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3,033,509

ADJUSTABLE SUPPORTING DEVICE

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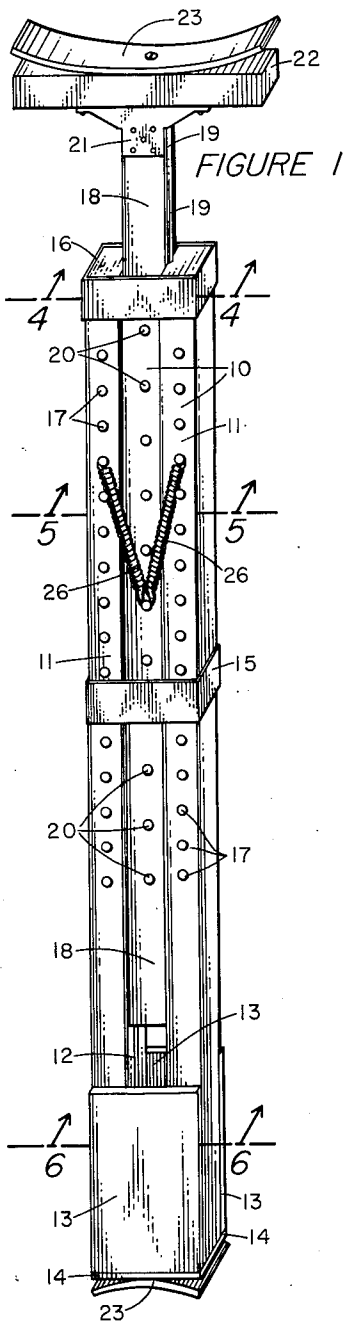


FIGURE 1

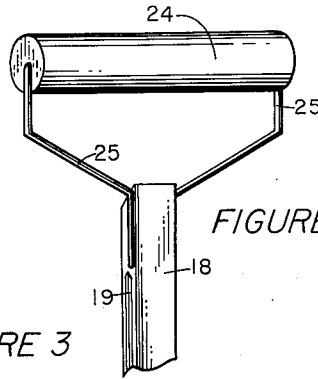


FIGURE 2

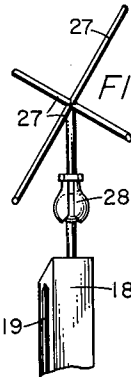


FIGURE 3

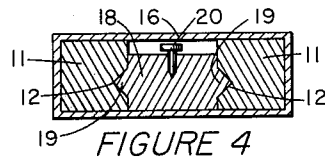


FIGURE 4

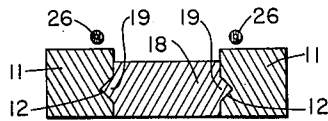


FIGURE 5

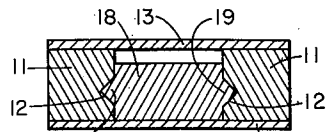


FIGURE 6

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ADJUSTABLE SUPPORTING DEVICE

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This invention relates generally to supporting devices and more particularly to an adjustable type supporting device, particularly adapted for use by carpenters or similar mechanics in holding gypsum board or other structural members temporarily in place while providing a permanent fastening.

An object of my invention is to provide a supporting device of adjustable length that has a bias tending to cause the device to lengthen and thus firmly support a supported member.

A further object of my invention is to provide a device having a substantially uniform bias tending to extend the support throughout its adjustable length.

A further object of my invention is to provide a device as aforesaid that may be readily and easily adjusted as desired.

A further object of my invention is to provide a device with which a single workman may erect, position and fasten in place structural members of such size and bulk that heretofore the efforts of more than one person were required to erect them.

A still further object of my invention is to provide a device as aforesaid of new and novel design and of simple, rugged and inexpensive construction.

For further comprehension of the invention and of the objects and the advantages thereof, reference is now made to the following specification and accompanying drawings and appended claims wherein the various novel features of the invention are more particularly set forth.

In the accompanying drawings which form a part of this specification, and in which like numbers of reference refer to similar parts throughout:

FIGURE 1 is an isometric surface view of my invention showing the preferred embodiment thereof.

FIGURE 2 is an isometric view of a roller type head that may be used as a supporting head of my invention.

FIGURE 3 is an isometric view of a universally jointed "crow's foot" head that may be used as the supporting head of my invention.

FIGURE 4 is a cross-sectional view of my invention illustrated in FIGURE 1 taken on the line 4—4 in the direction indicated by the arrows thereon.

FIGURE 5 is a cross-sectional view of my invention illustrated in FIGURE 1 taken on the line 5—5 in the direction indicated by the arrows thereon.

FIGURE 6 is a cross-sectional view of my invention illustrated in FIGURE 1 taken on the line 6—6 in the direction indicated by the arrows thereon.

Referring now to the drawings and particularly to FIGURE 1 thereof, it is readily seen that my invention consists, essentially, of the body member 10 slidably carrying the extensible shaft 18 which has a supporting cross head 22 attached at the extensible end thereof.

The body 10 of my device comprises two similar channel supports 11; one of which would be the mirror image of the other. These channel supports are provided on their inner facing surfaces with a V shaped groove 12 adapted to mate with the tenon 19 of the extensible shaft 18. The purpose of this V shaped groove 12 is merely to provide a channel for the movement of the extensible shaft 18 and to regulate this movement in a true course. Obviously, grooves of other shapes would serve this purpose, but I prefer a V shaped groove because of its simplicity of construction and because it is not so readily affected by physical changes in the materials as grooves of other shapes. I prefer to construct the channel sup-

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port members 11 from hardwood, though softwood, plastic, metal, particularly aluminum, or other material having sufficient structural rigidity would also serve the purposes of my invention.

The two channel supports 11 are positioned in a parallel fashion with the grooves 12 facing each other so that they will slidably support the extensible shaft 18. The support members 11 are held in this position by means of the bottom plate 14 and the two side plates 13 at their lower extremity and the middle band 15 and the upper band 16, positioned substantially as illustrated in FIGURE 1. I prefer to construct the bottom plate 14 and the two side plates 13 from wood and the bands 15 and 16 from metal because of the ease in fabrication, inexpensiveness and strength, though again other materials having similar properties would serve the purposes of my invention. I prefer to fasten the plates 13, 14 and the bands 15, 16 in place by gluing and nailing.

Headed studs 17 are provided along one side of each of the channel supports 11 at spaced intervals, as illustrated, to provide terminal supports for the springs 26.

The extensible shaft 18 is an elongate member preferably of a substantially rectangular shape having the tenons 19 extending in a parallel fashion along the longer side edges thereof in such fashion as to be adapted to mate with the V shaped grooves 12 of the body member 10. The thickness of the extensible shaft 18, in a direction perpendicular to a line joining the opposed tenons 19, should be somewhat less than that of the channel support members taken in the same direction, as illustrated in the cross-sectional views of FIGURES 4, 5, 6 to allow for passage of the headed stud 20 beneath the plates 13, 14 and the bands 15, 16. The headed studs 20 provide the other terminal support for the extensible shaft in a uniform fashion as illustrated in FIGURE 1.

The extended end of the extensible shaft 18 is provided with a supporting cross-head 22, as illustrated, held in position and rigidly supported on the extensible shaft 18 by means of a metal bracket 21 fastened to both the cross-head member 20 and the extensible shaft 18 by means of bolts or screws.

The cross-head member 22 is an elongate rectangular beam of a shape substantially as illustrated in FIGURE 1 and of such length as will conveniently support various structural members. A rubber gripping and padding device, 23, is provided on the uppermost surface of the supporting cross-head 22 to aid in supporting various structural members and assist in keeping the surface thereof undamaged or unmarred.

Certain other types of supporting cross-heads have often been found to be more convenient than that illustrated in FIGURE 1. One of these cross-heads is a roller 24 supported by a yoke 25 as illustrated in FIGURE 2. This type of supporting head is particularly convenient when it is desired to move the support with the supported member in a particular position. A second type of supporting head shown in FIGURE 3 consists of a flexible crow's foot device having the flexible arms 27 fastened to the extensible shaft by means of the universal ball and socket type joint 28. This type of supporting head is particularly well adapted to supporting structural members at odd or unusual angles varying from a right angle.

The springs 26 are ordinary extensible springs of commerce provided at each end with a hook adapted to fit about the headed studs 17, 20 and yet be removable therefrom as desired. The length and stiffness of the springs 26 will obviously have to be correlated with the size of my invention and with the stiffness desired in the support. For use in ordinary construction work, I prefer that my device be extendable to a length of from 7 feet to 8 feet so that it may conveniently rest on one level of a building

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and support members of the floor or level next above. Shorter or longer supporting members are often times desired in the building trade or by mechanics in other fields. The cross-sectional size of my invention must obviously be adjusted and regulated in accordance with the length at which the support is used and the load supported according to well-known rules of the field of strength of materials.

To use my device as a support, the extensible shaft 18 is extended from out the body member 10 to a position in which the length of the supporting device is slightly longer than the distance between the support and the member to be supported. While in this position, the springs 26 are attached at one end to the headed studs 17 on each of the channel support members 11 and on the other end to the similar headed stud 20 in the extensible shaft 18 at such distance that the springs 26 will be under little or no tension. The supporting device is then forced into place between the article supported and the support, and in doing this the extensible shaft 18 will be forced into the body 11 thereby creating a tension in the spring 26. This tension causes a bias or force tending to lengthen the support member and this bias or force causes the supported article to be rigidly and firmly supported. The degree of this force or bias obviously may be regulated by allowing a greater or lesser extension of the member 18 as may be desired.

Although the foregoing description is necessarily of a detailed specific character, in order that a specific embodiment of my invention may be set forth, it is to be understood that this specific terminology and structure are not intended to be restrictive or confining, and that various re-arrangements of parts and modifications of detail may be resorted to without departing from the essence, scope or spirit of the invention herein set forth.

Having thusly described my invention, what I desire to protect by Letters Patent and, what I claim is:

1. In an extensible supporting device of the nature aforesaid, in combination, two similar elongate supporting members, each having a groove in one of the longer side

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edges thereof and a plurality of headed studs in spaced relation on one of the sides thereof parallel to the longer side edge, fastened in parallel spaced relation with said grooves in opposition so as to create a central channel with said head studs in opposed pairs on the same side of said members; an elongate extensible shaft having tenons mating with the aforesaid grooves and a plurality of headed studs in a spaced relation along one side thereof, said member being adapted to be slidably carried within aforesaid channel; a supporting member rigidly carried by the extended end of said extensible shaft; and two extensible springs each removably attached at one end to each of an opposed pair of said plurality of headed studs in said support members and at each other end to a headed stud in said extensible shaft, causing said shaft to be biased to an adjustable extended position.

2. The device of claim 1 with said supporting member comprising a cross-arm rigidly mounted by bracket to said extensible shaft and having means of gripping and padding a supported member.

3. The device of claim 1 with said supporting means comprising a roller rotatably mounted upon a yoke carried by said extended end of said extensible shaft.

4. The device of claim 1 with said supporting means comprising a crow's-foot apparatus having flexible arms mounted upon said extensible shaft by means of a ball and socket universal joint.

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