May 15, 1945. J. E. SCHLENKERT 2,376,279

CEILING HANGER

Filed Sept. 27, 1943 2 Sheets-Sheet 1

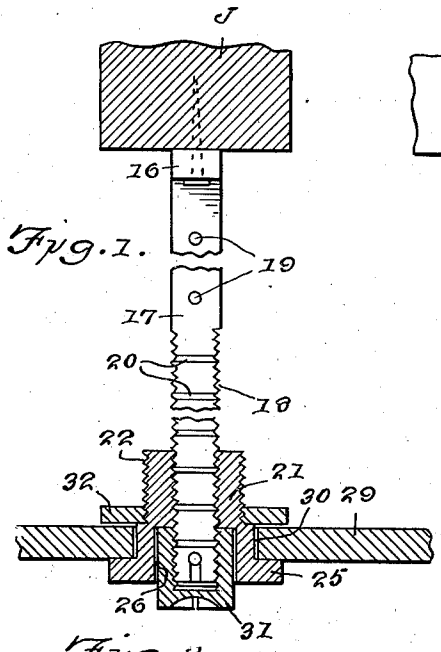


Fig. 1.

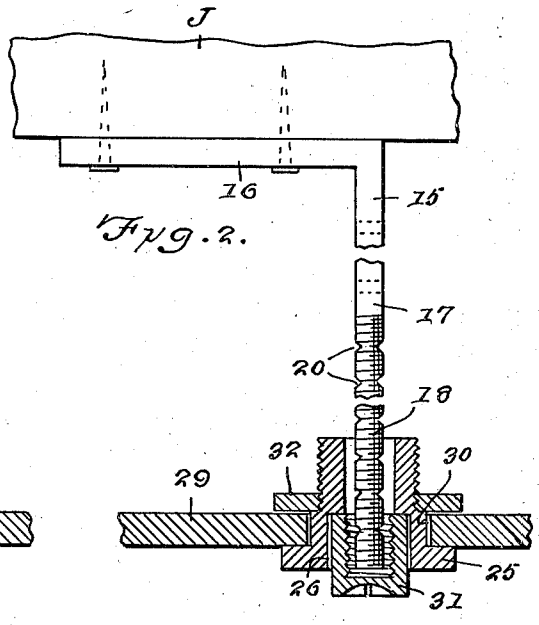


Fig. 2.

Fig. 3.

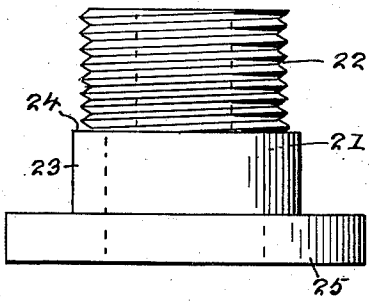
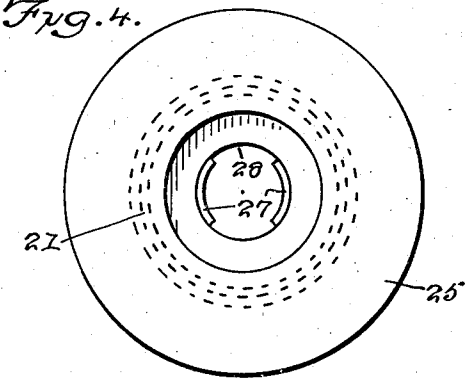


Fig. 4.



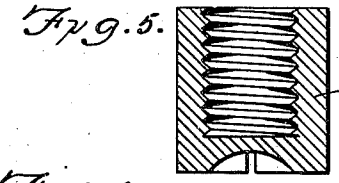


Fig. 5.

Fig. 6.

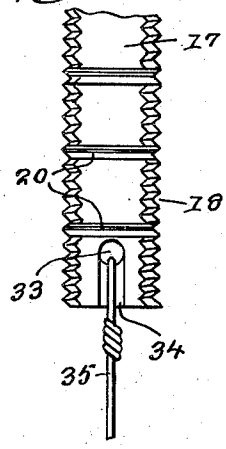
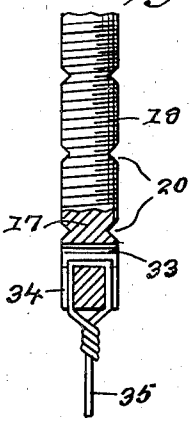


Fig. 7.



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CEILING HANGER

Filed Sept. 27, 1943 2 Sheets-Sheet 2

Fig. 8.

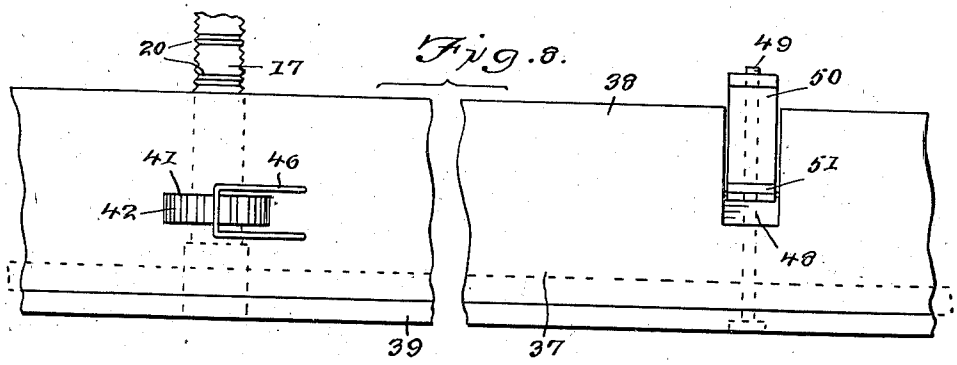


Fig. 9.

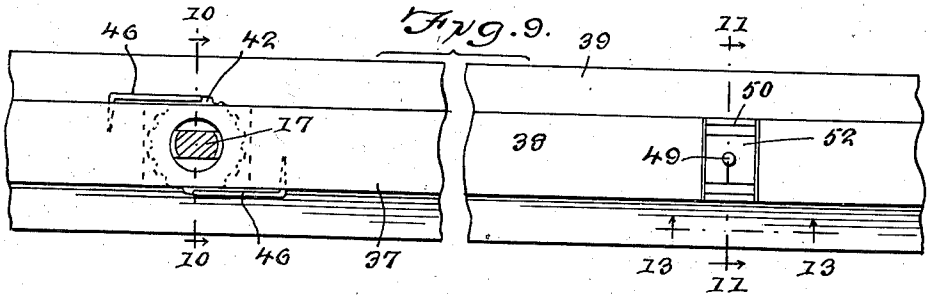


Fig. 10.

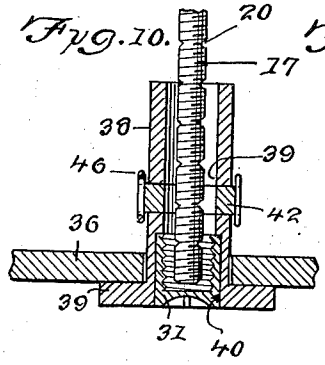


Fig. 11.

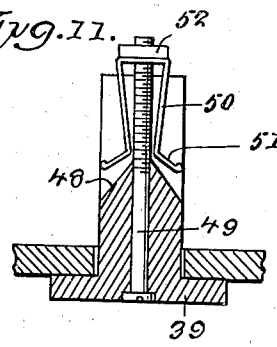


Fig. 12.

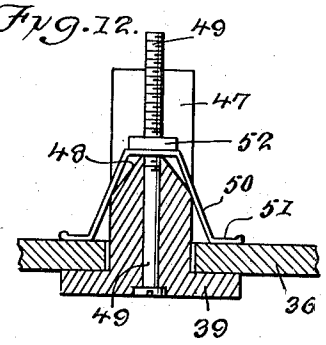


Fig. 13.

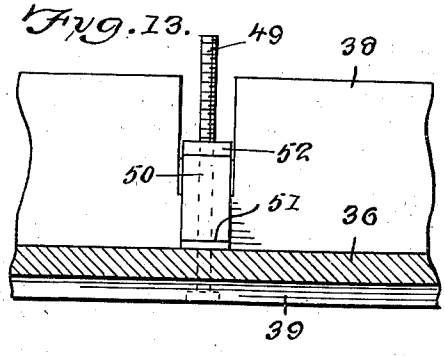
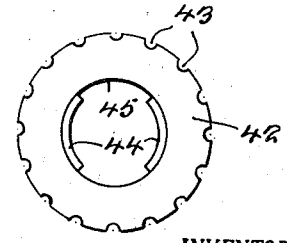


Fig. 14.



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2,376,279

CEILING HANGER

John Erwin Schlenkert, Detroit, Mich.

Application September 27, 1943, Serial No. 504,086

7 Claims. (Cl. 72—118)

The present invention relates to improvements in ceiling hangers and has for an object the provision of hanger structure designed so that suspended ceilings and the like may be quickly hung at a selected height with relation to a support structure.

Another object of the invention is to provide ceiling hanger means which will firmly and durably support a suspended ceiling.

A further object of the invention is the provision of ceiling hanger means which is relatively inexpensive in construction and efficient in use.

Other objects and advantages of the invention will become apparent as the description progresses.

In the accompanying drawings forming a part of this specification and in which like numerals are employed to designate corresponding parts throughout:

Figure 1 is a vertical sectional view through a preferred form of the hanger structure,

Figure 2 is a similar view taken at right angles to Figure 1,

Figure 3 is an enlarged elevational view of the support nut of the hanger,

Figure 4 is an end view of the same,

Figure 5 is an enlarged axial sectional view through a cap nut,

Figure 6 is a fragmentary face view of one of the hanger rods showing a guide wire connected thereto,

Figure 7 is a side elevational view of the same partly in section,

Figure 8 is a side elevational view of a modified form of the hanger structure,

Figure 9 is a top plan view of the same,

Figure 10 is a transverse sectional view taken on line 10—10 of Figure 9,

Figure 11 is a similar view taken on line 11—11 of Figure 9,

Figure 12 is a view similar to Figure 11 with the clip member in depressed position,

Figure 13 is a fragmentary longitudinal section taken on line 13—13 of Figure 9, and

Figure 14 is a plan view of the nut forming part of Figures 8 to 10 inclusive.

Referring to Figures 1 to 7 inclusive which illustrate a preferred embodiment of the invention 15 denotes a hanger bracket of L-shaped formation embodying a top fastening arm 16 and a right angular rod 17. The arm 16 is provided with a pair of spaced openings designed to receive nails or like fastening elements for attaching the arm to the underside of a joist J or the like. The rod 17 which depends vertically from one end of the arm 16 is in the form of a flattened threaded member, that is, it embodies a flattened rod having opposed flat faces and exteriorily threaded rounded opposed sides 18. This rod may advantageously have a plurality of fastening apertures 19 in its upper portion and at longitudinally spaced intervals has peripheral continuous grooves 20 providing weakened portions wherein the rod may be readily broken to obtain the desired length.

On its lower portion the rod 17 is adapted to carry a support nut 21 having a relatively long exteriorly screw threaded shank portion 22 the inner end of which is diametrically enlarged as indicated at 23 providing a protruding shoulder 24. At the end of the enlarged exteriorly smooth portion 23 of the shank is formed an outwardly directed radial flange 25. From the flanged end inward to the inner end of the threaded portion 22 the nut is provided with a relatively large circular bore 26 while the remaining length of the bore through the nut is shaped to provide a pair of diametrically opposed approximately quadrant shaped threaded portions 27 adapted to threadedly engage the threaded sides 18 of the rod 17. Between the interiorly threaded section 27 of the bore are provided longitudinal notches 28 of a diameter suitable to slide over the sides 18 of the rod.

Thus, in mounting the hangers, the arm 16 of each hanger bracket may be attached to the underside of a joist J in approximately horizontal position with the rod portion 17 depending therefrom. The rod is broken to the desired length by a rupture at one of the weakened grooved portions 20 at a point just below the desired height of a suspended ceiling structure 29, the support nut 21 being slidably fitted over and then turned to engage the threads 27 with the threaded sides 18 of the rod with the support nut extending through an opening 30, in the ceiling, of a diameter suitable to slidably receive the base portion 23 of the shank therethrough but smaller than the exterior diameter of the flange 25.

The support nut is then securely locked on the depending rod through the medium of an interiorly threaded cap nut 31 which is threaded over the lower end of the rod and projects within the enlarged bore 26 of the support nut to bear against a shoulder portion in the latter and lock the nuts firmly on the rod. As will be noted from Figures 1 and 2 the flange 25 bears against the underside of the suspended ceiling 29 about the margin of its opening. The ceiling is clamped

on the support nut through the medium of a relatively thin wide clamp nut 32 having interior threads engageable with the threads 22 on the support nut shank and screwed downwardly on the shank to assume clamping position with relation to the flange 25.

This construction provides a relatively simple hanger means which can be quickly mounted in position to support a suspended ceiling at a desired height. As will be readily apparent, the arm 16 may be directly attached to flooring or the like or the hanger bracket may be supported by fastening elements extended through the apertures 19 in the rod and connected to the side face of a joist or the like. In order to facilitate the alignment of the support nut with the depending bracket rod 17 the bottom end portion of the rod may be provided with a bore 33 transversely therethrough and grooves 34 in the faces leading to the bore for the attachment of a wire or other lead elements 35 which is looped through the bore and grooves to lead the nut onto the rod.

In a modified form of the invention shown at Figures 8 to 14 inclusive, the suspended ceiling structure indicated at 36 is directly supported on longitudinal strips or moldings 37 embodying a rectangular vertically elongated web 38 and laterally extending flanges 39 at the bottom of the web. At spaced intervals the web 38 is provided with vertical through bores embodying an upper part 39 and a bottom part 40 of increased diameter. Medially of its top and bottom edges the web 38 of the strip is provided with transversely registering longitudinally elongated slots 41 opening into each bore 39 and of a size to receive therethrough a flat faced nut 42. The exterior of this nut is provided with a plurality of axially directed grooves 43 for convenient turning while the center opening is formed to provide a pair of diametrically opposed quadrant shaped interiorly threaded sections 44 with notches 45 therebetween. This nut is designed for slidable and threaded engagement with a hanger rod 17 corresponding to that of the preferred form of the invention and is releasably locked on the rod and the web of the strip 37 by means of U-shaped staple elements 46 driven into the opposite sides of the web and bent flat thereagainst for resilient engagement with the grooves 43 in the exterior of the nut.

The support strip 37 is additionally supported on each hanger rod by one of the cap nuts 31 threaded on the lower end of the rod and fitted within the enlarged bore portion 40 as shown at Figure 10.

Intermediate its connections with the hanger rods 17 the strip 37 is provided with a part having a transverse notch 47 and downwardly diverging chamfered faces 48 at the base of the notch and substantially above the bottom flanges 39. Through this notched portion is provided a vertical bore designed to slidably receive a vertical threaded bolt 49 having the head portion at the bottom fitted in a counterbore in the strip with the threaded portion of the bolt projecting above the chamfered base portion of the notch.

On the upwardly protruding portion of the bolt 49 is slidably fitted a spring clip 50 of essentially U-shaped formation having a center opening in the top transverse part slidably fitting over the bolt with the side legs normally assuming downwardly converging relation. At the lower free end each side leg of the clip is provided with an outwardly directed lip portion 51 while a square nut 52 is disposed to engage the threaded extension of the bolt 49. As shown to advantage at Figures 11 and 12, the clip is mounted in operative position by sliding the same downwardly on the bolt 49 wherein the lips 51 contact the chamfered sides 48 to spread the clip legs so that the clip is lowered until the lips thereof are pressed downwardly on the ceiling 36. The nut 52 threadedly engaging the bolt 49 firmly maintains the clip in depressed position to clamp the margins of the ceiling against the flanges 39 of the support strip.

Thus, the flat supporting nuts 42 having sliding and thread engagement with the depending hanger rods 17 serve to support the strips or T-bars 37 horizontally at a selected height, the nut having an exterior diameter exceeding the thickness of the web 38 of the T-bar for suitable adjustment while the cap nut 31 thereon locks the bar in position. The margins of the suspended ceiling sections 36 are disposed to overlap and rest on the bottom lateral flanges 39 of the bar and, at spaced intervals, are clamped thereon by the resilient clamping element or clips 50.

It is to be understood that the form of my invention herewith shown and described is to be taken as a preferred example of the same and that various changes relative to the material, size, shape and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

Having thus described my invention, I claim:

1. In a ceiling hanger, a flattened hanger rod having its opposed relatively narrow sides screw threaded, a nut having circumferentially spaced threaded portions interiorly thereof with notches therebetween adapted for sliding and threaded engagement with said rod, a flange at the base of the nut for supporting a ceiling, and means for locking the ceiling on the flange.

2. A flattened hanger rod adapted to be supported in a depending position, the said rod having its opposed relatively narrow sides screw threaded, a nut having circumferentially spaced threaded portions interiorly thereof with notches therebetween adapted for sliding and threaded engagement with the rod, means held in adjusted position by the nut for supporting a ceiling, and means for locking the support means on the rod.

3. A flattened hanger rod adapted to be supported in a depending position, the said rod having its opposed relatively narrow side screw threaded, a nut having circumferentially spaced threaded portions interiorly thereof with notches therebetween adapted for sliding and threaded engagement with the rod, said nut having a ceiling support flange at its bottom end and provided with external screw threads at its upper portion, and a flat nut threaded on the upper threaded portion of the support nut cooperative wtih the flange for holding a ceiling against vertical movement.

4. In a ceiling hanger, a vertically supported threaded rod, a nut slidably and threadedly engageable with the rod, a flanged ceiling support bar having a vertical bore slidable over the rod and provided with slots in the side thereof to receive the nut, and means on the bar resiliently engageable with the nut for releasably locking the latter in adjusted position.

5. In a ceiling hanger, a vertically supported threaded rod, a nut slidably and threadedly engageable with the rod, a flanged ceiling support bar having a vertical bore slidable over the rod and provided with slots in the side thereof to re-

ceive the nut, a spring element secured to the side of the bar resiliently engageable with the exterior of the nut for releasably locking the same, and means slidably mounted on the bar for resiliently clamping ceiling sections on the bar flanges.

6. In a ceiling hanger, a hanger rod having spaced screwthreaded portions with unthreaded portions therebetween, and spaced grooved weakened portions at intervals throughout its length to permit reducing the length of the rod to conform to the ceiling to be hung, a nut having circumferentially spaced internal threaded portions adapted for sliding and threaded engagement with the rod, a flange on the nut for supporting a ceiling, and a nut on the exterior of the first nut for clamping the ceiling on the flange.

7. In a ceiling hanger, a vertical threaded rod, a nut slidably and threadedly engageable with the rod, a flanged ceiling support bar having a vertical bore slidable over the rod and provided with slots in the side thereof, said nut carried in the slots and accessible from the outside of the bar and having a plurality of exterior grooves substantially U-shaped resilient staple elements secured in the sides of the bar, and engaging in the grooves of the nut to releasably lock the same, and means on the bar for resiliently clamping ceiling sections on the bar flanges.

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