April 19, 1938. S. S. COLT 2,114,590

REENFORCEMENT SUPPORTING MEANS FOR CONCRETE FORMS

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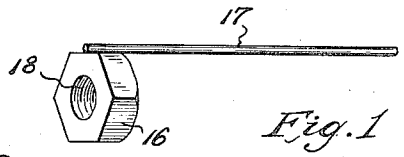


Fig. 1

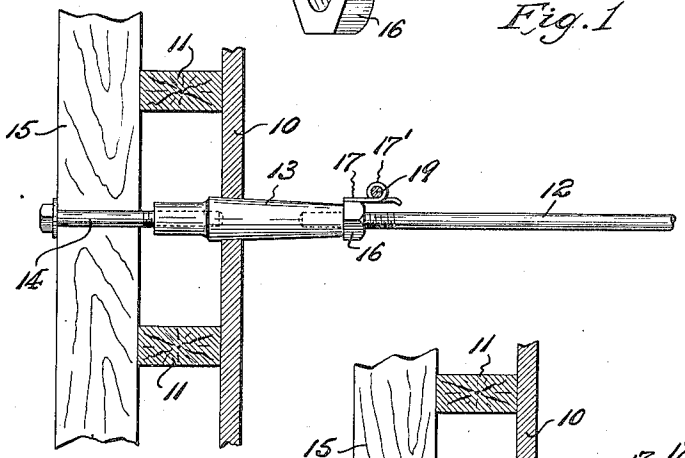


Fig. 2

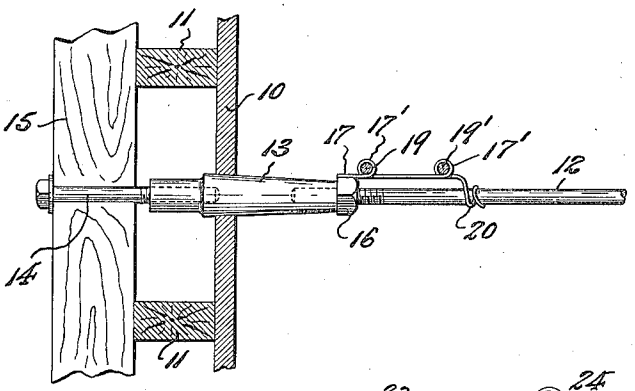


Fig. 3

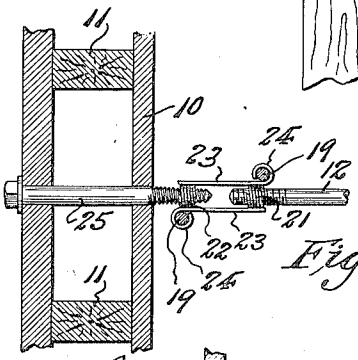


Fig. 6

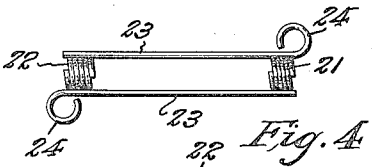


Fig. 4

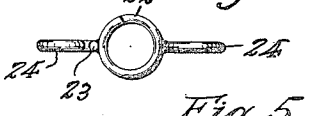


Fig. 5

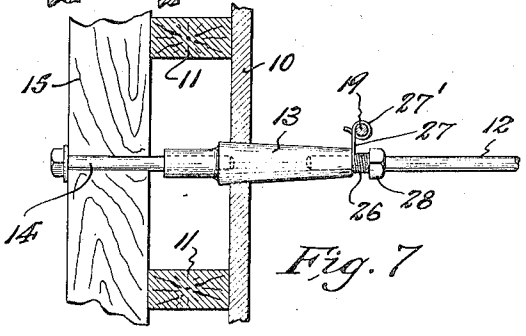


Fig. 7

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REENFORCEMENT SUPPORTING MEANS FOR CONCRETE FORMS

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2 Claims. (Cl. 72—122)

This invention relates to concrete casting forms; and the invention has reference, more particularly, to improved means for holding within a form interior, preparatory to casting concrete material therein, reenforcing rods or bars desired to be imbedded in the concrete structure molded by the form.

This invention has for an object to provide a simple, efficient and easily applied and manipulated means whereby reenforcing rods or bars may be associated with form wall tying or spreading means, so as to be held in desired positions within the form interior while concrete material is poured into the latter, and so as to be enveloped by the poured concrete, and thus imbedded therein as a reenforcement thereof.

Other objects of this invention, not at this time more particularly enumerated, will be understood from the following description of the same.

Illustrative embodiments of this invention are shown in the accompanying drawing, in which:

Fig. 1 is a perspective view of one type of reenforcement supporting means according to this invention; and Fig. 2 is a fragmentary horizontal sectional view of a form wall structure and tying means therefor, the novel reenforcement supporting means of Fig. 1 being shown in its operative relation thereto.

Fig. 3 is a view similar to that of Fig. 2, but showing a modified arrangement and use of the reenforcement supporting means.

Fig. 4 is a plan view of a modified type of reenforcement supporting means, which is also adapted to serve as tying means coupler; Fig. 5 is an end view of the same, drawn on an enlarged scale; and Fig. 6 is a fragmentary horizontal sectional view of a form wall structure and tying means therefor, showing the use of said modified type of reenforcement supporting means.

Fig. 7 is also a fragmentary horizontal sectional view of a form wall structure and tying means therefor, but showing still another modified type of reenforcement supporting means in operative relation thereto.

Similar characters of reference are employed in the above described views, to indicate corresponding parts.

Referring to the drawing, the reference character 10 indicates a form side and 11 the battens which brace the same. When, for example, a form is constructed for molding a wall, form sides such as 10 are opposed to each other in desired spaced relation, and are secured in place by tie-rods 12 which extend therebetween for connection with fittings for attachment thereof to the form sides. For example, as shown in Fig. 2 a form penetrating sleeve or cone 13 is extended through the side 10. The bore of the sleeve or cone 13 is screw threaded, whereby a correspondingly screw-threaded end portion of the tie-rod 12 may be screwed into the inner end portion of said sleeve or cone. A fastening bolt 14 is engaged with wales 15, which cross the battens 11, and is screwed into the outer end portion of said sleeve or cone, thus holding the opposed sides of the form tied together against displacement when concrete material is cast into the form interior.

It is frequently desired to insert within the form interior reenforcing elements to be imbedded in the concrete mass molded by the form. Usually these reenforcing elements comprise metallic rods or bars disposed in upstanding or inclined positions within the form interior. The present invention provides a novel means for attaching these rods or bars to the tying means so as to support the former in desired locations, and suitably spaced from the form sides. One type of reenforcement supporting means, as shown in Figs. 1 and 2, comprises a perforate body member 16 to engage the tie-rod 12, said body member having permanently affixed thereto, by brazing, welding or otherwise, a strip, rod or wire 17 of bendable metal, adapted to extend from a side thereof. Preferably said body member 16 is provided with a threaded bore 18 sized to receive a threaded end portion of the tie-rod 12, although, if desired, the threads may be omitted leaving the bore smooth, although sized to permit the insertion of the tie-rod 12 therethrough, preferably with a snug or somewhat frictional fit. Prior to engaging the tie-rod 12 with the form side fittings, such e. g. as the sleeve or cone 13, the body member 16 is engaged on the tie-rod, so that, when the latter is operatively assembled with the form sides and associated fittings, the body member 16 and its bendable extension 17 will be disposed within the form interior, preferably in abutting relation to the inner extremity of the sleeve or cone 13. In using the reenforcement supporting device thus provided, a suitable reenforcing rod or bar 19 is entered within the form interior, and suitably disposed for extension from bottom to top of the latter adjacent to a tie-rod 12 and contiguous to the bendable extension 17 of the described supporting means, whereupon the latter is bent around the rod or bar 19, in embracing relation thereto, as indicated at 17', thus holding and supporting the rod or bar against accidental displacement, and so spaced

relative to the form sides as to be enveloped by and imbedded in the concrete material, when the latter is cast into the form (see Fig. 2).

It will be obvious that the bendable extension 17, as projected from the carrying body member 16, may be made in any suitable length within reasonable limits. For example, it may be made long enough to accommodate a plurality of reenforcing rods or bars, where such an arrangement of the latter is desired. This is illustratively shown in Fig. 3 wherein two reenforcing rods or bars 19 and 19' are shown spaced apart, and each embraced by a holding bend or encirclement 17' of the bendable extension 17, the latter being made long enough to accommodate itself to the desired spaced relation of said rods or bars, and so as to provide sufficient length for the formation of the holding bends or rod or bar encircling portions thereof. In such arrangement, further stability of the supporting effect of the reenforcement supporting or holding means may be provided by engaging or winding the free end portion of the bendable extension 17 around the tie-rod 12 as indicated at 20. This portion 20 could be brazed to the tie-rod and used with or without the nut member 16.

Referring to Figs. 4 to 6 inclusive of the drawing, a somewhat modified type of the reenforcement supporting or holding means is shown. In this type is so constructed as to provide, in a unitary device, both means for embracing and holding the reenforcing rods or bars 19, and also for engaging the tie-rod 12 itself from side holding means. To this end the device comprises nut-pieces 21 and 22, disposed in longitudinally aligned and spaced relation, and permanently affixed together by side bars or strips 23 which are brazed, welded or otherwise suitably affixed to corresponding opposite sides of the nut-piece. Said nut-pieces 21 and 22 may, if desired, be formed by helically coiled wire, the pitch of the helices being in correspondence to the pitch of screw-threaded elements desired to be engaged therewith. The side bars or strips 23 are formed to provide one or more freely extending end portions or holding extensions 24, which project beyond the outer end of the adjacent nut-piece, said holding extensions 24 being adapted to embrace and support reenforcing rods or bars 19, as will subsequently appear. In the use of this modified type of device, a nut-piece at one end thereof, e. g. the nut-piece 21, is screwed onto the tie-rod 12, and thereupon a suitable fastening means, such e. g. as the lag screw 25, is passed through the form side wall structure and screwed into the nut-piece, as 22, at the opposite end of the device, thus tying opposed form side structures together in desired spaced apart relation. The form sides being thus erected, one or more reenforcing rods or bars 19 may thereupon be inserted into the form interior so as to be embraced by the holding extension or extensions 24, and thus supported subject to envelopment by concrete material, when the latter is cast into the form.

In Fig. 7 there is shown a further modified type of reenforcement supporting or holding means. In this arrangement thereof, a body member 26 is formed by helically winding or coiling a strip of wire into cylindrical form, and preferably so as to provide a helical pitch in correspondence to the pitch of a screw-threaded end of a tie-rod 12, whereby, if desired, the body member thus formed may be screwed onto the latter, although this is not essential. One end portion of the wire coil which forms the body portion 26 provides a freely and laterally projecting bendable extension 27. In the use of this type of device, the body portion 26 is engaged on the tie-rod 12, preferably so as to abut the inner end of the sleeve or cone 16, and thereupon said freely projecting bendable extension 27 is bent around a reenforcing rod or bar 19 which is inserted into the form interior so as to be embraced and held by the resulting encircling portion 27' of said extension 27. If desired, a nut 28 may be also screwed onto the tie-rod 12 behind the body portion 26, and this nut 28 may be affixed to the end of said body portion 26 by brazing, welding or otherwise if desired. If the nut 28 is internally threaded to engage the tie-rod 12, the body-portion 26 need not be screwed thereon, but merely slid thereon, and vice versa.

Variations of the form of the reinforcement holding or supporting means, other than those already referred to may also be made, and many apparently widely different embodiments of this invention could be made without departing from the scope thereof as defined in the herefollowing claims. It is therefore intended that all matter shown in the accompanying drawing or contained in the foregoing description shall be interpreted as illustrative and not in a limiting sense.

I claim:

1. Holding means adapted for use with a form wall structure, comprising an anchor means to be affixed to the wall structure and to project in part interiorly of the same, a tie-rod for connection with said interiorly projecting part of said anchor means, said tie-rod having a screw-threaded end portion, a member threaded onto said tie-rod end portion for adjustable disposition thereon, and said member having a bendable coupling wire element affixed by one end portion to said member with its other end portion freely extending from the latter, said element being adapted to be bent into encircling and supporting relation to a reenforcement rod disposed in angularly extending adjacent relation to said tie-rod.

2. Holding means adapted for use with a form wall structure, comprising an interiorly penetrating sleeve having an internally threaded bore, anchor bolt means to engage the outer end of said sleeve to affix the same in adjusted relation to the wall structure, a tie-rod having a threaded end portion to engage the inner end of said sleeve, a nut threaded onto said tie-rod end portion for adjustable disposition thereon, and a coupling wire element affixed by one end portion to said nut with its other end portion freely extending from the latter, said element being adapted to be bent into encircling relation to a reenforcing rod disposed in angularly extending adjacent relation to said tie-rod.

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