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A. C. WALTER ET AL
FRAME FOR SLIDING DOORS

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2 Sheets-Sheet 1

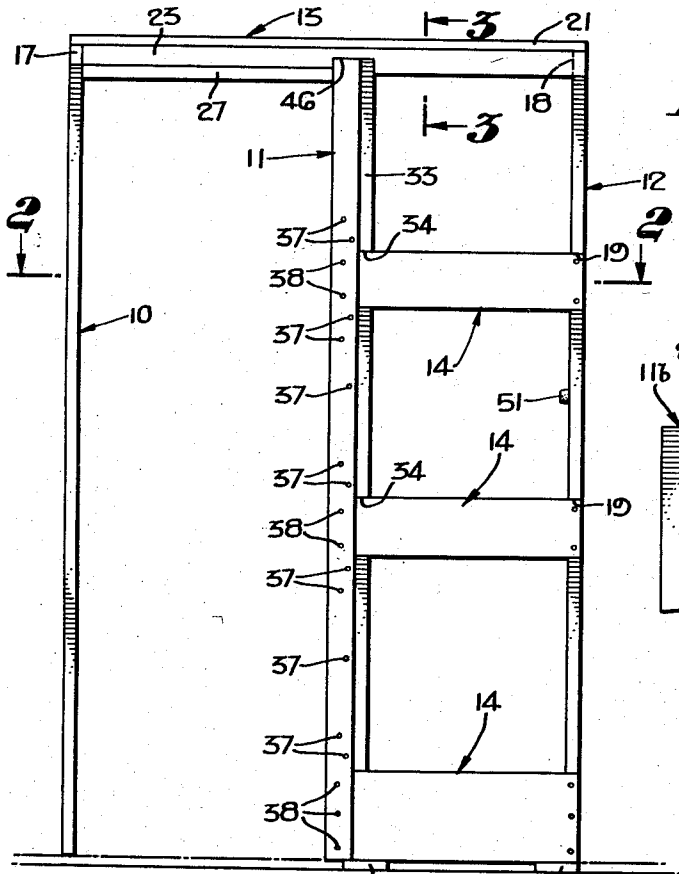


FIG. 1.

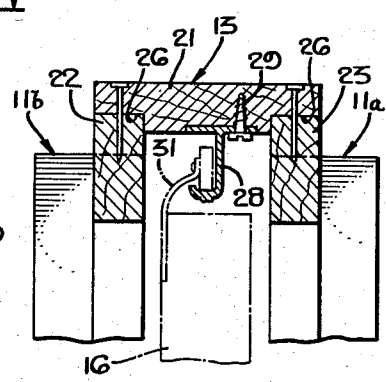


FIG. 3.

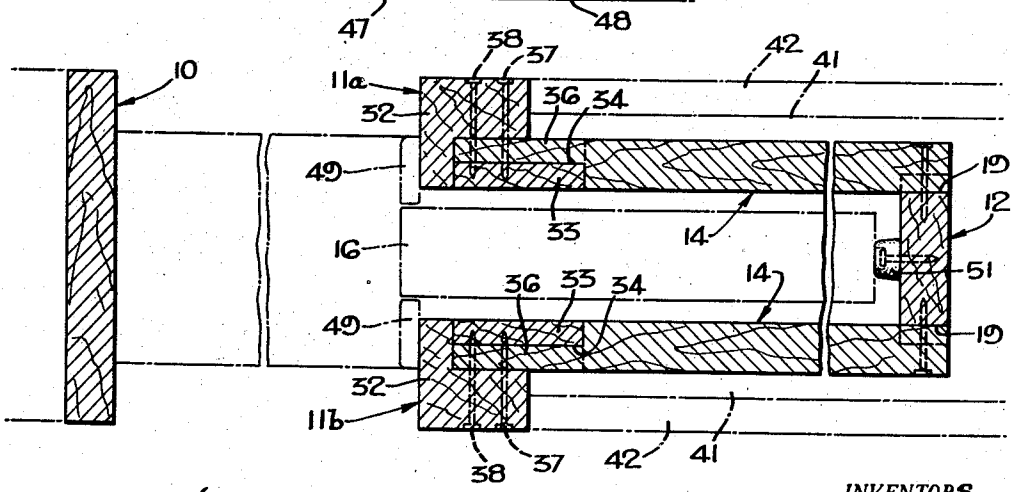


FIG. 2.

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FIG. 4.

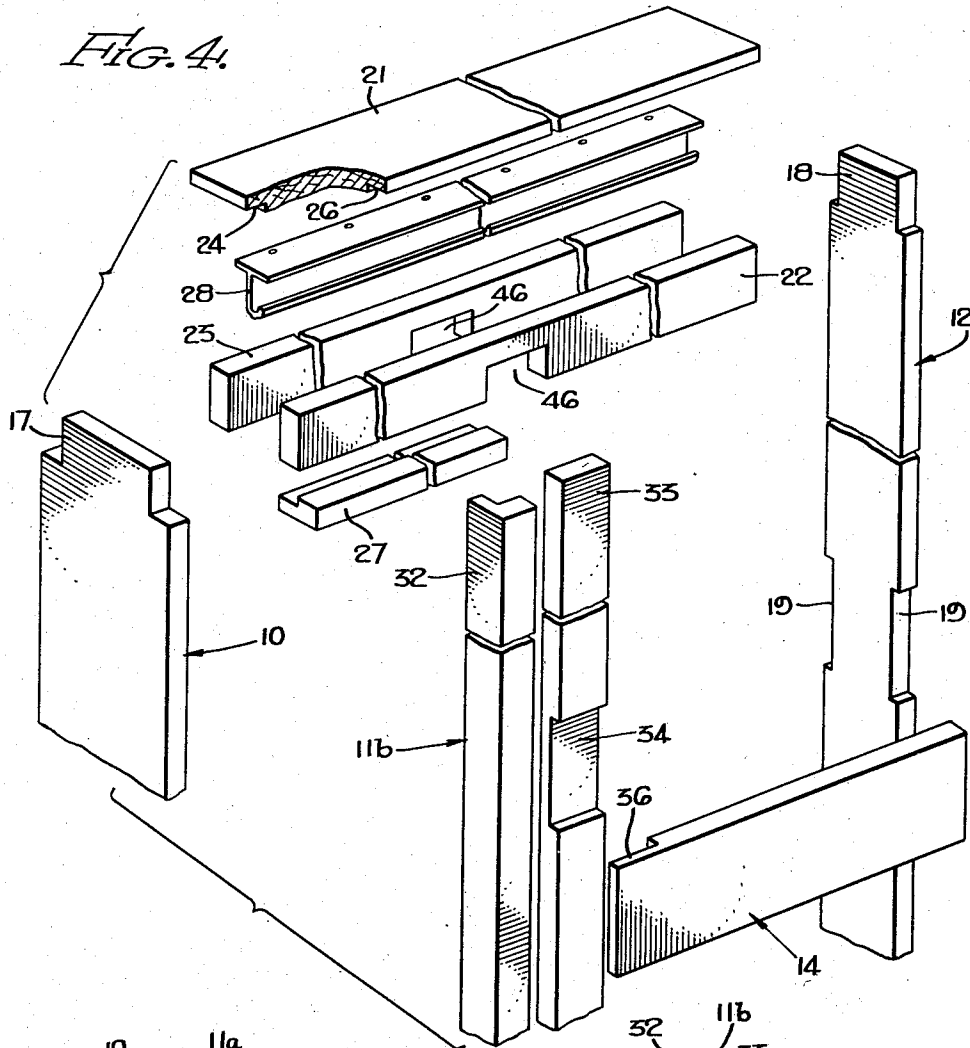


FIG. 5.

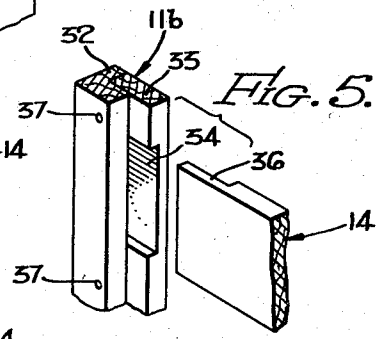
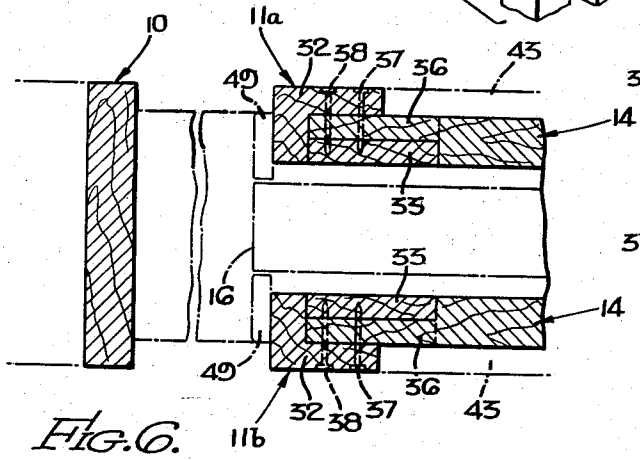


FIG. 6.



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FRAME FOR SLIDING DOORS

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12 Claims. (Cl. 20—5)

This invention relates to a sliding door means, and more particularly to a frame adapted to form a part of a wall construction and to receive a rigid sliding door therein.

Sliding door frames presently manufactured and used are generally characterized by the inclusion of metal angle bar elements which form a part of the split jamb, and are provided with spaced holes for reception of nails adapted to secure the spreader ends in position. Such metal elements are undesirable for a number of reasons, the first being that the presence of the metal makes it difficult to nail trim molding around the door opening, and the second being that the nail holes must generally be located so close to the spreader ends that the latter are split when nails are inserted therein.

In addition to the above, conventional sliding door frames are characterized by a lack of rigidity and by difficulty of installation, it being substantially impossible to install them properly without use of highly skilled labor and aligning forms or guides. Because of this latter factor, and because of the absence of adequate skilled labor in many building projects such as in the mass building of tract houses, it has become common practice to assemble sliding door frames at the factory or shop into a completely assembled unit which need only to be mounted in a wall. However, when the door frame is fully assembled at the factory, the shipping or storing thereof is made extremely expensive and burdensome. Such completely assembled sliding door frames may not readily be packaged, which means that they become dirty when stored for any length of time, this being a factor tending to decrease their sales appeal.

In view of the above and other factors characteristic of sliding door frames, it is an object of the present invention to provide a sliding door frame which is constructed entirely of wood, except for the tracks and nails, so as to present no obstacle as to the mounting of trim molding around the door.

At further object of the invention is to provide an extremely strong and rigid sliding door frame which may be assembled at the building site by relatively unskilled labor and with no forms or guides, thus resulting in a better built and more satisfactory frame at a reduced price.

An additional object is to provide a sliding door frame adapted to be stored and shipped in knocked-down condition in a relatively small and compact package, and then assembled at the point of use in a minimum of time and with a minimum of labor, thereby greatly reducing the difficulty and expense of shipping, storage and assembly.

An additional object is to provide components adapted to be readily assembled into a strong and rigid sliding door frame, said components including mortise and tenon elements which are formed with a minimum of manufacturing costs.

These and other objects and advantages of the invention will be more fully set forth in the following specification and claims, which are to be considered in con-

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nection with the attached drawings to which they relate. In the drawings:

Figure 1 is a front elevational view of a fully assembled sliding door frame embodying the present invention;

5 Figure 2 is an enlarged horizontal sectional view taken along line 2—2 of Figure 1 and looking in the direction of the arrows, the door and trim molding elements being shown in phantom lines;

10 Figure 3 is an enlarged fragmentary vertical sectional view along line 3—3 of Figure 1, the door and hanger therefor being shown in phantom;

Figure 4 is an exploded isometric view illustrating the upper door frame components prior to assembly thereof;

15 Figure 5 is a fragmentary perspective partially exploded view illustrating the mortise and tenon joints between a spreader and a split jamb, and

Figure 6 corresponds generally to Figure 2, but illustrates a second embodiment of the invention in which the sliding door frame is adapted for mounting in a wall in which only wall board or dry wall is used, as distinguished from both plaster and wall board.

Referring now to the drawings, and particularly to Figure 1, the invention is illustrated as incorporated in a sliding door frame having a face jamb 10, a split jamb 11, and a concealed jamb 12, said jamb elements being associated with each other by means of a header 13 and a plurality of spreaders 14. It is to be understood that the header 13 is connected horizontally over the three vertical jamb elements 10—12, and that the horizontal spreaders 14 extend between the split jamb 11 and concealed jamb 12 and provide a chamber or cage for reception of a rigid sliding door. Such a door is indicated in phantom lines at 16 in Figures 2, 3 and 6, and is adapted to slide into the chamber between spreaders 14 during intervals when it is not desired to block the door opening defined by jamb elements 10 and 11 and by header 13.

Proceeding next to a detailed description of the above mentioned elements, the face jamb 10 comprises a relatively wide wooden board, equal in width to the desired width of the door opening, and which is notched at its upper corners to provide an upwardly extending neck portion 17. The concealed jamb 12, on the other hand, is a much narrower board adapted to fit between opposed external wall elements such as plaster or dry wall. Concealed jamb 12 is notched at its upper corners to form a neck 18, and its also provided at spaced intervals along its opposite edges with rectangular notches 19 (Figure 4) to receive the ends of spreaders 14.

The header 13 is channel shaped as viewed in vertical section (Figure 3), and comprises a top board 21 forming a base or web, and a pair of side boards or flanges 22 and 23. One end of the top board 21 is rabbeted at 24 (Figure 4) to fit exactly over the upper end of neck 17. The other end of the top board, which is not rabbeted, seats on the upper end of neck 18. The side edges of top board 21 are rabbeted at 26 to seat over side boards 22 and 23, the latter seating at one pair of adjacent ends against the exposed inner face of neck 17, and at the other pair of adjacent ends in the notches which form neck 18. Top board 21 is, of course, secured to side boards 22 and 23 such as by nails and in order to form rabbit joints. Also, top board 21 is nailed at its ends to necks 17 and 18.

Mounted along the lower edges of side boards 22 and 23 between the face jamb 10 and split jamb 11 are a pair of plaster ground elements 27. The elements 27 are rabbeted and are nailed to such side board edges, and have sufficient width to make them flush with the outer edges or surfaces of face jamb 10 and split jamb 11. It may thus be seen that the outer faces of the plaster ground elements 27, face jamb 10, and split jamb 11 may form a base for plaster during finishing of the wall in which the sliding door frame is incorporated.

A suitable metal track 28 is mounted along the under-side of the header 13 between jambs 10 and 12. Track 28 is illustrated as being J-shaped, having an upper flange element which is recessed into the under surface of top board 21 and secured thereto as by screws 29. The track is adapted to mount hangers 31 of a roll-type, which are connected to the upper edge of door 16 as shown in Figure 3.

The construction of the split jamb 11, which will next be described in detail, is of extreme importance to the present invention. Referring particularly to Figures 2 and 5, the split jamb is formed with two separate compound jamb elements 11a and 11b, each of which is in turn formed of outer and inner elongated vertical portions 32 and 33 respectively. The outer portion 32 of each compound jamb element 11a or 11b comprises a wooden angle member having one side parallel to the plane of the door opening and the connected side parallel and opposite to face jamb 10. The inner split jamb portion 33 of each element 11a and 11b comprises a rectangularly sectioned wooden board the outer face of which is recessed, as indicated at 34, to form rectangular notches at intervals corresponding to the spacing between notches 19 in concealed jamb 12.

When the outer and inner split jamb portions 32 and 33 of each element 11a and 11b are assembled together as shown in Figures 2 and 5, the notches 34 are partially covered by the side of portion 32 which is parallel to the plane of the door opening. It follows that the notches 34 become mortises adapted to receive tenons 36 at the ends of spreader boards 14. Such tenons 36 are formed by rabbeting the inner faces of spreaders 14 at their ends adjacent the split jamb, the width of the rabbet corresponding to the width of inner split jamb portion 33. The outer and inner portions 32 and 33 of each split jamb element 11a and 11b are secured to each other as by nails, indicated at 37, whereas the tenons 36 are secured in position by nails indicated at 38.

In the embodiment of the invention shown in Figures 1-5, the frame of the invention is adapted for mounting in a wall employing separate lath (wall board) and plaster. This is done by making the side of portion 32 which is parallel to the door opening relatively thick, so that it will have a face flush with the edges of face jamb 10 and plaster ground 27. The construction is thus such that lath, for example in the form of plaster board or wall board, may be mounted against spreaders 14 and abutting an edge of split jamb portion 32 as indicated in phantom lines at 41 in Figure 2. The plaster 42 is then applied over the lath and abuts the same edge of portion 32. Trim, not shown, is mounted over the plaster-wood joint so as to conceal any possible cracking.

In the embodiment shown in Figure 6, the construction is the same except that the outer part of each split jamb portion 32 is made much thinner, and dry wall or wall board 43 is mounted against spreaders 14 and has an edge in abutment with split jamb portion 32. In this instance, the face jamb 10 is made somewhat narrower so that its edges will be flush with the outer surface of split jamb portion 32. The plaster ground elements 27 are, of course, appropriately modified or eliminated.

In a preferred method of employing the invention, the header 13 (comprising top board 21, side boards 22 and 23, plaster ground elements 27 and track 28) is sub-assembled at the factory. Each split jamb element 11a and 11b is also sub-assembled at the factory by employing nails 37 to hold portions 32 and 33 thereof together. Also, the illustrated notches, rabbets, etc., are cut at the factory. All of the elements are formed with extreme accuracy, and are cut to various lengths in accordance with the particular size of frame to be assembled. It is a feature of the invention that standard jamb elements may be employed to form frames of various widths, it

being merely necessary to select different lengths of headers 13 and spreaders 14.

The individual elements and subassemblies are appropriately packaged, such as in a pair of elongated cardboard containers which may be stored and shipped with ease. As previously indicated, an important feature of such packaging is that the wood may be stored for considerable lengths of time without resulting in dirtying or discoloring thereof, such as would decrease its sales appeal. Also, of course, much less room is required for storage and shipment than would be the case if the frame were stored or shipped in fully assembled condition.

When it is desired to incorporate a sliding door frame in a wall, the assembler may first form an outer frame comprising the jambs 10 and 12 and header 13. This is done by merely nailing the header 13 to the necks 17 and 18 as previously described. Because of the indicated rabbet and notch construction, etc., this may be done with very little difficulty, and with great accuracy, by relatively unskilled labor.

The subassembled split jamb elements 11a and 11b are then mounted in position, being located by rectangular notches 46 cut at the factory in header sides 22 and 23. Preferably, the jamb elements 11a and 11b are secured together by block elements, not shown, which maintain them the exact desired distance apart during assembly and which may be removed after assembly. Also, construction is aided by use of base blocks 47 and 48 (Figure 1) which are mounted on the sub-flooring beneath jambs 11 and 12 when the frame is placed in an upright position.

The split jamb elements 11a and 11b having been suitably positioned, and secured in position such as by nails inserted downwardly through the header into their upper ends, it is merely necessary to mount the spreaders by inserting their tenon portions 36 into the mortises formed by notches 34 and outer split jamb portions 32. Nails 38 are then inserted to hold the tenons in position, and other nails are inserted to hold the opposite ends of the spreaders 14 in the respective notches 19 in concealed jamb 12.

After completion of frame assembly, lath and plaster 41 and 42 are applied as described in connection with Figure 2, or dry wall applied as described in connection with the embodiment shown in Figure 6. Also, suitable trim molding 49 is nailed around the door opening in positions leaving just sufficient room for the door 16 to slide on its track 28 (Figure 3), the door having been hung at a suitable point during assembly of the frame. The door 16 may then be easily slid either into the door opening to block the same, or into the cage formed by spreaders 14, travel of the door in the latter direction being blocked by a suitable resilient stop 51 mounted on concealed jamb 12.

Because of the mortise and tenon arrangement, the large number of support points, and the accurate construction of the component parts at the factory, the resulting frame will always be square and extremely rigid even though it may be assembled by relatively unskilled labor. In this connection it is emphasized that the tenons fit closely into the respective mortises. The all-wood construction facilitates mounting of the trim molding 49, especially when compared to previous constructions in which metal angle strips were mounted beneath the portion of the frame on which the trim molding was nailed. It is a further feature that the tenons 36 are completely concealed in their respective mortises, and will therefore not result in an unsightly appearance even should one split during the insertion of the nails 38.

Various embodiments of the present invention, in addition to what has been illustrated and described in detail, may be employed without departing from the scope of the accompanying claims.

We claim:

1. In a frame for a sliding door, a wooden face jamb and a wooden concealed jamb mounted in vertical, laterally spaced relationship, a wooden header member connected horizontally between the upper ends of said jambs, a pair of vertical wooden split jamb elements mounted between said face jamb and concealed jamb and connected at their upper ends to an intermediate part of said header, said split jamb elements each being formed of two generally co-extensive wooden portions rigidly secured to each other, at least one of said portions being formed with notches over which the other of said portions is disposed to define mortises, and a plurality of wooden spreaders each having one end inserted in one of said mortises and another end secured to said concealed jamb, said spreaders and split jamb elements being respectively spaced apart and forming between them an opening into which a rigid sliding door may be inserted.

2. The invention as claimed in claim 1, in which said concealed jamb is provided with notches adapted to receive the other ends of said spreaders.

3. A sliding door assembly, which comprises laterally spaced vertical wooden boards forming a face jamb and a concealed jamb, said concealed jamb having notches formed at spaced points along its edges, a generally U-shaped wooden header connected horizontally between the upper ends of said jambs, the side flanges of said header extending downwardly from the base of web thereof, a track mounted longitudinally on said base between said side flanges, a rigid door, hanger means to mount the upper end of said door on said track for sliding of said door therealong, two vertical split jamb elements formed of wood and connected to said header on opposite sides of said door approximately midway between said face jamb and said concealed jamb, said split jamb elements each having mortises formed therein at generally the same elevations as the respective notches in said concealed jamb, a plurality of wooden spreader boards each having a tenon formed at one end thereof for insertion into an associated mortise, and means to connect said spreader boards horizontally between said split jamb elements and said concealed jamb on opposite sides of said door and in such manner that the tenon ends of said spreader boards are locked in the respective mortises and the remaining ends thereof are locked in the said notches opposite thereto.

4. The invention as claimed in claim 3, in which said split jamb elements are each formed with plaster ground faces up to which plaster is to be applied when coated over lath or the like mounted on said spreader boards, and in which plaster ground elements are mounted on said header side flanges between said face jamb and said split jamb elements.

5. The invention as claimed in claim 3, in which said header side flanges are formed with notches into which the upper ends of said split jamb elements are inserted in closely fitting relationship.

6. The invention as claimed in claim 3, in which said mortises, tenons and notches are formed with high accuracy and with close tolerances to insure that the sliding door frame will be square and rigid after assembly.

7. A sliding door assembly, which comprises laterally spaced vertical wooden boards forming a face jamb and a concealed jamb, said concealed jamb having rectangular notches formed at spaced points along its edges, a generally U-shaped wooden header connected horizontally between the upper ends of said jambs, the side flanges of said header extending downwardly from the base of web thereof, a track mounted longitudinally on said base between said side flanges, a rigid door, hanger means

to mount the upper end of said door on said track for sliding of said door therealong, two vertical split jamb elements formed of wood and connected to said header on opposite sides of said door approximately midway between said face jamb and said concealed jamb, said split jamb elements each being formed of two co-extensive wooden portions which are secured together in surface abutment with each other, one of said portions having rectangular notches formed therein at the same elevations as the respective notches in said concealed jamb, said notches in said one portion being at least partially covered by the other portion to form mortises, a plurality of spreader boards each having a tenon formed at one end thereof for insertion into an associated mortise, and means to connect said spreader boards horizontally between said split jamb elements and said concealed jamb on opposite sides of said door and in such manner that the tenon ends of said spreader boards are locked in the respective mortises and the remaining ends thereof are locked in the notches opposite thereto.

8. The invention as claimed in claim 7, in which said other portion of each of said split jamb elements has a part thereof lying in a plane parallel to said face jamb and covering the ends of said tenons.

9. In a knock-down frame for a sliding door, a U-sectioned wooden header having opposed notches cut in its side flanges and intermediate the ends thereof, a face jamb board adapted at its top to be connected to one end of said header, a concealed jamb board adapted at its top to be connected to the other end of said header, a pair of wooden split jamb elements shaped at their ends for insertion into said notches, said split jamb elements having mortises formed at spaced points therealong, and a plurality of spreader boards each formed at one end with a tenon adapted to be inserted into one of said mortises, the other end of each spreader board being adapted to be connected to said concealed jamb.

10. The invention as claimed in claim 9, in which said concealed jamb is formed along its edges with notches corresponding to said mortises and respectively adapted to receive said other ends of said spreader boards.

11. The invention as claimed in claim 9, in which said split jamb elements are each formed of two portions secured together and cooperating to form said mortises.

12. A frame for a sliding door, which comprises a wooden header having notches formed at an intermediate portion thereof, a wooden face jamb connected to one end of said header, a wooden concealed jamb connected to the other end of said header and having rectangular notches formed at spaced points along opposite edges thereof, a pair of wooden split jamb elements having their ends inserted into said header notches, each of said split jamb elements being formed of two connected wooden components in surface engagement with each other, one of said components being rectangularly notched correspondingly to said concealed jamb notches to form mortise openings covered by the other of said components, and a plurality of wooden spreaders each having one end inserted in a mortise and the other end inserted in the associated concealed jamb notch.

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