March 19, 1963 R. I. GRAY, JR 3,081,972

ADJUSTABLE SUPPORT FOR BULLETIN BOARD

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FIG.2

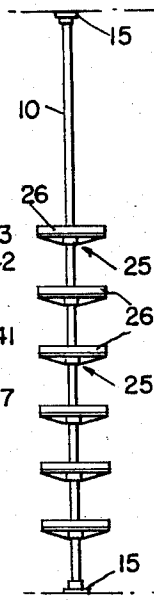


FIG.1

FIG.5

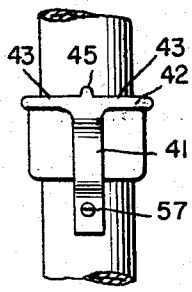


FIG.4

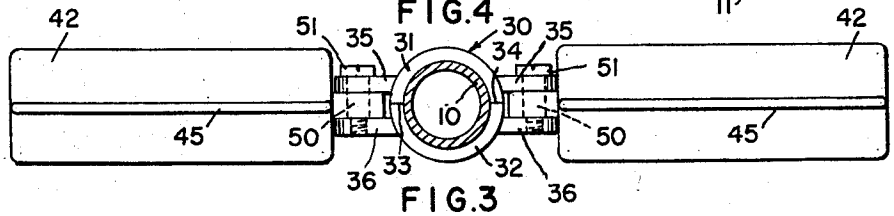


FIG.3

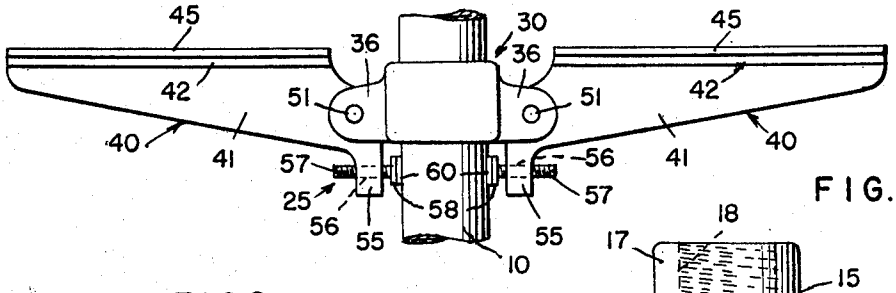


FIG.6

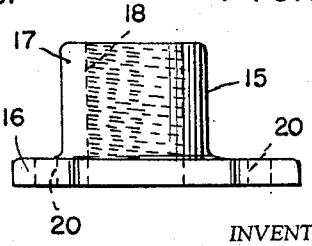
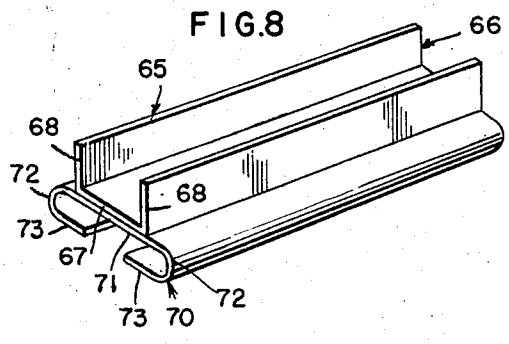


FIG.8



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ADJUSTABLE SUPPORT FOR BULLETIN BOARD

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FIG.7

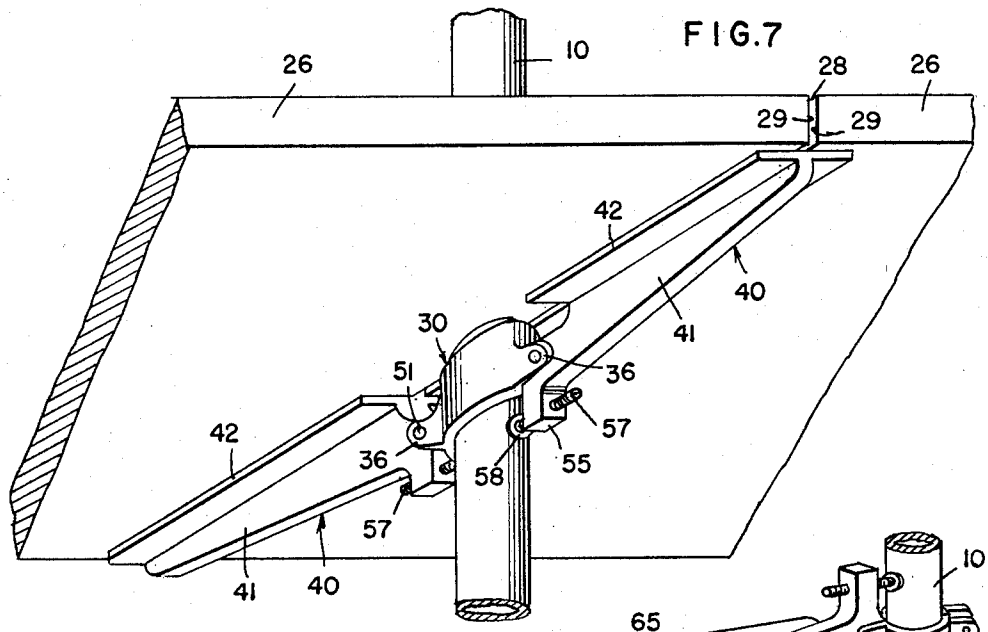
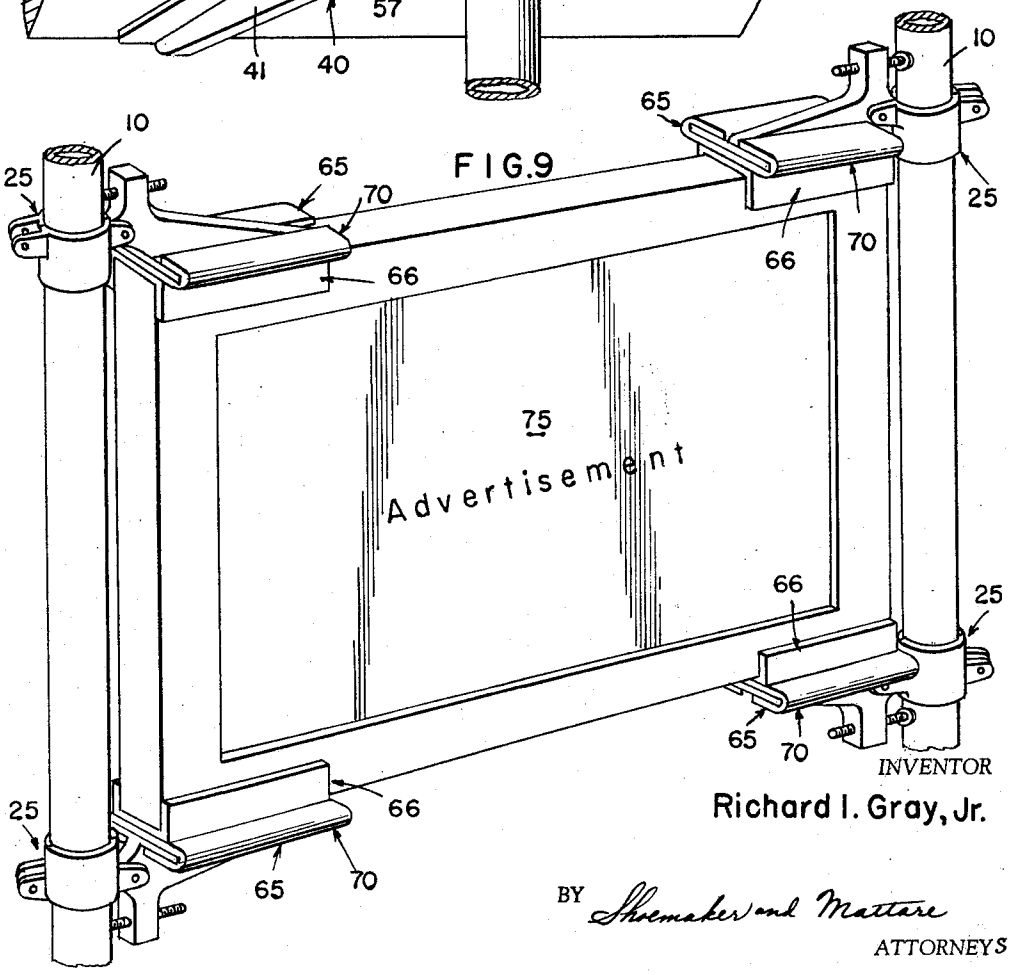


FIG.9



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United States Patent Office 3,081,972 Patented Mar. 19, 1963

3,081,972

ADJUSTABLE SUPPORT FOR BULLETIN BOARD

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Filed Feb. 15, 1960, Ser. No. 8,698
2 Claims. (Cl. 248—33)

The present invention relates to new and novel adjustable support means for shelving and the like, and more particularly to a shelf support arrangement which is entirely portable, and is readily adjustable, and which is very versatile in its application.

It has been a common practice for many years to house shelving in various types of cases, the cases forming a supporting structure primarily to support the opposite end portions of each individual shelf in place. Various types of supporting interconnections are provided between such cases and the associated shelves, the usual arrangement being the provision of metal clips secured either to the shelf or to the case and engageble with the adjacent member for supporting the shelf in position.

The present invention contemplates the elimination of prior art cases for supporting the shelves and provides a very modernistic, neat appearing shelf arrangement.

A particular feature of the present invention is the fact that the entire shelving structure is quite light weight and consists of a plurality of relatively small elements which can be easily carried from place to place whereby the structure is very portable. In addition, the arrangement is such that the shelving structure may be set up in a quick and simple manner, and the height of the shelves may be readily adjusted relative to one another whereupon the shelving structure is automatically locked into position.

An important feature is the fact that the shelves are supported by bracket means, the bracket means being vertically adjustable along suitable vertically extending support members. In order to provide such vertical adjustment, the individual bracket means are slidably supported on the support members. One or more support arms are pivotally interconnected to a collar means on each bracket, and in preferred embodiment, a pair of arm members are pivoted to substantially diametrically opposite portions of the associated collar means.

Each of the support arms on the support brackets is supported with an adjusting means in the form of an adjusting bolt having a friction means on the inner end thereof adapted to engage the associated support member. The arrangement is such that when under load, the support arms pivot in a direction to cause the friction means on the adjusting means to engage the associated support member whereby the friction means on the pair of arms supported by each bracket means acts to clamp the associated support member therebetween to positively prevent downward movement of the bracket means when under load. In other words, the larger the load on each bracket means, the greater the clamping force exerted by the bracket means on the associated support member.

In addition to the foregoing advantages, the adjusting means associated with each support arm is threadably mounted thereon such that the adjusting means is adapted to adjust the relative angular position of the associated support arm with respect to the support member. In this manner, the shelf can be leveled up after the shelving arrangement is mounted in operative position.

The support members are preferably fixedly supported at the opposite ends by the floor and the ceiling of a particular room and the collar means of each bracket means is preferably formed in two sections which can be secured to one another whereby the collar means of each bracket means can be slidably mounted upon or removed from the vertically extending support members without

the necessity of detaching the support members from the floor or ceiling.

An additional feature of the invention is the provision of an arrangement for supporting a bulletin board or the like in position between a pair of vertically extending support members. In this arrangement, a plurality of support brackets are employed, and a special adaptor fitting is associated with each of the support brackets. These adaptor fittings are of similar construction and each includes a first channel means which serves to mount the adaptor fitting on one of the support brackets. The adaptor fittings also each include a second channel-like means which is adapted to receive edge portions of the bulletin board for supporting the board in fixed operative position. Here again, the arrangement is such that the bulletin board can be readily adjusted vertically as desired, and, of course, the support bracket means and associated adaptor fittings can be readily assembled and disassembled with respect to the associated support members.

It is evident that the arrangement according to the present invention provides an arrangement which can be employed in a relatively small space or may be extended as desired to occupy a relatively large space. For example, the invention arrangement is quite suitable for use in schools, hospitals, libraries, and in similar installations where it may be desirable to readily shift the shelving arrangement from time to time, and at the same time where it is desirable to provide shelving which can be easily vertically adjusted and which provides a very sturdy arrangement and neat appearance when in use.

An object of the present invention is to provide a new and novel adjustable support means for shelving and the like which is light-weight and portable, and which provides a modernistic and neat appearance.

Another object is the provision of an adjustable support means for shelving which permits the shelves to be readily adjusted in a vertical direction and which also provides an arrangement wherein the larger the load, the greater the clamping force produced for retaining the support means in a particular vertical position.

A further object of the invention is to provide an adjustable support means for shelving and the like wherein means is provided for leveling the shelves after the structure is mounted in operative position.

Yet another object of the invention is to provide adjustable support means for shelving and the like which is quite inexpensive and compact, yet sturdy and reliable in operation, and wherein the individual bracket means can be removed from the associated support members without disassembling the support members from their associated support fittings.

Still another object of the invention is the provision of an adjustable support arrangement for adjusting a bulletin board or the like wherein the supported bulletin board may be readily adjusted in a vertical direction.

Other objects and may attendant advantages of the invention will become more apparent when considered in connection with the specification and accompanying drawings, wherein:

FIG. 1 is an elevation of the overall adjustable supporting means;

FIG. 2 is an end view of the structure shown in FIG. 1;

FIG. 3 is an enlarged view illustrating the support bracket means mounted upon an associated support member;

FIG. 4 is a top view of the structure shown in FIG. 3;

FIG. 5 is an end view of the structure shown in FIG. 3;

FIG. 6 is a front view of a fitting for supporting the support members;

FIG. 7 is a perspective view illustrating one of the support bracket means in operative position;

FIG. 8 is a perspective view of an adaptor fitting according to the present invention; and

FIG. 9 is a perspective view illustrating the arrangement for supporting a bulletin board in operative position.

Referring now to the drawings wherein like reference characters designate corresponding parts throughout the several views, the overall structure is illustrated generally in FIGS. 1 and 2 and includes a plurality of substantially vertically extending support members **10** which preferably comprise aluminum tubing, and may also include heavy steel tubing in certain applications.

At any rate, it will be evident that these tubes are relatively light weight and can be readily carried from place to place.

Support members **10** extend from a point adjacent a floor indicated at **11** to a point adjacent a ceiling indicated by reference numeral **12**. The support members **10** are supported at opposite ends thereof by similar fittings **15**, one of these fittings being illustrated in enlarged FIG. 6.

As seen in FIG. 6, each of fittings **15** comprises a base flange **16** and an upstanding cylindrical portion **17** having a central threaded opening **18** formed therethrough. Threaded openings **18** in the various fittings **15** are adapted to receive opposite ends of the vertically extending support members **10** which are correspondingly threaded thereby enabling the fittings **15** to be adjusted on the ends of the vertical support members for taking up any variations in the distance between the floor and ceiling as compared to the length of the support members. Three spaced openings **20** are provided in the base flange **16** of each of fittings **15**, openings **20** being spaced 120 degrees apart and being adapted to receive screws which are threaded into the floor or ceiling for retaining the fittings in operative position.

Referring again to FIGS. 1 and 2, a plurality of support brackets indicated generally by reference numerals **25** are provided, a plurality of shelf members **26** being supported between adjacent ones of the support brackets. As shown, six vertically spaced shelves are provided between each pair of adjacent support members **10** and it is apparent that the arrangement can be continued longitudinally by adding additional support members **10** indefinitely as desired. As seen in FIG. 7, adjacent ones of shelves **26** are spaced a small distance apart, this space being indicated by reference numeral **28**, the manner in which this spacing is determined being hereinafter described. It should also be understood that the edge portions indicated by reference numerals **29** are provided at the midpoint thereof with substantially semicircular cut-out areas which receive the support member **10** at each end thereof whereby the shelves may be positioned in closely spaced relationship as shown.

As seen most clearly in FIGS. 3, 4, 5 and 7, each of the support brackets **25** includes a collar indicated generally by reference numeral **30**, this collar being formed of two sections **31** and **32** as seen most clearly in FIG. 4. Each of these collar sections includes a substantially semicylindrical central portion having lugs extending outwardly from opposite portions thereof. When the two collar sections are fitted about the support member **10** as seen in FIG. 4, the adjacent faces will abut each other along lines **33** and **34**, a first pair of laterally extending lugs **35** being connected to collar section **31** and a second pair of lugs **36** extending laterally from collar section **32**.

It is evident that the outwardly extending lugs define a pair of spaced lugs at substantially diametrically opposite portions of the collar means, these lugs forming a pivotal support for the support arms hereinafter described.

A pair of similar support arms **40** are provided, the two support arms being mounted in reverse relationship as seen most clearly in FIG. 3, for example. Each of the support arms includes a main body portion **41** having an integral flange portion **42** extending substantially normally therefrom and extending equally on both sides of the main body portion **41** to provide a substantially T-shaped cross-sectional configuration as seen most clearly in FIG. 5. The upper portion of each flange portion **42** defines surfaces **43** upon which the shelves are positioned and supported. A rib **45** extends longitudinally along the central portion of flange portion **42** and serves to space the shelf members from one another to provide the space described in connection with FIG. 7.

As seen most clearly in FIG. 4, the inner portion of the main body portions **41** of each of the arms is indicated by reference numeral **50** and is received between the pairs of spaced lugs at each side of the collar means. A relatively snug fit is provided which prevents canting of the support arms with respect to the support lugs in a horizontal plane and yet which permits free pivotal movement of the support arms in a vertical plane.

Aligned openings are provided in the lugs **35** and **36** and the inner portions of the support arms through which a pair of stud bolts **51** extend. It will be noted that the stud bolts have an enlarged head at one end thereof, the opposite end thereof being threaded into complementary threaded openings provided in lugs **36**. In this manner, the collar means is held together and the support arms **40** are pivotally supported on the collar means.

Each of support arms **40** also includes a downwardly extending portion **55**, suitable threaded openings **56** being provided through portion **55**. Threadably mounted within each of openings **56** is a threaded adjusting bolt **57**, each of bolts **57** having an enlarged head portion **58** formed at the inner end thereof. Secured to the inner face of heads **58** is a friction means **60** in the form of a pad formed of a friction material such as rubber or the like which is adapted to prevent slippage between the adjusting bolts and the associated support member **10**.

The collar means of each of the support bracket means is freely slidable on the associated support member **10**, and accordingly, the position of the support brackets may be readily adjusted. Accordingly, when the support bracket is desired to be adjusted, the two arms **40** are pivoted upwardly such that the adjusting bolts are out of engagement with the support member whereupon the support bracket can be readily slid vertically along the support member. When the adjusted position is reached, the two support members are allowed to pivot under their own weight into the operative position shown in FIGS. 3 and 7. It is evident that the weight of the support arms will cause the friction means at the inner ends of the adjusting bolts to clamp the support member **10** therebetween whereby movement of the support bracket in a downward direction is positively prevented due to the clamping action and the friction produced between the adjusting bolts and the support member.

When the shelves are mounted upon the upper surface of each of the support arms as seen in FIG. 7, and further when items are placed upon the shelves, the load on the support arms will obviously be increased. As this load is applied to each of the arms outwardly of the pivot pins **51** thereof, it is evident that an increase in load will increase the force with which the inner ends of the adjusting bolts are pressed against the associated support member **10**. Accordingly, the greater the load, the greater the clamping action and frictional force retaining the support brackets in operative position. It is of course evident that the T-shaped cross section of the support arms provides a very sturdy, strong beam which is adapted to resist any bending loads.

It should also be noted that the adjusting bolts **57** may be rotated to adjust the relative position with respect to the support arms **40**, and as such adjusting bolts are adjusted, the relative angular position of the support arms with respect to the associated support members **10** will be varied. In this manner, the shelves can be readily leveled after the device is mounted in operative position.

Referring now to FIG. 8, an adaptor fitting is illustrated which is particularly suited for mounting a bulletin board or the like in operative position. This adapter fitting is indicated generally by reference numeral **65** and includes an upwardly directed channel portion indicated generally by reference numeral **66** and includes a bottom wall **67** and two side walls **68** defining a substantially U-shaped cross section. The first channel portion **66** is adapted to receive one corner edge of the bulletin board as hereinafter described.

Each adaptor fitting **65** also includes a downwardly directed channel portion indicated by reference numeral **70** in FIG. 8, each channel portion comprising an integral member including a base portion **71** having grooved portions **72** formed at opposite ends thereof, curved portions **72** extending downwardly and then being bent inwardly toward one another to define spaced leg portions **73** which are spaced from one another. In this manner, the channel portion **70** defines a substantially T-shaped slot which is adapted to receive the support arms of the brackets which are provided with a complementary T-shaped cross-sectional configuration.

Referring now to FIG. 9, a pair of vertical support members **10** are illustrated including four spaced brackets **25** mounted thereon. As shown, each of the bracket members is similar to that hereinbefore described with the exception that one of the support arms **40** is eliminated in each of the support brackets. It will, of course, be evident that for the purpose of supporting a bulletin board or the like, the support brackets may be constructed so as to include only the collar means plus a single pair of spaced lugs for supporting an arm at one side thereof.

It will be noted that the two lower brackets **25** as seen in FIG. 9 are mounted in the same operative position as seen in FIG. 7, for example, whereas the two upper support brackets **25** as seen in FIG. 9 are mounted in a reverse relationship, or upside down as compared to the two lower brackets. An adaptor fitting **65** is mounted upon each of the support arms of the support brackets **25**, it being apparent that the channel portions **70** thereof are slidably received in the support arms to retain the adaptor fittings in place. It will further be evident that the upper brackets **25** are mounted in upside down position to permit the adaptor fittings to be mounted in proper operative position.

A bulletin board indicated generally by reference numeral **75** has the four corner edges thereof received within the channel portions **66** of the four adaptor fittings whereby it is evident that the bulletin board is positively supported at each corner in operative position. It will be understood that each of the support brackets is slidably positioned on the support members **10** whereby the various support brackets can be readily vertically adjusted. The lower support brackets **25** as seen in FIG. 9 will automatically lock in position under weight of the bulletin board, and the friction developed between the adjusting bolts thereof and the associated support members will prevent the bulletin board from sliding down along the support members.

Referring again to FIG. 1, it will be noted that bulletin board **75** is shown as mounted in operative position upon the same support members which support the shelves **26** therebeneath. It is, of course, obvious that the shelves and supported bulletin boards may be placed in various different arrangements with respect to one another thereby providing a maximum degree of flexibility and versatility.

It is apparent from the foregoing that there is provided a new and novel adjustable support means for shelving and the like which is quite light-weight and portable, and which presents a modernistic and neat appearance. The support brackets are readily adjustable along the vertical support members, and further, the greater the load on the support arms, the greater the frictional force is that is developed for retaining the support brackets in operative position.

The adjusting means of the support brackets provides a means for readily adjusting the level of the shelves when they are mounted on the support arms, and the support brackets can be attached to and removed from the support members without disassembling the support members from their support fittings.

The structure is quite simple and inexpensive in construction, and yet is quite sturdy and reliable in operation. Adaptor fittings are also provided for supporting a bulletin board or the like between the vertical support members.

As this invention may be embodied in several forms without departing from the spirit or essential characteristics thereof, the present embodiment is therefore illustrative and not restrictive, and since the scope of the invention is defined by the appended claims, all changes that fall within the metes and bounds of the claims or that form their functional as well as conjointly cooperative equivalents are therefore intended to be embraced by those claims.

I claim:

1. An adjustable support means for a bulletin board and the like comprising a pair of spaced substantially vertically extending support members, a pair of vertically spaced support brackets mounted on each of said support members thereby defining an upper support bracket and a lower support bracket on each support member, each of said support brackets including a collar slidably mounted on the associated support member, a support arm extending laterally from each of said collars and being pivotally supported therefrom, each of said support arms including an adjusting means selectively adjustably mounted thereon for movement toward and away from the associated support member, and an adaptor mounted on each of said support arms, each of said adaptors including a first channel shaped portion defining a first elongated opening in one direction for receiving a bulletin board or the like, each adaptor also including a second channel portion defining a T-shaped slit defining a second elongated opening facing in a direction substantially opposite to that in which said first opening faces, said T-shaped slit receiving an associated support arm, each of said first channel-shaped portions extending substantially parallel with the T-shaped slit of the associated adaptor, each of said support arms having a substantially T-shaped cross-sectional configuration adapted to be received in the T-shaped slot formed in the associated adaptor whereby a bulletin board received within each of said first-mentioned channel portions is supported in operative position between said spaced supporting members.

2. An adjustable support means for a bulletin board and the like comprising a pair of spaced substantially vertically extending support members, a pair of vertically spaced support brackets mounted on each of said support members thereby defining an upper support bracket and a lower support bracket on each support member, each of said support brackets including a collar slidably mounted on the associated support member, a support arm extending laterally from each of said collars and being pivotally supported therefrom, each of said support arms including an adjusting means selectively adjustably mounted thereon for movement toward and away from the associated support member, and an adaptor mounted on each of said support arms, each of said adaptors including a first channel shaped portion opening in one direction for receiving a bulletin board or the like, each adaptor also including a second channel portion defining a T-shaped slit for receiving an associated support arm, each of said support arms having a substantially T-shaped cross-sectional configuration adapted to be received in the T-shaped slot formed in the associated adaptor whereby a bulletin board received within each of said first-

mentioned channel portions is supported in operative position between said spaced supporting members, each of said support brackets being of identical construction, the upper support brackets and associated adaptors being in reverse position to the lower support brackets and adaptors.

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