Feb. 20, 1940. C. I. WILLIAMS 2,190,748

SECURING DEVICE FOR CONCRETE FORMS

Filed Jan. 13, 1937

Fig. 1

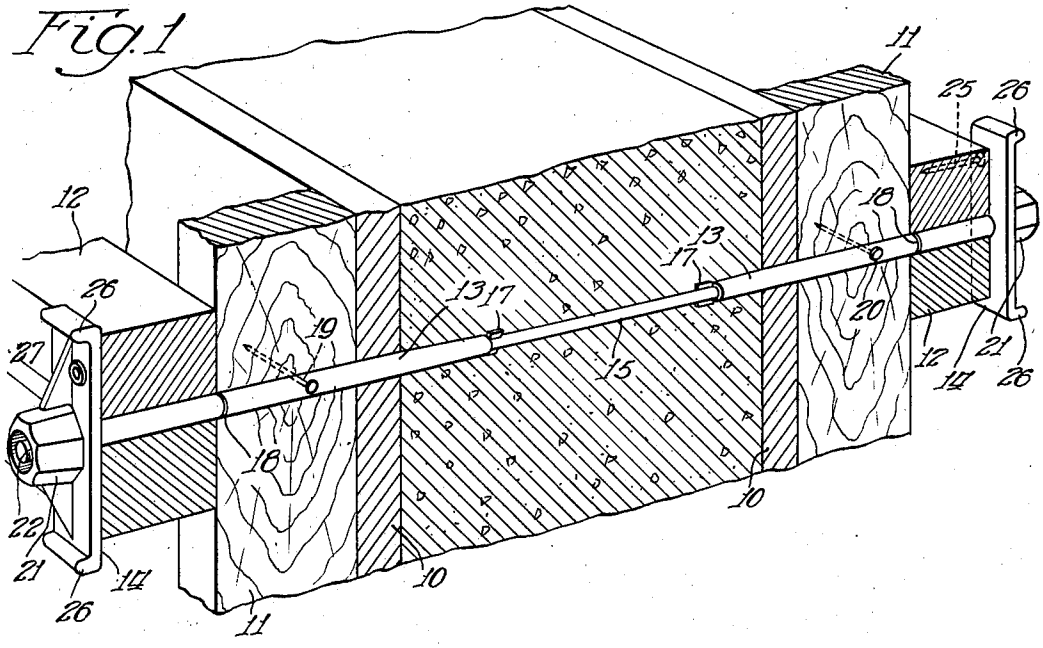


Fig. 2

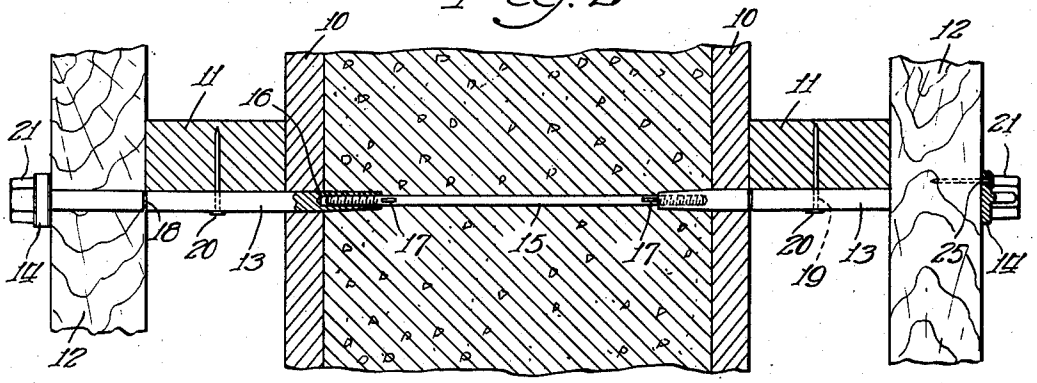
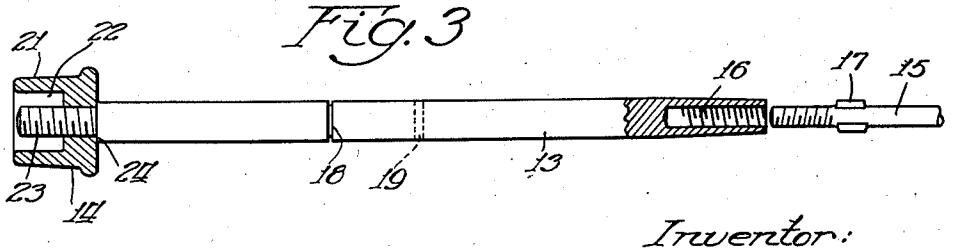


Fig. 3



Inventor:
Chester I. Williams
By: Hill & Hill
Attys.

Witness:
V. Sifander

Patented Feb. 20, 1940 2,190,748

UNITED STATES PATENT OFFICE

2,190,748

SECURING DEVICE FOR CONCRETE FORMS

Chester I. Williams, Grand Rapids, Mich.

Application January 13, 1937, Serial No. 120,412

1 Claim. (Cl. 25—131)

The invention relates to concrete forms which may be readily dismantled and more particularly it relates to improved devices for securing the opposite side walls of a form together in predetermined fixed relation.

The invention has among its objects the production of devices of the kind described which are simple in construction, reliable, durable and economical.

A particular object of the invention is the provision of improved fastening devices which are adapted to secure oppositely disposed form members together by means operable from the outside of the forms.

Another object of the invention is the provision of improved fastening devices whereby oppositely positioned concrete form members may be spaced in their operative position by manipulation of the devices from the outside of the form.

A further object of the invention is the provision of improved fastening devices of the kind described which are removable from the forms without injury either to the forms or to the devices.

Still another object of the invention is the provision of an improved fastening device of the kind described which is inexpensive, simple, easily installed and satisfactory for its intended purpose.

Many other objects and advantages of the construction herein shown and described will be obvious to those skilled in the art from the disclosure herein given.

To this end my invention consists in the novel construction, arrangement and combination of parts herein shown and described and more particularly pointed out in the claim.

Referring now to the drawing forming part of the specification:

Fig. 1 is a perspective view of a fragmentary elevational section taken through a concrete form and showing the opposite walls of the form secured together by a device embodying the principles of my invention;

Fig. 2 is a fragmentary plan section taken through the form illustrated in Fig. 1; and

Fig. 3 is a view, drawn to a larger scale, of one of a pair of end clamping brackets and one end of a connecting tie rod forming the securing device, the bracket and rod being shown in disconnected position.

Referring now more particularly to the drawing, the numeral 10 designates a plurality of closely spaced boards providing oppositely positioned form members, the boards of each form member being connected by nails or the like with exteriorly positioned vertically extending studs 11 and the studs being connected by longitudinally extending waler members 12.

The forms can be of any desired height and length and the oppositely positioned form members are adapted to be dismantled and used repeatedly for pouring concrete walls of the same or different thicknesses than that shown in the drawing. The form members are fastened together by a plurality of fastening devices similar to that shown in the drawing, the devices being suitably spaced vertically and longitudinally to provide requisite form rigidity.

Each securing device comprises a pair of elongated members 13 and end brackets 14, all adapted for repeated use. The member 13 has an interiorly threaded socket 16 for connection with a middle tie rod 15, the latter having its ends preferably left hand threaded and remaining imbedded in the concrete upon dismantling of the forms. The tie rods 15 are provided with burs 17 adjacent their threaded end portions, the burs providing stops contacting with the ends of the elongated members 13 when the tie rod has been threaded substantially the full length of the sockets 16.

The elongated members 13 are preferably of uniform diameter throughout their length except at their inner ends where they taper slightly and their diameter is slightly greater than that of the rod 15.

In mounting a device on the form, the rod 15 and the members 13 assembled as shown, are projected through aligned holes provided in the boards 10 adjacent to a stud 11 and waler members 12 of both the oppositely positioned form members. The members 13 each have a groove 18 adapted as a guide to indicate when the form members have been brought into spaced relation corresponding to the required thickness of the wall to be poured. The distance from the back of the studs 11 to the inner face of the form boards 10 is known and, in assembling the device, the threaded connections of the rod 15 with the members 13 are so adjusted that when the backs of the adjacent studs 11 are respectively moved into alignment with the adjacent grooves 18, the form members have the required spacing.

The members 13 are provided with apertures 19 through which nails 20 are driven into the studs 11 to hold the form members in fixed spaced-apart relation. The nails 20 prevent

such rotation of the members 13 as might otherwise occur when threading the end brackets 14 into clamping engagement with the waler members 12. The brackets 14 are preferably fastened in vertical position in engagement with the waler members 12 by nails 25 driven into the members through apertures 27 provided in the brackets for that purpose, it being understood that the nails are removed before attempting to rotate and release the members 13 by either of the methods hereinbefore described.

The brackets 14 have a central boss 21 exteriorly bounded by an angular surface adapted to receive a socket wrench by means of which the brackets are threaded on and off the projecting ends 23 of the members 13. The threaded ends 23 of the members 13 are offset to provide a shoulder 24 with which the bracket 14 contacts. The boss 21 has a concentric counter-sink or socket 22 adapted to receive a ratchet wrench or the like for engagement with the projecting end portion 23 of the member 13 whereby the member may be rotated for dismantling after the nails 26 have been removed and the concrete has hardened or set. For this purpose the projections 23 are threaded opposite hand to the threads on the ends of the tie rods 15 and, as a result, if the wrench is threaded onto the projection 23 and into engagement with the bracket 14, when the bracket is in contact with the shoulder 24, continued rotation of the wrench will break the bond of the concrete with the member 13 and cause rotation of the member in a direction to disengage it from threaded connection with the tie rod 15. The brackets 14 are also provided with reinforced end portions 26 to permit the use of a hammer to rotate the bracket without injury thereto in case it is desired to rotate the member 13 otherwise than by a wrench threaded onto the end portion 23 thereof as above described.

Thus it will be seen that I have provided a novel, inexpensive, simple, and durable assembly of members adapted as a securing device of the kind described which, except for the middle tie rod portions, may be quickly and easily removed from the forms and used repeatedly in the manner described.

Having thus described my invention, it is obvious that various immaterial modifications may be made therein without departing from the spirit of my invention, hence I do not wish to be understood as limiting myself to the exact form, construction, arrangement and combination of parts herein shown and described or uses mentioned.

What I claim as new and desire to secure by Letters Patents is:

A device for securing oppositely positioned concrete form members in fixed spaced apart relation, said device comprising an elongated strut and end brackets, said strut consisting of an intermediate section having threaded ends and of end sections having a limited threaded connection with the intermediate section and an oppositely threaded connection with the adjacent brackets, the outer threaded ends of said end sections being offset to provide a shoulder against which the bracket is adapted to abut when the device is assembled, said brackets each providing means for attachment of a wrench whereby the brackets are adapted to be rotated in one direction to accomplish full threaded engagement and abutting relation with the adjacent shoulder when the device is assembled, and by continued rotation in the same direction the bracket is adapted to rotate the end section to disconnect it from the intermediate section, and means for detachably connecting said end sections with the adjacent form members, said means being adapted to prevent rotation of the sections relative to the form members.

CHESTER I. WILLIAMS.