United States Patent

Brorson et al.

[15] **3,677,322**

[45] **July 18, 1972**

[54] MOUNTING ARRANGEMENT FOR PIVOTAL SPACE DIVIDER

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[52] **U.S. Cl.** **160/135**, 160/351, 52/71

[51] **Int. Cl.** **E06b 9/06**

[58] **Field of Search** 160/135, 351, 206; 52/36, 71

[56] **References Cited**

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3,559,352	2/1971	Magnuson	52/36
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[57] **ABSTRACT**

An improved mounting means consisting of complementary offset brackets suitable for use with an interior space dividing arrangement. The offset brackets permit a plurality of space-dividing panels or the like to be pivotably mounted to a common post so that said elements can be rotated closely parallel to each other in pairs to facilitate storage or relocation.

3 Claims, 8 Drawing Figures

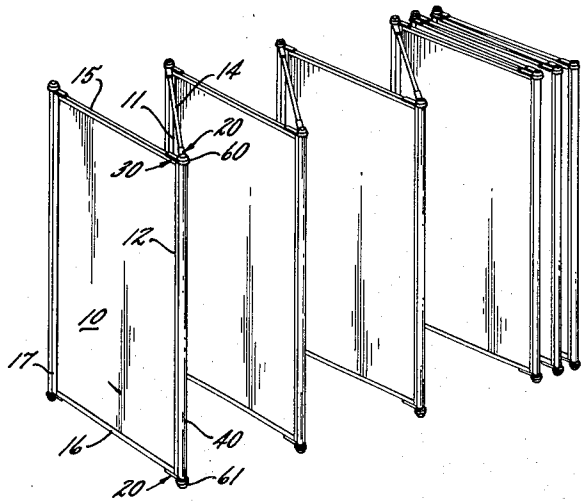


Fig. 1.

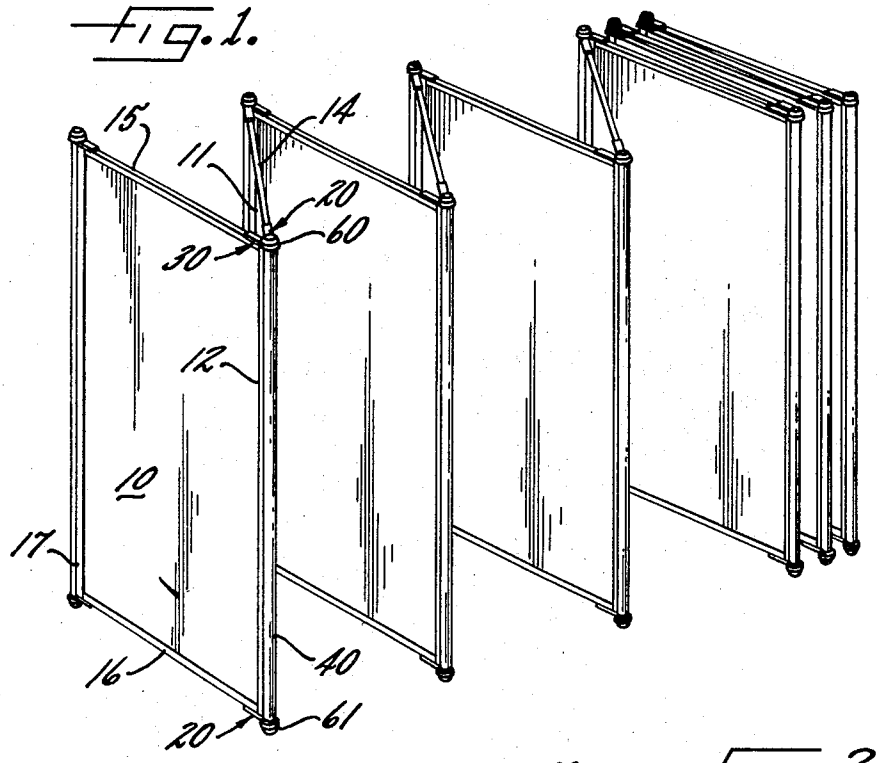
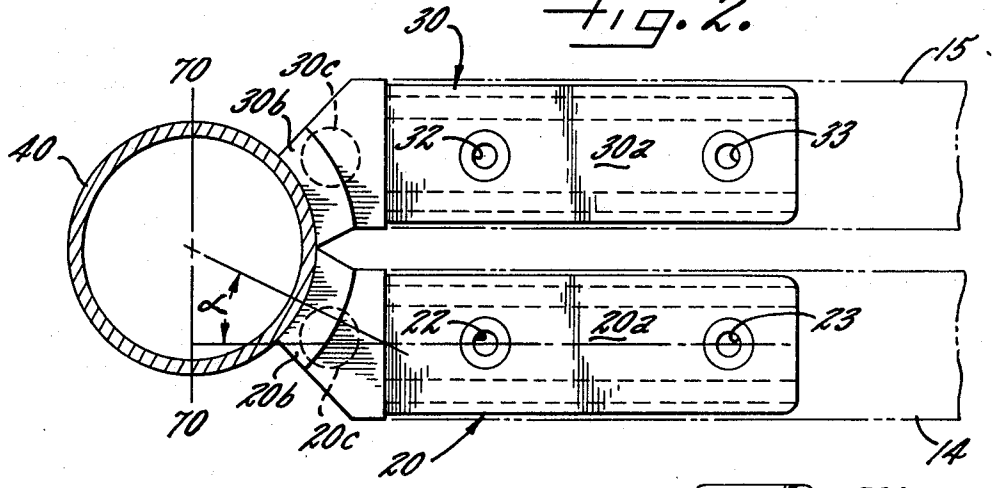


Fig. 2.



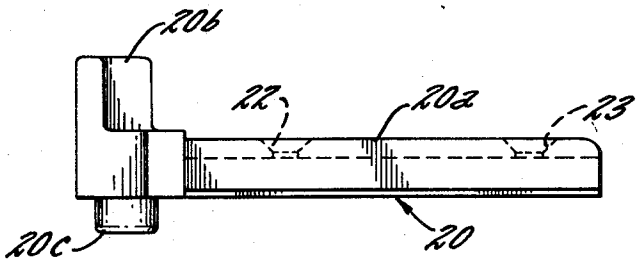


Fig. 3.

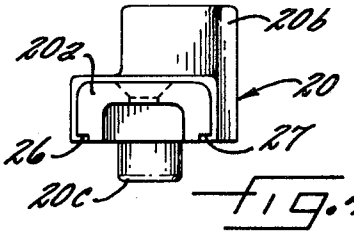


Fig. 4.

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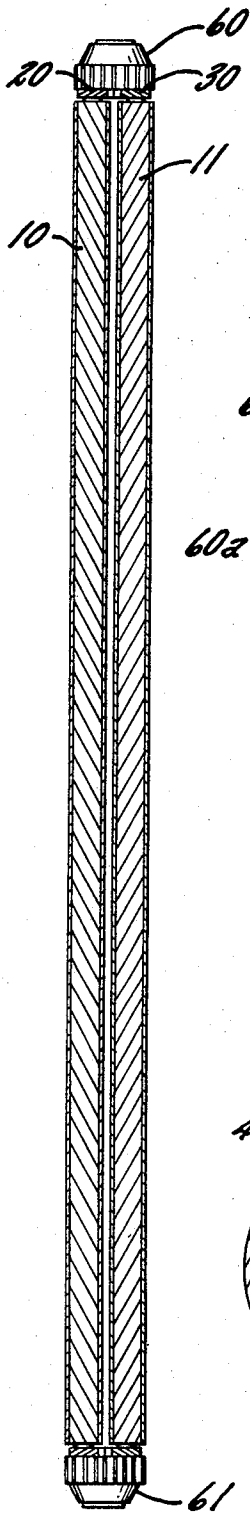
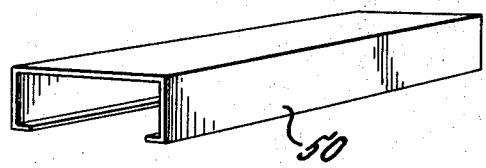


Fig. 8.

Fig. 5.



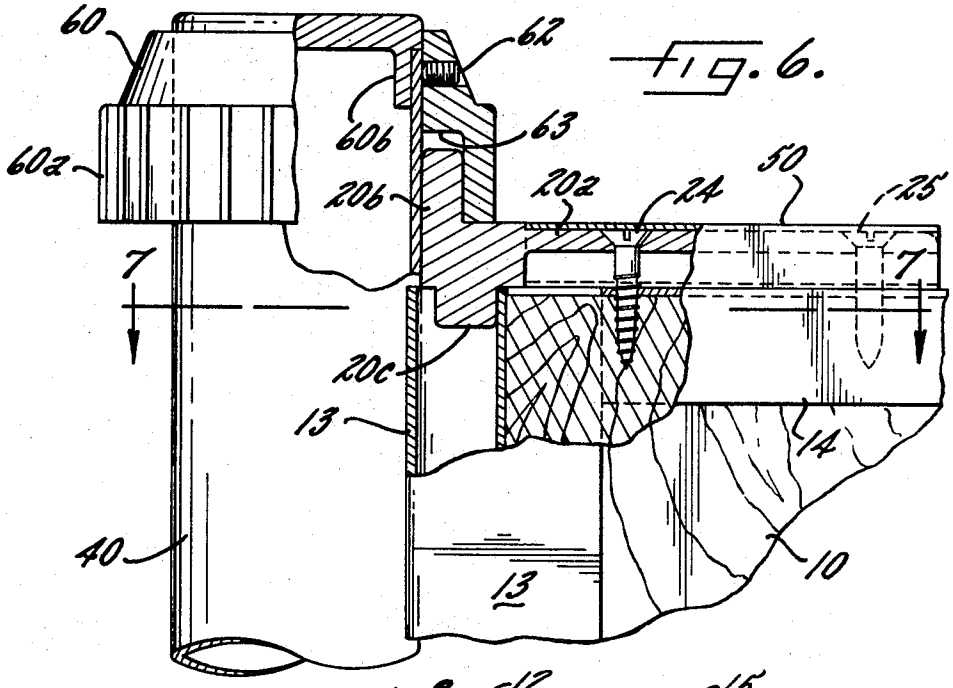


Fig. 6.

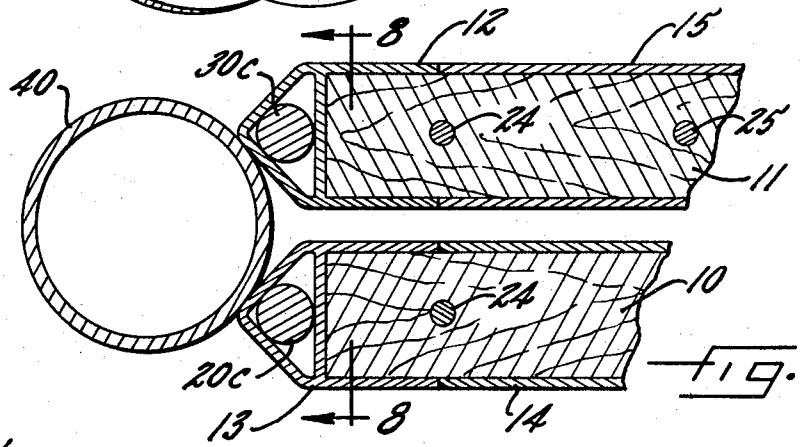


Fig. 7.

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MOUNTING ARRANGEMENT FOR PIVOTAL SPACE DIVIDER

CROSS REFERENCE TO RELATED APPLICATION

Magnuson application Ser. No. 806,503, filed Mar. 12, 1969, entitled Interior Space Divider Arrangement now U.S. Pat. No. 3,559,352.

DESCRIPTION OF THE INVENTION

The present invention relates to an improved mounting arrangement suitable for use with an interior space dividing arrangement having a plurality of panels or other space-dividing elements rotatably mounted on a common post.

It is a primary object of the present invention to provide an improved mounting arrangement suitable for use with an interior space dividing system whereby two space-dividing elements mounted on a common post can be rotated through various angular positions or can be rotated parallel to each other for convenient storage and relocation of the space dividing system.

It is another object of the present invention to provide an improved mounting arrangement for use with an interior space dividing system whereby two space-dividing elements may be rotated through an arc in excess of 180° or can be rotated closely parallel to each other, thereby allowing for greater versatility in the interior space-dividing arrangement.

A further object of the present invention is to provide an improved mounting arrangement suitable for use with an interior space-dividing system whereby an interconnected series of space-dividing elements can be "folded" accordian style into a compact series of parallel members for convenient storage and relocation, or can be extended outwardly when in service as a space divider.

Yet another object of the present invention is to provide an improved mounting arrangement suitable for use with an interior space dividing system, which permits a channel member to be positioned between the supporting post and the dividing elements without screws or additional restraints of any kind, and which channel member effectively blocks any views between the supporting post and the elements.

Still another object of the present invention is to provide such an improved mounting means whereby a plurality of supporting posts can be interconnected, each post being capable of receiving as many as four space-dividing elements, allowing for a multitude of dividing arrangements, while the entire system is capable of folding compactly for storage or relocation.

Another object of the present invention is to provide such an improved mounting means suitable for use with an interior space-dividing system which permits a decorative trim to be positioned to cover the screws that secure the mounting brackets to the space-dividing elements.

Other objects and advantages of the invention will be apparent from the following detailed description taken in connection with the accompanying drawings, in which:

FIG. 1 is a perspective view of a space dividing system embodying the present invention with a portion of the divider opened as it might be in use and a portion of the divider closed as it would be for storage;

FIG. 2 is an enlarged plan view of two complementary offset mounting brackets on a common post, showing the brackets in a closed position;

FIG. 3 is a side elevation of one of the brackets shown in FIG. 2;

FIG. 4 is an end elevation of the bracket shown in FIG. 3;

FIG. 5 is a perspective view of an extruded snap-on trim element designed to cover a portion of one of the brackets shown in FIGS. 1–4;

FIG. 6 is an enlarged fragmentary side elevation, partially in section, of the end portion of the central supporting structure shown in FIG. 2;

FIG. 7 is a section along line 7—7 in FIG. 6; and

FIG. 8 is a section along line 8—8 in FIG. 7.

While the invention is susceptible of various modifications and alternative forms, certain specific embodiments thereof have been shown by way of example in the drawings which will be described in detail herein. It should be understood, however, that it is not intended to limit the invention to the particular forms disclosed but, on the contrary, the intention is to cover all alternatives, modifications and equivalents falling within the spirit and scope of the invention.

Turning now to the drawings and referring first to FIG. 1, there is shown a typical space-dividing arrangement including a series of interconnected space-dividing elements, such as the panels **10** and **11**, secured to complementary offset brackets **20** and **30** which are rotatably mounted to the support posts **40** by end caps **60** and **61**. The space-dividing elements **10** and **11** are fitted with a decorative trim **14**, **15**, and **16** along the upper and lower surfaces and channel members **12** and **13**, shown most clearly in FIG. **7**, extend longitudinally between the panels and the support post **40**. In the particular arrangement illustrated in FIG. **1**, half of the space-dividing elements are shown extended outward for use as a space divider and the other elements are shown rotated closely parallel to each other, or "folded" accordian style, for purposes of storage or relocation.

Although FIG. **1** illustrates a divider system having only two space-dividing elements mounted on any one post, one of the important aspects of the present invention is that as many as four elements may be mounted on each post and the system will retain its unique features, i.e., versatility while being adjustable for compact storage. More particularly, an enlarged plan view of support post **40**, illustrating four elements in a closed position would be similar to FIG. **2**, with two additional offset brackets **20** and **30**, forming a mirror image about center line **70**. Thus a system having four elements per post, will "fold" as compactly as two such systems having two elements per post when folded side by side.

It should be appreciated that more than four brackets may be mounted on any one supporting post if desired. The only physical limitation on the number of brackets used is determined by the segment of arc encompassed by the bracket along the circumference of the post. In the illustrated embodiment, for example, eight brackets each encompassing a 45° arc could be fitted around the supporting post. To form a suitable arrangement it would be preferred to utilize either all left hand brackets or all right hand brackets. In this way the space-dividing elements will all be uniformly spaced at an angle of 45° with respect to each other. It should be understood, however, that when more than four space-dividing elements are positioned around a single post that the resulting divider can no longer be "folded" compactly, since the elements cannot all be rotated parallel to each other. It is preferred, therefore, to mount no more than four space-dividing elements on any one support post.

FIG. **2** is a detailed plan view showing one pair of the complementary offset brackets **20** and **30**, illustrated in use in FIG. **1**, in a close parallel position about a common post **40**. More particularly, there is a right hand offset bracket **30** and an identical mirror image or left hand offset bracket **20**. As can be seen most clearly in FIG. **3**, each of the brackets **20** and **30** is generally in the shape of an offset T (as viewed in side elevation) with the long legs **20***a* and **30***a* of the T having a pair of counter sunk holes **22**, **23** and **32**, **33**, respectively, formed therein for fastening the brackets to a pair of panels **10** and **11**. More particularly, the longer leg **20***a* of the bracket **20**, for example, is placed against the top or bottom edge of the panel and secured thereto by a pair of screws **24**, **25** (FIG. **6**) inserted through the holes **22**, **23** and threaded into the panel material. As can be seen most clearly in FIGS. **3** and **4**, the long legs **20***a* and **30***a* are also recessed and a pair of grooves **26** and **27** are formed longitudinally along the bottom surface therein for receiving a decorative trim **50**, shown in FIG. **5**, for concealing the screws **24**, **25** which fasten the bracket to the panel.

In accordance with one aspect of the invention, the short legs **20***b* and **30***b* of the brackets **20** and **30** are set off at an angle to the long legs **20***a* and **30***a* so that the horizontal axis of each space-dividing element is offset with respect to the vertical axis of the support post **40**. As will be explained in greater detail below, this feature enables the space-dividing elements **10** and **11** to be rotated closely parallel to each other.

Typically, space-dividing elements are mounted in radial fashion about the support posts, much like the spokes of a wheel. Panel elements thus mounted are ideally suited for use in a space-dividing arrangement; the full length of the panels can be utilized since they extend directly away from the support posts; the panels can be easily rotated about their axis at the center of the support post; and the angles at which it is desired to fix the panels in relation to each other can be easily calculated and measured on the basis of a 360° circle. For example, three panels may be symmetrically positioned along a support post at equivalent angles of 120°, or at angles of 60°, 150° and 150°, or at any other preferred combination of 360°.

Having a common axis, however, prevents the panel elements from being rotated parallel to each other. This effect is amplified by the fact that the panel elements have dimension. For example, if the width of each bracket projected onto the circumference of the support post consumes a 45° arc, the panels when rotated toward each other will touch when there is a minimum angle between them of 45°. While this effect is not particularly significant when the space divider is in use, it makes relocation of the dividing system clumsy and difficult and practically, the divider must be disassembled for storage.

The angle between the short offset legs **20***b* and **30***b* and the long legs **20***a* and **30***a* offsets the panel elements **10** and **11** with respect to the axis of the support post **40**, i.e., the horizontal axes of the space-dividing elements will not intersect at a common position along the axis of the support post. Rather the point of intersection between the horizontal axes of any two panels **10** and **11** will change as the panels are rotated with respect to each other and will disappear when the angle between the panels is 0°, i.e., when the elements become parallel. It is preferred to design the offset angle in such a way that the panels are parallel to each other when the mounting brackets **20** and **30** touch along the circumference of the post **40**. This allows the panels to occupy the least amount of space when closed for storage. The offset angle, therefore, must be correlated to exactly offset the minimum angle that would remain if radial brackets were used (see discussion above). In the illustrated embodiment, shown most clearly in FIG. **2**, the offset brackets **20** and **30** consume a total arc of 90° along the circumference of the post **40**. The minimum angle between radial brackets, therefore, would be 45°; accordingly, each bracket is off set at an angle of 22.5° to its radial position. The offset angle is illustrated by the angle α, shown in FIG. **2**. This offset has the effect of "bending" the long legs **20***a* and **30***a* parallel when the brackets are in a closed position.

It can be seen that as the brackets are rotated relative to each other the radial portion of the bracket will subtend an angle from 45° to 315° while the space-dividing elements will subtend an angle from 0° (parallel) to 270°. However, once the absolute value of the angle exceeds 180° it is easily recognized that the relative angle between the space-dividing elements will decrease. The effective range of angles between space-dividing elements mounted on radial brackets is, therefore, restricted to the range between 45° and 180°, or 135°, while the effective range of angles between space-dividing elements mounted on the offset brackets is unrestricted, i.e., the elements may be located at any desired position between 0° and 180°. This imparts added versatility in the number of interior space-dividing arrangements possible and permits the space-dividing elements to be rotated close together for convenient storage and easy relocation. It should be appreciated that two or more elements of a room divider may be folded close together even while in use which permits even greater flexibility of use. For example, a room divider as illustrated in FIG. **1** can be "shortened" by merely collapsing one end of the divider as shown. This feature eliminates the need to disassemble the room divider for temporary use at a shortened length.

To secure the channel members **12** and **13** to the elements **10** and **11**, the long legs **20***a* and **30***a* of the brackets **20** and **30** are positioned on the panels **10** and **11** so that the short cylindrical legs **20***c* and **30***c* register with the hollow interiors of vertical channel members **12** and **13**. More particularly, as seen most clearly in FIG. **7**, channel members **12** and **13** are generally in the shape of hollow right triangular prisms with longitudinal flanges forming a groove that overlaps and extends the full vertical length of the panels **10** and **11**. The short cylindrical legs **20***c* and **30***c* of the brackets **20** and **30** fit snugly into the inner triangular circumferences of the channel members **12** and **13**, and in coordination with the flanges of the channel members, hold the channel members securely to the panels **10** and **11** without the use of screws or additional restraints of any kind. This particular arrangement causes the common post **40** to fit closely tangential along a longitudinal line on the inner exterior surface of said channel members **12** and **13**. In keeping with one aspect of the present invention, this effectively blocks the view between the common post **40** and the vertical edges of the panels **10** and **11**. More particularly, even the point of contact between said common post and said channel members is effectively hidden from view by the outer exterior surface of said channel members and by the curvature of said common post.

To pivotally mount the brackets **20** and **30** on the central supporting post **40**, a pair of end caps **60** and **61** are fitted over either end of the post to receive the short offset legs **20***b* and **30***b* of the offset-T shaped brackets. As shown most clearly in FIG. **6**, each of the end caps **60** and **61** includes a first annular section **60***b* adapted to slide into the post **40**, and a second annular section **60***a* adapted to slide over the post **40**. The inner portion of annular section **60***a* forms an annular channel **63** which receives the upwardly extending legs of the offset brackets **20** and **30** which are complementally formed with respect to the post **40** so that the brackets **20** and **30** may swivel around the post **40** within the annular channel **63**. The end caps **60** and **61** are held stationary on the post by a single set screw **62** which does not interfere with the movement of the offset brackets **20** and **30** around the annular channel **63**.

The illustrated embodiment shown in FIGS. **1**, **6** and **8** utilizing end caps **60** and **61**, is intended only as an illustration of one means of securing the offset brackets to the support posts, for example for use in a "folding" space divider as illustrated in FIG. **1**. In this connection it should be appreciated that the offset brackets may be used in conjunction with the space-dividing arrangement described in U.S. Pat. No. 3,559,352. In such case the offset brackets may be mounted to the support posts to permit adjustment of the brackets along the vertical axis and to accommodate space-dividing elements of varying dimensions.

I claim as my invention:

1. In an interior space divider assembly having, in combination, a central post of circular cross-section adapted to be supported on the floor, a plurality of space dividing elements, a pair of mounting brackets secured to upper and lower portions of each of said space dividing elements, and mounting means fitted on said post and adapted to receive said mounting brackets to mount said space dividing elements on said post, said mounting means and said brackets being adapted to permit pivotal movement of said brackets relative to said post for adjusting the angular positions of said space dividing elements; an improved mounting arrangement for pivotally mounting a plurality of the space dividing elements about the central post wherein the mounting brackets secured to adjacent space dividing elements respectively comprise a pair of right hand offset brackets and a complementary pair of left hand offset brackets, each of said brackets including a first portion adapted to be secured to one of said space dividing elements and a second portion which is of complementary shape relative to the post and which is adapted to be received by said mounting means to permit pivotal movement of the bracket

about the post, said first portion being adapted to orient the space-dividing element attached thereto along an axis at a predetermined angle from a radial line extending from the vertical axis of said post normal to said complementary-shaped surface of said second portion, whereby the offset between said complementary brackets allows the adjacent space-dividing elements to be selectively positioned closely parallel or at various angles to each other when said complementary brackets are rotated relative to each other about the post.

2. In an interior space divider assembly as defined in claim 1, a mounting arrangement wherein the exterior surface of each of said offset brackets forms, opposite the surface of the related space-dividing element, a longitudinal slot along either edge of said offset bracket for receiving a decorative trim.

3. In an interior space divider assembly as defined in claim 1, a mounting arrangement wherein the offset brackets secured to the upper and lower ends of a respective space dividing element include means for cooperatively securing a view-blocking channel member to the vertical edge of the space dividing element extending longitudinally along the surface of the central post, whereby said channel member is completely secured to said vertical edge without screws or additional restraints of any kind.

* * * * *