

[54] EXTENSIBLE LOAD BRACING DEVICE

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[58] Field of Search **248/354 S, 354 R, 405; 211/105.4, 123; 254/98; 403/44, 46, 49, 43**

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Primary Examiner—J. Franklin Foss

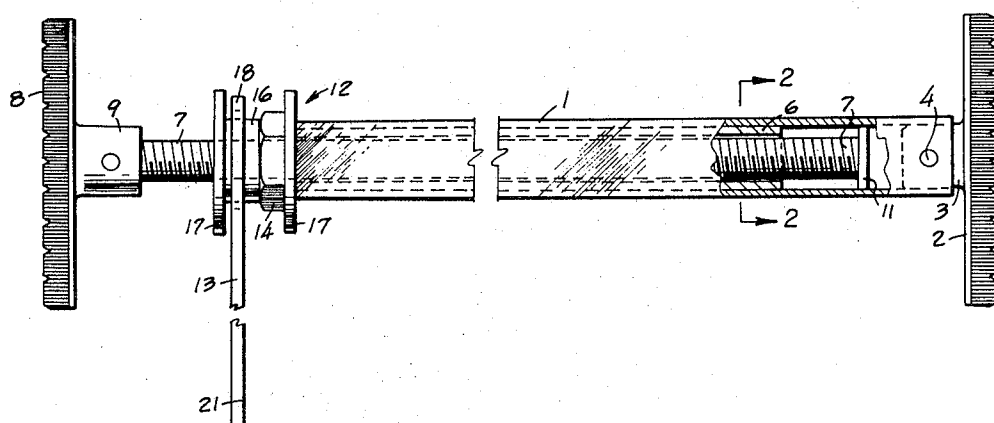
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[57]

ABSTRACT

The bracing device has a steel tube with a rubber covered foot at one end thereof, which tube has a rectangular cross-section; a sleeve is welded inside of the tube and a threaded rod is extended through the sleeve. The inner end of the threaded rod has a square washer slideably fitting into the interior of the tube so as to prevent the rotation of the threaded rod; on the outer end of the threaded rod is the other rubber covered foot for bracing; for adjusting the length of the brace a nut is provided on the threaded rod adjacent the open end of the tube, which nut has a hexagonal portion and a cylindrical portion, and an enlarged disk at each end for manually turning of the nut; a captive wrench is permanently on the nut; the hexagonal opening on the captive wrench fits over the hexagonal portion of the nut but is freely movable over the reduced cylindrical portion of the nut whereby the wrench can be located on the hexagonal portion of the nut in any selected position for conveniently turning the nut in restricted space for changing the length of the brace.

1 Claim, 3 Drawing Figures



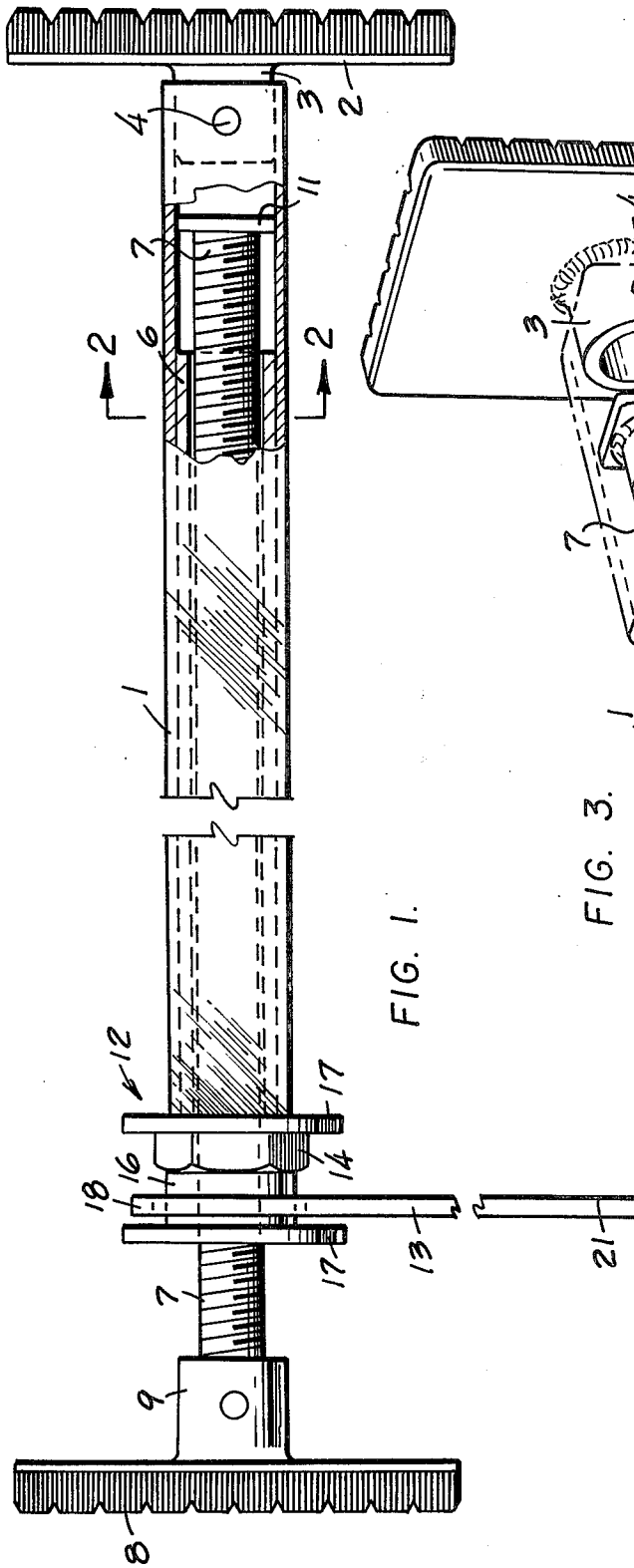


FIG. 1.

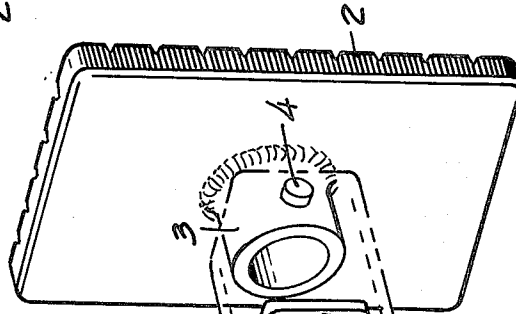
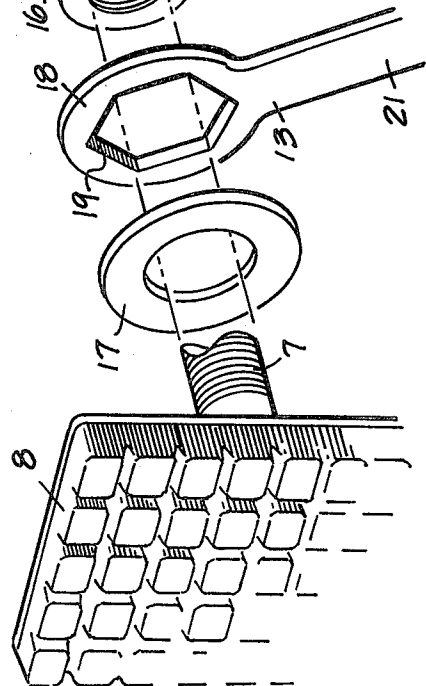


FIG. 2.

FIG. 3.



EXTENSIBLE LOAD BRACING DEVICE

BACKGROUND OF THE INVENTION

This invention relates to the type of brace shown in U.S. Pat. No. 3,049,328.

In the prior art nut and wrench combination has been utilized by extending a tubular member as shown in U.S. Pat. No. 2,594,443, but in that patent as well as other patents of which applicant is aware, complicated ratchet mechanisms are utilized. Such prior patents are U.S. Pat. No. 2,186,238, 2,080,530, and also the turn buckle arrangement in the early U.S. Pat. No. 835835.

The primary advantage of the herein invention is that the adjustment of the length of the brace can be accomplished in restricted and limited space by reason of the particular arrangement of the specific nut designed with the captive wrench which permits initial spinning by hand and then the location of the wrench at a suitable angle to permit the tightening of the nut and the brace in the adjusted position.

BRIEF DESCRIPTION OF DRAWINGS

FIG. 1 is a partly sectional fragmental view of the brace assembly.

FIG. 2 is a cross-sectional view taken on lines 2—2 of FIG. 1.

FIG. 3 is a developed view of the parts of the threaded rod and captive wrench.

DETAILED DESCRIPTION

A tube 1 of square cross-section has on one end a usually rubber covered foot 2 mounted by way of a stem 3 held in place by a cross-pin 4. A sleeve 6 of cylindrical interior is fixed in the square tube. In the present illustration the interiorly cylindrical sleeve 6 is welded inside the square tube 1 so that the inner end of the sleeve 6 is spaced from the foot end of the tube 1.

A rod 7 threaded throughout its entire length is inserted through the sleeve 6. On the outer end of the rod 7 is secured another rubber covered foot 8, the hub 9 of which is mounted on the end of the rod 7. The inner end of the rod 7 has a head 11 thereon slideably fitting into the square or rectangular interior of the tube 1 so as to prevent the turning of the rod 7. This rod is assembled into the tube before the foot 8 is secured thereon and before the foot 2 is secured on the end of the tube 1. Namely, the rod is inserted from the foot end of the tube 1 because the head 11 is larger than the diameter of the sleeve 6. The space between the inner end of the sleeve 6 and the stem 3 of the foot 2 is of sufficient length to permit the necessary change of length of the brace by the movement of the threaded rod 7.

Adjacent the open end of the tube 1, namely between the tube 1 and the hub 9 is provided a nut 12 with a captive wrench 13 thereon. The nut 12 is threaded on the rod 7 and it has an exterior hexagonal portion 14 and a turned down or reduced cylindrical neck 16. At each end of the nut is fixed a disk 17 of larger diameter than the nut, which disk can be engaged manually for spinning the nut on the threaded rod 7.

The wrench has a head 18 with a hexagonal socket 19 fitting over the hexagonal portion 14 of the nut. This socket 19 is considerably larger than the outer diame-

ter of the reduced cylindrical portion 16 of the nut. A handle 21 extends from the head of the wrench 18 so as to hang freely when the socket 19 is on the cylindrical portion 16 of the nut 12.

In operation the nut is spun manually on the threaded rod 7 thereby to change the length of the portion of the rod 7 projecting from the open end of the tube 1. When the adjusted length of the brace approximates the distance between the walls against which the feet 2 and 8 are to be pressed, the wrench is adjusted to a suitable angle as permitted by the working space and the socket 19 is slipped over the hexagonal portion of the nut and the nut is turned by the wrench handle 21 respectively to tighten or loosen the brace to the limit of the space for the operation. When the limit is reached the socket 19 of the wrench is slipped off the hexagonal portion 14 of the nut 12 and readjusted into its starting position and slipped over the hexagonal portion again for the next turn.

The brace herein described is simple in structure and operation; it eliminates the necessity for the expensive and complicated ratchet mechanisms and also rack and pawl mechanisms used in the prior art; it permits operation in places where the space is very limited for manipulation of the telescopic members for length adjustment; it provides for quick and easy proximation of the length of the space in which the brace is to be located and then provides for quick and simple tightening or loosening of the brace as required.

I claim:

1. In an extensible load bracing device for engagement with opposite walls,

a tubular member of polygonal cross-section,

a threaded rod telescoped in the tubular member,

a fixed sleeve in said tubular member having cylindrical inner periphery to slideably hold said rod,

said rod being extended beyond an end of said tubular member,

a foot on the other end of said tubular member,

a foot on the outer end of said rod,

a nut threaded on said rod adjacent said tubular member,

a neck of reduced diameter on said nut,

a wrench head fitting over said nut for turning the nut,

said reduced portion being of smaller diameter than the interior of the wrench head to allow loose angular adjustment of said wrench head,

a wrench handle extended from said wrench head for manipulating said wrench head for repeated turning of said nut,

and an enlarged disk on each end of said nut for manually turning the nut independently of the wrench head,

the interior of said wrench head forming a socket fitting over said nut being loosely turnable on said cylindrical portion,

and a head on the rod having polygonal periphery slidable in the polygonal inner periphery in said tubular member,

the inner end of said fixed sleeve being spaced from foot end of the tubular member to determine the limit of movement of said head and of said rod.

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