

Sept. 7, 1937.

W. W. MYERS
BLACKBOARD MOUNTING

2,092,323

Filed Dec. 3, 1935

3 Sheets-Sheet 1

Fig. 1.

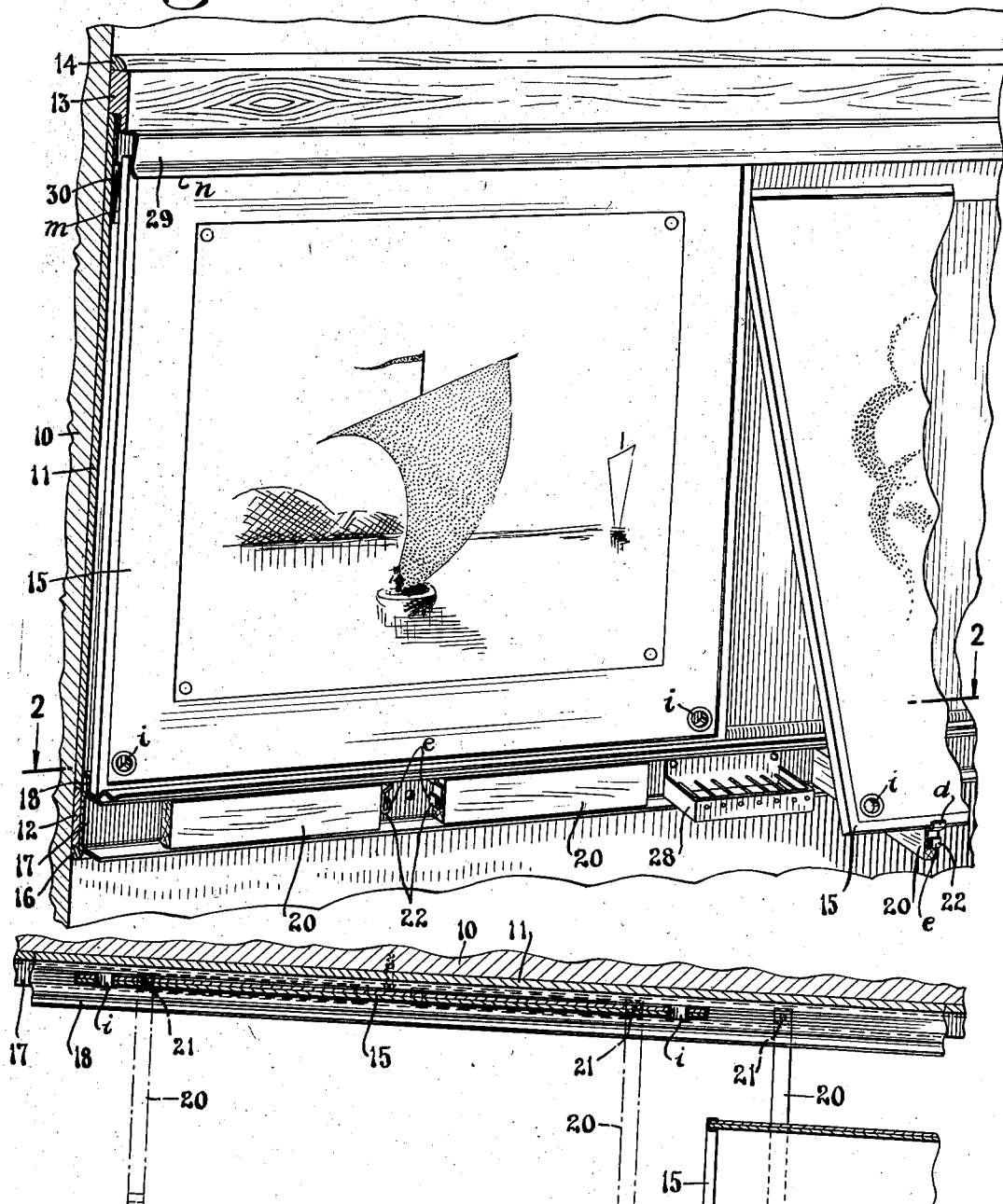
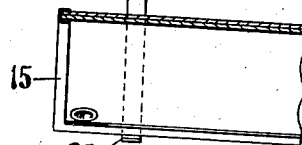


Fig. 2.



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3 Sheets-Sheet 2

Fig. 3.

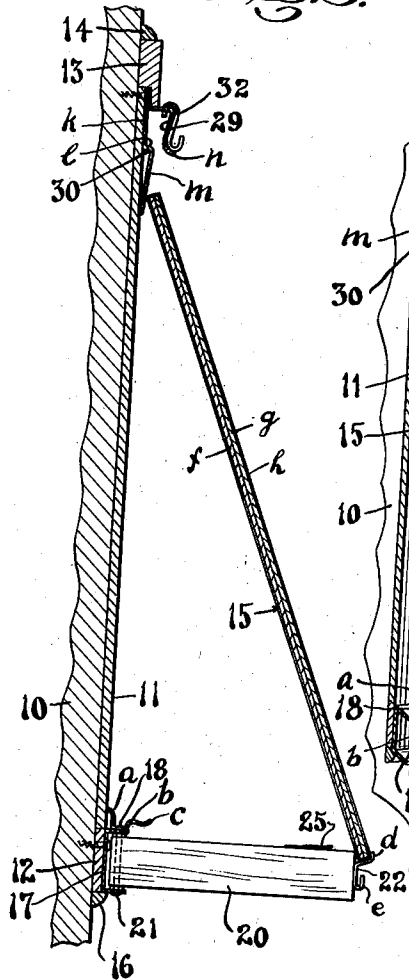


Fig. 4.

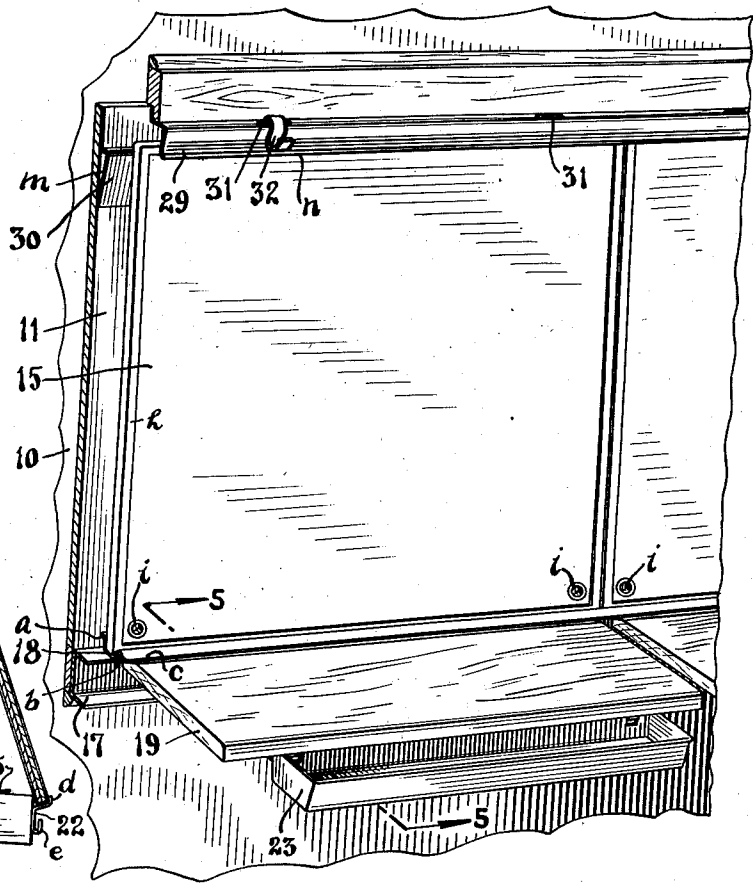


Fig. 5.

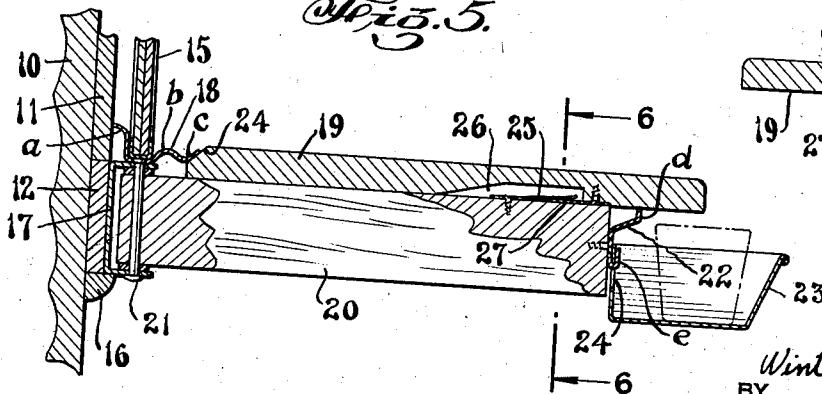
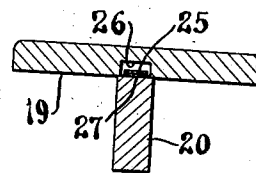


Fig. 6.



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3 Sheets-Sheet 3

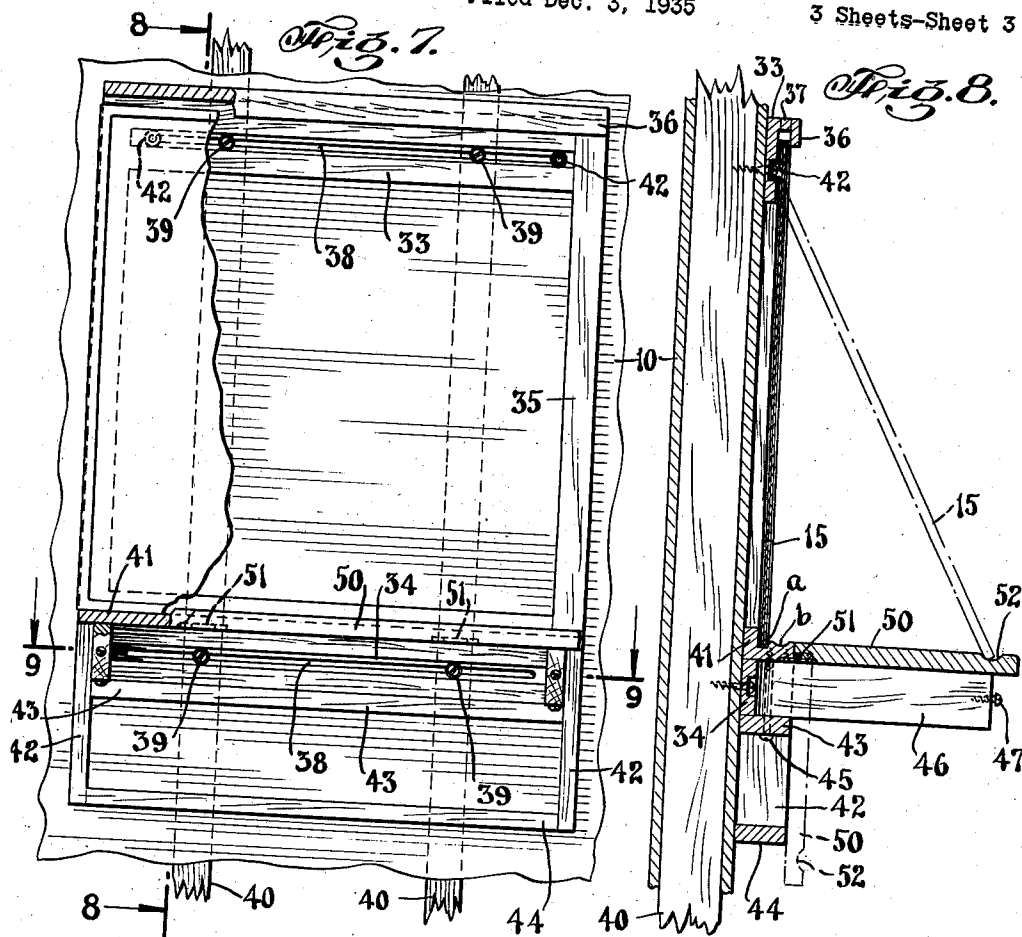


Fig. 9.

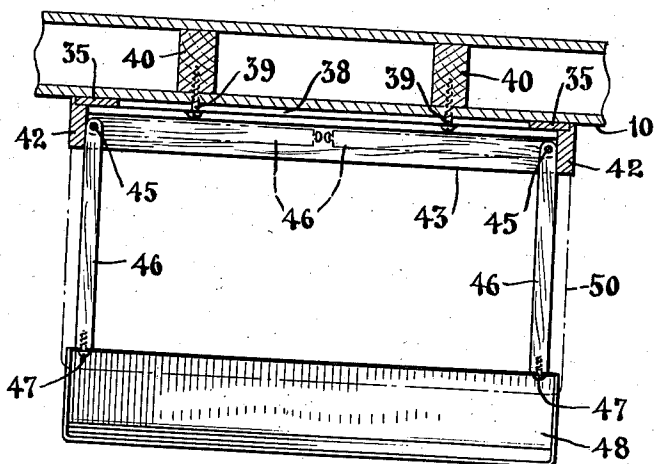
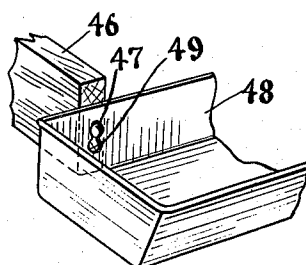


Fig. 10.



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2,092,323

BLACKBOARD MOUNTING

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Application December 3, 1935, Serial No. 52,636

8 Claims. (Cl. 35—63)

This invention relates to combination blackboards, drawing, painting or display boards adapted for mounting on the wall of a room, especially for class-room use, and more particularly relates to the type of removable and reversible board shown in United States Letters Patent No. 1,984,845 issued December 18, 1934.

In boards of this type it is desirable to have the fixtures include as few parts as possible; also to avoid unnecessary weight; to reduce the number of removable parts requiring adjustment for use; to provide simple and easily set-up means for holding the reversible boards firmly in position when used for writing, drawing or display purposes and yet permit removal and resetting of the board sections without undue strain on the board or exertion on the part of the user, so that children may readily make the desired changes.

In the construction and setting up of fixtures for such boards it is also desirable to provide standardized parts that may be readily employed in conjunction with the usual blackboards by the replacement of few parts and addition of the parts entering into the new combination.

My invention is illustrated in the accompanying drawings in which—

Figure 1 is a perspective view of a section of the usual blackboard mounted on a wall and provided with my improved fixtures for a combination board, and showing one removable section in the vertical position, a removable section in the inclined position or easel effect, and showing one of the hinged brackets swung outward in the supporting position for the inclined board section;

Figure 2 is a horizontal section on the line 2—2 of Figure 1;

Figure 3 is a vertical section of the arrangement shown in Figure 1 with the removable board in the inclined position and supported on the hinged brackets at the proper angle to be able freely to insert the same under the top rail after the board, in the position shown, is moved upwardly;

Figure 4 is a perspective view showing the removable boards in the vertical position and a work shelf and tray supported by the brackets;

Figure 5 is a vertical section on the line 5—5 of Figure 4;

Figure 6 is a cross section on the line 6—6 of Figure 5;

Figure 7 is a front elevation and partial section of a modified form suitable for use without the fixed blackboard;

Figure 8 is a vertical section on the line 8—8 of Figure 7;

Figure 9 is a horizontal section on the line 9—9 of Figure 7; and

Figure 10 is a detail showing the tray support for the modified arrangement.

Referring to the drawings, 10 indicates the wall surface of a room, 11 the usual blackboard of slate, 12 the bottom rail or supporting strip for the board, 13 the top retaining rail, and 14 the usual finishing strip. In the installation of the usual slate board 11, a chalk shelf or rail is set on the strip 12 and the slate sections rest on the chalk shelf and are retained in position on the shelf by a moulding strip secured to chalk shelf.

In combining my improved removable board sections 15 with the usual slate board I remove the usual chalk shelf and retaining strip and seat the slate sections directly on strip 12 as shown in Figures 3 and 5 and the moulding strip as shown at 16 is fastened under the rail 12. As a substitute for the usual chalk shelf I provide the channel rail 17, which is securely fastened to the rail 12 and wall 10. Upon the upper flange of rail 17 is secured a specially curved rail 18, Figure 1, which has six functions. Referring more particularly to Figures 3 and 5, it will be seen that the curved part *a* of rail 18 serves both as a substitute for the usual quarter-round strip for securing the slate section 11 in position on the wall strip 12, and also as a back stop for the removable board section 15; the curve *b* serves as a front stop for the removable board section; the curves *a* and *b* form a channel for the board to rest in and in which it fits freely except as hereinafter indicated; the curve *c* with curve *b* form a shallow channel which serves as the rail for chalk, pencils, erasers, etc.; and the curve *c* also serves as a clip for holding down the work shelf 19 hereinafter more specifically referred to.

Between the flanges of rail 17 bracket arms 20 are hinged in any suitable manner as by pins 21, and the dimensions of the arms are such that they may be swung parallel to the rail between the flanges so as not to project therefrom when folded in or obstruct the use of the board as will be observed by reference to Figures 1 and 2. At the outer end of each bracket arm is secured a double hook 22, Figures 3 and 5, having its upper part *d* bent outwardly and upwardly to a point in alignment with the upper edge of the bracket arm to form a support for board 15 when used in the inclined position as shown in Figures 1, 2, and 3, and its lower end *e* bent up and back to form

a hook for supporting the tray 23 which is provided with slots 24 into which hooks *e* may be inserted to engage the tray as shown in Figures 4 and 5. The bracket arms 20 are located so that a pair of arms will project outwardly within the width of each board 15, and the trays 23 are of such length that each tray may be engaged by hooks *e* of each pair of brackets 20 and thereby lock the brackets and tray together and prevent the bracket arms swinging on their hinge pins. When a removable board section is used in the inclined position it is seated on hooks *d* and the upwardly projecting angle of those hooks will prevent the bracket arms swinging inward while the board is resting thereon.

The bracket arms 20 are also designed to support the work shelf 19 when the board sections 15 are held in the vertical position. This shelf as shown in Figure 4 may be the full width of a board section 15 and at its inner edge it is bevelled as shown at 24 to engage under the bend *c* of rail 18 for holding the shelf down on the bracket arms. Each bracket is also provided on its upper edge near its outer end with a forwardly projecting spring clip 25, and the work shelf 19 is provided with a pair of slots 26 on the underside and in alignment with the spring clips 25 when the brackets are fully extended at right angles to the rail 17, and secured to the underside of the work shelf and projecting rearwardly over slots 26 are spring blades 27 which are adapted to engage under clips 25 as shown in Figures 5 and 6. In adjusting the shelf in position on brackets 20 it is placed so that clips 25 will enter slots 26 and then the shelf is pushed backward to cause blades 27 to slide under clips 25 and bevel 24 to engage bend *c* of rail 18 and thereby holding the shelf in position. In practice clips 25 and blades 27 may be provided with indentations or cross-wise corrugations (which for simplicity of illustration are omitted) which will interlock to insure against the shelf slipping forward after being adjusted in position. Thus the engagement of clips 25 and blades 27 will hold the shelf in position and part *c* of rail 18 will hold the inner edge down and prevent tilting of the shelf. It will also be observed by reference to Figure 6 that the entrance of clips 25 into slots 26 will also serve as a locking means for the bracket arms and prevent their swinging on their hinge pins when the shelf is in place.

By this simple means it will be observed that the shelf may be placed in position for use and the brackets and shelf locked against displacement by two movements, i. e. swinging the brackets outward and sliding the shelf backward as it is placed on the brackets. When it is desired to use the tray it may be hooked in position on brackets 20 before or after the shelf is placed in position, and when the tray is in position it serves as an additional locking means for the brackets. At intervals between adjacent pairs of bracket arms, a tray 23, Figure 1 may be secured in the channel rail 17. This tray may be of any desired form for receiving a chalk eraser or other devices.

The removable boards 15 may be of any desired construction or material and laminated so that both sides are usable, as for instance, one side may be of a material suitable for writing or drawing with chalk or crayon, and the other side suitable for receiving thumb tacks for holding drawing paper, pictures, etc., or hooks for hanging models, charts, etc. As illustrated these boards have two layers *f* and *g*, Figure 3, held together by a framing *h* of wood or metal extending preferably around the four edges of the board. At the two

lower corners of each board 15 finger holes *i* are provided for adjusting the board to its several positions.

The chamfer of the usual top retaining rail 13 is cut slightly wider to receive the flange of the auxiliary metal top rail 29. The flange of this rail may be clamped under the tongue of rail 13, but in the preferred arrangement, as shown in Figure 3, this flange is secured directly upon the slate board 11 and to the wall 10 by screws. Rail 29 may be of any desired shape in cross section according to the ornamental effect desired, but it will be such as to afford a sufficiently wide space to permit free insertion of the upper end of the board behind the rail, and sufficiently deep to permit raising the board to the height required to seat and unseat the board from its channel in bottom rail 18. For the purpose of clamping the board 15 in the vertical position when in use and to hold it firmly to prevent it from rattling or swaying, a series of fulcrums are provided. These fulcrums may be rigid blocks, but I prefer to employ a resilient device such as spring strips or blades 30 as shown in Figures 1, 3, and 4 or rubber blocks or buttons 42 as shown in Figures 7 and 8. When spring fulcrums 30 are employed they may be narrow and arranged in pairs to engage the vertical edges of framing *h* of adjacent boards, or as shown in Figure 4, they may be strips sufficiently wide to overlap the adjoining edges of adjacent boards. In either case the fulcrum piece 30 will have a leaf *k* bent to form a projecting shoulder *l* and a tongue or slide *m* bent back to bear against slate 11. The downwardly projecting flange of rail 29 is curved outwardly to form a shoulder *n* and the center or line of contact of this shoulder is positioned relative to shoulder *l* on blade 30 so as to be slightly above the latter, and the clearance between the two shoulders will be sufficient to permit insertion of the upper edge of board 15 freely into the cavity under rail 29 so that no pressure will be required to insert the board. The vertical spacing between the two shoulders *l* and *n*, however, will be slightly less than the thickness of the board frame *h* so that after the board is inserted under rail 29 the backward movement of the lower end of the board for insertion in its channel on rail 18 will cause the inner face of frame *h* to press against shoulder *l* and the outer face against shoulder *n* with a yielding pressure so that when the board is seated in its channel on rail 18 the spring pressure of blade 30 will cause the upper front edge of the board to press against shoulder *n* and the lower front edge of the board to press against the forward side of the channel formed by curve *b* of rail 18, thus firmly holding the board in position against swaying movement. It will be observed that by locating the shoulders *l* below the line of contact on shoulder *n* of rail 29, a three-point contact is provided for the removable board, and by reason of shoulder *l* being only slightly below shoulder *n* all tendency to bend or warp the board is avoided while still affording sufficient leverage on shoulders *l* acting as fulcrums to provide a firm holding of the board in the vertical position. Furthermore the pressure on the board caused by its squeezing between the two shoulders is so slight that the board may be readily slid upward or downward when placing it in position. When the board is used in the inclined position the lower edge as above stated rests on hooks 22 and the upper edge bears against the slide *m* so that in

returning the board to the vertical position the act of raising it by the aid of finger holes *i* will cause it to slide upward on slides *m* and slip under shoulder *n* of rail 29. When the upper edge of the board is raised sufficiently under rail 29 to clear the lower edge over rail 18 a slight inward and downward pressure will place the board in the vertical position of Figures 1 and 4.

For convenience in hanging pictures or charts, the top rail 29 on its horizontal face is provided with a series of slots 31 into which the usual picture hooks 32 may be inserted with the depending hook bearing against the front face of rail 29 as shown in Figures 3 and 4.

It will be understood that the arrangement illustrated in Figures 1 to 6 inclusive is not limited to the combination with a slate board 11, and that the fixtures entering into the combination for supporting removable board sections may be attached directly to a wall surface without alteration in construction, and that the arrangement may be for any number of boards or a single board.

In Figures 7 to 10 inclusive I illustrate a modified arrangement which permits of cheaper construction for single board units, and is adapted for ready attachment to or removal from a wall. In this form I provide a frame having top and bottom rails 33 and 34 and side rails 35. To the top rail 33 is secured a retaining strip 36 spaced from rail 33 by a spacing strip or blocks 37. The top and bottom rails 33 and 34 are longitudinally slotted as shown at 38 to facilitate fastening the frame to a wall 10 by means of screws 39 and for more readily adapting the frame for fastening to studs 40 of ordinary partition walls. Seated upon and secured to bottom rail 34 is the retaining rail 41 for the removable board 15. This rail has a groove *a* into which the lower edge of the board is seated and a groove *b* for chalk, etc. Screws 39 which hold rail 33 to the wall are preferably provided with rubber heads or cushions as indicated at 42 to form the fulcrums for board 15 instead of spring blades 30 as in Figure 1, although if desired a pair of spring blades may be attached to rail 33. The insertion of the upper edge of board 15 under strip 36 and the backward movement of the lower end for insertion in groove *a* will cause the board to impinge on heads 42 acting as fulcrums and hold the board firmly at three-points of contact as above explained in connection with the form shown in Figure 1.

Secured to rail 34 of the main frame and to the retaining rail 41 is a framing comprising sides 42, sill 43 and storage shelf 44. Hinged between rail 41 and sill 43 by pins 45 are a pair of brackets 46 which normally fold in under the rail 41 as shown in the dotted lines in Figure 9. Screwed into the ends of brackets 46 are ordinary round-head wood screws or hooks 47 for supporting the tray 48 which is provided with apertures 49 into which heads or hooks 47 enter to hold the tray as shown in Figures 9 and 10, and when the tray is in position the brackets will be held in the extended position. Hinged to rail 41 is a work shelf 50 and which is supported in the elevated or working position by brackets 46 as shown in Figure 8, the leaves of hinges 51 being counter-sunk on the underside of rail 41 and shelf 50 to clear the brackets. When not in use the shelf hangs down as shown in dotted lines in Figure 8 and serves as a cover for the articles stored on shelf 44. Work shelf 50 is provided along its front edge with a groove 52 which serves as a retaining

groove for board 15 when used in the inclined position as shown in dotted lines in Figure 8.

The fulcrums for the removable panels may be arranged in various ways without departing from the object of my invention. For instance, there may be a series of fulcrums or spring blades extending across the width of a panel, or a series of rubber cushions, or a single long strip or cleat, an important object being to provide an abutment against which the panel will impinge when the lower edge is pushed into the seating rail and effect the three-point contact to hold the panel against swaying or rattling movement.

What I claim is:

1. A wall fixture of the class described, having in combination a removable panel, a recessed top rail adapted to cooperate with the face of said panel and into which the panel projects, a fulcrum piece attached to the wall or panel supporting frame adapted to cooperate with the rear of said panel at a point below that at which the top rail cooperates with the face and against which the rear side of the panel bears when inserted under said top rail, and a grooved bottom rail in which the lower edge of the panel is adapted to be seated, the alignment of said top and bottom rails and the fulcrum piece being such that when the panel is placed in position between the top and bottom rails it will be held against swaying movement by a three-point contact.
2. A wall fixture of the class described, having in combination a removable panel, a recessed top rail for the panel, a fulcrum piece for the panel attached to the wall or panel supporting frame, and a grooved bottom rail in which the lower edge of the panel is seated, said top and bottom rails and the fulcrum piece forming contact points disposed, respectively, in different planes and at different elevations, such that when the panel is in position between said rails it will be held by a three-point contact, the upper and lower front edges of the panel being held against the rails by the fulcrum contacting with the rear side of the panel below the top front line of contact.
3. A wall fixture of the class described, having in combination a removable panel, a recessed top rail adapted to cooperate with the face of said panel and into which the panel projects, a resilient fulcrum piece attached to the wall or panel supporting frame adapted to cooperate with the rear of said panel at a point below that at which the top rail cooperates with the face and against which the rear side of the panel bears when inserted under said top rail, and a grooved bottom rail in which the lower edge of the panel is adapted to be seated, the said top and bottom rails being in a different plane from that of the fulcrum piece such that when the panel is placed in position between the top and bottom rails it will be held against swaying movement by a three-point contact.
4. A wall fixture of the class described, having in combination a removable panel, a recessed top rail for the panel, a resilient fulcrum piece for the panel attached to the wall or panel supporting frame, and a grooved bottom rail in which the lower edge of the panel is seated, said top and bottom rails and the fulcrum piece forming contact points disposed, respectively, at different elevations, such that when the panel is in position between said rails it will be held by a three-point contact, the upper and lower front edges of the panel being held against the rails by the fulcrum contacting with the rear side of the panel below the top front line of contact.

5. A wall fixture of the class described, having in combination a removable panel, a recessed top rail under which the panel projects, a fulcrum piece attached to a stationary part of the fixture and against which the rear side of the panel bears when inserted under said top rail, a channel rail forming a bracket housing, a grooved retaining rail for the panel seated on said channel rail, said retaining rail having two longitudinal grooves, one for seating the panel and the other serving as a chalk rail, and brackets hinged on said channel rail and adapted to be disposed in the housing formed thereby.
6. A wall fixture of the class described, having in combination a removable panel, a recessed top rail under which the panel projects, a fulcrum piece attached to a stationary part of the fixture and against which the rear side of the panel bears when inserted under said top rail, a channel rail, a grooved retaining rail for the panel seated on said channel rail, said retaining rail having two longitudinal grooves, one for seating the panel and the other serving as a chalk rail, brackets hinged on and adapted for housing in said channel rail, and means at the ends of said brackets for supporting the panel in inclined position and for supporting a tray.
7. In combination with a board, means for removably mounting the same on a wall or the like, said means comprising a pair of relatively yieldable upper edge strips secured to the wall and forming a substantially horizontal opening of sufficient size to receive the upper edge of said board if said edge is inserted therein while the board is inclined toward the wall, and thereafter yieldably grip said upper edge when the lower edge of said board is moved toward the wall to dispose the board in a plane substantially paral-

lel thereto, said edge strips engaging the upper edge of said board at different elevations, respectively, and a retaining means cooperating with said board to hold the same in a position proximate said wall, the cooperation between said board and retaining means being effected by a vertically downward movement of said board while the upper edge thereof is gripped by said strips.

8. In combination with a wall board, means for removably mounting the same on a wall or the like, said means comprising an upper edge strip secured to the wall and a yieldable fulcrum, said strip and fulcrum forming an opening of sufficient size freely to receive the upper edge of said board if said edge is inserted therein while the board is inclined toward the wall, and thereafter yieldably grip said upper edge by contact with the board at different elevations, respectively, when the lower edge of said board is moved toward the wall to dispose said board in a plane substantially parallel thereto, said fulcrum also comprising a guide to facilitate the insertion of the upper edge of said board into said opening, a retaining means cooperating with said board to hold the same in a position proximate said wall, the cooperation between said board and retaining means being effected by a vertically downward movement of said board while the upper edge thereof is gripped by said strip, and brackets adapted to support the lower edge of the board at such a distance from the wall that when said upper edge is supported proximate the wall the board will be inclined at the proper angle to fit freely into the opening aforesaid.

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