United States Patent [19]

Devillard

[11] **3,727,544**

[45] **Apr. 17, 1973**

[54] **METHOD AND MEANS FOR SECURING SHELVES AND THE LIKE SUPPORTS BETWEEN TWO WALLS**

[76] Inventor: **Pierre Devillard,** 19 rue Saint Joseph, Saint-Etienne, France

[22] Filed: **Mar. 9, 1971**

[21] Appl. No.: **122,447**

[30] **Foreign Application Priority Data**

Mar. 10, 1970 France.....7008612

[52] **U.S. Cl.**.....**108/42**

[51] **Int. Cl.**.....**A47b 23/04**

[58] **Field of Search**.....108/42.48, 152, 134, 108/47, 28; 248/234, 255, 235, 250, 152; 211/70, 153

[56] **References Cited**

UNITED STATES PATENTS

3,265,344	8/1966	Ornstein	108/152
3,381,636	5/1968	Saiberlich	108/152
3,389,666	6/1968	Bonatz	108/17
3,437,060	4/1969	Giambalvo	108/151
2,527,253	10/1950	Hedfield et al.	248/239
406,496	9/1884	Yager	248/235 X
2,940,600	6/1960	Bonia et al.	248/235 X
3,323,656	6/1967	Weiss et al.	108/152
3,471,111	10/1969	MacDonald	248/235

FOREIGN PATENTS OR APPLICATIONS

118,993	6/1947	Sweden	248/235

Primary Examiner—Bernard A. Gelak
Assistant Examiner—Glenn O. Finch
Attorney—Waters, Roditi, Schwartz & Nissen

[57] **ABSTRACT**

A method and means for securing shelves, racks and the like supports between two walls by means of cleats, each cleat including two sections rigid with each other, the upper, preferably flat section being screwed to the edge of the corresponding end of the shelf while the lower section is screwed to the cooperating wall. Said lower section has advantageously a downwardly flaring surface facing the location of the shelf and the screws securing it to the wall engage the latter in a preferably downwardly sloping direction so as to transmit to the wall the components of the load carried by the shelf.

5 Claims, 7 Drawing Figures

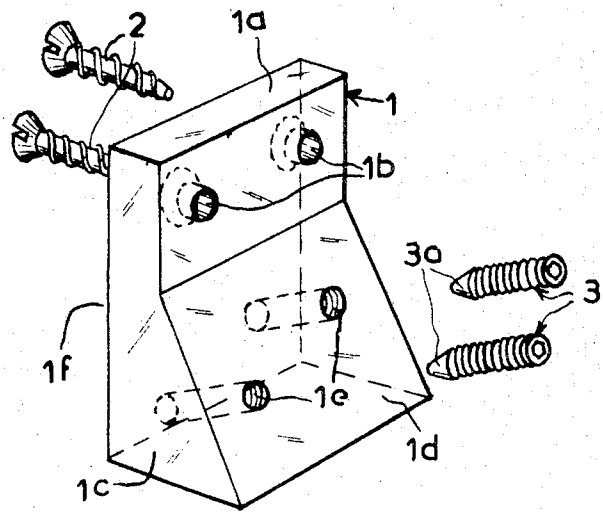


FIG.1

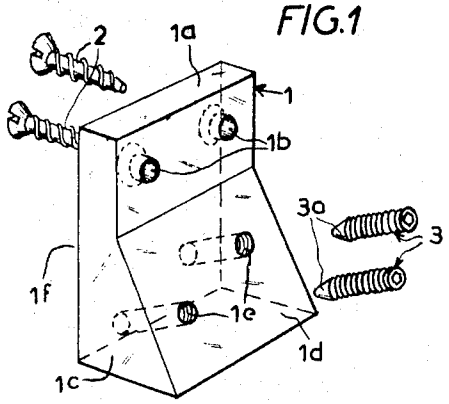
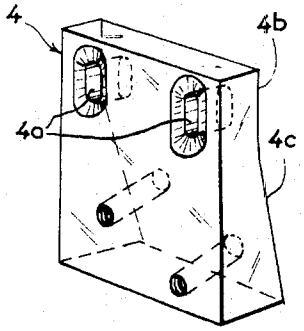


FIG.2



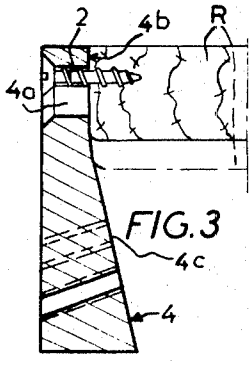


FIG.3

FIG.4

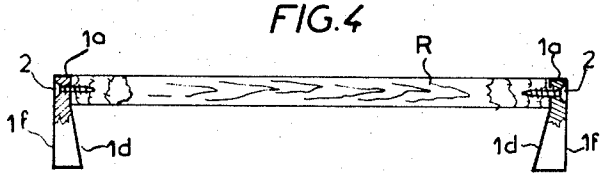


FIG.5

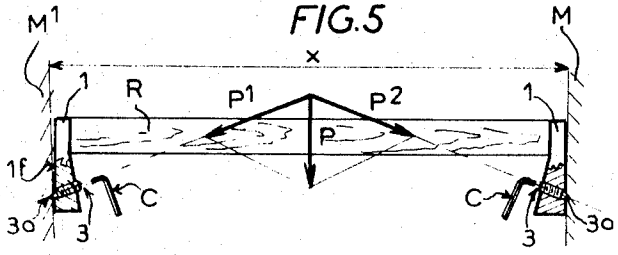
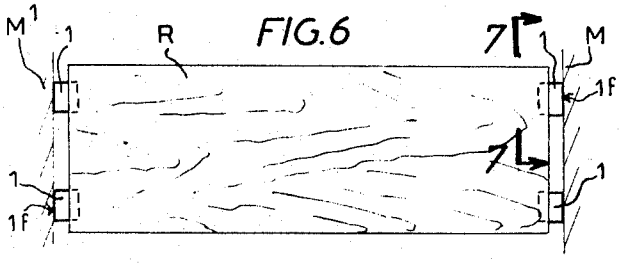


FIG.6



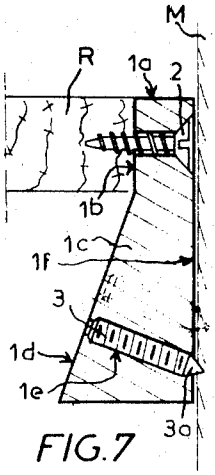


FIG.7

METHOD AND MEANS FOR SECURING SHELVES AND THE LIKE SUPPORTS BETWEEN TWO WALLS

My invention has for its object a method and means for securing shelves or the like supports between two walls. Generally speaking, it refers to the technology of supports and bearing surfaces. The securing between two walls or partitions of shelves, racks, plates, forms in fact a problem which arises frequently for domestic and commercial purposes.

Generally, when no bearing members are provided along the walls in the making, it is necessary to bore or drill in said walls holes for anchoring and holding plugs. This being done, squares or the like bearing surfaces must be fitted, over which the shelves are to rest. This implies generally the boring of holes under inconvenient conditions within hard material. Tools must be used and great care must be observed. Such operations deface the different parts.

My invention removes such drawbacks and leads to important advantages to be disclosed hereinafter. To this end, I resort to a cleat or batten, the upper section of which is adapted to be secured to an end of the shelf to be fitted in position while its lower section is provided with wedging or clamping means, at least one cleat being secured at each end of the shelf so as to bear under pressure against the corresponding wall surface.

My improved method consists in previously securing at least one cleat to each end of the shelf or the like article to be fitted in position and the shelf with its cleats is then inserted between the walls, after which the wedging or clamping means are caused to engage the walls so as to ensure the desired pressure between the cleats and the walls.

These features among others will appear from the reading of the following description of a preferred embodiment of the invention as illustrated in the accompanying drawings wherein :

FIG. 1 is a perspective view of my improved cleat, the screws being shown separate in alignment with the cooperating tappings.

FIG. 2 is a perspective view of a modification of the cleat.

FIG. 3 is a cross-section of said modification, the end of the shelf assembled with the cleat, being drawn in thinner lines.

FIG. 4 illustrates the first stage in the securing to a wall of a shelf each end of which carries at least one cleat.

FIG. 5 is a view similar to FIG. 4, showing the shelf as secured between two walls.

FIG. 6 is a view of the shelf as seen from above in the position illustrated in FIG. 5.

FIG. 7 is a cross-section on a larger scale through line 7—7 of FIG. 6.

The cleat illustrated at 1 may be made of steel, a light alloy, plastic material, wood or any other suitable mechanically resistant material.

Said cleat includes two sections :

an upper section 1*a* of a uniform thickness, provided with one or more tapped holes, 1*b* into which may be screwed wood screws 2, the milled heads 2 of which are housed within corresponding countersunk openings of the hole 1*b;* said upper section 19 is adapted to engage through its inner surface the edge of the shelf or the like carrier member R which is secured to the cleat by said screws 2,

a lower section 1*c*, the surface of which facing the shelf R slopes in the direction of the latter, the thickness of the cleat being at a maximum at its lower end.

One or more tapped holes 1*a* are formed in a direction perpendicular to said sloping surface or substantially so, said holes 1*c* opening into the outer vertical surface 1*f* of the cleat.

Six-sided hollow headless screws 3 may be screwed into the tapped holes 1*e;* their tips 3*a* are of a conical frustoconical or the like shape, so as to bite into or clamp the wall which is to carry the shelf, as required by the nature of the material forming the shelf.

It should be remarked that the surface 1*f* bearing against the wall may show various unevenesses or be coated with an anti-skid material or again it may carry a covering plate of a different material showing an uneven surface.

Turning to FIGS. 4, 5 and 6, the method for securing the shelf provided with its cleats is as follows :

assuming a shelf R is to be secured between two partitions or walls M–M^1 , the spacing between which is *x* (FIG. 5), there is screwed to each end of the shelf along its edge one or more cleats, according to the size of the shelf, this being provided by screwing the upper section of each cleat to the shelf through the screws 2, the sloping surfaces of the lower section of the cleats on the opposite ends of the shelf facing each other (FIG. 4)

This being done, the shelf provided with its cleats is inserted between the two walls at the desired location, the shelf being of course held horizontally with the assistance, if required, of a water-gauge. The screws 3 are then screwed home gradually and in alternation, by means of a bent spanner C, so as to bite into or to be clamped by the walls or partitions M–M^1 as soon as they are actually screwed home (FIG. 5).

It should be understood that the oblique engagement or anchoring of the screws 3 in the walls opposes under excellent conditions the tendency to sliding of the shelf when thus secured.

The arrows drawn in FIG. 5 illustrate the splitting or decomposition of the load or weight P carried by the shelf into two components P^1 and P^2 acting axially on the corresponding screws 3 at the opposite ends of the shelf arrangement.

In the modification illustrated in FIGS. 2 and 3, the cleat 4 is provided, for engagement by the upper screws engaging the shelf, with tapped holes 4*a* which extend in an oval shape in a vertical direction, so as to allow a relative vertical shifting by a predetermined amount of the shelf R with reference to the inner surface 4*b* of the cleat. At the end of such a downward shifting, the shelf may in fact, bear on the sloping surface of the lower section of the cleat as illustrated in dot-and-dash lines, whereby the action of the components P^1 and P^2 of the load is increased and, consequently also the pressure of the outer vertical surfaces of the cleats against the walls.

Obviously, the shape, number, size and material of the cleats are selected in accordance with the application to be considered. Similarly, the securing and clamping means may be modified, provided the conditions governing the distribution of the forces are retained.

Among the advantages of the invention should be mentioned :

speed and simplicity in the assembling and fitting of the shelf-and-cleat system whereby any unskilled person may easily set the shelf in position,

cutting out of the fastidious preparation of the walls by means of squares and the like which require a somewhat large implementing,

cleanliness and aesthetic appearance of the arrangement which may be given the desired colour suiting the environment,

substantial limitation in the expense of material and labour, since the improved cleat replaces all plugging means, brackets and squares with their securing means and implementing, while the time required for operation is considerably shortened,

possibility of application in all houses and premises, even in the case of prefabricated walls of a limited resistance or of the walls the outline of which is modified by the incorporation of pipes therein.

My invention is not applicable solely to the fitting of racks, shelves and the like, but also to that of dummy ceilings and its execution and its applications may be modified as required within the scope of the accompanying claims.

What I claim is:

1. A device for securing a shelf to a wall, comprising:

a cleat composed of upper and lower portions;

said upper portion of said cleat having substantially flat parallel front and rear surfaces;

said lower portion of said cleat being integrally formed with said upper portion thereof and having a substantially flat rear surface lying in the same plane as said rear surface of said upper portion and a substantially flat front surface, the upper edge of which is constituted by the lower edge of the front surface of said upper portion and the lower edge of which is spaced further from the plane of said rear surfaces than is said upper edge, whereby said front surface of said lower portion slopes downward and away from the front surface of said upper portion;

means for securing said cleat to the edge of a shelf through said upper portion; and

means for clamping said cleat against a wall through said lower portion.

2. A cleat as claimed in claim 1, wherein the surface of the cleat facing the location of the wall is rugged at least in its lower portion.

3. A device as set forth in claim 1, wherein said means for clamping said cleat against a wall through said lower portion comprises:

at least one tapped hole in said lower portion extending therethrough and opening from said front and rear surfaces thereof and being on a line substantially perpendicular to the sloping front surface of said lower portion; and

a screw for each of said at least one tapped hole in said lower portion for engaging said tapped hole and having a tip portion for biting into said wall, whereby said cleat may be held in clamping relationship with said wall.

4. a device as set forth in claim 1, wherein said means for securing said cleat to the edge of a shelf through said upper portion comprises:

at least one tapped hole through said upper portion on a line substantially perpendicular to the front and rear surfaces thereof and showing a counter-sunk end in said rear surface thereof; and

a screw for each of said at least one tapped hole in said upper portion for engaging said tapped hole and an edge of said shelf, wherein the head of said screw is housed in said counter-sunk end.

5. A cleat as set forth in claim 4, wherein said at least one tapped hole in said upper portion and said counter-sunk end thereof assume a vertically elongated shape for permitting slight vertical shifting of the shelf with reference to the cleat.

* * * * *