April 5, 1927. 1,623,874

A. Z. JOHNSON

DOOR FRAME

Filed June 5, 1925

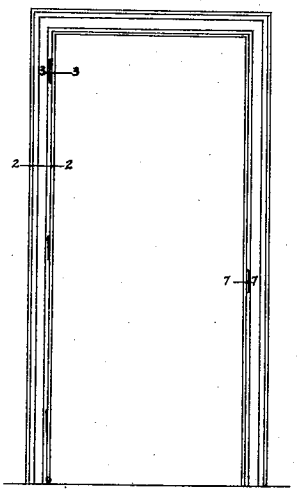


FIG. 1

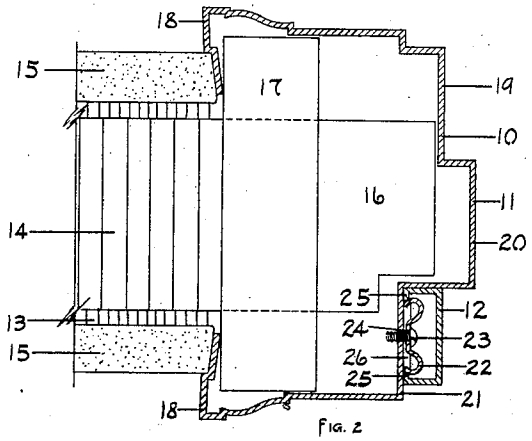


FIG. 2

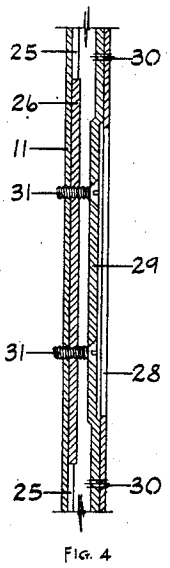


FIG. 4

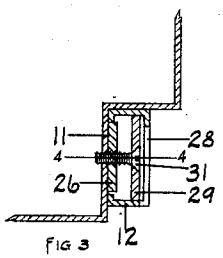


FIG 3

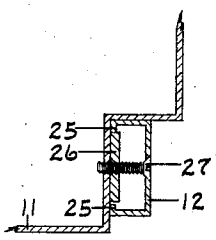


FIG. 5

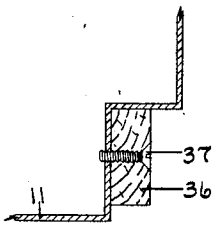


FIG. 6

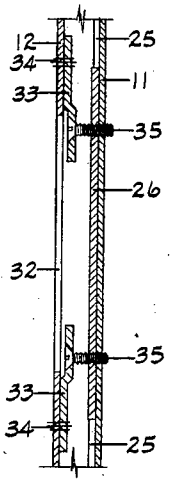


FIG. 8

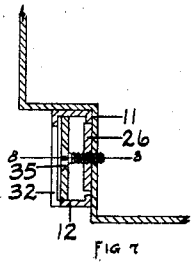


FIG 7

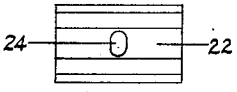


FIG 9

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Patented Apr. 5, 1927. 1,623,874

UNITED STATES PATENT OFFICE.

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DOORFRAME.

Application filed June 5, 1925. Serial No. 35,225.

This invention relates to an improvement in a door frame, and more particularly in a metal door frame of the unit type, which type is commonly known to the trade as "combination jamb and buck", and in the method of installing such door frame.

In the use of unit type door frames of the construction previously made it has been necessary to mortice and reinforce the frames at the factory to receive the hinges, striker plate and other hardware. Inasmuch as the installation of the frames must be made before the masonry partitions are laid, and inasmuch as the details relating to the hardware are often not settled until long after the building has been started, this necessity of morticing and reinforcing the unit type frames has caused considerable delay in the completion of the building, and considerable expense to the contractor, and much overtime work on the part of the manufacturer.

The primary object of this invention is to avoid this difficulty by making up the unit type frame with a base frame and a removable subframe in which the mortices and reinforcements for the hardware are provided, thus permitting the installation of the base frame and the completion of the building in advance of the settlement of details relating to the hardware installations.

The advantage of this is that the base frame can be completed and shipped to the job so that the construction of the building is not delayed and the subframe, which is much more easily handled can be reinforced and morticed for the hardware after these details have been decided. The handling of the subframe is obviously much simpler and furthermore, since it is necessary to blank out the mortices, while the frame material is in the flat, i. e., before it is formed up, many chances for error arise, thus necessitating very careful workmanship in laying out and gauging the frame material, which is done far more easily and quickly with the subframe alone than with the entire combination jamb and buck as formerly.

Another advantage is that the hand of a door can be changed at will by simply removing the door and subframe and substituting another door and subframe of different hand. Thus the hands of the doors can be easily and quickly changed to meet the requirements of the tenants without disturbing the base frame and the surrounding partitions, whereas with the unit type of frame now employed, this would be impossible because the frame once installed, cannot be taken out without much difficulty, as will appear from the following description.

Furthermore the base frames can be made up in certain predetermined sizes and kept in stock so that immediate shipments in cases of emergencies are possible.

Other objects and advantages of this invention will appear from a consideration of the following description taken in connection with the drawings which form a part thereof, and in which—

Fig. 1 is a front elevation of a unit type frame or combination jamb and buck made in accordance with this invention;

Fig. 2 is an enlarged sectional view taken along the line 2—2 of Figure 1;

Fig. 3 is an enlarged sectional view taken along the line 3—3 of Figure 1, illustrating the morticing and reinforcing of the subframe at one of the hinge locations;

Fig. 4 is a sectional view taken along the line 4—4 of Figure 3;

Figs. 5 and 6 illustrate modifications of the subframe that may be employed if desired;

Fig. 7 is a sectional view along the line 7—7 of Figure 1, illustrating the reinforcing and morticing at the striker plate location;

Fig. 8 is a sectional view taken along the line 8—8 of Figure 7; and

Fig. 9 is an enlarged elevation of clip 22 showing slot 24.

Referring to the drawings, the reference numeral 10 is employed to designate generally a unit frame or "combination jamb and buck", which comprises a base frame 11 and a subframe 12.

As shown in Figure 2, this frame 10 is mounted in a partition 13, being held there by means of several anchors 14. The outer faces of the wall 13, here shown as of tile, are covered by plaster 15 in the usual manner. The particular construction of the anchor 14 has no bearing upon this invention. It will be noted, however, that the end 16 of the anchor is very close to the inner wall of frame 10 and the ends of the cross plate 17 are close to the side walls of frame 10.

It is well known that in the construction of buildings in which unit type frames are used, the following steps are taken. The

door frame is first erected at the proper point and the masonry partition is then built up to agree with the location of the door frames. As the partition is erected, the anchors 14, which hold the door frame in place, are built into the wall to tie the frame with the masonry partition. The plaster 15 is then applied to the outer faces of the wall 13, thus finishing the appearance of the door frame, as indicated in Figure 2.

It may be stated that the moulded member 18, indicated as part of frame 10, has no particular bearing upon this invention, and whatever contour is desired by the architect for the building may be provided.

At the inner face of the base frame 11 the face of the inner rabbet 21 is at a greater distance from the outer face of the stop so that the outer face of the subframe 12, in which frame the necessary morticing and reinforcing operations for the hardware are performed, will be at the proper distance behind the outer face of the stop 20.

The subframe 12 may be secured to the base frame by any suitable means. For instance, Figure 2 shows clips 22, which are secured to the base frame 11 by means of screws 23. The clips 22 are preferably provided with slots 24 through which the screws pass to permit easy assemblage of the parts. The screws 23 are tightened down sufficiently to hold the clips firmly in place, but not tight enough to prevent the clips from the lateral movement possible by reason of the slots 24. The subframe 12 terminates in flanges 25, which engage under the ends of the clips 22. When the frame is installed the inner wall of the subframe which rests against the stop 20 is first pressed into place, the flange 25 forcing the clips 22 to shift laterally.

Then the outer wall is pressed into place over the clips 22 and its flange 25 forces the clips to shift laterally in the opposite direction so that the ends of the clips lie over the flanges 25. Any yielding that takes place is due not to the clips which are rigid, but to the subframe itself. A further means for securing the subframe 12 to the rabbet 21 consists of reinforcing strips 26 which are rigidly fixed upon the rabbet 21 by welding or other suitable means. The strips 26 are so located that the inner edges are spaced from the stop 20 a distance equal to the width of the inner flanges 25. Thus, when in place as shown in Figures 2 and 3, the subframe is held securely against the stop 20 and any lateral shifting of the subframe under use is prevented.

The method of mounting the subframe 12 just described is particularly applicable to a subframe made up in sections as for example, two side sections and a top or cross section. When the subframe is made in a single unit, it may be installed as shown in Figure 5, the strips 26 positioning it against the stop 20 while screws 27, threaded into the base frame 11 through the strips 26, hold it removably fixed upon the base frame.

The strips 26 may either be continuous or intermittent, as shown particularly in Figures 4 and 8, and are of use not only in positioning the subframe, as described above, but also in reinforcing the base frame wherever screws are employed. The general practice is to mount the strips 26 on the base frame when the latter is made at the plant, but they may be installed at the job later if conditions arise in which it would be more advisable.

The preparation of the subframe to receive the hinges is illustrated in Figures 3 and 4 and to receive the striker plate is illustrated in Figures 7 and 8. Referring first to Figures 3 and 4 the subframe is morticed at 28 to receive one leaf of the door hinge. This is generally done at the plant in the flat, but may be done on the job if necessary. A reinforcing strip 29 spanning the mortice 28 and rigidly fixed to the inner wall of the subframe by any suitable means, such as for example by spot welding 30.

Since the strips 29 carry the hinges and thus sustain the entire weight of the door except when it is closed and since the swinging of the door puts much strain on the subframe, particularly at these points, the portions of the reinforcing strips 29 spanning the mortices 28 are secured to the plate 26 and the subframe by means of screws 31, and are thus held absolutely fixed in the proper position. The plates 29 may be tapped for the hinge securing screws at the time the hinges are installed and the doors hung.

Referring now to Figures 7 and 8, the preparation of the subframe 12 for the striker plate will be considered. A suitable mortice 32 is cut in the subframe 12 to receive the striker plate (not shown) and reinforcing strips 33 are fixed to the inner wall of the subframe similar to the reinforcing strips 29. It will be noted that the strips 33 which are rigidly mounted on the subframe preferably by welding 34, are fixed to the base frame and a reinforcing plate 26 by means of screws 35.

In place of the metallic subframe 12 previously shown and described, it may be possible in some installations to employ a wood strip 36 (see Figure 6) as a subframe. This strip, which can be installed at the job, is secured to the base frame 11 by means of screws 37, and being of wood can, of course, be cut away to receive the hardware.

While one embodiment of this invention has been shown and described, applicant is not limited thereto, since it is obvious that

other embodiments can be made without departing from the spirit and scope of this invention as set forth in the following claims.

Having thus set forth my invention what I claim as new and for which I desire protection by Letters Patent is:

1. A door frame of the combination jamb and buck type comprising in combination with a base frame a removable subframe, which is morticed and reinforced to receive and support the door hardware, whereby the base frame can be rigidly installed in the building and the subframe can be prepared and installed later.

2. A door frame of the combination jamb and buck type comprising in combination with a base frame, a removable subframe which is morticed and reinforced to receive and support the door hardware, and means carried by one rabbet of said base frame by which said subframe is secured to said base frame after said base frame has been rigidly installed in the building.

3. A door frame of the combination jamb and buck type comprising in combination with a base frame, a removable subframe which is morticed and reinforced to receive and support the door hardware, and a longitudinal clip carried by one rabbet of said base frame, by which said subframe is secured to said base frame after said base frame has been rigidly installed in the building.

4. A door frame of the combination jamb and buck type comprising in combination with a base frame, a removable subframe which is morticed and reinforced to receive and support the door hardware, means for securing said subframe to a rabbet on said base frame adjacent the stop thereof and means carried by said base frame for holding said subframe against said stop.

5. A door frame of the combination jamb and buck type comprising in combination with a base frame, a removable subframe which is morticed and reinforced to receive and support the door hardware, reinforcing strips fixed on one rabbet of said base frame, spaced a predetermined distance from the stop of said frame, and means for detachably securing said subframe to said rabbet with one wall of said subframe in the space between said strip and said stop whereby said wall is held against said stop.

In testimony whereof I have affixed my signature.

AXEL Z. JOHNSON.