

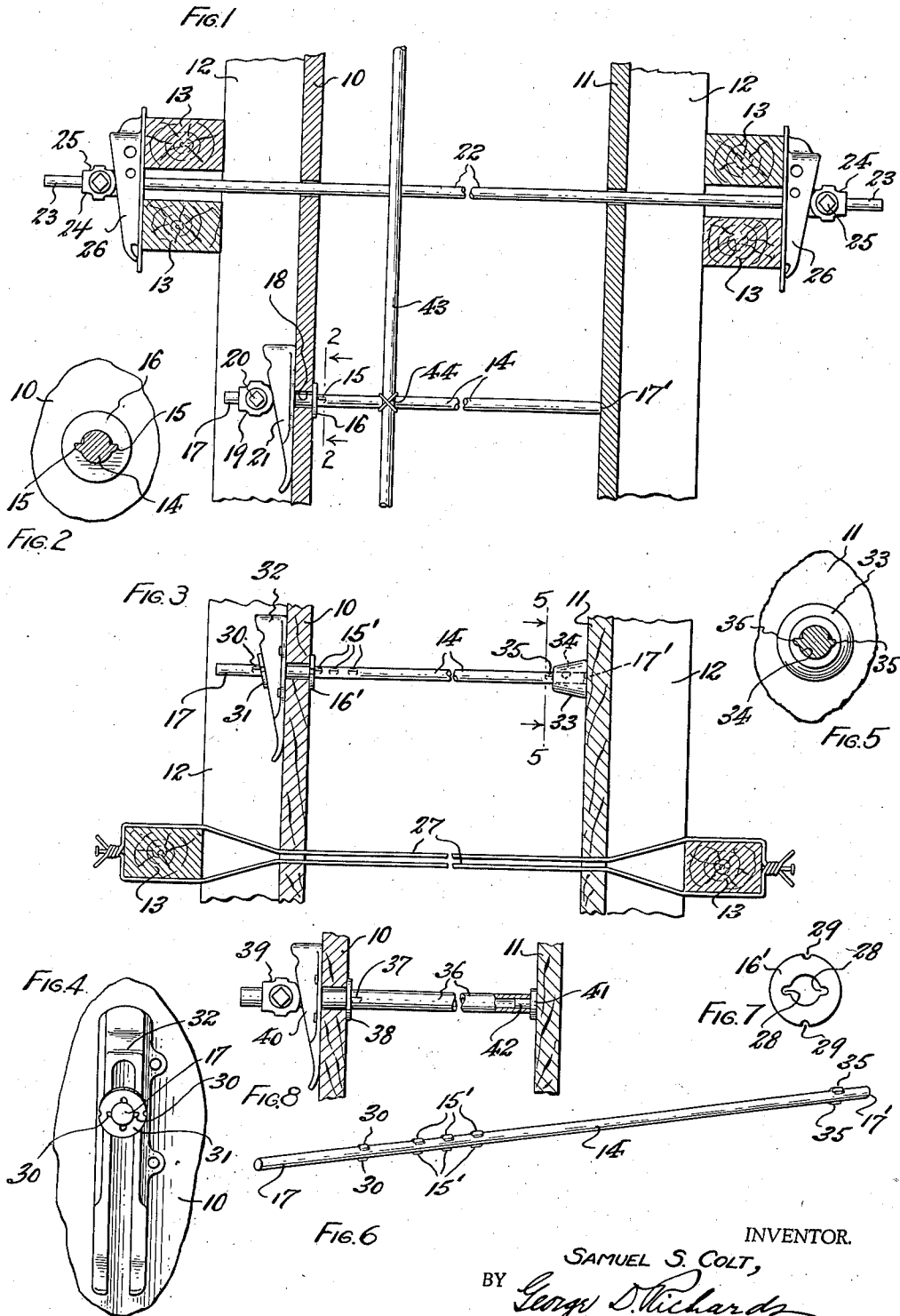
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S. S. COLT

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SPREADER FOR CONCRETE FORMS

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INVENTOR.

SAMUEL S. COLT,

BY

George D. Richards

ATTORNEY.

UNITED STATES PATENT OFFICE

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SPREADER FOR CONCRETE FORMS

Samuel S. Colt, West Orange, N. J.

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This invention relates to improvements in concrete pouring forms, and the invention has reference, more particularly, to novel spreader means for spacing and holding opposed form walls in operative position against inward collapse.

This invention has for an object to provide a novel construction of form wall spreader means capable of being withdrawn and removed from the concrete poured into the form after said concrete has set and the form is dismantled; and to this end the novel spreader means comprises a spreader rod adapted for insertion through one form wall to abut the opposite form wall, means being provided in connection therewith to support the first mentioned wall, and means being further provided for locking the spreader rod to said latter wall; all in such manner that the spreader rod possesses a freely and exteriorly projecting end portion to which a suitable extracting tool may be applied for gripping and withdrawing said rod out of the finished wall.

This invention has for another object to provide a novel form wall spreader means the effective spreader length of which may be quickly and easily adjusted to a desired dimension; said means comprising an internal abutment washer and means to variously position the same upon the spreader rod to engage the inner face of a form wall to which the spreader rod is affixed.

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

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

Fig. 1 is a fragmentary vertical section through a form structure showing in side elevation one embodiment of the novel removable form wall spreader means according to this invention; Fig. 2 is an enlarged fragmentary cross section, taken on line 2-2 in Fig. 1.

Fig. 3 is a fragmentary vertical section through a form structure showing in side elevation another and somewhat modified embodiment of the novel removable form wall spreader means according to the invention; Fig. 4 is an enlarged exterior end elevation of the same; and Fig. 5 is an enlarged cross section, taken on line 5-5 in Fig. 3.

Fig. 6 is a perspective view of a spreader rod per se; and Fig. 7 is a face view of an internal abutment washer for use with said spreader rod. Fig. 8 is a fragmentary vertical section

through a form structure showing another embodiment of the novel spreader means, a portion of the latter being shown in section.

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

In the drawing, the reference character 10 indicates one form wall and the reference character 11 indicates the other opposed form wall. Each form wall is reenforced in the usual manner by exteriorly applied battens 12, across which extend the walers 13, the latter being arranged in pairs, as shown in Fig. 1, for cooperation with one type of form wall tie means, or singly, as shown in Fig. 3, for cooperation with another type of form wall tie means.

In one embodiment thereof, as shown in Fig. 1, the novel spreader means comprises a spreader rod 14. This spreader rod is preferably a metallic rod of suitable diameter, and of a length exceeding the width of the interior form space desired to be established between the opposed form walls 10 and 11. At a predetermined point, governed by the desired spacing of the form walls, the material of the spreader rod is upset to form an outwardly and laterally projecting stop lug 15 extending from the side thereof. If desired, such stop lugs 15 may be arranged to project from opposite sides of the spreader rod, as shown, or only from one side thereof. Engaged over the outer end portion of the spreader rod 14, and slid along to same until stopped against the stop lug or lugs 15 is an internal abutment washer 16. In mounting the spreader rod in operative relation to the form, the outer end portion 17 is inserted from the inner side outwardly through an opening 18 in the form wall 10, until the abutment washer 16 abuts against the inner face of said wall. When the form wall 10 is opposed to the form wall 11, the inner extremity 17 of the spreader rod abuts the inner face of said wall 11, thus sustaining the opposed walls in desired spaced apart relation and against inward displacement or collapse. The spreader rod is firmly secured against sagging, wobbling or other displacing movement by locking or anchoring means cooperative therewith and with the outer face of the form wall 10. In one form, such locking or anchoring means comprises a collar 19 of suitable shape adapted to be affixed to and upon the outer end portion 17 of the spreader rod by set screw means 20, and arranged to straddle said outer end portion 17 of

the spreader rod, between the outer face of said form wall 10 and said collar 19, is a lock wedge 21. By driving home said wedge 21 the spreader rod is drawn so as to tightly abut the washer 16 against the inner face of the form wall 10, thus anchoring the spreader rod for rigid or immovable extension through the form interior from the form wall 10, to which it is thus affixed, to abutting and spreading relation to the opposed form wall 11.

It will be understood that the form walls may be tied together, as spaced by the novel spreader means, against outward displacement by any suitable tie means. For example, as shown in Fig. 1, the tie means may comprise a tie-rod 22 extending through and between the form walls 10 and 11, and equipped at their external end portions 23 with collars 24 affixed thereon by set screws 25, between which collars and the walers of the form walls are driven suitable locking wedge members 26. If desired, the form walls may be tied by wire ties 27, suitably anchored to and around single form wall walers, as shown in Fig. 3; or, in fact, any other suitable method or means known to the art for tying form walls together may be optimally employed.

Referring to Fig. 3, there is shown therein a somewhat modified arrangement of spreader rod and a locking or anchoring means therefor. In this illustrative embodiment, the spreader rod 14 is provided with a plurality of longitudinally spaced stop lugs 15 which are selectively usable to position an abutment washer 16 according to the spacing desired to be established between the opposed form walls 10 and 11. The abutment washer 16, in this case, is provided, in the margins of its central opening through which the rod extends, with clearance notches 28 sized to permit passage therethrough of the stop lugs 15 when it is desired to associate the washer with any selected one or group thereof. In order to assure the disposition of the abutment washer 16 so as to be held in adjusted stopped relation against the selected stop lug or lugs, with the clearance notches out of register with the latter, the external periphery of the washer 16 is provided with indentations 29 which, when disposed perpendicular to the extended lug or lugs will assure such disposition. The modified means for locking the spreader rod to the form wall, through the opening 18 of which it extends, comprises the provision of laterally projecting stop lug or lugs 30 in connection with the exteriorly projecting outer end portion 17 of the rod. An exterior stop washer 31, similar to the washer 16 is mounted on the rod end portion 17 behind the stop lug or lugs 30, and in position somewhat outwardly spaced from the external face of the form wall 10. A locking or anchoring wedge 32 is engaged over the rod end portion 17 between the form wall 10 and said exterior stop washer 31, and, when driven home, serves to draw the rod so as to tightly abut the washer 16 against the inner face of the form wall 10, thus anchoring the spreader rod for rigid or immovable extension through the form interior into operative abutting relation to the opposed form wall 11.

Form walls frequently comprise metallic plates, in which case, the inner extremity 17 of the spreader rod may directly engage and abut the form wall 11. When, however, the form walls are made of wood or other relatively soft material, an abutment shoe or footpiece 33 having a com-

paratively large area of contact face may be mounted on the inner extremity 17 of the rod, thus avoiding tendency of the latter to appreciably dig into or penetrate the engaged form wall. In one illustrative form thereof, said contact piece may comprise a conical element or sleeve having an axial bore 34 to receive the extremity of the spreader rod. In order to hold the contact piece against yielding displacement on the rod, the latter is provided with a stop lug or lugs 35 adjacent to the extremity thereof against which the contact piece is stopped.

In Fig. 8 there is shown another modified form of spreader means according to and within the principles of this invention. In this case instead of utilizing a solid rod for the spreader device, the same comprises a tubular member 36, provided adjacent to its outer end portion with stop lug or lugs 37 to engage and position a stop washer 38 for abutment against the inner face of the form wall 10. The exteriorly projecting end portion of said tubular member 36 may be equipped with the collar 39 and wedge 40 for locking the same to the form wall 10, or with any other suitable locking or anchoring means. To provide means at the inner extremity of the tubular spreader to engage the inner face of the opposed wall 11, a contact piece or disk 41 of suitable diameter may be furnished, the same having a shank 42 adapted for insertion into the bore of said tubular spreader as shown in Fig. 8.

The washer devices employed in the above described structures may be and preferably are made of hardened metal. Owing to the rigid relation of the spreader means to the form structure, which is attained by firmly anchoring the same in affixed relation to one wall of the latter, said spreader means may also be utilized for supporting concrete reinforcing bars 42, in desired disposition within the form interior; this being done by fastening said bars to the spreaders with wire ties 44, or by any other suitable fastening means.

When the novel spreader means according to this invention are used in connection with a form structure, and after the concrete has been poured into the latter and has set, the form wall tie means may be released and spreader locking or anchoring means removed, whereupon the form walls may be dismantled and removed. Upon removal of the form wall 10, the exteriorly projecting outer end portion of the spreader means is exposed, and to it may be applied a suitable extracting tool by which the spreader rod may be withdrawn out of the concrete, after which the opening left in the latter may be plugged and pointed up with cement. In like manner, the tie means may be removed, and consequently no undesired metal is left within the concrete immediately adjacent to the outer surfaces thereof.

It will be obvious from the above description thereof that the instant invention provides a very efficient spreader means, which is so constructed and so mounted that, upon dismantling of the form, it may be bodily withdrawn and removed from the cast concrete.

Having described my invention, I claim:

1. In concrete forms having opposed walls, a spreader member to extend inwardly through one wall with its inner end abutting the inner surface of the other wall, an abutment washer mounted on said member, longitudinally spaced stop lugs laterally projecting from said member for selective engagement by said washer to position the latter for abutment against the inner surface of

5 said first mentioned wall, said washer having
clearance notch means in the margins of its open-
ing for registration with said stop lugs to pass
over certain thereof preparatory to selectively
engaging the same with other thereof, and releas-
able means on the external end portion of said
member cooperative with the outer surface of said
first mentioned wall to lock said member in rig-
idly supported extension from said first men-
10 tioned wall into abutted relation to said second
mentioned wall.

2. In spreader means for opposed concrete form
walls as defined in claim 1, wherein said abutment
washer has indicator indentations in its external

periphery in a plane angular to the plane of said
clearance notch means.

3. In spreader means for opposed concrete form
walls as defined in claim 1, wherein said external
releasable means on the external end portion 5
of the spreader member comprises, an external
abutment washer, stop lug means on the external
end portion of said spreader member behind said
external abutment washer to support the latter
against outward displacement, and a lock wedge 10
means engageable between said external abut-
ment washer and the adjacent form wall struc-
ture.

SAMUEL S. COLT.