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E. F. COFFIN.

CONSTRUCTION OF SHOW CASES, SHOW WINDOWS, AQUARIUMS, &c.

APPLICATION FILED APR. 19, 1902.

NO MODEL.

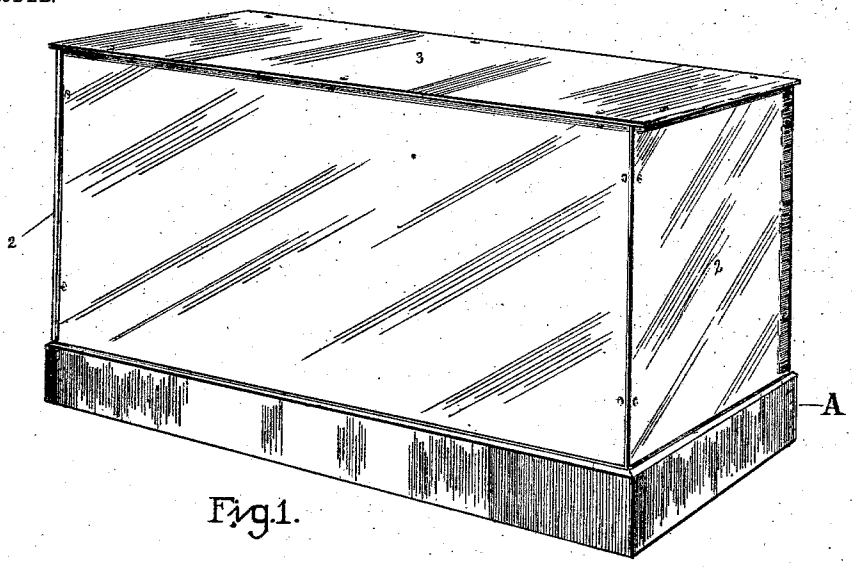


Fig.1.

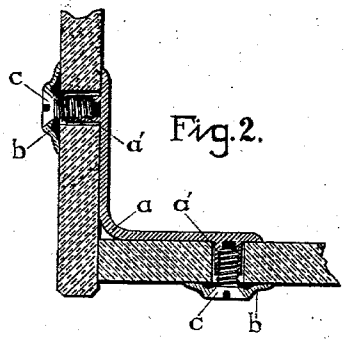


Fig.2.

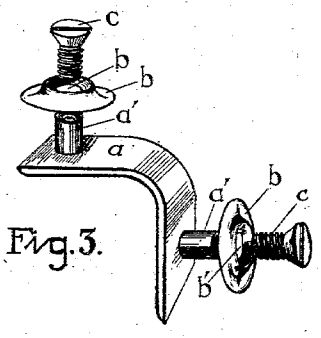


Fig.3.

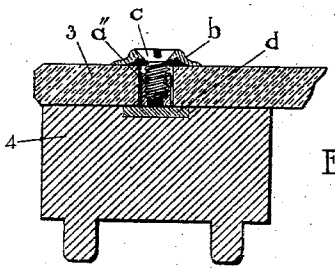


Fig.4.

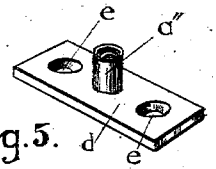


Fig.5.



Fig.7.



Fig.6.

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No. 740,235. Patented September 29, 1903.

UNITED STATES PATENT OFFICE.

EDWARD F. COFFIN, OF WORCESTER, MASSACHUSETTS.

CONSTRUCTION OF SHOW-CASES, SHOW-WINDOWS, AQUARIUMS, &c.

SPECIFICATION forming part of Letters Patent No. 740,235, dated September 29, 1903.

Application filed April 19, 1902. Serial No. 103,798. (No model.)

To all whom it may concern:

Be it known that I, EDWARD F. COFFIN, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in the Construction of Show-Cases, Show-Windows, Aquariums, and the Like, of which the following is a full and exact specification.

My invention relates to an improvement in the construction of show-cases, show-windows, aquariums, and other structures in which fragile plates are clamped rather than held by framing, and is especially applicable to that class of show-cases made without frames which are known as "all-glass" show-cases and which employ in their construction glass plates with holes, through which are passed bolts, screws, or sockets for the purpose of securing brackets or other forms of fastening devices to the plates. It has been customary to introduce elastic or soft materials at the points where the metal fasteners pass into or through the holes; but the effectiveness of this method has been confined to a local assistance against injury through contact or friction of the metal fastener with the edges of the holes, and it has been found to be entirely inadequate in affording protection against cracking of the glass plates when exceptional pressure or strain occurs.

The objects of my invention are, first, to avoid liability of injury to the glass plates by the application of a principle of construction which is entirely new to this art and which renders it impossible for any lateral strain to be exerted upon the edges of the holes in the plates; second, to accomplish this result by means of a very simple form of fastening device.

My invention has many other advantages which will be readily apparent to one acquainted with the present state of the art.

In the accompanying drawings similar characters of reference indicate like parts.

Figure 1 is a perspective view of a glass show-case in which the frame for supporting the front, side, and top plates is entirely dispensed with and in which my metal fasteners are shown applied to the angles of the plates. Fig. 2 is a horizontal section of one corner, showing the metal fastener applied to the front and one of the side plates. Fig. 3 is a perspective view of the fastening device. Fig. 4 is a section taken vertically through the top plate and upper back rail, showing the method of securing the top and side plates to the back frame. Fig. 5 is a perspective view of a part of the fastener shown in Fig. 4. Figs. 6 and 7 show modified forms of screws.

Referring to the drawings, the show-case shown in Fig. 1 represents the ordinary type of construction; but any variety of shapes and sizes employing a greater or less number of plates may be constructed without altering the nature of my invention.

In Fig. 1 the front plate 1, top plate 3, and side plates 2 2 rest upon a suitable base A. Sliding doors operate in a frame at the back side of the show-case. The side plates 2 2 are firmly attached to the front plate 1, and the top plate 3 is firmly attached to the side plates 2 2 and front plate 1 by means of the angle-plates *a*, the metal cushions *b*, and the screws *c*, Figs. 2 and 3. Holes are first drilled in the plates in their proper places, and the angle-plate *a*, with the permanently-affixed and interiorly-threaded sockets *a' a'*, is so placed that one socket passes centrally into a registering hole in each of two adjacent plates. The sockets are slightly smaller than the holes in the plates to avoid contact with their sides. The insertion of any soft material between the angle-plate and the glass is unnecessary, and no encircling tubing is required by the sockets. By my construction I correct a universal fault in the construction of cases of this class, as the interposed substances soon wear out by use and exposure to the atmosphere, allowing the fasteners and glass plates to become loosened and resulting in a serious injury to the case. After the angle-plate *a* has been placed in position the metal spring-cushion *b*, which partakes of the nature of a spring-washer, is placed directly upon the surface of the glass plate with its aperture *b'* centrally placed over the screw-threaded socket *a'*, and the securing-screw *c* is inserted through the

opening b' and engages the thread of the socket a'. The top edge of the metal cushion b is countersunk to receive the head of the screw c. By the use of a suitable driver the screw c or its alternate forms (shown in Figs. 6 and 7) may be tightened until the attachment of the angle-plate to the glass is perfectly rigid. No danger of injury to the glass plate arises when tightening the screw, as the pressure is equally distributed on both sides of the glass, and at no point does contact arise or lateral pressure exist with the sides of the holes in the plate. My spring-cushion is practically indestructible, being unaffected by the atmosphere and having unlimited use without wearing out.

In describing thus far the construction of the fastener employed I have made provision for securing the spring tension necessary for carrying out the basic principle of my invention solely by means of the spring-cushion b, which is placed on the outer surface of the glass plate. It is obvious, however, that similar results can be obtained by the employment of a suitable spring of any description, or a spring might be introduced on either one or both sides of the glass plate, such a construction being within the scope of my invention.

It is obvious that while the form of the angle-plate shown in the drawings is a right angle it would be made to conform always to the angle between the glass plates.

Figs. 4 and 5 show the method of attaching the top and side plates to the back frame 4. The plate d, which has secured to it the internally-threaded socket a'', is set into the frame 4 and secured to it in any suitable manner, as by means of screws passing through the holes e. The plate 3 is fastened to the frame by means of the screw c, with its spring-cushion b engaging the socket a''.

The modified form of screw f (shown in Fig. 6) has two small slots g in its head instead of a single slot extending across the head, as in the ordinary form of screw. Such a screw requires the use of a special key to turn it.

In Fig. 7 I have illustrated another form of screw, in which the spring-cushion is permanently affixed to or made integral with the screw.

If desired, the case may be made tight by the application of a cement filling or by attaching thin strips of felt or other like material to the contact edges of the respective glass plates.

I have thus far shown and described my invention as being applicable to the glass plates of show-cases; but it is clear that it is equally applicable in the construction of show-windows, aquariums, glass furniture, and other allied arts.

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

1. In a show-case, or similar device, a glass plate, a fastening-plate, means to bind the two plates together, and a metallic spring-washer between the binding means and the glass plate, substantially as described.

2. In a show-case, or similar device, a glass plate, a fastening-plate, means to bind the two plates together, and an indestructible cushioning means between the binding means and the glass plate, substantially as described.

3. In a show-case, or similar device, a glass plate, a fastening-plate, means to bind the two plates together, and a non-deteriorating spring means between the binding means and the glass plate, substantially as described.

4. In a show-case, or similar device, the combination of a perforated fragile plate, a fastening-plate, binding means to fasten the two plates together, and non-deteriorating, spring, cushioning means between the binding means and the fragile plate, substantially as described.

5. In a show-case, or similar device, the combination of a perforated fragile plate, a fastening-plate provided with a socket fitting the perforation of the fragile plate, means to bind the plates together, and a spring-washer between the binding means and the fragile plate, substantially as described.

6. In a show-case, or similar device, the combination of a perforated glass plate, a fastening-plate provided with a socket smaller than and fitting the perforation in the glass plate, a screw engaging the socket to bind the parts together, and a non-deteriorating spring means between the head of the screw and the glass plate, substantially as described.

7. In a show-case, or similar device, the combination of a perforated glass plate, a screw-threaded fastening means, a screw-threaded binding means to hold the glass plate and fastening means together, and a non-deteriorating spring-washer between the binding means and the glass plate, substantially as described.

8. In a show-case, or similar device, the combination of perforated fragile plates, a fastening-plate provided with sockets fitting the perforations in the fragile plates, binding means engaging the sockets to hold the parts together, and non-deteriorating springs between the binding means and the fragile plates, substantially as described.

9. In a show-case or similar device, the combination of perforated glass plates, an angle-plate provided with sockets smaller than and fitting the perforations in the glass plates, screws engaging the sockets to hold the parts together, and countersunk, non-deteriorating, spring-washers between the heads of the screws and the glass plates, substantially as specified.

10. In a show-case or similar device, the combination of perforated glass plates, an angle-plate provided near its ends with inte-

riorly-threaded sockets fitting and smaller than the perforations in the glass plates, screws to hold the glass plates to the angle-plate by engaging the sockets, and countersunk, metallic, spring-washers between the heads of the screws and the glass plates, substantially as specified.

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

EDWARD F. COFFIN.

Witnesses:
THOMAS VAUGHAN,
FREDERICK D. WHEELOCK.