A. G. BORCHERT.

FRAME CONSTRUCTION.

APPLICATION FILED OCT. 20, 1920.

1,415,775.

Patented May 9, 1922.

2 SHEETS—SHEET 1.

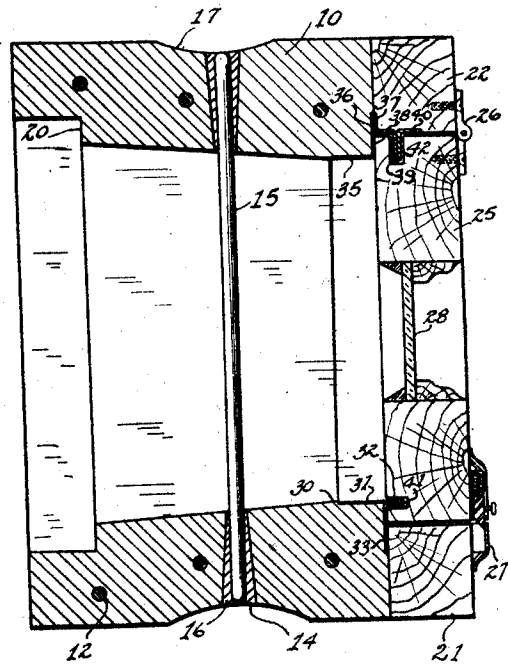


Fig.-1.

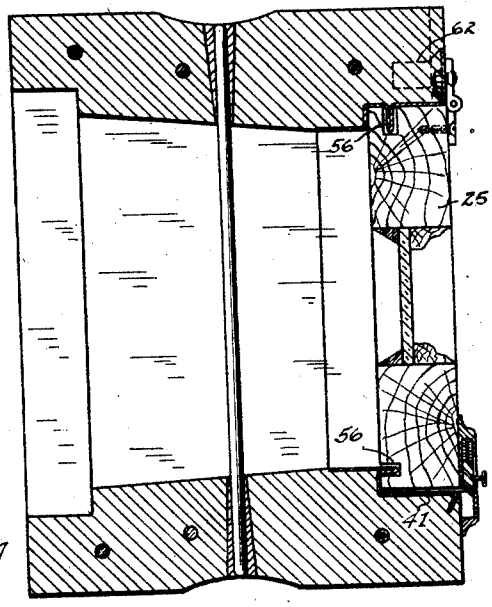


Fig. 2.

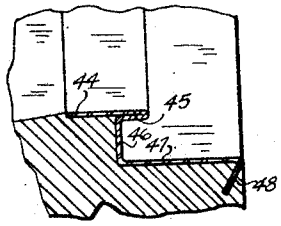


Fig.-4.

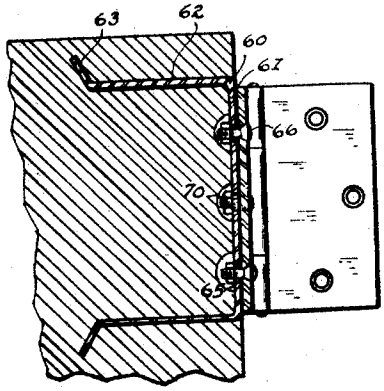


Fig.-3.

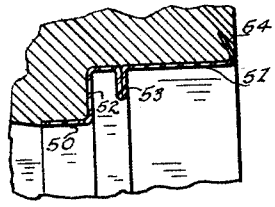


Fig.-5.

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2 SHEETS—SHEET 2.

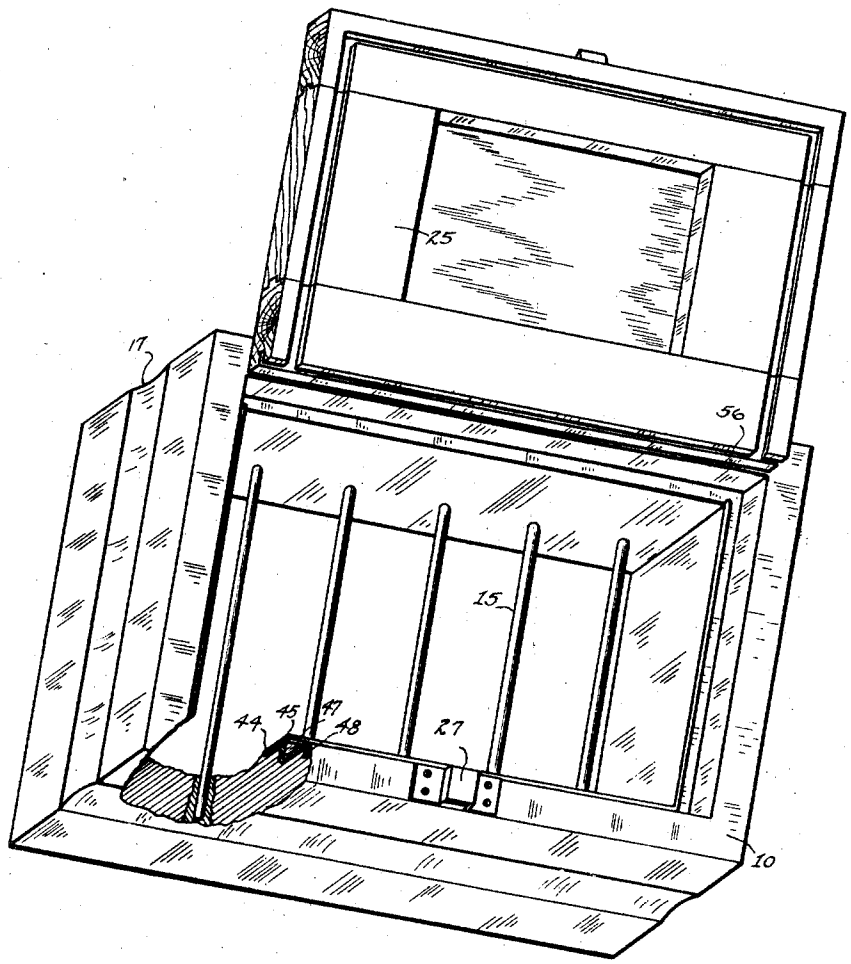


Fig. 6.

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UNITED STATES PATENT OFFICE.

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FRAME CONSTRUCTION.

1,415,775. Specification of Letters Patent. Patented May 9, 1922.

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To all whom it may concern:

Be it known that I, ALBERT G. BORCHERT, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Frame Construction, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention relates to a frame construction wherein the frame member is made of concrete or similar material. The general object of the invention is to provide a frame which may be built into a building so that it will become a part thereof, and may serve as a frame for a window or door.

Another object of the invention is to provide a frame construction, the body of which is made of a single piece of material reinforced by suitable members as desired, and wherein the edges, which are exposed to injury, are protected by a metal member.

A further object of the invention is to provide novel metal shapes which may be used in connection with a frame construction to reinforce the edges thereof.

An additional object of the invention is to provide a new hinge fastening means.

My invention is hereinafter described in connection with the accompanying drawings, and the essential characteristics are summarized in the claims.

In the drawings Fig. 1 is a vertical section of a frame constructed according to my invention; Fig. 2 is a vertical section of a modified type of frame construction; Fig. 3 is an enlarged sectional view showing the hinge securing means; Fig. 4 is a sectional view showing my improved metal shape; Fig. 5 is a sectional view of another type of metal shape; and Fig. 6 is a perspective view of a frame such as shown in Fig. 2.

Referring to the drawings by reference characters, 10 indicates a frame which may be made of concrete, and which as shown in Fig. 6, is rectangular in outline. The frame is cast as a single piece of concrete, provided with usual reinforcing rods 12, if desired, and having tapering apertures 14, in which lattice bars 15 may be inserted and secured by suitable cement 16, after the frame is cured.

The frame is adapted to be built into the wall of a building where it will serve as a window frame or door frame. The portion of the building adjoining the frame will abut against all outside faces thereof, and in order to provide a suitable weather-tight joint between the frame and the building, I provide a recess 17 shown as curved. This recess extends entirely about the frame. In the completed building the recess may be filled with oakum or similar filling compound to insure a tight joint. One side of the frame, which I will designate the rear side, is shown as rabbeted at 20.

As shown in Fig. 1, the front of the frame is adapted to receive planks 21, 22, comprising horizontal members. These will preferably be secured to the adjacent parts of the building and will serve in conjunction with vertical timbers, not shown, to afford a frame for receiving a closure such as a window or door.

The closure designated 25 may be hinged as at 26 to the plank 22, and may have a suitable latch 27 at the bottom for holding the window or door shut. A suitable glass panel 28 may be provided if desired. In order to prevent liability of the concrete becoming marred by chipping, due to blows or rough usage, I may provide a metallic reinforcement for the front edges of my frame. Along the vertical sides and across the horizontal bottom portion, I have shown a metallic member 30, which comprises a horizontal portion 31 reversely bent upon itself for a distance as shown at 32, the reversed portion being shown as extending approximately one-third of the length of the contiguous horizontal portion, and a further portion 33 shown as extending vertical to the first mentioned portion, and approximating in length this first portion. Across the upper portion of this frame I may provide a metal shape, comprising the horizontal portion 35, the vertical portion 36, the latter being bent upon itself as at 37, thence extending at right angles as at 38, thence bent down and upwardly upon itself as at 39, and then extending parallel to the first portion as shown at 40.

It will be seen that this construction allows the wood of the closure to contact with a surface of metal and thereby insure a tighter joint. The window or door is grooved as at 41 and 42 to receive the tongues on the metal members. I find that

these projecting tongues are quite advantageous as they tend to prevent drafts, and aid in securing a tight fit, as well as to protect the frame from injury when the door is open.

In the modification shown in Fig. 2, I dispense with the wooden framework about the door or window, and in lieu of this I rabbet the frame adjacent the front portion thereof, as shown at 41, the rabbet extending for a distance approximating the thickness of the closure. I may provide metal reinforcements for the exposed edges of the frame. As in the previous modification the vertical and horizontal portions are similar and are shown on an enlarged scale in Fig. 4, wherein the said shape comprises a flat portion 44, bent upon itself as at 45, and having a portion 46 extending substantially perpendicular to the portion 44. From the part 46 another portion 47 extends substantially parallel to the first portion, and has an extremity 48 bent to form an acute angle to the portion 47. The upper reinforcing metal shape may comprise horizontal portions 50 and 51, joined by a vertical portion 52, the portion 51 being bent upon itself intermediate its length as at 53, and having an end 54 bent at an acute angle to the portion 51.

The projections on the metal reinforcing shapes act in conjunction with grooves 56 in the closure 25, substantially the same as in the modification of Fig. 1.

Since in the form of the invention shown in Fig. 2, a concrete wall surrounds the closure, it is necessary to provide a novel form of fastener in order to secure the door hinge in place. I have shown in section in Fig. 3 a novel form of hinge securing means, comprising a metal member 60, which may be made of zinc or other non-corrosive material. This hinge comprises the front portion 61, having wings 62 of reduced width extending therefrom, and having the end 63 of the wings bent at an angle thereto. In the front portion 61 of the hinge fastening member, I may provide a series of elongated slots 65 adapted to receive fastening members 66. The slots allow for adjustment of the hinge to proper position. The hinge fastening member is imbedded in the concrete at the time the frame is made, and in order to provide means whereby the fastening member 66 may be inserted and secured, I may leave channels 70 in the face of the frame and through these channels suitable implements for assisting in securing the fastening members in place may be inserted.

In lieu of the fastening means just mentioned, I may solder the nuts 71 directly to the rear face of the member 60. After imbedding the fastening member in the concrete, I then lightly tap the nuts to remove them and thus break their engagement with the rear face of the plate, after which the bolts may be inserted and the hinge securing means fastened in place.

From the foregoing description it will be seen that I have provided a simple and efficient concrete frame construction, which may be readily built into the wall, and which will not rot or be liable to injury, and which will at the same time be pleasing in appearance and economical.

Having thus described my invention, I claim:—

1. A rectangular concrete frame, having a metal reinforcing strip imbedded therein adjacent an inner edge, and having a portion of said strip projecting from said frame to form a closure flange, the remainder of the strip contacting with the frame, and a hinged closure having a groove for receiving said flange.

2. A frame, comprising a pair of horizontal and vertical members spaced to provide an opening, and having a rabbeted portion adjacent one end, a metal reinforcing strip occupying the rabbeted portion for substantially the entire length thereof and having a projecting flange and a closure fitting said portion and having a groove to receive said flange.

3. A rectangular concrete frame rabbeted at one end and having a metal reinforcing strip imbedded therein, covering the rabbeted portion, a portion of said strip projecting outward from the rest and away from the frame to form a flange and a closure having a groove to receive said flange.

4. A metal reinforcing shape, comprising a strip of material bent upon itself intermediate its length, and having a second portion adjacent thereto extending at right angles to said bent portion, a third portion next adjacent said second portion extending parallel to said bent portion, and an extremity in the end of the second portion bent at an acute angle thereto.

5. A metal reinforcing strip, comprising an end portion, a portion extending at right angles to said end portion, a third portion extending from said second mentioned portion and parallel to the first portion, said third portion being bent upon itself intermediate the ends of the portion to provide a double thickness of material at right angles to the third portion, and another portion on the end of said third portion and bent at an acute angle thereto.

6. A concrete frame construction, comprising a pair of vertical and a pair of horizontal members, having an opening therethrough, one side of said frame adjacent the opening, having a metallic reinforcement extending thereabout, said reinforcement comprising a member bent upon itself intermediate its length and extending at an angle to the said side of the frame, and having an

end portion bent at an acute angle to the contiguous portion of the strip and imbedded and secured in the frame.

7. A concrete frame comprising bottom and top members, each end of said frame being rabbeted to provide a shoulder, a metallic strip covering the rabbeted portion at one end and extending a distance into the frame, a flange on the strip and a closure for the frame having a groove to receive the flange.

8. A concrete frame having a rabbeted edge, metal reinforcement therefor doubled on itself to provide a projecting flange and a closure having a groove to receive said flange.

9. A rectangular concrete frame rabbeted at one end and having metal reinforcing strips embedded therein and covering the rabbeted portion along three sides of a rectangular opening and portions projecting away from the frame and bent back upon themselves along each of the three sides and parallel therewith respectively, to form flanges, a strip covering the fourth side of said opening and having a portion bent back upon itself and extending perpendicularly to the side of the opening in the frame to form a flange, and a closure member hinged adjacent said fourth side and having grooves therein adapted to receive said flanges when the closure member is in position to close said opening.

In testimony whereof, I hereunto affix my signature.

ALBERT G. BORCHERT.