

April 26, 1927.

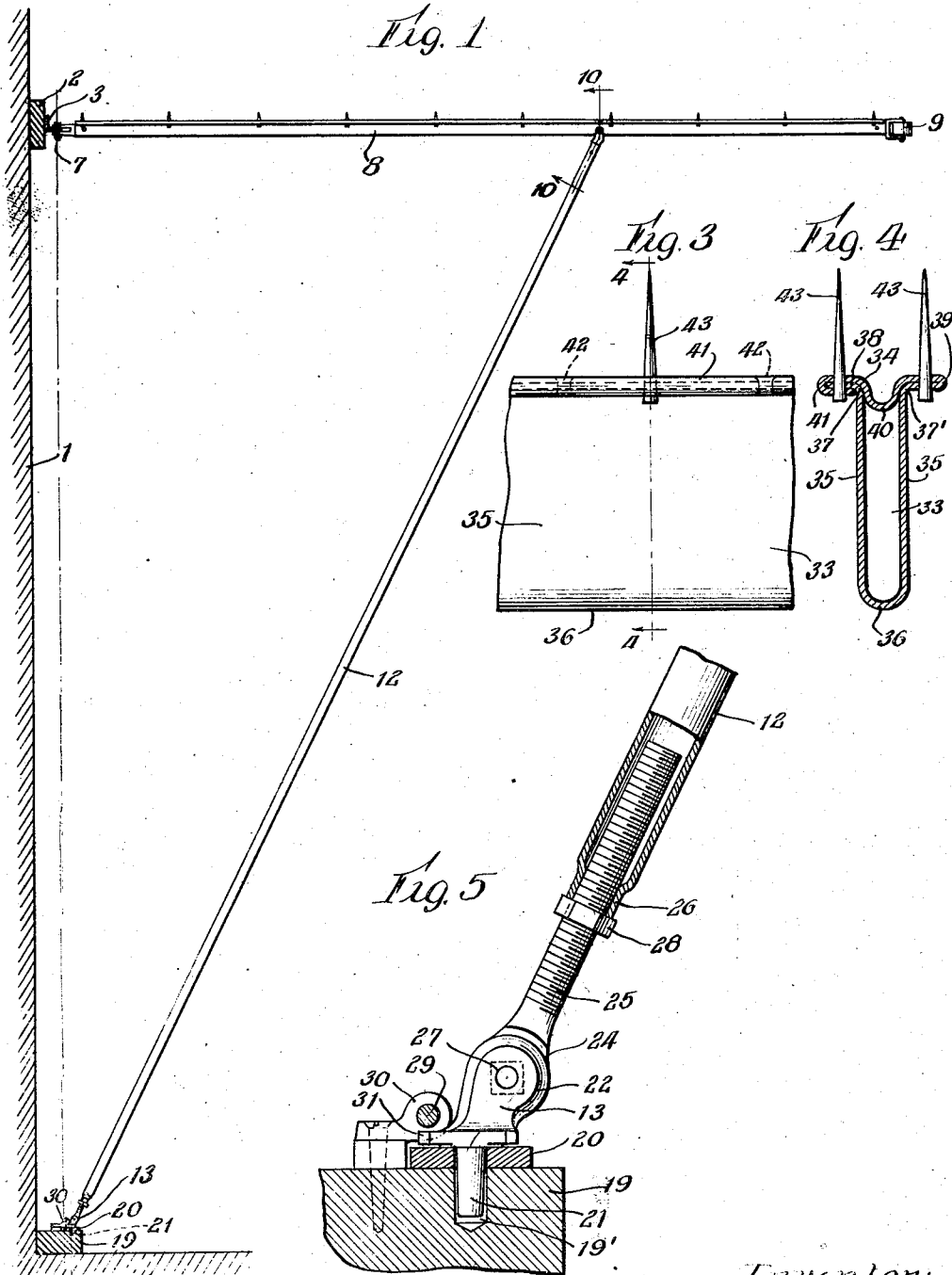
H. S. BEST

1,626,501

DISPLAY RACK

Filed Oct. 18, 1924

4 Sheets-Sheet 1



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April 26, 1927.

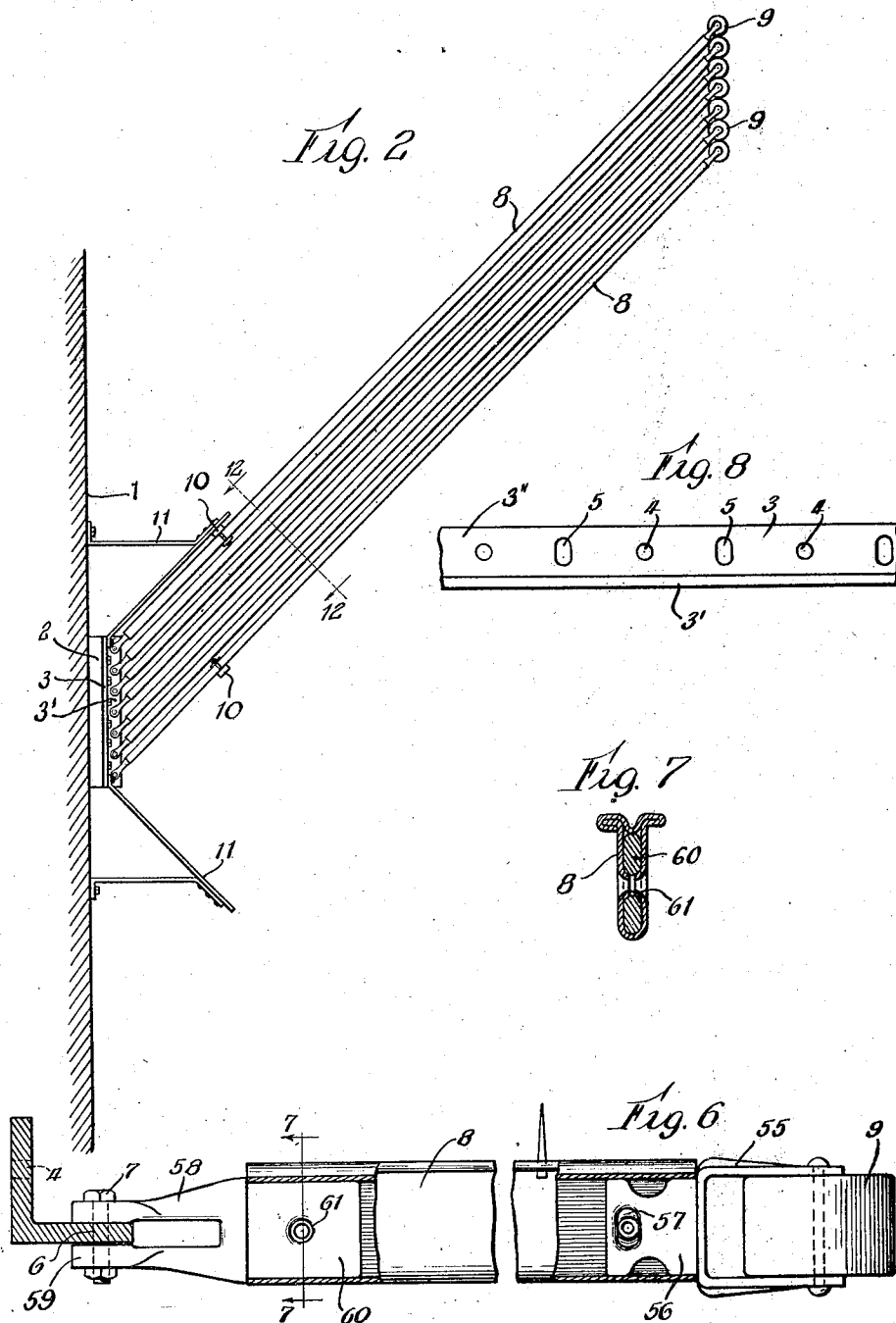
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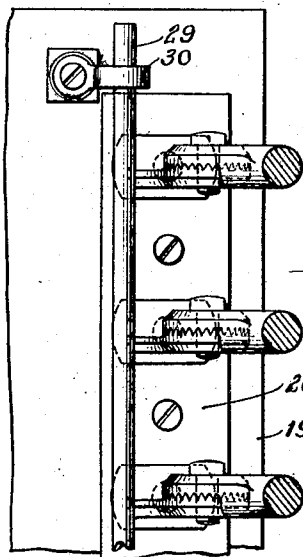


Fig. 9

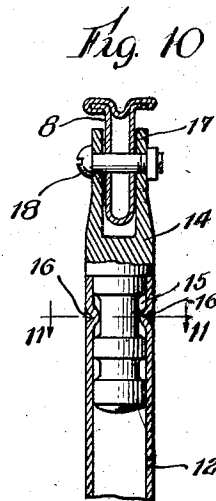


Fig. 10

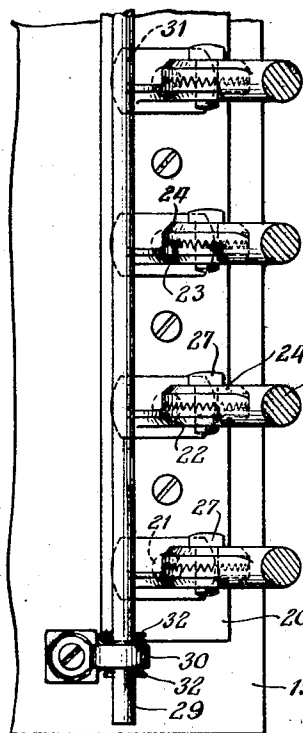
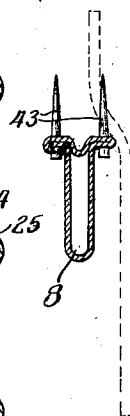
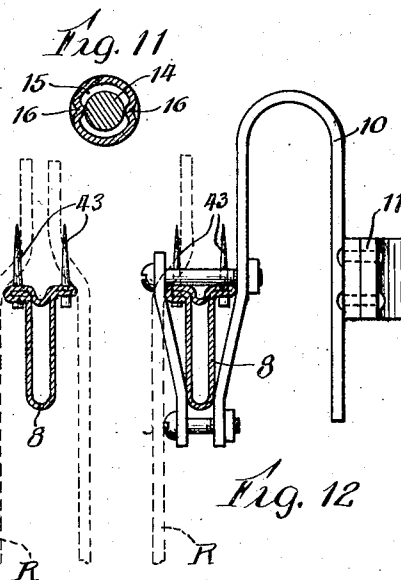


Fig. 12

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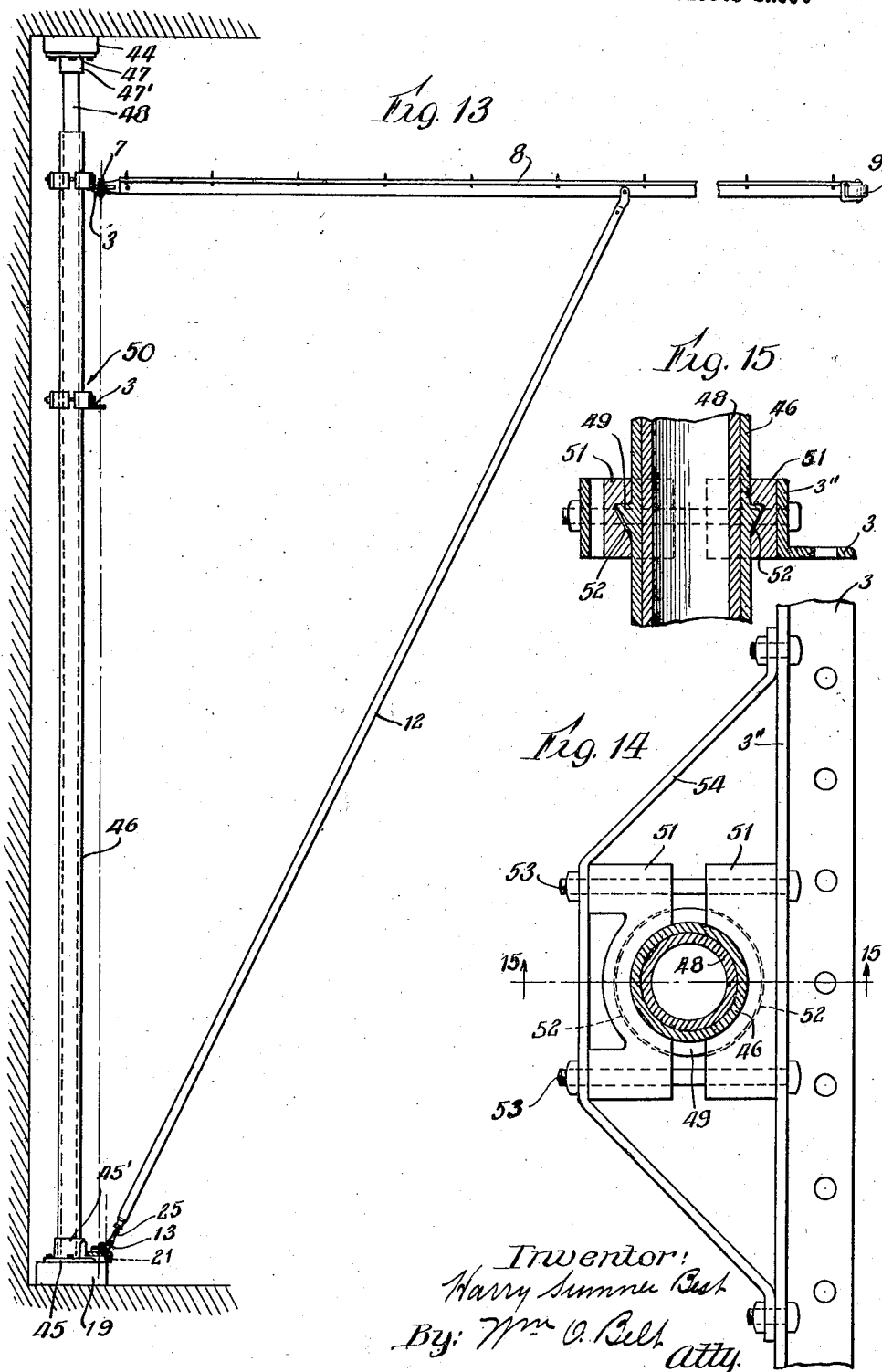
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1,626,501

DISPLAY RACK

Filed Oct. 18, 1924

4 Sheets-Sheet 4



UNITED STATES PATENT OFFICE.

HARRY SUMNER BEST, OF GALVA, ILLINOIS, ASSIGNOR TO JOHN H. BEST & SONS, A FIRM COMPOSED OF CHARLOTTE SUMNER BEST, DON JEWELL BEST, LEON HENSON BEST, AND HARRY SUMNER BEST, OF GALVA, ILLINOIS.

DISPLAY RACK.

Application filed October 18, 1924. Serial No. 744,313.

This invention relates to a novel and improved display rack particularly adapted for the display of rugs and the like.

In the display of rugs it is customary to suspend them on pivoted racks which may be swung in somewhat the same manner as the leaves of a book are turned, whereby they may be subjected to the scrutiny of prospective customers. The rugs are quite heavy and their weight tends to cause a sagging of any display rack on which they are supported, and when it is considered that a rack seldom contains less than fifteen rugs and may support as many as four hundred, it is seen that a very substantial construction of rack must be provided to prevent sagging. Moreover, when a number of rugs are displayed it is most highly desirable that their edges should be in perfect alignment to give a tidy appearance. It may be readily appreciated that if one rug be level and another is not, that in a series of rugs the result will be very displeasing to the eye of the customer.

The present invention has for its objects among others to provide a display rack having a novel construction of inclined brace for the rug-supporting arms and possessing all of the desirable features above outlined, whereby different lengths of arms may be equally well supported without sagging of the rugs, the supporting means being readily adjusted to compensate for any inequalities in the floor or other part of the building, and in which the rug supporting arms shall have no tendency to buckle at the point where the adjustment is made, and the pivot for the brace prevented from jumping out of its socket.

Other objects and advantages of the invention will hereinafter appear, and the novel features thereof will be specifically defined by the appended claims.

In the drawings in which I have shown selected embodiments of my invention,

Fig. 1 is an elevation of one embodiment.

Fig. 2 is a plan view thereof.

Fig. 3 is a detail elevation of a portion of my improved arm or moulding.

Fig. 4 is a section taken on the line 4—4 of Fig. 3.

Fig. 5 is an enlarged detail showing the means for adjusting the brace and for locking the pivot at the lower end thereof.

Fig. 6 is an enlarged detail of my improved arm.

Fig. 7 is a section on the line 7—7 of Fig. 6.

Fig. 8 is an elevation of the hinge bar.

Fig. 9 is a plan view of the locking means for the pivots at the lower end of the braces.

Fig. 10 is a detail view showing attachment of the top end of a brace to its corresponding arm and taken on the line 10—10 of Fig. 1.

Fig. 11 is a section on the line 11—11 of Fig. 10.

Fig. 12 is a partial section taken on the line 12—12 of Fig. 2.

Fig. 13 is a view corresponding to Fig. 1 showing a modified form of my invention.

Fig. 14 is a detail plan showing the means for attaching the hinge bar to a column, and Fig. 15 is a section taken on the line 15—15 of Fig. 14.

Referring now particularly to Figs. 1 to 12, inclusive, the numeral 1 designates any suitable wall or other support which may be available and I secure thereto by any suitable means a wall plate 2 on which I mount a hinge bar 3 formed of an angle bar. As best shown in Fig. 8, it will be seen that this angle bar is provided in its vertical leg 3' with a plurality of holes to receive fastening means; some of these means preferably pass only into the wall plate 2 while others pass into the wall 1. I prefer to make these holes alternately round, as at 4, and elongated as at 5. By this means holes may be drilled through the wall plate and into or through the wall, registering with the elongated holes 5 and the hinge bar 3 may then be secured to the wall plate by suitable fastening means passing through the elongated holes. It often happens that these fastening means are not accurately placed due to inaccuracies in drilling the holes to receive them and by providing the elongated holes 5 the hinge bar may be adjusted vertically on the fastening means to exactly the desired position wherein it will be secured by these fastening means and by other means passing through the round holes 4 into the wall plate 2. The horizontally extending leg 3' of the hinge bar 3 is provided with a plurality of holes 6 spaced apart a proper distance to receive pivots 7 carrying the rug supporting arms 8. In Fig. 2 I have shown only seven

of these arms but, as stated above, it is seldom that less than fifteen are used and the number is limited only by the length of the room and by other considerations, dependent upon the store and not upon the construction of the rack. Each arm is provided at its outer end with a roller 9 which serves to keep the arms spaced a proper distance apart at their outer ends and thus avoid wear of the rugs supported by the arms. Movement of the arms is limited by suitable protectors 10 mounted on the outer arms and adapted to contact with suitable stops 11.

Each arm is held in proper position by means of a brace 12 having a swivel at one end and an adjustable connection at its other end. Referring particularly to Figs. 10 and 11, it will be seen that the brace is of tubular form and in this embodiment is adjustably connected at its lower end to a pivot member 13 and is adapted to receive a hinge member 14 at its upper end, this member being recessed as at 15 to receive lugs 16 formed by punching or forcing part of the material of the tube inwardly. By this means the hinge member is swiveled to the brace and it is hinged to the arm 8 by the parallel jaws 17 which straddle the arm, the hinged connection being made by a bolt 18, or the like.

Referring now particularly to Figs. 5 and 9, I provide a floor plate 19 secured to the floor adjacent the wall or other support 1 and carrying a bearing plate 20. The pivot member 13 is provided with a pivot 21 passing through a suitable aperture in the plate 20 into a recess 19' in the floor plate 19 and is further provided with an upstanding ear 22 having on one face thereof a plurality of serrations 23 engaging with corresponding serrations on the ear 24 formed upon a threaded bolt 25 received within the threaded end 26 of the brace 12. The ears 22 and 24 are held in adjusted position by means of a bolt 27, it being evident that adjustment is permitted by the loosening of said bolt and by the turning of one ear relative to the other. This adjustment is used to vary the angular position of the brace 12 as may be necessary to fit various conditions of use. Threaded on the bolt 25 is a nut 28 and when this nut is brought against the threaded end 26, as shown in Fig. 5, the parts are locked in position. When, however, it is desired to vary the length of the brace it is only necessary to loosen the nut 28 and then the brace 12, because of its swiveled connection to the hinge member 14, may be turned on the bolt 25 to bring it to a desired length. It will be seen that the threaded engagement of the members 25 and 26 will hold the brace positively in adjusted position wherein it is locked by the nut 28, thus avoiding danger of collapsing

due to the telescoping of the brace 12 and bolt 25. Telescoping connections have hitherto been used in the art and secured in adjusted position by means of a set screw which tends to work loose and permit collapse of the brace. Even if the nut 28 in my invention becomes loose, longitudinal movement between the bolt and the brace is prevented by the engagement of the threads.

It will be noted from an inspection of Fig. 1 that the pivot 21 which is placed in a recess 19' is situated further from the support 1 than is the hinge bolt 7; in other words, the recesses 19' are placed in a line further from the support than is the line on which the holes 6 are placed. However, the hole 6 and recess 19' for each arm are both in a plane extending at right angles to the support. By this means, when the arms are swung from one side of said perpendicular plane to the other, they will remain on said side as the position perpendicular to the support represents the high point in the movement of the arm. This feature is very important because if the hole 6 and recess 19' were in the same vertical axis the rug supported on the corresponding arm 8 would move with any appreciable draft through the room and the result would be that the rugs would swing out in a fan shape, which presents a very poor appearance and adds to the difficulty of a salesman displaying the rugs. The horizontal distance between the holes 6 and recesses 19' need not be very great, in most cases some three quarters of an inch being sufficient to achieve the desired purpose and yet the arms will swing freely enough so that a great many of them with their rugs may be swung together by one salesman. I have found that it is not uncommon for as many as three hundred rugs to be thus operated by one salesman when employing my invention with this feature incorporated. From an inspection of Fig. 5, it will be seen that the ear 22 of the pivot member is set forwardly of the pivot 21 and inclined at an angle to said pivot. By this means, no matter what adjustment may take place between the ears 22 and 24, the line of force passing through the center of the brace 12 and bolt 25 will meet the pivot substantially at the top thereof, thus preventing any tendency there may be for the brace to buckle at the bolt 27, or to "jack-knife", as it is sometimes called.

As has been stated above, an arm and brace, such as just described, are subjected to extremely rough usage during the placing and removal of rugs thereon and therefrom, and it is not uncommon to have a pivot on the end of a brace jump out of the hole in the floor plate with attendant disagreeable consequences, which are particularly embarrassing when a clerk is dis-

playing the rugs to a customer. I therefore provide means to prevent the pivot from being displaced and this means is exemplified by a locking bar 29 supported in suitable brackets 30 on the floor plate 19. This locking bar 29 overhangs a rearwardly extending lip 31 on the pivot member 13 but without touching the same. The stops 11 are invariably placed to limit the angular movement of the arms 8 to approximately 90°, the limiting positions being at substantially 45° to the wall or other support, whereas in order to remove one of the pivots it is necessary to turn it until the brace and arm are substantially parallel to the wall. It is therefore obvious that the locking bar will effectively prevent removal of any one of the pivots. The bar is held in place by any suitable means, such as cotter pins 32.

I will now describe the novel and improved moulding from which I cut the arms 8. Referring particularly to Figs. 3 and 4, it will be seen that this moulding is made of a single sheet of material, such as sheet metal, and comprises a vertical stem 33 and a head 34, together forming a T-beam. The stem 33 is in the form of a U having substantially parallel vertical sides 35 formed by bending of the material as at 36. It will be noted that one of these sides 35 is substantially shorter than the other, and in Fig. 4 this side is shown as bent at 37 at substantially right angles to the remainder of the side to form a portion 38 of the horizontally disposed head 34. The other side 35 shown at the right of Fig. 4 is bent at right angles at 37', bent upon itself at 39, depressed at 40 between the sides 35, then carried over the top of the portion 38 and bent upon itself at 41 to fold under said portion 38. The flange formed by the portion 38 of the side 35 and the material folded thereover is spot welded as at 42, at suitable intervals to insure that the structure will not twist. The result is a T-beam which is light in weight but extremely rigid. The sides 35 are held a proper distance apart by the bottom of the U at 36, and also by the depressed portion 40, and proper strength to resist bending moment is provided by the depth of the beam. The flanges formed by the head of the T provide means for supporting rugs and for this purpose the flanges are apertured at suitable intervals and in these apertures are driven pointed pins 43 on which the rugs R may be hung (Fig. 12), the pins being held in place by frictional or other suitable means. Not only does the moulding thus made have the qualities above referred to, but it is very cheaply and easily made because it may be made on a draw-bench instead of in a press. Furthermore, this construction of moulding makes it possible to manufacture the same in long pieces from which any desired length of arm may be cut.

The vertical stem 33 with its two parallel sides 35 also furnishes a very convenient means for attachment of the rollers 9 and hinge member to the arm. Each roller 9 is carried by a fork 55 having a shank 56 extending within the stem 33. This shank 56 has an aperture 57 therein and to secure the fork in place the metal of the sides 35 is forced through the aperture 57, thereby holding the fork securely in place. Similarly the arm may be connected to the hinge bar 3 by means of a fork 58 having spaced ears 59 to receive the bolt 7, and this fork is also provided with a shank 60 having an aperture 61 through which the metal of the sides 35 may be forced. This construction gives all the rigidity which could be achieved by using a rivet, or the like, it has the advantages of being much cheaper, and presents a better appearance.

Referring now to Figs. 13, 14 and 15, I have shown therein a modification of my invention for use where the wall of a room does not provide sufficient support to hold the wall plate 2. In this modification I provide a floor plate 19, as before, and also a ceiling plate 44 secured to the ceiling of the room by any suitable means. Secured to the floor plate is a base plate 45 having a sleeve 45' to receive a tubular column 46, and attached to the ceiling plate is a cap 47 having a sleeve 47' in which is mounted a tubular member 48 of a size to fit within the column 46, and by this means there is provided an adjustable support for a rack which may be readily applied to rooms having a wide variation in the height of the ceilings. The hinge bar 3 is identical with that used in the modification of Figs. 1 and 2, but I provide means for mounting it upon the column 46, it being understood, of course, that there are a plurality of these columns, the exact number thereof depending upon the size of the room and the spacing thereof being governed by this and other conditions. This supporting means may comprise an upset portion 49 placed at a suitable height in the column 46, as plainly shown in Fig. 15. This upset may be formed in any desirable manner, such as by welding or brazing, or by the use of special tools for the purpose, and I may provide any number of such upsets so that the hinge bar may be placed in any desired position. In Fig. 13 I have shown a second hinge bar secured at 50 to accommodate a different size of rug.

I clamp the hinge bar on the column by means exemplified by two facing clamps 51 provided with recesses 52 corresponding to the upsets 49 and registering therewith. The clamps are operated by means of threaded bolts 53 passing therethrough and supported in the vertical leg of the hinge bar and in a frame 54 secured to said vertical leg 3''. It is, of course, conceivable that these clamps

may be provided with saw-toothed faces, or in some cases these faces may be smooth and reliance may be placed upon the weight of the rack and contents to furnish engagement with the column without use of the upsets. In this modification the relation of the hinge bolt 7 and pivot on the pivot member 13 is the same as in the embodiment first described. By forming the upset entirely on the exterior of the column 46 the interior thereof is left unimpeded by any projection which would interfere with the relative adjustment of the parts 46 and 48.

From the above it will be apparent that I have devised a novel and improved display rack which may be placed in position as accurately as possible in the initial installation, and which is capable of adjustment from time to time to preserve the arms thereof in alignment. This latter adjustment is usually made to keep the rollers 9 in position so that they will contact with each other when all arms are placed at right angles to the support. When they are so adjusted the appearance of the rack will be at its best. This adjustment is made possible by the swiveled brace having the adjustment means at the lower end thereof.

It will be further apparent that I have provided a display rack which will be extremely rigid and maintain rugs displayed thereon in proper position. Furthermore, the locking bar 29 will prevent disengagement of the pivot of the brace, thus insuring retention of each arm in position.

It will be further apparent that I have devised a novel and improved moulding which may be cut into any desired lengths of arms and which is cheaply made but which is light in weight and possesses great strength. Furthermore, this construction of arm permits ready attachment of other members to the ends thereof.

I am aware that changes in the form, construction and arrangement of parts may be made without departing from the spirit and without sacrificing the advantages of the invention and I reserve the right to make all such changes as fairly fall within the scope of the following claims:

I claim:

1. In a display rack, the combination of an arm, an extensible brace swiveled at its upper end to the arm, a support, and a swivel and pivot connection between the brace and the support, said pivot lying in a plane in front of the center of said swivel, said brace having its lower end secured adjacent the bottom of said support.

2. A display rack comprising an arm, a brace for said arm comprising a tubular member, a swiveled hinge connection for the lower end of said brace, a hinge member swiveled in one end of said brace and hinged to said arm, a bolt threaded in the other end

of said brace, said swiveled hinged connection being mounted on one end of said bolt and means to secure said bolt in position, rotation of said brace causing adjustment of the length thereof.

3. A display rack comprising an arm, a brace for said arm comprising a tubular member, a hinge member swiveled in one end of said brace and hinged to said arm, a bolt threaded in the other end of said brace, rotation of said brace causing adjustment of the length thereof, a nut threaded on said bolt and engaging the end of said brace to secure the same in adjusted position and a swiveled hinged connection for the lower end of said bolt.

4. A display rack comprising an arm, a rotatably extensible brace hinged and swiveled at its upper end to the arm, a swivel for the lower end of the brace to permit the brace to swing laterally, and a pivot connection between the brace and the swivel to permit the brace to swing vertically.

5. A display rack comprising an arm, a rotatably extensible brace hinged and pivoted at its upper end to the arm, a swivel for the lower end of the brace to permit it to swing laterally, a pivot connection between the brace and the swivel to permit the brace to swing vertically, and means overhanging the pivot for making said pivot connection rigid.

6. A display rack comprising an extensible brace, an arm pivotally mounted on said brace, a pivot member comprising an ear secured to the lower end of said brace and hinged thereto, said hinge being in line with the center of said brace, and a pivot on said member, said pivot being joined to said member at a point substantially in line with said hinge and the center of said brace, a hinge bar support above said pivot member having holes therein, the said arm being hinged in one of said holes, the said hinge, and the pivot on the lower end of said brace being in different vertical planes.

7. A display rack comprising a plurality of hinged arms; each arm provided with a brace, a floor plate having a plurality of aligned recesses, each brace having a pivot received within one of said recesses, each pivot provided with an extension, a bracket mounted on said plate adjacent each end recess and a removable bar mounted in said brackets and overlying said extensions.

8. A display rack comprising a horizontally supported arm, a support below the arm, and a longitudinally extensible brace having a swivel and pivot connection at its upper end with the arm, and a swivel and pivot connection at its lower end with the support.

9. A display rack comprising a horizontally supported arm, a support below the arm, a brace having a swivel and pivot connec-

tion at its upper end with the arm, and a swivel and pivot connection at its lower end with the support, and means between said pivots for adjusting the length of the brace.

5 10. A display rack comprising a horizontally supported arm, a support below the arm, and a brace engaged with said support to maintain the arm in display position, said brace comprising two members having screw
10 threaded engagement, one of said members having a swivel connection with the arm and the other member having a swivel connection with the support, said brace being capable of adjustment lengthwise by rotation
15 of one of its members relative to the other member.

11. In a display rack, the combination with a support, of an article-supporting arm hinged thereto, an extensible brace, the said
20 arm being pivotally connected with one end of said brace, a pivoted member having a

pivot thereon mounted on the other end of said brace, a member having a recess receiving said pivot, the said pivotal member having an extension, and means overlying said
25 extension for preventing the pivotal member being removed from said recess when the brace is in operative position and for permitting the said member to be removed from said recess when said arm is swung
30 to an inoperative position.

12. A display rack comprising a vertical support, a horizontal bar carried by said support, a plate mounted on said support below said bar, an arm hinged to said bar,
35 an extensible brace pivoted at its upper end to said arm and at its lower end to said plate, the said hinge and each of said pivots being unequally spaced from said support.

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