B. KADE.

PLATE GLASS STRUCTURE.

APPLICATION FILED MAR. 20, 1911.

1,096,723.

Patented May 12, 1914.

Fig. 1

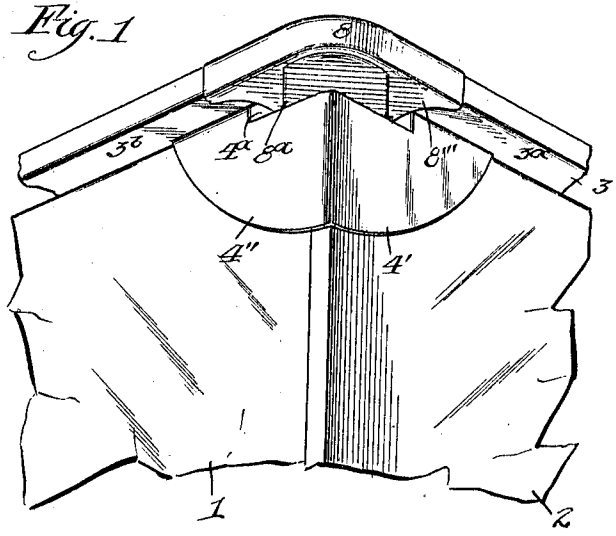


Fig. 2.

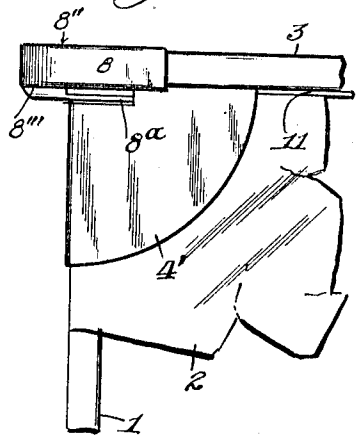


Fig. 9

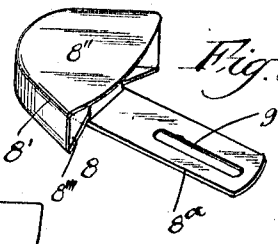


Fig. 3

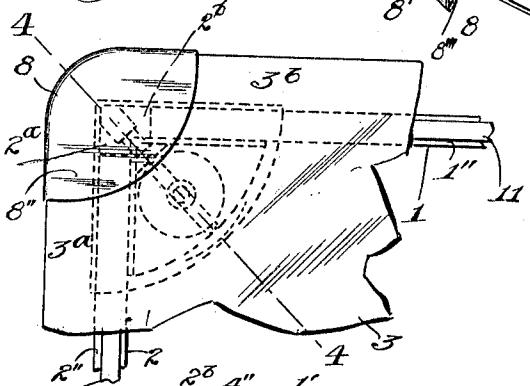
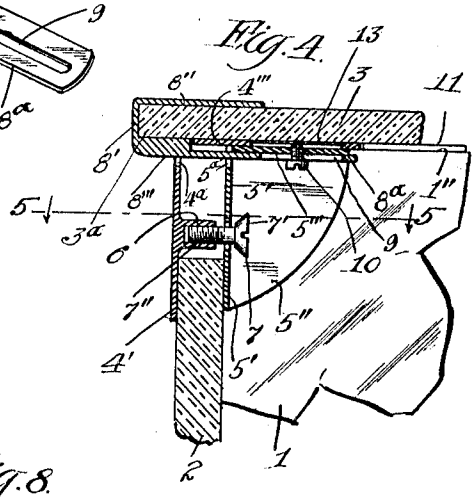


Fig. 4.



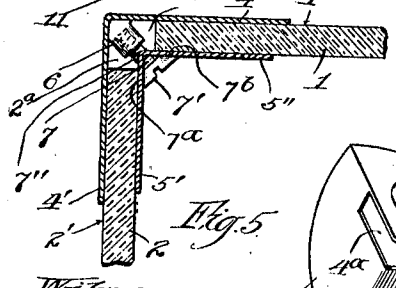


Fig. 5

Fig. 8.

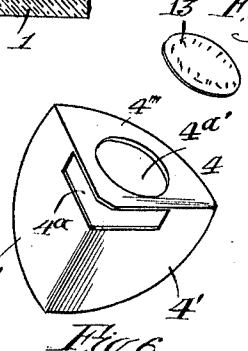
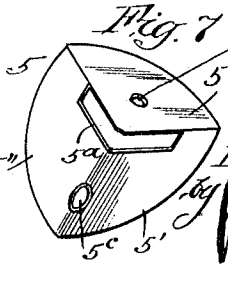


Fig. 6

Fig. 7



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UNITED STATES PATENT OFFICE.

BERTHA KADE, OF CHICAGO, ILLINOIS, ASSIGNOR TO FRANCIS KEIL AND HENRY F. KEIL, DOING BUSINESS UNDER THE COPARTNERSHIP NAME OF FRANCIS KEIL & SON.

PLATE-GLASS STRUCTURE.

1,096,723. Specification of Letters Patent. **Patented May 12, 1914.**

Application filed March 20, 1911. Serial No. 615,602.

To all whom it may concern:

Be it known that I, BERTHA KADE, a citizen of the United States, and a resident of the city of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Plate-Glass Structures, of which the following is a full, true, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to glass structures, such as show cases and the like, and has particular reference to means for rigidly binding together the various glass plates thereof.

A primary object of the invention is to provide means whereby a plurality of glass plates can be quickly and rigidly secured together in a convenient and easily practicable manner and without weakening or injuring the glass.

A special object of the invention is to provide corner clamping and finishing means whereby two relatively angularly disposed glass plates having end portions thereof in abutment may first be secured rigidly together, and a top plate be then adjustably secured to the said angularly disposed plates, and whereby irregularity in alinement of the plates may be compensated for, and tight joints may be obtained.

The invention consists generally in corner clamping and finishing means, comprising a pair of corner members, one of which is arranged at the outside adjacent corners of two relatively angularly disposed glass plates and the other one of which is arranged at the inside corners of said plates, means for drawing the corner members together securing them firmly to the glass plates and binding the two glass plates rigidly together, a hood-like member adjustably connected to said corner members for securing a top plate to said side and front plates.

The invention consists further in certain novel features of construction, arrangement, and combination of parts whereby the aforementioned objects and certain others hereinafter appearing are attained, as will be more clearly understood by reference to the accompanying drawings, and as particularly pointed out in the appended claims.

Figure 1 is a perspective view, viewed from beneath, of a show case corner embodying my invention; Fig. 2 is a side elevation of a corner of a show case equipped with plate securing means embodying my invention; Fig. 3 is a top plan view taken from Fig. 2; Fig. 4 is a sectional elevation on the line 4—4 of Fig. 3; Fig. 5 is a sectional view on the line 5—5 of Fig. 4 looking in the direction of the arrows; Figs. 6 and 7 are perspective views respectively of the outside and inside corner cover members used to secure the front and side plates of a glass case together; Fig. 8 is a perspective view of a circular plate adapted to be inserted in the member shown in Fig. 6 and on which the name of the manufacturer may be stamped; and Fig. 9 is a perspective view of the corner member whereby the top plate is secured to the front and side plates.

This invention has to deal particularly with the so-called all-glass show cases, that is, a show case composed mainly of sheets of plate glass secured together without a frame of strips or holdings. I prefer to provide means located at the corners of the show case for binding the various sheets of plate glass into a rigid structure as they can be there applied without weakening the glass. In plate glass show cases, as now constructed, it is extremely difficult to apply the means for binding the front, side and top plates of the show case together, because it is customary to use a corner member which necessitates the securing of the three plates together simultaneously. To apply securing means of this construction not only required an expert, but also it is practically impossible to form a thoroughly tight joint. And further it is necessary to provide a special tool for tightening the securing means. The present invention discloses means for overcoming these undesirable features, and provides means which can be easily applied even by a layman and by the use of which a tight fit between the front plate, side plate, and top plate of the show case is secured.

In the preferred form of the invention shown in the drawings, 1, 2, and 3 are respectively the front, side, and top plates of a glass show case. The term "front and side plates" as here used shall mean any two relatively angularly disposed glass plates having end portions thereof in abutment. In order that these plates may be easily de-

scribed with reference to the other parts of the show case, they shall be considered as occupying vertical planes. It should, therefore, be understood that the angular relation between the front and side plates may be as desired, and that the abutting end portions may also be arranged at any desired angle.

The term "top plate" as here used shall mean any glass plate arranged in intimate relation with the edges of a side and front plate. Although the "top plate" is usually the upper plate of a show case, it may be used in the same relation for the bottom of a show case. For purposes of ease in describing the top plate with reference to the other parts of the show case, it will be considered as occupying a horizontal plane and as resting substantially upon the upper edges of the "side and front" plates.

4 and 5 are corner clamping members by means of which the front and side plates are bound together, the member 4 being arranged at the outside corners of the front and side plates and the member 5 at the inside corners thereof. The members 4 and 5 are preferably composed of metal, and on the show case shown are made in the shape of a triangular pyramid, the side portions 4″ of the member 4 abutting the outside faces 1′ and 2′ of the front and side plates 1 and 2, and the portion 4‴, which shall be hereinafter termed the "upper side portion," projects over the edges 1″ and 2″ of the front and side plates. One important function of the portion 4‴ is to connect the side members 4″ and 4′ to prevent their spreading part when being secured to the glass. The member 5 is similar to the member 4 having sides 5′, 5″, and 5‴. When the parts 4 and 5 are applied to the glass, the side portions of the member 5 are parallel to the side portions of the member 4, as is best shown in Figs. 4 and 5. A stud, 6, secured in the corner of the member 4 between the sides 4′ and 4″ thereof, projects inwardly at an angle of approximately 45°. It is tapped to accommodate a binding screw 7 which is provided with a head 7′ so made that the sides 7^a and 7^b thereof are parallel to the sides 5′ and 5″ of the member 5. The shank portion 7″ projects through an opening 5^c provided therefor in the member 5. The shank 7″ is threaded and enters the tapped stud 6. By means of the screw 7 the members 4 and 5 may be drawn together and thereby firmly secured to the glass plates 1 and 2.

As is best shown in Figs. 4 and 5 the plates 1 and 2 are cut away as indicated at 2^a and 2^b to accommodate the stud 6 and the screw 7. Cutting away the glass at the corners in this manner, however, in no way weakens it. Thus it should be apparent that by means of the members 4 and 5 the front and side plates 1 and 2 can be firmly secured together in a simple manner and that by the use of these at the other corners a substantially all-glass structure can be made.

While there are many cases in which it is desirable to secure but two plates of glass, such as plates 1 and 2, it is frequently necessary to secure a top or cover plate 3 to the plates 1 and 2. Hence I provide means whereby the plate 3 can be secured to the plates 1 and 2. These means comprise a member 8 having a corner portion 8′ composed of upper and lower portions 8″ and 8‴ which are spaced apart to accommodate the desired thickness of glass. A strip or tongue 8^a projects from the lower portion 8‴ in which a slot 9 is provided. The members 4 and 5 are cut away, as indicated at 4^a and 5^a, and through these openings the tongue 8^a, projects as is best shown in Fig. 4. It will be seen by reference to Fig. 4 that the portion 4‴ of the member 4 and the portion 5‴ of the member 5 abut, and that the tongue 8^a extends below and substantially parallel to the portion 5‴ of the member 5. A tapped hole 8^d in the portion 5‴ of the member 5 accommodates a binding screw 10 by means of which the members 8 and 5 are secured relatively immovable, thereby securing the top plate 3 rigidly to the plates 1 and 2.

It will be noticed that the edge portions 3^a and 3^b of the top plate 3 project over the front and side plates, 1 and 2. In some cases it is desirable to vary the amount of projecting portions 3^a and 3^b, and this is accomplished by providing the slot 9 in the tongue 8^a, which permits any desired projection of the portions 3^a and 3^b. Another feature of the adjustable member 8 is that in case the edges $3^{a'}$ and $3^{b'}$ are cut slightly inaccurate the member 8 can still be brought into intimate contact therewith. It will be noticed that the top plate 3 rests upon the portion 4‴ of the member 4 and, as this rests upon the upper edges 1″ and 2″ of the plates 1 and 2, the plate 3 is held thereabove. It is not practicable to do without the portion 4‴ as it rigidly braces the side portions 4′ and 4″ and it is not desirable to cut away the glass to accommodate this portion, hence the space between the plates 3 and the top edges of the plates 1 and 2. This space, however, is easily filled by means of a strip of felt or other suitable material 11 which is preferably glued to the edges 1″ and 2″ of the members 1 and 2.

In order to accommodate the end of the screw 10 the portion 4‴ of the member 4 is cut away at 4^a. To hide the screw from view, I provide a thin plate 13 which fits the opening 4^a of the member 4, and which may be used as a name plate. The plate 13 being very thin allows the screw 10 to project through the member 5, without binding the plate against the glass.

To construct a show case by the means here disclosed the side and front plates are secured together with the corner members 4 and 5. An ordinary screw driver is the only tool necessary for tightening the members 4 and 5 by means of the screw 7. The screw 7 may be easily gotten at, as the top plate is not yet in place. After the plates 1 and 2 have been firmly bound together, the top plate 3 is placed thereon and the corner member 8 placed in position on the plate 3 and then secured by means of the screw 10, thereby binding the plate 3 firmly to the plates 1 and 2. Thus the objects set forth are attained in the device as shown and further the invention as disclosed provides a glass structure which is of substantial construction and also of pleasing appearance, as the plate glass securing means also constitute corner finishing means for the glass.

As various modifications of the invention will readily suggest themselves to one skilled in the art to which it appertains, I do not confine or limit the same to the specific structures herein shown and described.

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

1. In a plate glass structure, a pair of vertical, angularly-disposed glass plates having end portions thereof in abutment, a top plate disposed adjacent and parallel to the upper edges of said angularly disposed plates, exterior and interior means having parallel sides to engage both of the corners of said angularly-disposed plates, and an upper member to engage both faces of the corner of said top plate and having an adjustable portion extending into the glass structure, in combination with a device within the structure to hold the said exterior and interior and upper members together, and with another interior device to press the sides of the said exterior and interior members together in parallel relation, the two said devices being located in a plane intersecting the corners of the said upper, interior and exterior members to distribute the strain evenly over each of the side plates.

2. In a device of the class described, a "front plate" and a "side plate" relatively angularly disposed and arranged with end portions thereof in abutment, a substantially triangular pyramid shaped member arranged with one portion thereof engaging upper edges of adjacent corners of said "front" and "side" plates and having depending portions engaging the outer side faces of adjacent corners of said front and side plates, a similarly shaped member arranged with portions abutting the inner faces of the glass corners and having a portion abutting the inner surface of the upper portion of said pyramid shaped member arranged on the outer surfaces of the glass, means for firmly binding said members rigidly to the glass whereby said "front and side plates" are firmly secured together, and a top plate with a corner engaging member thereon with adjustable means for securing said top plate corner member to said inner substantially triangular pyramid member, substantially as described.

3. In a device of the class described, a pair of relatively angularly disposed plates arranged with end portions thereof in abutment, a substantially triangular pyramid shaped member arranged outside adjacent corners of said angularly disposed plates, a similarly shaped member arranged inside the same corners of said plates, a stud secured in the inner corner of said outer plate, a tap screw entering said stud from the inner member whereby the outer and inner members are clamped firmly to the glass thereby securing the glass plates rigidly together, and a top plate adjustably fastened to said front and side plate by means of a slotted tongue accommodated in openings in said outer and inner corner securing members and a screw in said slotted tongue, substantially as described.

4. In a device of the class described, a "front plate" and a "side plate" relatively angularly disposed with end portions in abutment, a substantially triangular pyramid shaped member arranged at the adjacent corners of said plates with side portions contacting the outer faces of the plates, a similarly formed triangular member arranged inside the same corners of the "front" and "side" plates with side portions thereof abutting the inner faces of the glass, a stud secured in the outer cover member and projecting inwardly therefrom, said stud being tapped to receive a binding screw projecting from the inner plates whereby the said outer and inner plates are firmly secured to the glass, the corners of said glass being cut away to accommodate said stud and screw, in combination with a top plate adjustably fastened to said front and side plates by means of a hood-like corner engaging member with a slotted tongue thereon accommodated in openings in said outer and inner triangular pyramid shaped members and adjustably fastened thereto by means of a screw, substantially as described.

5. In a plate glass structure the combination of a "front plate," a "side plate," and a "top plate," a pair of corner clamps, one arranged outside and the other inside the common corners of said "front" and "side" plates, means for binding said corner clamps firmly to the "front" and "side" plates, a hood-like corner cover member arranged at the adjacent corner of said "top plate," a tongue on said top corner member in intimate relation with said "side and front plate" corner clamps, means for ad-

justably securing said tongue to the said corner clamps of the "side and front plates," as and for the purpose specified.

6. In a plate glass structure the combination of a "front plate" and a "side plate" having cut-away corners, and a "top plate," a pair of corner clamps one of which is arranged outside and the other inside the common corners of said "front" and "side plates," means accommodated by said cut-away corners for binding the corner clamps to the glass, a hood-like corner cover member arranged at the adjacent corner of said "top plate," a tongue on said hood-like corner cover member projecting into intimate relation with said inner clamp of the "front and side plate" securing means, a slot in said tongue, a screw accommodated by said slot and entering said corner clamp of the "front and side plates" whereby said corner cover member and "top plate" are adjustably secured to the "front and side plates," substantially as described.

7. In a plate glass structure the combination of a "front plate" and a "side plate" having cut-away corners, a "top plate," a substantially triangular pyramid shaped corner clamp having side portions abutting the outside corners, and a top portion abutting the edges of said "front" and "side plates," a similarly shaped corner clamp having side portions abutting common inside corners of said "front" and "side plates," and a "top" portion parallel to the top portion of the first mentioned clamp, a stud in said first mentioned clamp, and a screw entering said stud from the inner clamp, whereby said clamps are firmly secured to the glass, said stud and screw being accommodated in the cut-away corners of the "front" and "side plates," a corner cover member arranged at the adjacent corner of the "top plate," a tongue on said corner cover member extending into intimate relation with the inner of said "front and side plate" clamps, a tapped hole in said inner corner clamp, a slot in said tongue, and a screw entering said tapped hole through the slot in said tongue whereby said corner clamp and the "top plate" therewith are secured to the "front" and "side plates," substantially as described.

8. In a plate glass structure the combination of a "front plate" and a "side plate" having cut-away corners, a "top plate," a pair of substantially triangular pyramid shaped corner clamps, one arranged outside and the other inside the common corners of said "front" and "side plates," means accommodated by the cut-away portion of the "front" and "side plates" for securing the clamps firmly to the glass, a corner cover arranged at the adjacent corner of said "top plate," said cover member having top and bottom portions abutting the "top plate," a tongue extending from the lower portion of said corner cover member into parallel relation with and below the upper portion of said inner corner clamp, a slot in said tongue, a tapped hole in the upper portion of said inner corner clamp and a screw projecting through said slot into said tapped hole, whereby said corner cover member and the "top plate" therewith are adjustably secured to the "front" and "side plates," substantially as described.

9. In a plate glass structure the combination of a "front plate" and a "side plate" having cut-away corners, a "top plate," a pair of substantially triangular pyramid shaped metallic corner clamps, one arranged outside and the other inside the common corners of said "front" and "side plates," and secured thereto by a stud and screw accommodated in the cut-away corners of the "front and side plates," a top portion of said outer clamp resting on the edges of said "front and side plates," an upper portion of said inner corner clamp abutting the inner face of the upper portion of said outer corner clamp, a "top plate" resting on the upper portion of said outer corner clamp, strip material secured to the upper edges of said "front and side plates" and filling the space between these edges and the inner surface of the "top plate," a corner cover member arranged at the adjacent corner of said "top plate," said corner cover clamp having upper and lower portions engaging the upper and lower faces of the "top plate," and side portions engaging the edges of the "top plate," a tongue extending from the lower portion thereof through the corner clamps of said "front and side plates" into intimate relation below the upper portion of the inner clamp thereof, said tongue having a slot, a screw entering a tapped hole in the upper portion of said inner corner clamp through said slot whereby the said corner cover member and "top plate" therewith are adjustably secured to the "front and side plates."

10. A show case or the like having plates in angular abutment, in combination with metallic means attached to and fastening together the upper abutting corners of said plates, a horizontally movable member embracing the corner of the top plate, extending beneath the same and resting upon said metallic means, means securing said member in place, said means being adjustable from within the show case.

11. In a plate glass structure, a pair of vertical, angularly-disposed glass plates having end portions thereof in abutment, a top plate disposed adjacent and parallel to the upper edges of said angularly disposed plates, exterior and interior members having parallel sides to engage both faces of the angularly-disposed plates, and a hood-

like upper member to rest upon the top portions of the said exterior and interior members and to engage both faces of the corners of said top plate, and having an adjustable portion to pass through the first named members and to extend to the interior of the structure, in combination with a device within the structure to hold the said exterior and interior and upper members together, and with another interior device to press the sides of the said exterior and interior members together in parallel relation, the two said devices being located in a plane intersecting the corners of the said upper, interior and exterior members to distribute the strain evenly over each of the side plates.

In testimony whereof, I have hereunto set my hand this 8th day of February, 1911, in the presence of two subscribing witnesses.

BERTHA KADE.

Witnesses:
A. W. EICHMANN,
ARTHUR W. NELSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."