Dec. 18, 1951 H. A. SCHOFIELD 2,579,052

SHELVING

Filed Oct. 28, 1948

Fig. 1.

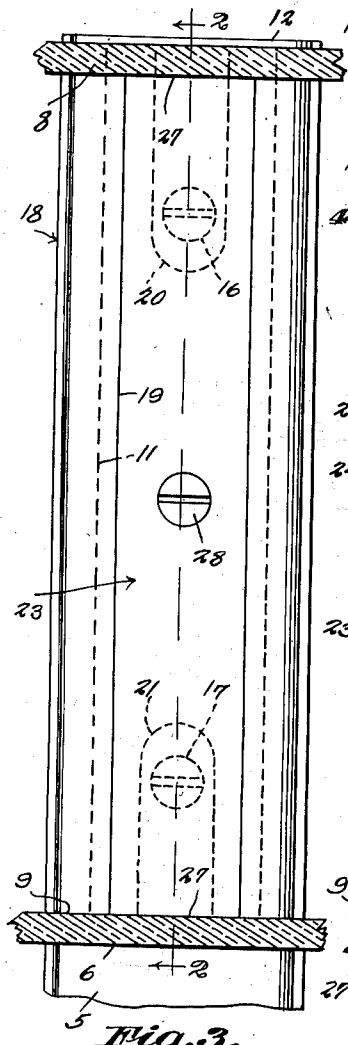


Fig. 2.

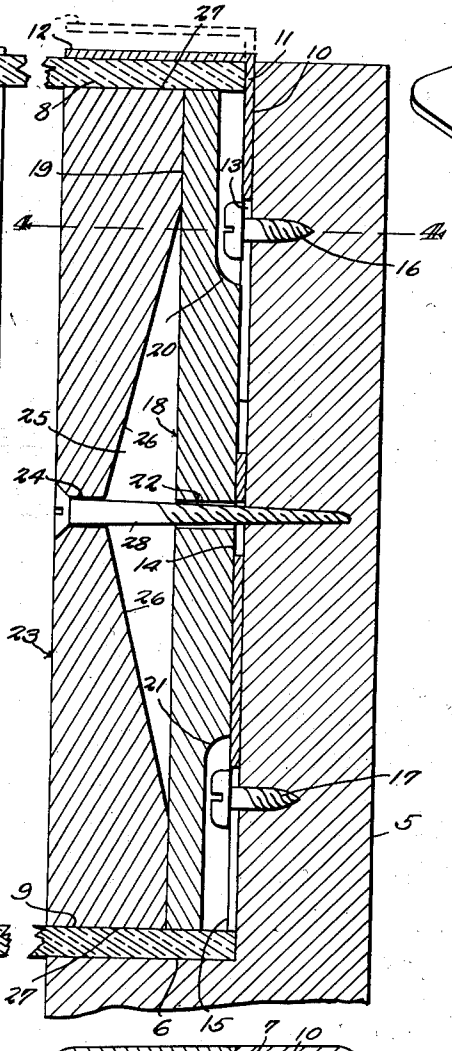


Fig. 5.

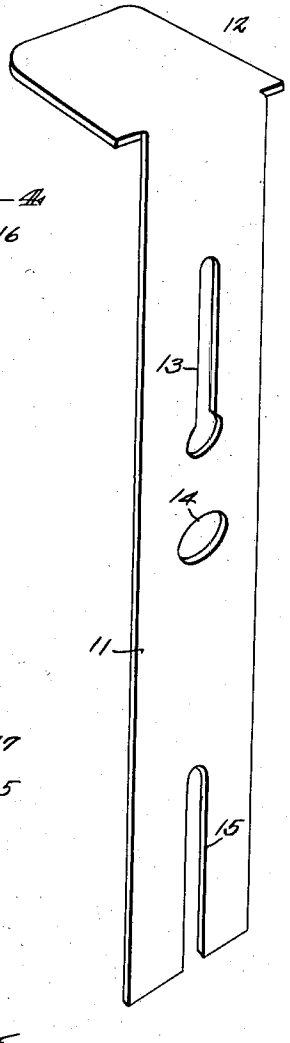


Fig. 3.

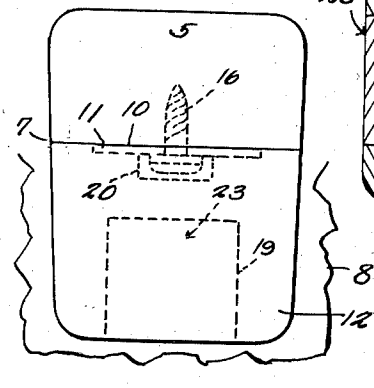
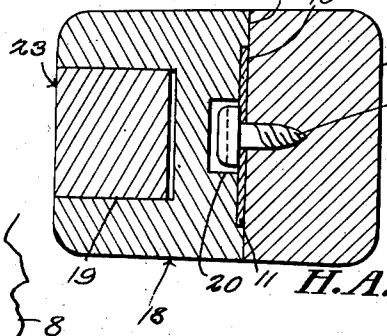


Fig. 4.



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2,579,052

SHELVING

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2 Claims. (Cl. 211—134)

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This invention relates to shelving, and more particularly to an improved joint whereby shelves or the like can be secured to a supporting member.

A shelving joint of the general type is the subject of my co-pending application, Serial Number 589,289, filed April 20, 1945, which is now Patent Number 2,457,836, issued January 4, 1949. It is an important object of the present invention to provide improvements over the joint shown in such patent.

To this end, it is an important purpose of the present invention to provide a shelving joint which, without difficulty, is adjustable to accommodate shelves of various thicknesses.

Another important object is to provide a shelving joint, which when the above-mentioned adjustment is made, will hold the selected shelves securely in place.

Another important object is to provide an improved joint construction in which the simple parts thereof can be assembled without difficulty, and can be as easily disassembled, thus to provide knock-down shelving suitable for many purposes.

With the foregoing and other objects in view which will appear as the description proceeds, the invention consists of certain novel details of construction and combinations of parts, hereinafter more fully described and pointed out in the claims, it being understood that changes may be made in the construction and arrangement of parts without departing from the spirit of the invention as claimed.

Referring to the drawings

Figure 1 is a front elevational view of a shelving joint constructed in accordance with the invention, shelving panels held thereby being shown fragmentarily and in section.

Figure 2 is a section taken on line 2—2 of Fig. 1.

Figure 3 is a top plan view.

Figure 4 is a section on line 4—4 of Fig. 2.

Figure 5 is a perspective view of a retaining plate comprising one of the parts of the structure.

Referring to the drawings in detail, 5 designates an upstanding support, which can be a post or similar standard. Although, for the sake of simplicity and due to space requirements, the support 5 has been illustrated as supporting two shelves, I believe it will be apparent from the description to be provided hereinafter that the support can as well accommodate any number of shelves.

The front of the support 5 is formed with a

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right-angled cutaway portion defining a horizontal ledge 6 and a vertical surface 7. In this cutaway portion are supported the shelves 8 and 9, in a manner to be described.

Extending from top to bottom of the vertical surface 7 is the wide, flat, shallow groove 10, that is formed in the back surface of a wedge housing 18, and fitting in groove 10 is the depending tongue 11 of a retaining plate, the upper end of the tongue being formed integral with outwardly and laterally extended clamp member 12. This plate is readily formed by a single stamping operation from sheet metal material or the like, as will be apparent.

The purpose of fitting the tongue 11 into a groove 10 formed in the vertical surface 7 is to prevent lateral deviation of the retaining plate after all the parts of the device are assembled.

Tongue 11 has formed in it near its upper end the vertically disposed key hole slot 13. Centrally the tongue has the large circular opening 14, and at its lower end, the tongue is formed with the elongated slot 15, that opens at the lower end edge of the tongue.

It may now be noted that the first step in setting up the shelves is to position a shelf 9 upon the ledge 6, the rear edge of said shelf abutting against the vertical surface 7. Then, the retaining plate is mounted in position, the lower end edge of the retaining plate abutting against the upper surface of the shelf 9, as clearly shown in Fig. 2. The retaining plate is secured in position by screws 16 and 17, threaded into support 5 through the key hole slot 13 and slot 15 respectively.

Obviously, the provision of a key hole slot 13 and open ended slot 15, permits the removal or mounting of the retaining plate from or to the support 5 without more than loosening or tightening the screws 16 and 17, as the case may be, and additionally, the provision of said slots 13 and 15 permits vertical adjustment of the retaining plate, as for instance, to the dotted line position shown in Fig. 2.

Mounted against the front surface of the retaining plate is the wedge housing generally designated as 18. This can be formed from wood or similar material, as desired, and in length is slightly shorter than the tongue 11 of the retaining plate. The front surface of the wedge housing 18 is formed with a deep channel 19, that extends the length of the wedge housing, so that the wedge housing in cross section is of U-shape as best seen from Fig. 4.

The rear surface of the wedge housing 18 is

recessed at 20 and 21 to provide clearance for the screws 16 and 17.

To complete the formation of the wedge housing, I form centrally thereof an aperture 22, that is adapted to register with the opening 14 in any adjusted position of the retaining plate.

I mount in the end-to-end channel 19 of the wedge housing the wedge generally designated 23, and this has the central countersunk opening 24 that registers with the openings 22 and 14.

Opening 24 opens into the elongated recess 25, formed in the inner or rear surface of the wedge 23, said recess having the walls 26 diverging at an oblique angle to each other from the opening 24.

The end walls 27 of the wedge 23 define shoulders abutting against, and supporting, the shelves 8 and 9 respectively.

The full use of the device may now be readily noted. The wedge 23, prior to being brought to the position illustrated in Fig. 2, is initially formed in a manner whereby its end walls or shoulders 27 will not be in a state of true parallelism. In other words, by insertion of a common lag screw 28 through the openings 24, 22, and 14, and threading of said screw tightly into the support 5, the wedge 23 is drawn inwardly or to the right in Fig. 2, whereupon the end walls 27 are distorted outwardly, so as to clamp the shelves 8 and 9 between the clamping member 12 and the ledge 6, respectively. Removal of the shelves is readily accomplished simply by loosening of the lag screw 28.

The important characteristic of the present invention is its adaptability to shelves of various thicknesses, without requirement of changing the size or structural characteristics of any of the component parts of the structure. In other words, the support 5, the retaining plate, the wedge housing, and the wedge can all be constructed in standard sizes, and yet accommodate and hold tightly in position shelves 8 and 9 of any thickness within a prescribed range.

As has been hereinbefore mentioned, the post or support 5 can be of any length, so as to support any number of shelves, and the device is readily adapted for many uses by this characteristic. For example, assume that a plurality of shelves are to be mounted against a wall in superposed spaced relation. Support 5, in this instance, would obviously be cut away at its front to provide a greatly elongated recess, extending probably the length of the entire support, and the support would of course be in itself quite long. The bottom-most shelf would be put in place, and the retaining plate adjusted thereto and secured tightly in position. Then, the shelf next above would be secured in place by means of the wedge housing and wedge, so that these two shelves are tightly secured in position. Obviously, these shelves can be of any thickness.

The shelving is then built up along the support 5, by having another retaining plate abut at its lower end against the clamp member 12 of the retaining plate next below. Said clamp member 12 of the retaining plate next below would, of course, serve as the lower support, that is, the ledge 6, for the superposed shelving. Thus, the shelving can be built up to any height desired.

With further reference to the mounting of a plurality of shelves against a wall in superposed spaced relation, it may be noted that under many circumstances, as where the shelves are to be built up from the floor, it is not necessary to provide the elongated recess such as that seen in the support 5. In effect the intersection of an ordinary wall with the floor defines a right angled recess, and the shelving can in this instance be built up directly from the floor, with the floor acting as the ledge 6. Knock down shelving is thus provided capable of mounting against any ordinary wall, the arrangement permitting rapid installation of shelves of desired thicknesses and relative arrangements.

What is claimed is:

1. Knock down shelving comprising a retaining plate formed as a depending tongue rigid at least at one end with an approximately horizontally extended clamping element, there being an opening and a plurality of elongated longitudinal slots formed in the tongue; screws extending through the slots for securing said tongue to a supporting surface; a wedge housing overlying said tongue and having a longitudinal open-ended channel, there being a space between one end of said wedge housing and said clamping element; a shelf member seated in said space; a clamping block proportioned to be expanded longitudinally beyond the ends of said channel and positioned in the channel, for clamping of the shelf member between said block and said clamping element on longitudinal expansion of the block; and a screw extending through said block, wedge housing, and opening of the tongue and into said supporting surface and proportioned for expanding the block longitudinally, said opening being of substantially greater diameter than the diameter of that portion of the last-named screw that extends through the opening, said slots and opening adapting the tongue for adjustment longitudinally of the block and housing, whereby to accommodate in said space shelf members of different thicknesses.

2. Knock down shelving comprising a retaining plate integrally formed with a depending tongue and including a flat clamping element rigid at one end with the tongue, said element extending approximately horizontally from and being at approximate right angles to the tongue, there being an opening and a plurality of elongated longitudinal slots formed in the tongue; screws extending through the slots for securing the tongue to a supporting surface; a wedge housing overlying said tongue, there being a space between one end of the wedge housing and the clamping element, the wedge housing being formed with an end-to-end channel opening at opposite ends of the wedge housing; a shelf member seated in said space; a clamping block positioned in said channel and formed to the approximate length of the channel, said clamping block being proportioned to flex at its center toward and away from the bottom wall of said channel, the flexible center portion of said block being spaced from said bottom wall of the channel and the end portions of the block being in contact with the bottom wall of the channel, for expanding the block longitudinally beyond the ends of said channel responsive to drawing of the flexible center portion thereof in the direction of the bottom wall of the channel; and a screw extending through said center portion of the block, wedge housing, and opening of the tongue and adapted to be threaded into a supporting surface for mounting of the retaining plate, shelf member, wedge housing, and clamping block upon said surface, said screw drawing the center portion of the clamping block toward the bottom wall of said recess when

threaded into said supporting surface, said opening being of substantially greater diameter than the diameter of that portion of the last-named screw that extends through the opening, said slots and opening adapting the tongue for adjustment longitudinally of the block and housing, whereby to accommodate in said space shelf members of different thicknesses.

HAZEN A. SCHOFIELD.

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