

June 1, 1948.

S. N. BUCHANAN ET AL

2,442,340

ADJUSTABLE SUPPORT

Filed Sept. 16, 1946

2 Sheets-Sheet 2

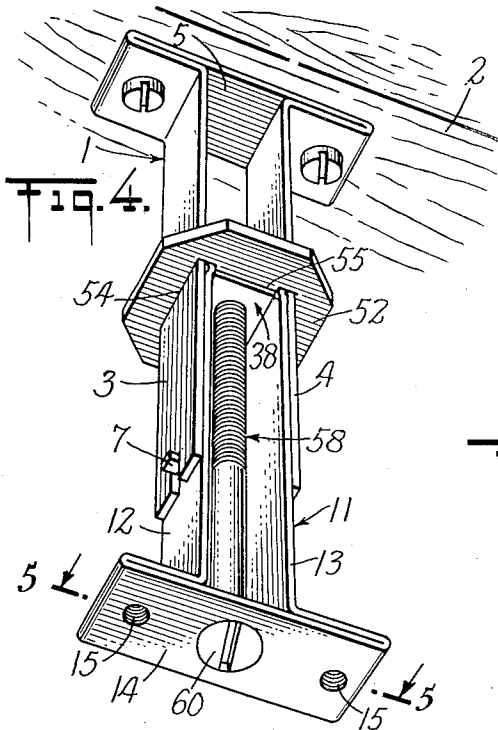


Fig. 4.

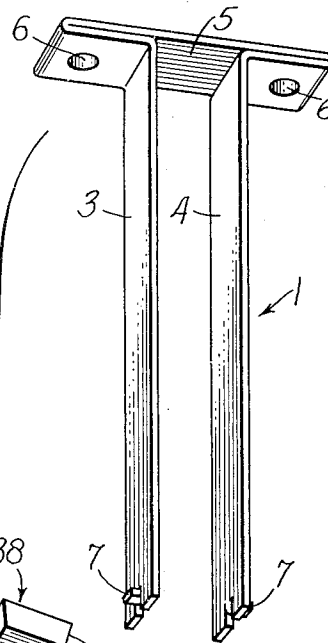


Fig. 5.

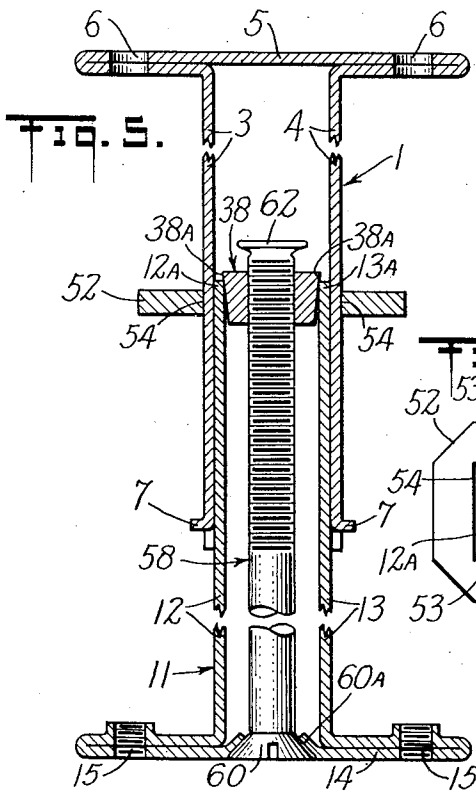


Fig. 6.

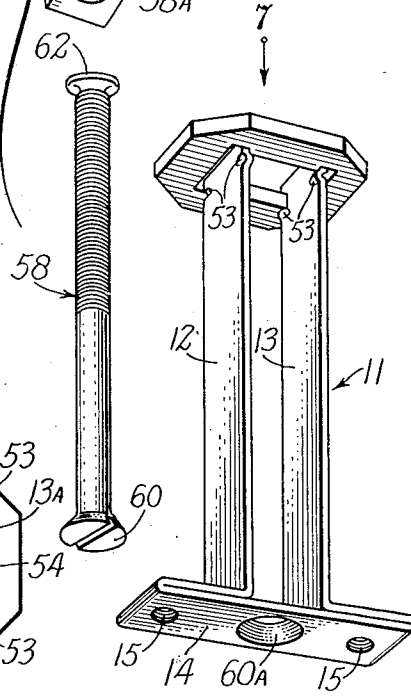


Fig. 7.

INVENTORS
Stephen N. Buchanan
BY Samuel L. Gibson
ATTORNEY

UNITED STATES PATENT OFFICE

2,442,340

ADJUSTABLE SUPPORT

Stephen N. Buchanan, Westmoreland Hills, Md.,
and Samuel L. Gibson, Bryson City, N. C.; said
Buchanan assignor to Buchanan Electrical
Products Corporation, Elizabeth, N. J., a cor-
poration of New Jersey

Application September 16, 1946, Serial No. 697,346

5 Claims. (Cl. 248—214)

1

This invention relates to adjustable supports for outlet boxes and similar articles.

It is an object of the invention to provide a device having a number of advantages and improvements in relation to the structure shown in U. S. Patent 2,178,168, October 31, 1939, to Samuel Leonard Gibson, one of the joint applicants herein. The present invention not only has a high degree of adjustability but also combines said adjustability with structural features which make the device economical to manufacture and simple and positive in its use. Those familiar with the art will appreciate the desirability of an article of the character described which provides a maximum of simplicity in structure and installation and at the same time makes it possible to provide an adjustability which meets practically any need whether that need be in connection with new construction work or in buildings already constructed. By means of the present invention it is possible to mount an outlet box or similar article in any desired spaced relation to an ultimate support as, for example, the uprights or joists or baseboards or ceiling rafters so that the outlet box or similar article will bear its proper alignment or relation to the plaster or other finishing.

The principles of the invention will be defined in the claims and those principles will be illustrated by the description which hereinafter appears and the accompanying drawing, it being understood that a number of changes in form and structure in relation to the specific forms and structures described in detail herein may be made without departing from the generic aspects of the invention as defined in the claims.

In accordance with those generic aspects an adjustable support of the character described is provided which comprises two members, one of which has suitable bracket means adapting it to be secured in fixed position as, for example, to a baseboard, or upright joist, or ceiling rafter. That member will be referred to for means of identification as the fixed member. The other member is slidably adjustable in relation to the fixed member. It may, therefore, be tagged for purposes of identification as the sliding member and it too has bracket means which enable an article such as an outlet box to be secured on the sliding member. The sliding member may be slidable in relation to the fixed member not only longitudinally but also transversely thereof. Each of said members includes a pair of resilient strips which are normally displaceable transversely toward and away from each other and are maintained in spaced and substantially parallel

2

relation as, for example, by means of the above mentioned bracket at one end thereof, which bracket enables the member to be joined to a fixed support in the case of the fixed member or to an outlet box or similar article in the case of the sliding member. One of said pair of strips is mounted within the other pair and the said pairs may therefore be identified as the inner pair and the outer pair, respectively. Adjustable means as, for example, a screw provided with a wedge block is provided to displace the inner pair against the outer pair and thereby lock said pairs in frictional engagement. Since the outer pair as well as the inner are, as above mentioned, normally displaceable transversely, means are provided and carried by the movable member to limit displacement of the outer pair of strips so that the inner pair can be locked or jammed against said outer pair.

The invention may be embodied in a number of different forms or species. One species is especially adapted for supports intended to be secured to uprights, joists and the like or to horizontal baseboards. In this and other forms the members may be mutually adjustable both laterally and longitudinally to provide the widest possible scope or latitude of adjustability. In this form the strips of the fixed member and the latter is mounted so that the strips thereof extend transversely of, i. e., at right angles to, the strips of the fixed member. A clamp is mounted on and carried by the movable member. It has parts guiding the movement of the sliding member relative to the fixed member and preferably also has parts engaging edge portions of the fixed member all of said parts cooperating in facilitating movement of the sliding member relative to the fixed member. The clamp also carries means whereby the strips of the fixed and sliding members may be jammed or forced into readily releasable locking engagement with each other at any desired position of the sliding member laterally and/or longitudinally in relation to the fixed member. The said locking means may be advantageously embodied in a threaded stud provided with a wedge nut having bevelled surfaces engaging edge portions of the fixed member and adapted by movement of the stud to jam the strips of the fixed and movable members together and against the retaining walls of the clamp.

In another form the fixed member is adapted to be secured to a ceiling rafter, for example, and the sliding member is mounted to slide vertically in relation to the fixed member. In that form the

strips of the sliding member may be arranged to lie within (and in sliding contact with) the strips of the fixed member. The sliding member has bracket means at one end for mounting an outlet box or similar article and carries at the other end a collar or clamp constructed to guide and retain the strips of the fixed member in sliding engagement with the strips of the sliding member during the longitudinal relative movement of said members. The collar or clamp also limits lateral displacement of the strips of the fixed member so that the strips of the movable member may be releasably jammed or locked in engagement with the strips of the fixed member at any desired position of the sliding member longitudinally in relation to the fixed member. The locking action may be effected by a wedge nut mounted on a threaded stud carried by the sliding member and threaded on that stud at a point laterally aligned with the free end edges of the strips of the movable member and with the collar or clamp so that the end edge portions of the strips of the movable member may be releasably jammed against the inside surfaces of the strips of the fixed member, the lateral movement of which is limited by said clamp.

With the understanding that the generic aspects of the invention, to be defined by the claims, may be embodied in a number of specifically different structures, some of those species will be described in detail with the assistance of the accompanying drawings, in which

Fig. 1 is a perspective view of a support having a sliding member which is slidable longitudinally and laterally in relation to a fixed member, i. e., a member adapted to be secured in fixed position.

Fig. 2 is a view, partly in section, on line 2-2 of Fig. 1.

Fig. 3 is an exploded view showing the sliding member, clamp and threaded stud with wedge nut.

Fig. 4 is a perspective view of a support intended especially as a hanger from a ceiling.

Fig. 5 is a partly sectional view on line 5-5 of Fig. 4.

Fig. 6 is an exploded view of the parts shown assembled in Figs. 4 and 5 and

Fig. 7 is a view looking in the direction of arrow 7 of Fig. 6.

Referring to Figs. 1 to 3, the member 1 includes spaced strips 3 and 4 which may have free ends 8 provided with stops 7, the strips being joined at the other ends by a bracket 5 having holes 6 to secure member 1 to any desired base for example, a joist or other base 2. The member 1 may be economically made from a single elongated strip by bending it or shaping it in the form shown. For the sake of clarity in description member 1 may be called the fixed member simply because in use it is secured in fixed position.

The sliding member 11 may be shaped and made similar to fixed member 1 except that member 11 has strips 12, 13 shorter than 3 and 4 and narrower if desired. The bracket 14 has holes 15 to enable an outlet box or similar article to be mounted thereon and may have a hole 16 corresponding to a knock-out hole in an outlet box to permit the insertion of cables or wires.

The clamp 21 has parallel walls 32 connected by strips 22A, said walls and strips defining an opening 22 which in conjunction with slots 23 constitute parts and means which guide the movement of sliding member 11 provided with stops 17 received in slots 23, said slots and stops also limiting the extent of lateral movement of

member 11 relative to the member 1. The strips 12, 13 of the sliding member may be positioned between the walls 32 of the retaining clamp 21 and the strips 3, 4 of the fixed member and are adapted to slide both longitudinally and laterally in relation to the strips 3, 4.

The clamp includes an insert member 33 having tongues 27 received in grooves 24A formed by turned-in edges 24 of walls 32. The insert 33 grips the walls 32 at the grooves 24A and limits displacement of those walls 32 and also strips 12, 13 in the locking action to be described. The insert is further maintained in position by lugs 25 struck up from the edges 24, said lugs being received in recesses 26 formed in the insert.

The insert 33 has shoulder portions 28 in which are received edge portions 3A, 4A of the strips 3, 4 (Fig. 2) which shoulder portions assist in supporting the strips 3, 4 in the sliding movement of the sliding member 11 on the fixed member 1.

The insert 33 has a threaded hole 30 receiving the end of the threaded portion 40 of stud 39. The end 45 of the stud may be upset, if desired, to prevent the stud from being wholly removed and thereby being possibly lost in use. The stud has a fixed collar 44 and a head 42 with a kerf 43. Between the head and collar a wedge nut is loosely mounted on an unthreaded portion of the shank of the stud. The wedge nut has bevelled surfaces 38A which bear against edges 3B, 4B of strips 3 and 4 and, in cooperation with shoulders 28 on the insert 33, support strips 3, 4 in the sliding movement of the sliding member on the fixed member and longitudinally thereof. To effect this movement, the stud must be backed off enough to prevent frictional binding of the strips 3, 4 against the strips 12, 13, that is, to prevent the strips 3, 4, 12 and 13 to be locked against each other and the retaining walls 32 of the clamp 21. This is readily done by applying a screw driver to the head 42 and unscrewing the stud a sufficient amount out of the threaded socket 30. The sliding member may then be moved longitudinally or laterally or both longitudinally and laterally on the fixed member to an extent limited only by the bracket 5 and stops 7, in a longitudinal direction and the length of the slot 23 in a lateral direction.

To releasably secure the sliding member in any desired position the stud is simply screwed into the hole 30 whereupon the bevelled surfaces 38A of the wedge nut force the edges 3B, 4B of the strips 3, 4 against the strips 12, 13 and these in turn are forced against the retaining walls 32 of the clamp.

Referring to Figs. 4, 5 and 6, the sliding member 11 has a pair of strips 12, 13 secured together at one end by a mounting bracket 14 having holes 15 to enable an outlet box or similar article to be mounted thereon and a countersunk hole 60A to receive the head 60 of a stud 58. In like manner the fixed member includes strips 3, 4 connected by a bracket 5 having holes 6 to enable the fixed member to be secured, for example, to a ceiling rafter or other ceiling member. Here again it is apparent that both fixed and sliding members may be economically shaped from single strips of metal or other suitable material.

On the sliding member 11 and at the end thereof of opposite the mounting bracket 14 there is mounted a collar 52, having cut away parts leaving a space defined by edges 54, 55 meeting at shoulders 56 (note Fig. 7). Lugs or upset portions 53 of the strips 12, 13 serve to loosely hold

5

the collar and to permit a limited lateral motion of the strips. The spaces between the edges 12A, 13A of the strips and the edges 54 define slots through which pass the strips 3, 4 of the fixed member.

The stud 58 carries a wedge nut 38 having bevelled surfaces 38A which bear against ends 12A, 13A of the strips 12, 13. When, therefore, the stud 58 is screwed into the nut 38 the bevelled surfaces thereof force the ends 12A, 13A against opposing surfaces of the strips 3, 4, jam them against edges 54 of the collar and lock the parts against relative movement. By unscrewing the stud pressure of the wedge nut against the strips is relieved and the movable or sliding member may readily be given any desired longitudinal movement relative to the fixed member. It follows that the sliding member may be releasably locked in engagement with the fixed member at any desired position of the sliding member longitudinally adjusted in relation to the fixed member.

The stud may be upset as at 62 to prevent separation of the stud and wedge nut.

What is claimed is:

1. An adjustable support of the character described comprising two members, one member having bracket means at one end thereof adapting said member to be secured in fixed position, said member being identified as the fixed member, the other member being slidably adjustable in relation to the fixed member and being identified as the sliding member and having bracket means adapted to secure an outlet box on said sliding member, each of said members comprising a pair of resilient strips joined at one end by said bracket means and normally displaceable transversely thereof, one of said pair of strips being mounted within the other, said pairs being identified as the inner pair and outer pair, adjustable means to displace the inner pair against the outer pair and lock said pairs in frictional engagement, and means carried by the movable member to limit displacement of the outer pair and thereby to permit said locking action.

2. An adjustable support of the character described comprising two members, one member having bracket means at one end thereof adapting said member to be secured in fixed position said member being identified as the fixed member, the other member being slidably adjustable in relation to the fixed member and being identified as the sliding member and having bracket means adapted to secure an outlet box on said sliding member, each of said members comprising a pair of resilient strips joined at one end by said bracket means and normally displaceable transversely thereof, one of said pair of strips being mounted within the other pair, said pairs being identified as the inner pair and outer pair, adjustable means carried by the movable member and comprising a screw and wedge nut operated thereby to force said inner pair into frictional locking engagement with the outer pair and means carried by the movable member to limit displacement of the outer pair and thereby to permit said locking action.

3. An adjustable support of the character described comprising two members, one member having bracket means at one end thereof adapting said member to be secured in fixed position, said member being identified as the fixed member, the other member being slidably adjustable in rela-

6

tion to the fixed member both longitudinally and transversely thereof and being identified as the sliding member and having bracket means adapted to secure an outlet box on said sliding member each of said members comprising a pair of resilient strips joined at one end by said bracket means and normally displaceable transversely thereof, one of said pair of strips being mounted within the other pair, said pairs being identified as the inner pair and outer pair, adjustable means to displace the inner pair against the outer pair and lock said pairs in frictional engagement, and means carried by the movable member to limit displacement of the outer pair and thereby to permit said locking action.

4. An adjustable support of the character described comprising two members, each member comprising a pair of spaced resilient strips having bracket means at one end thereof maintaining said strips in spaced substantially parallel relation, the bracket means of one member being adapted to be secured in fixed position and that member being identified as the fixed member, the bracket means of the other member being adapted to be secured to an outlet box and that member being identified as the sliding member, the sliding member being mounted to slide both longitudinally and transversely in relation to the fixed member, a clamp engaging the sliding member and having parts guiding the movement of the sliding member transversely of the fixed member and other parts engaging edge portions of the strips of the fixed member, said clamp carrying a threaded stud and a wedge block adapted by movement of the stud axially thereof to force the strips of the fixed and sliding members into readily releasable locking engagement with each other and with the clamp at any desired position of the sliding member laterally and longitudinally in relation to the fixed member.

5. An adjustable support of the character described comprising two members, each member comprising a pair of spaced resilient strips having bracket means at one end thereof maintaining said strips in spaced substantially parallel relation, the bracket means of one member being adapted to be secured in fixed position and that member being identified as the fixed member, the bracket means of the other member being adapted to be secured to an outlet box and being identified as the sliding member, the strips of the sliding member being arranged to slide within and in contact with the strips of the fixed member and longitudinally thereof, a collar mounted on the sliding member at the end thereof opposite the mounting bracket thereof, said collar having parts receiving the strips of the fixed member and guiding and retaining them in sliding engagement with corresponding strips of the sliding member, the mounting bracket of the sliding member carrying a threaded stud having a head mounted in said bracket and a wedge nut threaded on said stud at the end opposite the head thereof and aligned with said collar, the wedge nut and stud being adapted to force the strips of the fixed and sliding members into readily releasable locking engagement with each other and said collar at any desired position of the sliding member longitudinally in relation to the fixed member.

STEPHEN N. BUCHANAN.
SAMUEL L. GIBSON.