917.



Witnesses:
Russell T. Hatch,
Amelia M. Ross

Inventor:
Oscar L. Smith
By Robt. H. Davis,
Atty.

UNITED STATES PATENT OFFICE.

OSCAR L. SMITH, OF GRAND RAPIDS, MICHIGAN, ASSIGNOR TO SAMUEL D. YOUNG,
TRUSTEE, OF GRAND RAPIDS, MICHIGAN.

SHOW-CASE.

1,219,404.

Specification of Letters Patent.

Patented Mar. 13, 1917.

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To all whom it may concern:

Be it known that I, OSCAR, L. SMITH, a citizen of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented an Improvement in Show-Cases, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawing representing like parts.

The invention to be herein described relates to doors and the mounting thereof in a manner to permit opening and closing movements, and has special reference to doors for use in connection with show cases, though it is to be understood that the invention is not restricted thereto and may be used wherever the conditions are such as to render the employment of the present invention desirable.

In show devices for stores, especially for the display of ready-to-wear garments on racks or the like it is desirable that the case be provided with a closure or door so that when within the case the rack and goods thereon may be entirely inclosed. At the same time, it is desirable that the door or doors, if more than one be employed, shall be of such character and so supported for opening and closing movements that economy of floor space, as between rows of cases, may be secured, and when the doors are opened that they shall not obstruct the aisle or passageway between the cases, or interfere with the proper and desired manipulation of the rack.

With these considerations in view, the aims and purposes of the present invention will best be made clear from the following description and accompanying drawings of one form of means for carrying the invention into practical effect, the true scope of the invention being definitely set forth by the claims.

In the drawings:

Figure 1 is a perspective view of doors and their mountings involving the present invention and typified as applied to a show case for stores;

Fig. 2 is a sectional view of the same below the top of the show case, some of the parts being broken away and showing said case as provided with two doors, each one of which is adapted to be moved into the case at the side thereof without materially re-

ducing the interior dimensions of the case or obstructing the front of the case and movements of the rack;

Fig. 3 is a detail showing one form of anti-friction device at the top and bottom of the door for engaging suitable tracks secured to the case;

Fig. 4 is a detached detail showing the swinging link support which is connected to the door adjacent the front edge thereof; and

Fig. 5 is a modification showing the anti-friction device secured to the top and bottom of the door at points remote from the rear edge thereof.

In order to properly describe and exploit the door construction and mounting which constitutes the present invention it is shown as applied to a display device or case used in stores for exhibiting ready-to-wear garments, but it is not the intention of applicant to restrict the invention in this respect because it may be employed wherever desirable. In the drawings, however, the case comprises a base 1, sides 2, backs 3 and top 4, which may be formed of glass, the panels of which may be supported by a suitable framework, such as the uprights 5, and cross-pieces 6 and 7. The case may also have a rack movable to and from a position within the case, if desired, such rack being herein typified by the rods 8, 8 sustained by arms 9, 9, mounted at the top of an upright 10. This rack may be moved toward the front of the case, and then rotated, but such features of case and rack are not of my present invention, which, more particularly, relates to the doors and their mounting.

In the present invention the doors are so mounted that the ends thereof which meet at about the front center of the case or cabinet, and which may be termed the front end of the doors, are mounted upon and supported by a swinging bail, the arms of which at the top and bottom of the doors are pivotally mounted to the top and bottom of the case or cabinet at points adjacent the front of the case or cabinet and substantially midway between the front center of the case or cabinet and the sides thereof, while the other ends of the doors, which may be termed the rear ends, are mounted at top and bottom of the case or cabinet to move backward into the case or cabinet as the front ends are swung in the

arc of a circle about the centers of the bail mounting in the case or cabinet, the effect being that while the doors are firmly sustained at all times during their opening and closing movements, they are also caused to move backward into the case into substantial parallelism with the sides of the case as the doors are opened by the circular movement of the front end of the door and the rectilinear movement of the rear end of the door in a direction tangential to the circular path of the front end, so that the aisle space or rotative movement of the rack when in front position is not obstructed by any part of the doors.

In the drawing which shows one form of means for carrying the invention into practical effect, the front of the case or cabinet is shown as provided with two doors 11, 11, each formed of suitable framework, comprising the front and rear uprights 12 and 13, Fig. 1, and the top and bottom pieces 14 and 15, suitable for the support of the glass 16. Two doors are preferably employed to meet at the front center of the case or cabinet when in closed position, but obviously this is not essential though it provides a convenient and economical form of structure.

Mounted on the base of the case or cabinet is a guide or trackway 17 adjacent each side of and parallel with the end walls 2 of the case or cabinet, said guideways being of any preferred form to engage suitable co-acting devices on the doors to direct the rear end of the door during opening and closing movements in a direction tangential to the circular path of the front end of the door, as will more fully appear. In the illustrated form these guideways are shown as plates or strips 17, Fig. 3, having a groove for engaging a ball 18 carried at the rear lower end of the door, Fig. 2. The ball 18 may be variously secured to the lower rear end of the door, as by means of the socket piece 19 having the opening 20 through which a part of the ball may project to engage the guideway 17, smaller balls 21 being employed, if desired, to give additional anti-friction quality to the guiding support thus formed for the rear of the door. It is to be understood, however, that the details of the described guideway on the case or cabinet and the co-acting element at the rear lower end of the door are not of importance so far as the present invention is concerned.

A similar guideway is preferably secured to the underside of each of the cross-ties 6, 6, at the top and ends of the case to be engaged by a guiding element at the rear top edge of the door similar to that already described, and as these parts at the top of the case or cabinet and the door are or may be of the same general character as those

at the rear lower edge of the door, further detail illustration and description is unnecessary; the characteristic of the invention in this respect being that there shall be a guideway at the top and bottom of the case or cabinet and extending into it, and suitable means at the top and bottom of the door adjacent its rear end to engage said guideways and direct the rear edge of the door in a direction tangential to the circular path of the front end of the door during its opening and closing movements, as will more fully appear.

To effect the proper support and movement of that edge or end of the door which when the doors are closed is at the front center of the case or cabinet, the present invention contemplates a bail 22, Fig. 4, which is preferably formed with an upper and lower supporting arm pivotally connected to the top and bottom of the case or cabinet at the front thereof, said arms being connected to the front end of the door and effectively sustaining the weight thereof.

In the present form of the invention, the bail 22 comprises a lower supporting arm 23 and an upper supporting arm 24, the former having a downturned pivotal portion 25 to engage a suitable socket piece 26 secured to the base 1, Figs. 1, 2 and 4; and the supporting arm 24 is provided with an upwardly extending pivotal portion 27 to engage a similar socket piece on the cross-piece 7 at the top and front of the case, which, being the same as that for the pivotal portion 25 need not be further illustrated or described. It will be noted that the bail 22 is pivotally connected to the top and bottom of the case or cabinet at the front portion of and within the cabinet and that the pivotal axis of the bail is substantially midway between the meeting ends of the doors when closed and the side of the case or cabinet, the construction being such that upon swinging the door from closed to open position, the bail supporting arms 23 and 24 will turn about their pivotal connections with the interior of the case or cabinet, swing the front end of the door outwardly and in the arc of a circle, then toward the side of the case, and finally cause the door as a whole to move into the case at and parallel to the side of the case.

The ends of the supporting arms 23 and 24 at the top and bottom of the case may be connected to the front end of the door in a manner suitable to afford an efficient support for the front portion thereof. As one means to this end, the arms 23 and 24, Fig. 4, are preferably provided with shoulders or enlargements 28 on which rest pivotal socket pieces 29 secured to the front end pieces 12 of the door, said arms being preferably provided with a connection 30 which may serve as the pintle for the hinge connection

between the bail and the front end of the door.

Inasmuch as the connection 30 between the swinging supporting arms 23 and 24 may be rigidly connected with said arms, it follows that any downward strain due to the weight of the door is better resisted and more effectively overcome than would be the case if the arms 23 and 24 were merely hinged to the front end of the door. In case the connection 30 is removably secured to the ends of the arms 23 and 24, the elongated bearings furnished by the parts 28 are such as to give to the arms 23 and 24 resistance to any torsional downward tendency of these arms due to the weight of the door, so that in either event, whether the connection 30 be rigid with the arms 23 and 24 or detachably connected thereto, it imparts to these arms additional capacity for resisting any downward movement of the front end of the door due to its weight, and this characteristic of the bail connection between the door and the case or cabinet is further augmented by the fact that the connection 30 extends substantially the full height of the door, though, of course, the invention is not necessarily restricted to this particular dimension.

From the construction described, it will be noted that when the door is in closed position, the arms 23 and 24 of the bail will lie substantially as indicated in full lines at the right, Fig. 2, and as the door is moved to its open position, as indicated by the full lines in Fig. 2, the inner end of the door will travel directly to the rear of the case or cabinet due to the engagement of the guideway 17 and coacting guiding devices on the rear portion of the door, while the front end of the door will swing in the arc of a circle outward, then toward the side of the case or cabinet, and finally bring the door 11 into the full line position parallel with the side of the case or cabinet, the rear end of the door during such movement traveling in a direction tangential to the circular path of the front end of the door, as indicated in Fig. 2.

In the construction hereinbefore described, the guiding connections between the rear end of the door and the case or cabinet have been attached to the door close to the rear end thereof, but the invention is not necessarily circumscribed by this particular relation of these rear end guiding devices, but they may be connected to the door at a point somewhat remote from the rear end thereof, as indicated in the modification shown by Fig. 5. In said modification, the door 11 and the bail connection between it and the case may be the same as hereinbefore described with respect to the form of the invention indicated by Figs. 1, 2 and 4, but in said modification, the guiding devices at-

tached to the upper and lower edges of the door are disposed between the front and rear ends of the door somewhat distant from the rear end as at 31, Fig. 5. In this case, inasmuch as the extreme rear end of the door must move inward as the front end of the door is swung outward by its bail connection with the front edge of the case, the guideway attached to the bottom and top of the case is made in the general form indicated by Fig. 5, wherein it is shown as having at the part thereof near the front of the case a straight portion 32 leading directly inward and then a curved portion 33 which guides the rear end of the door directly rearward into the case as the front end of the door is swung outward by its bail connection with the case.

Modifications may be made in the invention within the true scope thereof, one of the characterizing features of which is the effective swinging support furnished for the front end of the door by the bail connection between the said front end of the door and the case or cabinet at the front portion thereof, and the proper guidance of the rear end of the door, so that when the parts are in position as indicated at the left, Fig. 2, the door will be substantially parallel with the sides of the case and not obstruct either the aisle or the proper rotation of the rack on which the goods are supported.

If desired, the swinging arms 23, 24 of the bail may have flange portions 34 to give them additional resistance to distortion from the downward energy exerted upon them by the weight of the door, but this in the case of light doors may not be necessary.

What is claimed is:

1. In a device of the character described, the combination with a casing, of an upright door movable in a horizontal plane to and from closed position, supporting links pivotally connected to the casing at the top and bottom thereof, pivot elements secured to the front end of said door, means pivotally connecting said links and elements with the latter supported on the former to sustain the front end of the door, and relatively slidable supporting members on the casing and the rear end of the door, said links and members having provision for sharing the entire weight of said door between them throughout the opening or closing movement thereof.

2. In a device of the character described, the combination with a casing, of an upright door movable in a horizontal plane to and from closed position, supporting links pivotally connected to the front end of said door and to the top and bottom of said casing adjacent the front thereof, and relatively slidable supporting members on the rear end of said door and casing, said supporting links and slidable supporting mem-

bers having provision for sharing the entire weight of said door between them throughout the opening and closing movements thereof.

5 3. In a device of the character described, the combination with a casing, of an upright door movable in a horizontal plane to and from closed position, supporting links pivotally connected to said door, and
10 to said casing, and relatively slidable supporting members on said door and said casing, said supporting links and slidable supporting members having provision for sharing the entire weight of said door between
15 them throughout the opening or closing movement thereof.

4. In a display device, the combination of a case or cabinet, an upright door movable in a horizontal plane to and from
20 closed position, a bail constituting the sole support for the front end portion of the door and comprising horizontally swinging arms pivoted to the case or cabinet at the

front thereof, pivot socket pieces carried by the front end piece of the door at the top 25 and bottom thereof above the adjacent ends of the swinging arms, pivotal connections between the ends of the swinging arms and said socket pieces, guiding connections at the top and bottom of said door between the 30 end portions thereof engaging guides consisting of straight inwardly projecting portions to initiate inward movement of the door as the door is opened, and portions extending inward and toward the side of the 35 case or cabinet to guide the door into parallelism with said side when the door is in open position.

In testimony whereof, I have signed my name to this specification, in the presence of 40 two subscribing witnesses.

OSCAR L. SMITH.

Witnesses:

PAUL T. SHADE,
DOUGLAS M. RAY.