

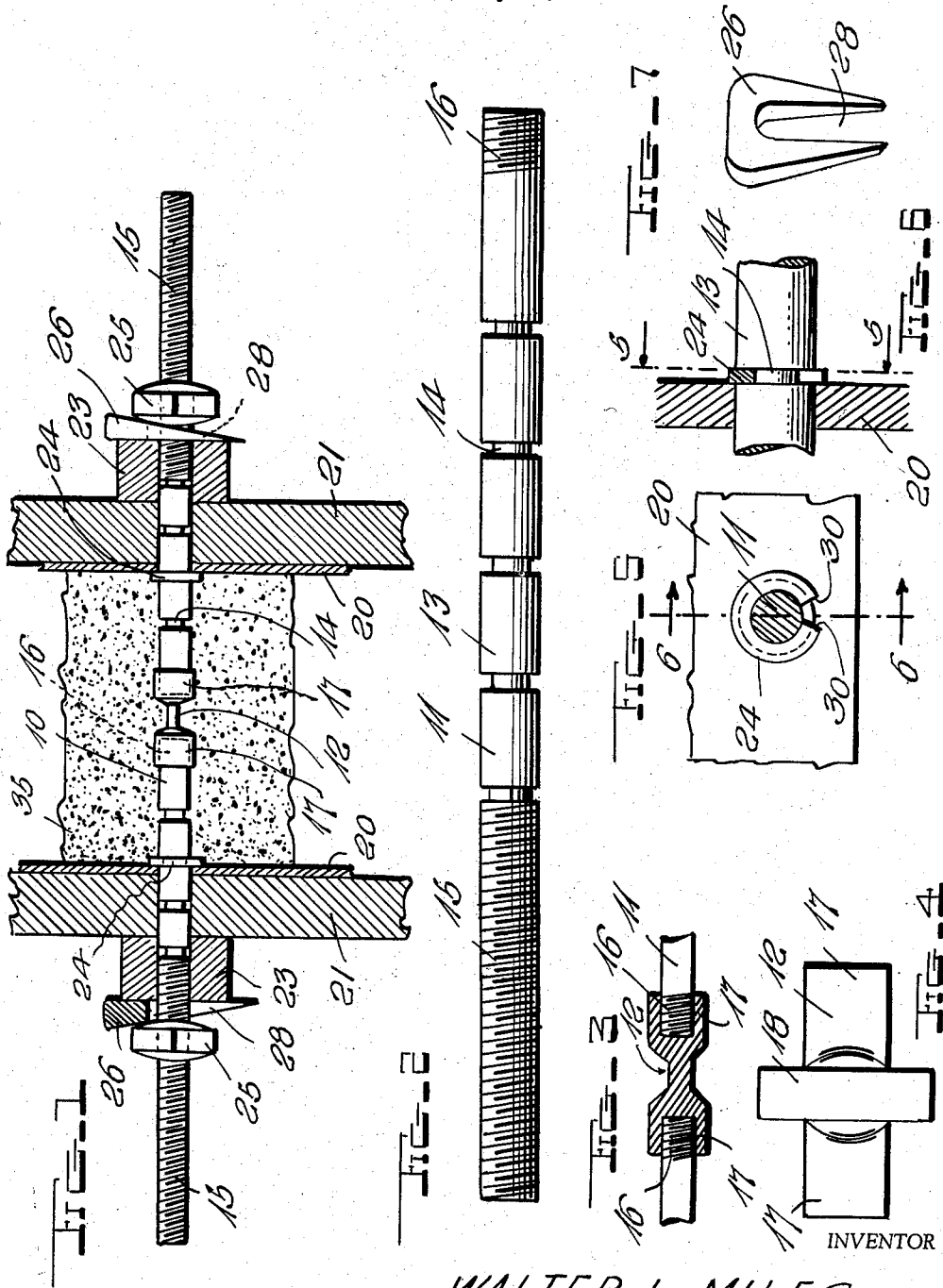
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TIE-ROD FOR CONCRETE FORMS

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**TIE-ROD FOR CONCRETE FORMS**

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1 Claim. (Cl. 25—131)

This invention relates to a tie-rod for concrete forms which is readily adaptable to a plurality of forms and which may be employed in a multiplicity of uses.

A primary object of this invention is the provision of a tie-rod which may be employed with a wide range of forms and readily adapted without modification of the tie-rod per se to a relatively wide range of concrete or other suitable forms.

A still other object of this invention is the provision of the tie-rod which by employment with a suitable washer with a suitable groove may provide a desired width between the opposite sides of the concrete form.

A still further object of this invention is the provision of means whereby a pair of oppositely disposed substantially identical tie-rods may be connected by means of a coupling to conjoin said pair into a reciprocal assembly of a selected width to hold upright a pair of forms or side plates for a concrete or other cementitious assembly in desired relationship.

A further object of this invention is the provision of a tie rod of such marked simplicity in design that the more or less cumbersome accessories required by previous tie rods are not required.

A still further object of the invention is the provision of a device of this character which may readily, and with a minimum of effort and difficulty be applied to a wide variety of spacings of side walls, for the purpose described and which when adjusted by suitable shims or the like, will provide a pair of equidistantly spaced substantially parallel concrete retaining walls of the character described.

Still other objects reside in the combination of elements, arrangements of parts and features of construction, all as will be more fully described hereinafter and disclosed in accompanying drawings wherein there is shown one preferred embodiment of this inventive concept.

In the drawings:

Fig. 1 is a side sectional view of one form of the instant invention, shown as applied to a concrete form.

Fig. 2 is a side elevational view of one of the elements comprising a portion of the instant invention on an enlarged scale.

Fig. 3 is a fragmentary sectional view of the coupling between sections of the tie-rod.

Fig. 4 is a plan view of the coupling of Fig. 3.

Fig. 5 is a sectional view taken along the line 5—5 of Fig. 6 as viewed in the direction indicated by the arrows.

Fig. 6 is a sectional view taken along the line 6—6 of Fig. 5 as viewed in the direction indicated by the arrows.

Fig. 7 is a perspective view of the shim or wedge adapted for vertical alignment of the walls with the tie-rod.

Similar reference characters refer to similar parts throughout the several parts of the drawing.

Having reference now to the drawings in detail, there is generally indicated at 10 a tie-rod assembly comprised of two oppositely disposed rod sections 11 connected by

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a central coupling 12. Each of the rod sections 11 consists of an elongated shank 13 having a plurality of spaced grooves 14 throughout and including a long threaded end 15 and a short threaded end 16.

5 The tie-rod sections 11 are adapted to be connected by coupling 12 which comprises two aligned internally threaded cups 17 adapted to engage the short ends 16 of opposed sections 11, the cups 17 being connected by an elongated rectangular shank 18 which is disposed transversely of the axes of the cups to preclude turning of the coupling and rod sections when rotative movement is applied to the rod sections in a manner to be more fully described hereinafter.

10 The tie-rod of the instant invention is adapted to secure in aligned position a pair of spaced apart wall forms 20 or the like which may be comprised of plywood or similar suitable material.

15 Forms 20 are backed at suitable spaced intervals by studs 21 which through suitable apertures 22 therein are connected by tie-rod assemblies 10. Washers 23 also suitably apertured back up studs 21.

20 The spacing of forms 20 is governed by the positioning of split washers 24 in a selected one of grooves 14. These grooves are spaced apart a predetermined distance, as, for example, one inch and hence the positioning of washers 24 will determine the thickness of the cement wall.

25 On the outer side, and on the long threaded ends 15 of rods 11 are positioned nuts 25 which are suitably tightened to provide a uniform surface between forms 20, further minor adjustments being effected by means of split, wedge-shaped shims 26 which, as shown in Fig. 7 are split as at 28 to straddle rods 11' and provide a firm connection between the tie-rods and the forms.

30 Having further reference to the washer, it is to be noted that the same is provided with spring ends 30, which latter are adapted to encircle either or both of the tie-rods 11 in any one of the grooves 14 to provide a suitable flexibility and adaptability of dimensions as between the walls 20.

35 In the use and operation of the device, the tie-rod assembly 10 is adapted to remain in the form until concrete 35 is poured and adapted to harden therearound, whence by rotation by either of the tie-rods 10 to disengage the same from coupling 12 a tie-rod assembly may be removed, or alternatively may remain in the concrete form to serve as an attachment therefore for wooden railing pieces commonly called lagging.

40 From the foregoing, it will now be seen that there is herein provided an improved tie-rod assembly which accomplishes all of the objects of this invention and others including many advantages of great practical utility and commercial importance.

45 As many embodiments may be made of this inventive concept and as many modifications may be made of the embodiment hereinbefore described and shown, it is to be understood that all matter herein is to be interpreted merely as illustrative and not in a limiting sense.

60 What I claim is:

A tie-rod assembly for alignment of laterally spaced forms adapted for the reception of cementitious material therebetween, comprising a pair of axially aligned rods, each having oppositely threaded ends, a coupling member disposed between said forms comprising a pair of internally threaded cups for threaded engagement with the adjacent ends of said rods, an elongated rectangular shank unitary with and disposed between said cups in right angular relation to the axes thereof, said shank being adapted for embedment in said material for preventing rotation of said cups about their axes, said rods

each being provided with a series of axially spaced circumferential grooves having cylindrical bases, a split washer for selective reception in one of the grooves in each rod for engagement with the inner face of a respective form, said washers being resilient whereby the same are yieldably expansible to pass over the cylindrical bases of the grooves, and means externally of said forms for holding the same against said washers including a waler supported by each rod adjacent the outer face of a corresponding form, a nut threaded on each rod outwardly of said waler, and a split wedge-shaped shim engaged with each rod and disposed between the respective waler and nut.

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