Nov. 11, 1930. C. N. ROHAUT ET AL 1,781,601

COMBINATION FORM HOLDER AND CONCRETE ANCHOR

Filed July 6, 1929

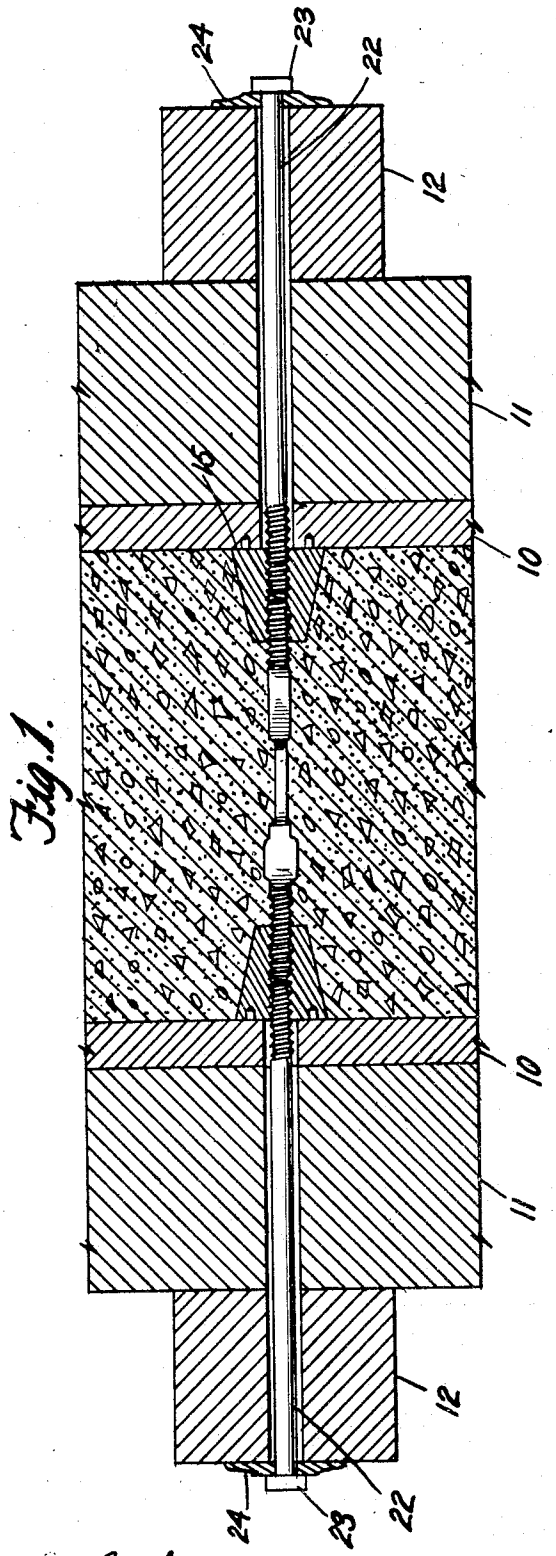

Fig. 1.

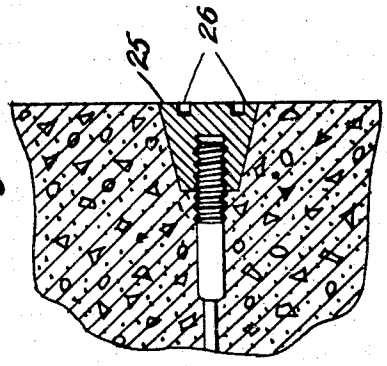

Fig. 4.

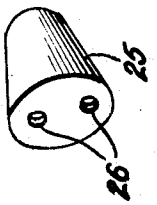

Fig. 5.

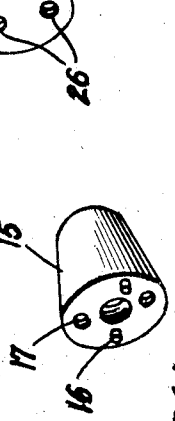

Fig. 6.

Fig. 3.

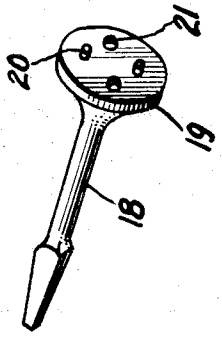

Fig. 2.

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Patented Nov. 11, 1930 1,781,601

UNITED STATES PATENT OFFICE

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COMBINATION FORM HOLDER AND CONCRETE ANCHOR

Application filed July 6, 1929. Serial No. 376,305.

The present invention relates to concrete forms, and more particularly to a combination form holder and anchor, including a tie rod adapted to be arranged between and connected with the form members to hold the latter spaced in parallelism for the formation of a concrete wall of a desired thickness, the tie rod remaining in the concrete wall to provide an anchor therefor after the form has been separated or cut.

In carrying out the invention we contemplate the use of a tie rod upon the opposed end of which are threadedly and adjustably mounted anchor nuts, each of the latter being designed to embed itself in the adjacent wall of the form to prevent turning of the nut, while the opposed walls of the form are being rigidly secured in position for use through the instrumentality of additional bolts which also enter the anchor nuts for this purpose.

Another important object of the invention resides in providing the anchor nuts with alternately arranged lugs and recesses to permit of the use of a suitable wrench in adjusting the nuts upon the tie rod for a wall of a desired thickness, the lugs further serving to hold the nuts against turning movement upon the tie rod, by engaging the adjacent walls of the form, while the latter are being effectively secured in position for use.

The invention further contemplates the use of wooden nailing blocks adapted to be arranged in the concrete wall, and located in the recess provided by the anchor nuts subsequent to the removal of the latter from the concrete wall, the nailing blocks being provided with a bore to engage the threads on the adjacent end of the tie rod and also designed to accommodate a suitable wrench whereby the nailing blocks can be quickly and easily arranged in position.

The nature and advantages of the invention will be better understood when the following detailed description is read in connection with the accompanying drawings, the invention residing in the construction, combination and arrangement of parts as claimed.

In the drawings forming part of this application like numerals of reference indicate similar parts in the several views, and wherein:—

Figure 1 is a sectional view through a form and concrete wall showing the application of the invention.

Figure 2 is a perspective view of the wrench employed for adjusting the anchor nuts on the tie rod.

Figure 3 is a perspective view of one of the anchor nuts.

Figure 4 is a fragmentary sectional view of a concrete wall showing the tie rod embedded therein and one of the nailing blocks arranged within the wall.

Figure 5 is a detail view of one of the nailing blocks.

Figure 6 is a detail view of the tie rod.

The drawing illustrates one embodiment of the present invention, and it might be stated that the concrete form shown may be of any desired well known construction, including wall forming members 10 which are arranged against vertical beams 11, the latter being connected by horizontal beams 12.

The combined form holder and anchor constituting the subject matter of the invention embodies a tie rod preferably of the construction illustrated in Figure 6, wherein it will be noted that the body of the rod is formed with flattened twisted portions 13, while the extremities 14 of the rod are threaded. The flattened portions 13 obviously prevent turning or twisting of the rod in the concrete wall, while the rod itself may vary in length without departing from the spirit of the invention.

Associated with the threaded extremities 14 of this rod are anchor nuts 15, and the latter are preferably of frusto-conical for-

mation, having a threaded longitudinal bore, while the outer end of each nut is formed with alternately arranged lugs and recesses indicated at 16 and 17 respectively. As above stated the nuts 15 are threaded upon the ends of the tie rod, and are adjusted thereon to occupy predetermined positions, depending of course upon the desired thickness of the wall to be constructed.

For the purpose of adjusting the nuts 15, we employ a wrench of the character illustrated in Figure 2, including a shank 18 and a disk-like head 19, the latter also being provided with alternately arranged lugs and recesses 20 and 21 respectively. Manifestly the lugs 20 of the wrench are received by the recesses 17 of the nuts 15, while the lugs 16 of the nuts are received by the recesses 21 of the wrench, thereby permitting the wrench to be quickly and easily connected with the nut for the purpose of turning the latter in either direction upon the tie rod as the occasion may require. Obviously the tie rod and nuts 15 assist in holding the concrete form together for use, and that the lugs 16 carried by the anchor nuts serve an additional and important function of holding the nuts against turning movement on the anchor bolt, while the members of the concrete form are being securely connected together in a manner to be hereinafter described. It will be noted however, that the lugs 16 embed themselves in the adjacent wall forming members 10 of the form for the purpose of holding the nuts against turning movement as stated.

The invention further includes tightening bolts 22, one for each of the nuts 15, and as illustrated in Figure 1 these bolts 22 pass through openings in the members 10, 11 and 12 respectively of the form, each having a head 23 adapted to bear against a suitable washer 24. The bolts 22 have their inner extremities threaded and are adapted to be threaded into the bore of the adjacent anchor nut 15, and when the bolts 22 are tightened the cooperating members of the form are effectively secured together.

In practice, after the desired width of the wall to be constructed has been determined, a number of tie rods 13 are employed, and the anchor nuts 15 are adjusted on the ends of each rod according to the desired width of the wall. The wrench illustrated in Figure 2 is employed for adjusting the nuts in this manner, and the anchor rods are then placed between the walls of the form. One of the bolts 22 is tightened, so that the tie rod is supported by one wall of the form, until the other wall is completed and set up in position for use, whereupon the other bolt 22 is arranged in place and also tightened to effectively secure the opposed walls of the form together.

After the concrete has been poured into the form and has set, the bolts 22 are removed, thereby allowing the cooperating parts of the form to be separated or collapsed, with the anchor nuts remaining in the concrete structure. The wrench illustrated in Figure 2 is then again employed to remove these anchor nuts from the tie rod. The recesses formed in the concrete wall subsequent to the removal of the anchor nuts can, of course, be filled with mortar or plaster to cover the ends of the tie rod, which remains in the concrete structure as an anchor to reinforce the same. However, the invention contemplates the use of wooden nailing blocks 25 which are of the same size and shape as the anchor nuts, these blocks 25 being inserted in the recesses formed in the concrete wall and threaded onto the ends of the tie rod as clearly illustrated in Figure 4. Each nailing block is provided at its outer end with spaced recesses 26 to accommodate the lugs 20 on the wrench, so that the wrench can also be employed to facilitate the association of these blocks 25 with the adjacent ends of the tie rod. While the tie rod remains in the concrete structure to reinforce the same, it will be manifest that the bolts 22, the washers 24 and also the anchor nuts 15 can be used any number of times with additional concrete structures. The invention also contemplates a structure which minimizes the time, effort and expense usually encountered in work of this character.

While it is believed that from the foregoing description the nature and advantages of the invention will be readily apparent, we desire to have it understood that we do not limit ourselves to what is herein shown and described, and that such changes may be resorted to when desired as fall within the scope of what is claimed.

What we claim is:—

1. A combined concrete form holder and anchor comprising a tie rod having threaded extremities adapted to be arranged in the form, frusto-conical anchor nuts adjustable on said extremities, alternately arranged projecting lugs and depressions formed on the outer end of each nut to accommodate a suitable wrench, whereby said nuts can be adjusted to the desired thickness of the concrete structure to be formed, the lugs on each nut embedding themselves in the adjacent wall of the form to prevent turning of the nuts on the tie rod while the form is being assembled, and bolts passed through the form and threaded into said nuts for holding the parts associated.

2. A combined concrete form holder and anchor comprising a tie rod having threaded extremities adapted to be arranged in the form, frusto-conical shaped anchor nuts adjustable on said extremities, spaced lugs and depressions arranged on the outer end of each nut to accommodate a suitable wrench

for adjusting said nuts, said lugs embedding themselves in the adjacent members of the form to prevent turning of the nuts on said tie rod, bolts passed through the form and threaded into said nuts for holding the form together, and removable to permit the collapsing of said form, said nuts being subsequently removable from the concrete structure to provide depressions, and wooden nailing blocks of frusto-conical form adapted to be arranged in said depressions and threaded on the adjacent extremities of said tie rod.

In testimony whereof we affix our signatures.

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