March 20, 1934. H. R. KLAUDT 1,951,660

ADJUSTABLE SUPPORTING BAR

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Fig. 1

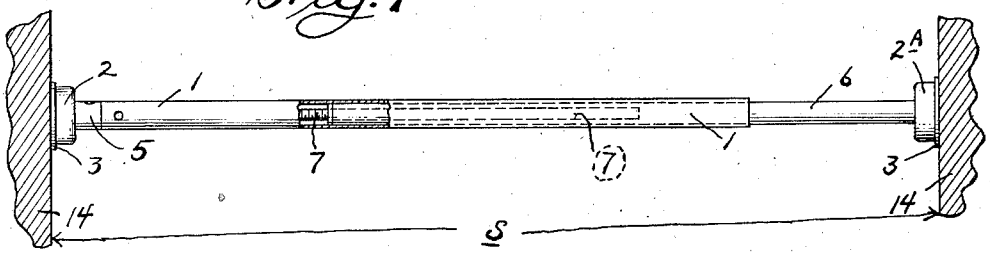


Fig. 2

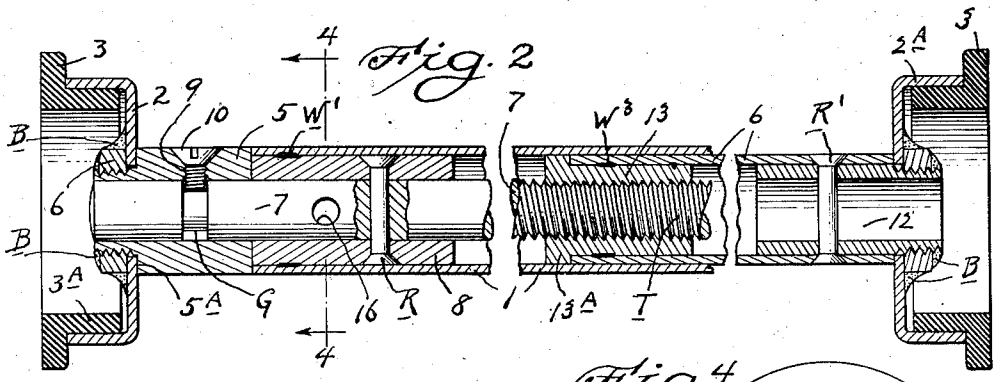


Fig. 3

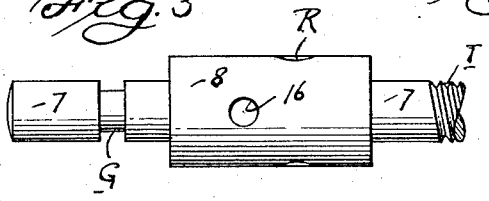


Fig. 4

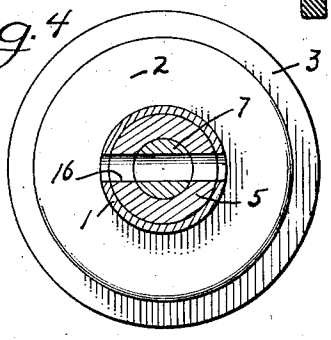


Fig. 5.

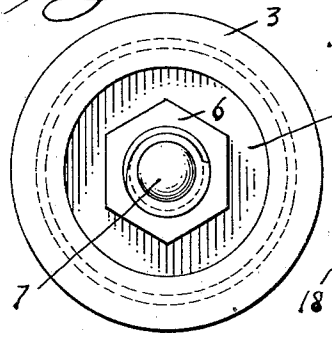


Fig. 7

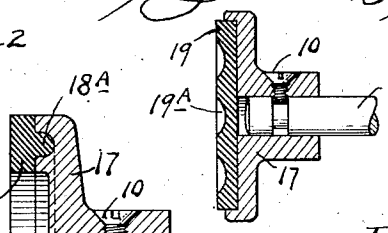


Fig. 8

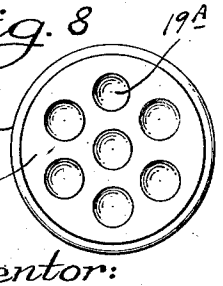


Fig. 6

Inventor:
Helmuth R. Klaudt
By Albert Scheible
Attorney.

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ADJUSTABLE SUPPORTING BAR

Helmuth R. Klaudt, Chicago, Ill.

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11 Claims. (Cl. 211—123)

My invention relates to a bar-like supporting appliance adapted to be disposed horizontally between two upright and opposed walls for supporting clothes, curtains or other articles.

In some of its major objects, my invention aims to provide a bar-type supporting appliance of this class which can readily be adjusted in its effective length by merely rotating one part thereof with respect to another part, which will be firmly positioned and to support considerable loads when it is thus lengthened so that its ends respectively engage the opposed walls.

Moreover, my invention aims to provide a bar-like supporting device for the above mentioned purpose which will require no screws or nails for maintaining it rigidly positioned, which will not indent or mar the walls spanned by it, and in which the means for effecting the change in length of the device and its supporting are concealed so that the major portion of this device may have the appearance of a simple cylindrical bar free of all projections.

In addition, my invention aims to provide a supporting device of the above described characteristics in a construction which will permit it to be stored and shipped in a carton only slightly longer than half the maximum length to which the device can be expanded, and which will adapt a given stock length of the device to be used interchangeably for widely varying spacings between the walls which the supporting device is to span.

So also, my invention aims to provide an adjustable supporting device of this class consisting of only two rigid parts which can readily be coupled to one another, or unscrewed from one another without disassembling the constituents of either of the said parts, and having these parts constructed so that these parts will interfit when assembled so as to add rigidity to the assembled device.

In addition, my invention aims to provide such a two-part device in a construction which will permit a firm positioning of the device between two opposed walls can readily be effected by rotating a portion of one of the said parts with as simple a tool as a slender screw-driver or a mere nail, and in which the wall-engaging ends of both of the said parts need not rotate while the device is thus being firmly positioned.

Still further and also more detailed objects will appear from the following specification and from the accompanying drawing, in which

Fig. 1 is an elevation of an embodiment of my invention as it appears when operatively positioned between two opposed walls, with the walls shown in section and with a portion of the outer tube broken away.

Fig. 2 is an enlarged and fragmentary elevation of the same supporting appliance.

Fig. 3 is an elevation of the outward portion of the threaded shank and the collar fastened to it.

Fig. 4 is a section taken along the line 4—4 of Fig. 2.

Fig. 5 is an end elevation of the same appliance, taken from the left-hand side of Fig. 2.

Figs. 6 and 7 are sections allied to the left-hand end portion of Fig. 2, showing simplified forms of end members of my device and alternative shapings of the compressible facings.

Fig. 8 is an end elevation taken from the left-hand side of Fig. 7.

Generally speaking, I accomplish the objects of my invention in the following manner:

First, I provide two metal tubes of such diameters that one tube will smoothly fit into the bore of the other tube while permitting a ready relative sliding and rotation of the two tubes, and for each of these tubes I provide a head member or end member having a compressible facing (or rubber or the like) on its outer face. These tubes are desirably of approximately equal length, and in any case the joint length of the two tubes and the two head members is greater than the spacing between the two opposed walls which are to be spanned by my appliance.

Second, I interpose means between the two tubes whereby a rotation of one tube with respect to the other tube will spirally advance one tube longitudinally of the other tube, at least the greater part of these means within the bores of the said tubes so that the said means will be substantially housed by the tubes. By doing so, I allow the tubes to present the appearance of a cylindrical bar having no protuberances, as the outer tube may be of such thin metal that the difference between its exterior diameter and that of the part of the inner tube projecting beyond the outer tube will scarcely be noticeable.

Third, I swivel one of the tubes on the end member associated with it, for rotation about the common axis of the two tubes, so that the spiral advancing of one tube with respect to the other can be effected without having either of the end members rotate also. If there were no such rotation-permitting provision—namely, if each tube was rigidly fastened to the corresponding wall-engaging end member, the rotating of one tube for lengthening my appliance while the

other tube is held stationary would also rotate the end member fastened to the rotated tube; thereby not only producing such friction as to prevent the installer from adequately compressing the facings of the end members so as to secure the desired firm supporting of my appliance, but also might cause the rotated end member to mar the adjacent wall, as for example by scraping wall paper off this wall.

And fourth, I provide the swiveled tube with a formation adapted to be engaged by some simple tool, so that the installer of my appliance can get an effective leverage for rotating this tube, and preferably dispose this formation quite near to the end member associated with the rotated tube.

Illustrative of the just recited four provisions, Figs. 1 to 4 show one of the two unitary and manuably assembleable parts of my appliance as comprising an outer tube 1 swiveled (by the hereafter described elements) upon a head member which includes a cap 2 opening toward the adjacent wall 14 and a compressible rubber ring, which ring comprises a washer-like annular portion 3 extending behind the peripheral edge portion of the cap 2 and adapted to bear flatwise against the said wall, and an integral tubular portion 3A socketed in the rear end of the said cap 2.

The cap 2 also has a tubular stem fastened to it and extending at right angles to the rear face of the rubber ring portion 3 from the said cap in the opposite direction to that in which the said ring portion projects from that cap. As shown in detail in Fig. 2, this stem may comprise a nipple 5 having a shoulder 5A engaging the laterally inward face of the cap 2 and a nut 6 threaded on the said nipple and engaging the opposite face of the central portion of the cap so as to clamp the said stem rigidly to the cap. In practice, this nut preferably is latched by auxiliary means against rotating with respect to both the cap 2 and the stem 5 after the nut has been tightened, as for example by brazings B.

Then I provide a screw-shank 7 of a length shorter than the sum of the axial lengths of the above described end member (which member comprises the cap 2, the compressible ring or facing 3 and the stem 5), which shank is so much smaller in diameter than the bore of the outer tube 1 within which the shank is to extend that the inner tube 6 can be freely slid into the outer tube without touching the said shank.

The shank 7 has a thread T extending for the major portion of its length from one end of the shank while the other end portion of the shank is cylindrical, except for a peripheral groove G, and rotatably fits the bore of the tubular stem 5 so as to be journaled in that bore, this groove being in a part of the said shank which is normally within the said tubular stem as shown in Fig. 2.

Before inserting the said cylindrical end portion of the screw-shank 7 into or through the bore of the stem 5, I slide upon this shank portion a collar 8 and fasten this collar to the said shank, as by a rivet R, in such a position that the said collar will have one end bearing against the exposed end of the stem 5 when the shank has been slid into the said bore to a position in which the peripheral groove G is opposite a radial and threaded bore 9 in the said stem. In this threaded bore I insert a screw 10 which presents its tip end freely within the groove G to prevent the screw-shank 7 from sliding longitudinally, while still permitting that shank to rotate freely in the stem 5. Then I slide one end of the selected outer tube 1 over this cap and fasten this tube to the collar 8, as for example by spot welds W^1, thereby completing the assembly of one of the two unitary parts of my appliance.

For the companion part, I provide an inner tube 6 of larger bore than the diameter of the screw shank 7 and of such an outside diameter as to telescope freely into the bore of the outer tube 1, and fasten one end of this inner tube 6 to the other end member of my appliance—as for example by sleeving the said inner tube end upon a nipple 12 which is fastened to the cap 2A of the second end member and securing this tube end to the said nipple by a rivet R^1.

Then I fasten a nut to the inner tube 6 at a considerable distance from the aforesaid tube end, and desirably at the inward end of this inner tube. This nut desirably has a main portion 13 fitted into the last named tube end and fastened to the latter by spot welds W^3, and a larger diametered end portion 13A which bears against the adjacent end of the inner tube 6 so that any thrust tending to slide the nut farther into this tube will be received by this tube end, leaving the welds only for the purpose of preventing the nut from rotating in the inner tube.

When the just described second part has thus been assembled, the two parts can be compactly stored and shipped in a carton corresponding in length to the longer of the two (or to both, if the tubes are suitably selected as to their length), namely a length much less than that of the maximum wall spacing for which any stock length of my appliance was constructed; and each part can readily be manipulated as a unit.

To install the appliance between two opposed walls 14 (Fig. 1), the user first slides the nut-carrying end of the inner tube into the outer tube until the nut 13 engages the free end of screw shank 7 and then rotates the inner tube so as to advance the nut farther along the said shank, thereby shortening the "over all" length of the two assembled parts until this length is so much shorter than the spacing S (Fig. 1) between the said walls that my appliance can readily be held horizontally between these walls.

Then, while holding the inner tube with one hand so that the facing 3A on the end member attached to this tube presses against the adjacent wall, the user rotates the outer tube in a direction tending to screw the nut 13 off the threaded shank 7, thereby expanding my appliance until the facing on the end member to which the outer tube is swiveled also is pressed sufficiently against the wall adjacent to the last named end member so that friction will hold the appliance temporarily in its initial position.

The user can now release his hold on both tubes while he steps back to see how near the appliance is to the intended position. Then after grasping both tubes and slightly rotating the outer tube to relax the grip of the appliance, he can readily shift either or both end members as needed and then again expand it into its wall-supported disposition.

However, the manual grip of the average layman or laywoman is not sufficient for thus extending my appliance to such an extent that the compressing of the facings of the end members will resist the effect of the loads to which such an appliance may be subjected when it supports heavy curtains, overcoats or the like. For this reason, I provide a cross-bore 16 extending both through the outer tube 1, the collar 8 and the

screw-shank 7, so that a slender screw driver or even an ordinary wire nail can be inserted through this cross-bore, thereby enabling the user to rotate the inner tube with considerable leverage and without depending on any mere frictional grip.

By also including this provision, I have found that with my appliance constructed as in Figs. 1 to 4, I readily enable it to support loads of a hundred and even of two hundred pounds without any slippage. So also, if the parts are proportioned so that the inner tube still has a considerable portion thereof extending into the bore of the outer tube when my appliance is expanded to its intended maximum total length, the rigidity of the two tubes 1 and 6 together with their interfitting will enable my appliance to support even such heavy loads without any material bending of the bar-like assemblage of these tubes.

Furthermore, I have found that a relatively thin walled tube will suffice for each of the two unitary parts of my appliance, so that the exposed end of the larger diametered tube will offer no obstruction to a sliding of coat-hangers along the same and so that the difference in diameter between the two tubes is inconspicuous.

I have also found that if the outward ends of the nipple 12 and of the tubular stem 6 also are sealed by tightly fitting rubber stoppers, (as would be understood without illustrating it) each of the end members of that figure will be effectively sealed, so that the grip of the compressible facings 3A on the walls adjacent to them will be enhanced by atmospheric pressure when my appliance has been adequately expanded in length, by a "suction cup" effect.

In practice, the proportions of various parts of my here presented appliance may obviously be varied according to the purpose for which it is to be used and the spacing of the two walls which it is to span. For example, the diameters of the tubes may be considerably smaller when my appliance is to support a light curtain across the entrance to a bath room, or hook-carrying rings in a pantry, the diameters as well as the rigidity of the tubes can be considerably less than when my appliance is to be used for supporting clothes in a closet or niche, or for supporting either heavy curtains or a swing in a doorway.

However, while I have heretofore described my invention in an embodiment including details of construction and arrangement which I have found adequate, I do not wish to be limited in these respects, since many changes might be made without departing either from the spirit of my invention or from the appended claims. For example, the main portion of each end member of my appliance may consist of a metal casting 17, as shown in Figs. 6 and 7, instead of the cap, stem and nut assembly of Fig. 2.

So also, the shape and disposition of the compressible facing associated with each end member may be varied. Thus, Fig. 6 shows the outward face of the end member 17 as having a groove 17A entered by an annular rib 18A on a compressible ring 18 which bears flatwise against the outward face of the end member 17 at opposite sides of the said groove. In Figs. 7 and 8, the end member 17 has a flat-bottomed recess in its outward face, and the compressible element 19 has outwardly facing recesses 19A (as also shown in Fig. 7) for affording a suction cup action.

I claim as my invention:

1. A bar-like supporting appliance for horizontal disposition between two parallel opposed walls, comprising two alined end members each having a compressible facing bearing against one of the said walls; an inner tube rigidly fastened at one end to one end member and extending part way toward the other end member; an outer tube swiveled upon the other end member and sleeved upon and rotatable with respect to the inner tube; and threaded means housed conjointly by the tubes whereby a rotation of the outer tube in one direction with respect to the inner tube will move the said end members away from each other to press the end members respectively against the said walls.

2. A bar-like supporting appliance as per claim 1, in which the inner tube slidably and rotatably fits the bore of the outer tube.

3. A bar-like supporting appliance as per claim 1, in which the threaded means comprise a nut fastened to the inner tube and a threaded shank fast with respect to the outer tube, the said nut and shank being both coaxial with the said tubes.

4. A bar-like supporting appliance as per claim 1, in which the end member to which the inner tube is fastened comprises an outwardly open cap against which the adjacent end of the inner tube abuts, the said cap having a central perforation; and means extending through the said perforation and engaging the laterally outward face of the said cap for clamping the said end of the inner tube against the laterally inward face of the said cap.

5. A bar-like supporting appliance for horizontal disposition between two parallel walls, comprising in coaxial disposition two end members each having a face portion thereof compressible and adapted to bear against one of the said walls; an inner tube fastened at one end to the first of the end members; an outer tube having one end portion thereof slidably and rotatably sleeved upon the other end portion of the inner tube; a nut fastened to the said end portion of the inner tube and coaxial with the inner tube; a threaded shank housed by and coaxial with the outer tube and threaded through the said nut; and swiveling means interposed between the threaded shank and the second end member, the swiveling means being constructed for permitting rotation of the said shank with respect to the said other end member but preventing relative movement of the threaded shank and the said other end member.

6. A bar-like supporting appliance as per claim 5, in which the threaded shank has an unthreaded end portion extending into and journaled in the said second end member.

7. A bar-like supporting appliance as per claim 5, in which the said nut has a peripheral flange engaging the adjacent end of the inner tube to receive a back-thrust of the threaded shank in one direction.

8. A bar-like supporting appliance as per claim 5, in which the end member to which the outer tube is swiveled has a tubular stem, and the threaded shank has both an unthreaded portion journaled in the bore of the said stem and a peripheral groove in the said stem-bore housed portion; and in which the swiveling means include an element extending through a part of the said stem and into the said groove.

9. A bar-like supporting appliance as per claim 5, in which the swiveling means include a collar socketed in the outer tube and sleeved upon the threaded shank, and means extending diametri-

cally through the said collar and shank for fastening the collar to the shank.

10. A bar-like supporting appliance as per claim 5, in which the swiveling means include a collar socketed in the outer tube and sleeved upon the threaded shank, and means extending diametrically through the said collar and shank for fastening the collar to the shank; the said outer tube, collar and shank assembly having a diametric bore extending through all three of the said assembled parts for receiving an implement by which the said assembly can be manually rotated.

11. A bar-like supporting appliance as per claim 5, in which the end member associated with the inner tube comprises a cap-like main element against which the adjacent end of the inner tube abuts, a stem element fast upon the said main element and socketed in the bore of the inner tube, and means fastening the said stem to the inner tube.

HELMUTH R. KLAUDT.