

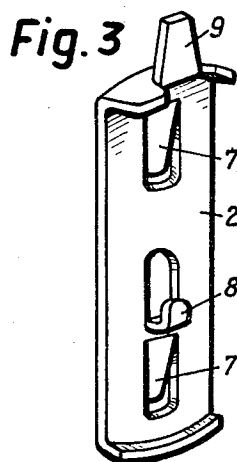
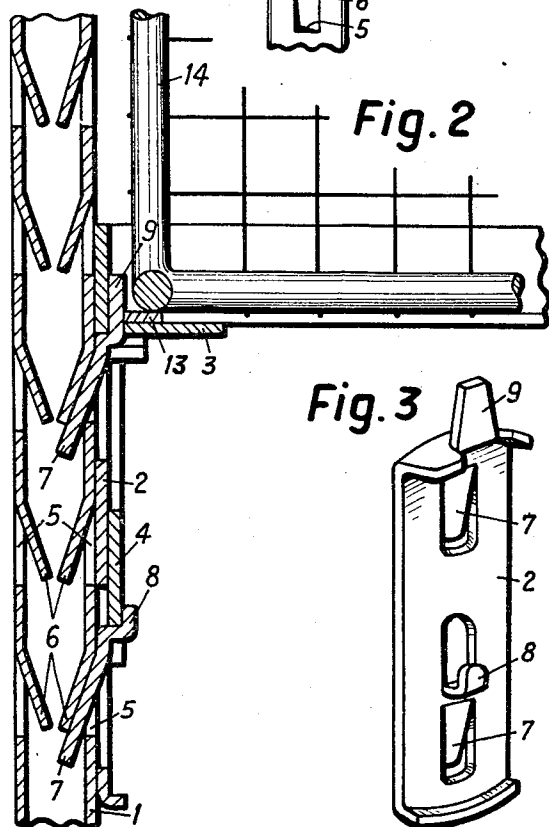
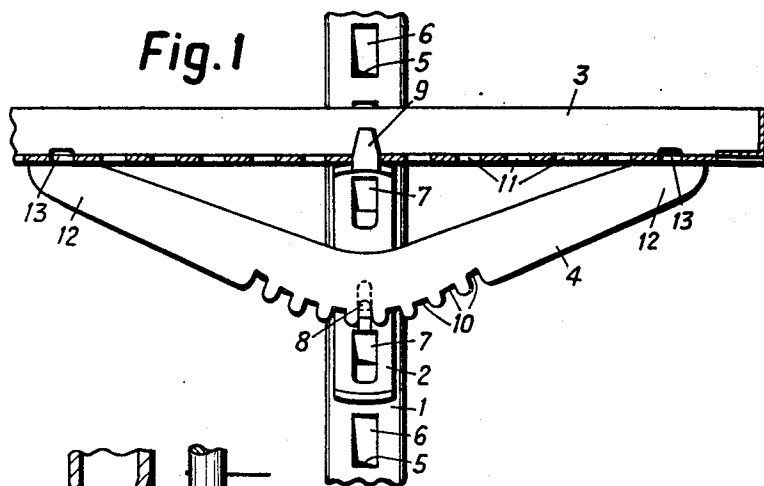
Dec. 6, 1960

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SHELF RACK

2,963,170

Filed April 25, 1960

3 Sheets-Sheet 1



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Fig. 4

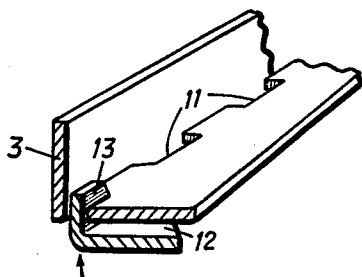


Fig. 5

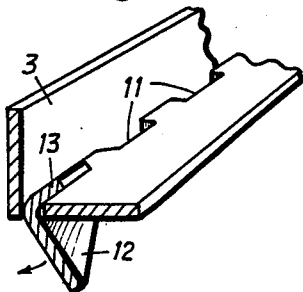


Fig. 6

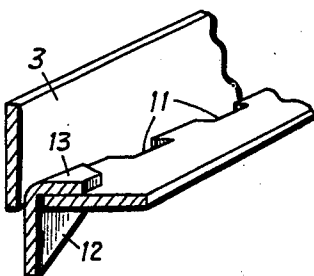


Fig. 7

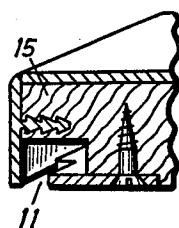
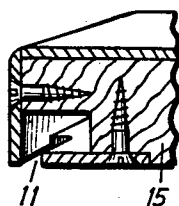


Fig. 8



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Fig. 9

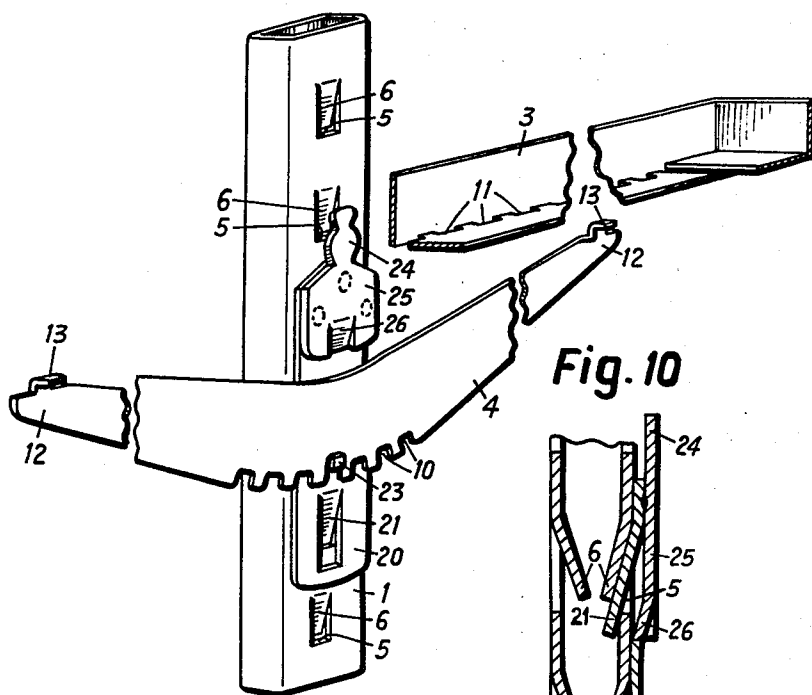
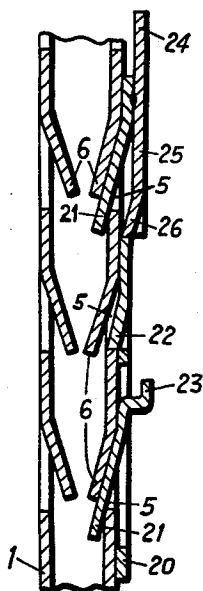


Fig. 10



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Filed Apr. 25, 1960, Ser. No. 24,546

Claims priority, application Switzerland Apr. 28, 1959

7 Claims. (Cl. 211-147)

This invention relates to a shelf rack with supporting side frames and shelves which can be adjusted relative to said frames. Such racks are used for example in shops in order to display goods of all kinds which are intended for sale.

One object of the invention is to provide a shelf rack on which the shelves can be easily adjusted for height, inclination and in a forward and backward direction relative to the lateral supports.

Another object of the invention is to provide a shelf rack in which the adjustments of the shelves can be effected by a single person and without making use of any tools such as screw-drivers or spanners.

Another object of the invention is to provide a shelf rack with adjustable supporting means for the shelves which provide a rigid attachment of parts without making use of screws and the like.

Still another object of the invention is to provide a shelf rack the parts of which are simple and durable in construction and inexpensive to manufacture.

With these and other objects in view, my invention consists in the novel features of construction and arrangement of parts as will be hereinafter referred to and more particularly described in the specification and claims. By way of example only, a number of embodiments of the invention will now be explained in greater detail with reference to the accompanying drawing in which:

Fig. 1 is a side elevation, and

Fig. 2 is a vertical section of a first embodiment,

Fig. 3 shows a bracket used with the embodiment illustrated in Figs. 1 and 2,

Figs. 4 to 6 show three successive stages in the assembly of the stay and the side edge of the shelf,

Figs. 7 and 8 show two further embodiments of the side edge of the shelf,

Fig. 9 is a perspective view of another embodiment, and

Fig. 10 shows in section the connection of the attachable bracket with the side frame of the embodiment constructed in accordance with Fig. 9.

Figs. 1 and 2 show the connection to a vertical support 1 of a shelf 3 which consists of an angle iron. The load carrying connection is effected by means of a sheet metal bracket 2 which can be attached at any selected height to the support 1. In the angle of the shelf 3 are slots 11 which are uniformly spaced and with one of which an upper projection 9 of the bracket 2 engages. A sheet metal stay 4 has angled hooks 13 at its ends 12, the hooks engaging with two other slots 11. The stay 4 also has a number of notches 10 which are located substantially along a circular arc and one of which rests upon a lower projection 8 of the bracket 2. In the assembled condition, as illustrated, the centre of curvature of the circular arc formed by the notches 10 coincides with the upper projection 9 of the bracket 2.

As can be seen in Fig. 2, the vertical support 1 is of sheet metal and has front and back walls provided with equispaced apertures 5 positioned one above the other.

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The apertures are formed by punching-out tabs 6 from the walls, the tabs being bent away from the wall in a direction pointing inward and downward. The bracket 2 (Fig. 3) is also provided with two similar tabs 7 spaced apart by distance equal to the distance between the tabs 6, so that the bracket 2 can be attached at any selected height to the support 1. When the bracket is so attached, the tabs 7—which are directed obliquely downward—engage with corresponding apertures 5, thus forming a connection on which loads applied from the above can be carried. Since the apertures 5 are provided on opposite sides of the support 1 as illustrated, the latter can be used as intermediate support between two shelves. It is to be understood that instead of being of rectangular cross section the support can be of other cross sectional shapes.

It will be seen from Figs. 1 and 2 that the projections 8 and 9, which are positioned one above the other, the slots 11 and the notches 10 are so designed that the notches can be disengaged by lifting up the shelf together with the stay 4. In this embodiment the upper projection 8 is longer than the lower projection 8, so that in an intermediate position the projection 8 is disengaged whilst the upper projection 9 is still in engagement with the slot 11. In this intermediate position it is then possible to alter the angular position of the shelf in which new position the shelf can be secured by lowering the shelf and the stay 4 to engage a notch and the projection 8 because all notches 10 are equi-distance from the projection 9. Thus, the inclination of the shelf is determined by that one of the notches 10 which engages the projection 8.

When the support 1 carries two shelves a similar operation will take place also on the opposite side of the support to align both shelves.

When the shelf and stay is lifted off the support, it is easy to detach the hooks 13 of the stay 4 from the slots 11, and to do this, the stay is rotated in the direction toward the plane of the shelf. After assembly, if the hooks 13 are replaced in other slots 11, the shelf 3 can be moved in a forward or backward direction with respect to the support 1. Figs. 4, 5 and 6 show three successive stages in the replacement of one of the two hooks 13 in a slot 11.

In the embodiment constructed in accordance with Figs. 1 and 2, the shelf 3 is a frame consisting of angle sections. This frame can be used to support a wire basket 14 or any other suitable container for goods. It is to be understood that the shelf can also take the form of a solid board 15 as shown in Figs. 7 and 8. These figures show the construction of the side edges to provide the slots or recesses 11.

It will be appreciated that provided the length of the shelf is not too great, it may be mounted upon a single vertical support. Further, the same vertical support may have mounted upon it two shelves or sets of shelves, one shelf or set of shelves being mounted upon one face of the support and the other shelf or set of shelves on the opposite face of the support. Where, however, long shelves are used, it will normally be necessary to employ two spaced vertical supports each located adjacent one end of the shelf. In such an arrangement, shelves may still be inclined to the horizontal if required by suitably positioning the stay supporting the shelf.

Another embodiment of the invention is shown in perspective in Fig. 9, some parts of the shelf 3 having been omitted for clarity. Those components which are the same as those shown in Figs. 1 and 2 have the same reference numbers. What is different is mainly the attachable bracket 20. In addition to the two tabs 21, the bracket has another tab 22 which projects inwardly and downwardly but is shorter in length than tabs 21 of the bracket and, after assembly, tab 22 rests upon the edge of an

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aperture 5 in the support 1. The tab 22 acts as a stop preventing the tabs 21 from jamming in the apertures 5 in which they are located and fixes the level of the bracket 20 accurately with respect to the support 1. In contrast to the lower projection 23 which is of the same shape as the projection 8, the upper projection 24 is of different shape, in that it is not bent but extends upwardly from a plate 25 spot welded to the bracket 20. During the spot welding process the position of the plate 25 is aligned by means of a tab 26 on the plate 25 which is inclined slightly and which extends into an aperture formed when tab 21 is punched.

It will be appreciated that instead of the stay 4 being formed with notches co-operating with a projection on the bracket, the stay may have a series of projections a selected one of which engages a suitably placed and dimensioned slot in the bracket.

It will be seen from the description of the embodiments that the stand constructed in accordance with the invention offers numerous possibilities of adjusting the position of the shelves, all adjustment being performed very simply and without the use of any tools. In addition, the embodiments described above offer great advantages from a manufacturing point of view, since all components can be formed by punching and bending sheet metal and since all components can be assembled without expensive machining processes.

What we claim is:

1. A shelf rack comprising at least one support and at least one shelf adjustable for height, inclination and in a forward and backward direction relative to said support, each shelf having a number of spaced apertures or recesses, at least one bracket detachably secured to the support, and supporting means for the shelves comprising a projection on the bracket engaged in one of said apertures or recesses, a stay with ends in engagement with selected ones of said apertures or recesses and a series of members one of which is in engagement with a co-operating device on the bracket to retain the stay in a predetermined position relative to the bracket.

2. A shelf rack as claimed in claim 1, said stay having a series of notches situated on an arc whose center of curvature coincides with said projection on the bracket, and a second projection on the bracket engaging a selected one of said notches.

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3. A shelf rack as claimed in claim 2, the first of said projections on the bracket being longer than the second projection, the difference in length being such that the first mentioned projection remains in engagement with the corresponding aperture or recess in the shelf after the second projection has disengaged said notch.

4. A shelf rack comprising at least two supports and at least one shelf in between of said supports, each shelf being adjustable for height, inclination and in a forward and backward direction relative to the supports, each shelf having a number of spaced apertures or recesses along its sides adjacent to the supports, each support including two opposite faces each of which is formed with a series of spaced apertures, a bracket for each of said sides of the shelves provided with spaced projections adapted to fit into selected ones of said apertures, on a support, and supporting means for each of said sides of the shelves comprising a projection on the bracket engaged in one of said apertures or recesses, a stay with ends in engagement with selected ones of said apertures or recesses and a series of members one of which is in engagement with a co-operating device on the bracket to retain the stay in a predetermined position relative to the bracket.

5. A shelf rack as claimed in claim 4, each bracket being of sheet metal, and the said spaced projections on the brackets being punched tabs extending rearwardly and downwardly from the bracket.

6. A shelf rack as claimed in claim 5, each bracket having a further punched tab shorter in length than the other tabs and determined to rest upon the edge of a co-operating aperture in a support.

7. A shelf rack as claimed in claim 4, each stay having hook-like ends engaging selected ones of said apertures or recesses on the shelves and formed such that they are released from engagement by tilting movement of the stay about its ends toward the shelf.

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