

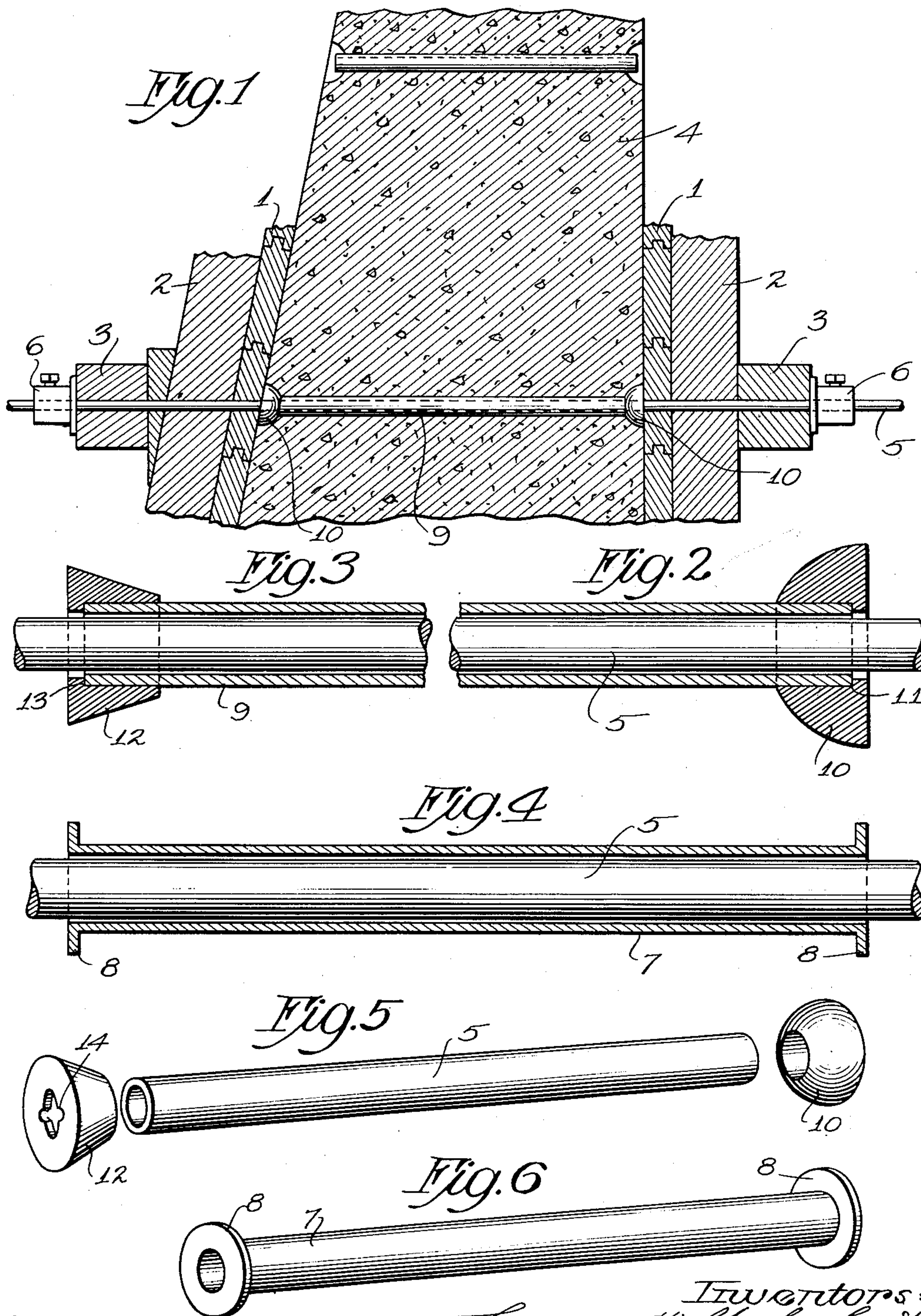
May 9, 1933.

L. H. UMBACH ET AL

1,907,618

FORM TIE FOR WALL STRUCTURES

Filed Nov. 9, 1931



Witness:

*Wm. E. Anderson*

Inventors:  
*Lawrence H. Umbach, &  
William H. O'Connell.*  
BY *Fisher, Clapp, Soans & Potts*  
*Attys.*



# UNITED STATES PATENT OFFICE

LAWRENCE H. UMBACH, OF WILMETTE, AND WILLIAM K. DIACK, OF CHICAGO, ILLINOIS, ASSIGNORS TO UNIVERSAL FORM CLAMP CO., OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS

## FORM TIE FOR WALL STRUCTURES

Application filed November 9, 1931. Serial No. 573,898.

This invention relates to form ties for use in building concrete wall structures.

The main objects of this invention are to provide a form tie of this kind having improved means for separating the tie rod from the concrete through which it extends so as to permit the entire tie rod to be removed after the concrete has set and to be reused in connection with other forms; and to provide a form tie of this kind which is comparatively inexpensive.

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

Fig. 1 is a vertical section through a portion of a concrete wall structure illustrating a part of the form and the manner in which the improved form tie is used.

Fig. 2 is a fragmentary section on an enlarged scale showing the construction of certain portions of the improved tie.

Fig. 3 is a section similar to Fig. 2, but showing a modified construction.

Fig. 4 is a longitudinal section showing another form of the improved tie.

Fig. 5 is a perspective of a sleeve element having associated with its opposite ends different forms of collar elements which may be used.

Fig. 6 is a perspective of the sleeve structure shown in Fig. 4.

In the construction shown, the tie is applied to the usual wall form comprising side members 1, studs 2 and battens 3. Concrete is poured between the members 1 to form a wall 4.

The improved form tie comprises a tie rod 5, having collars 6 adjustably mounted thereon to secure the form sides against spreading.

Embracing the tie rod 5, is an improved form of sleeve which is preferably provided with spacer members at its ends to hold the form sides in proper spaced relation to each other. This sleeve may be made of any suitable inexpensive material but it is preferably made of pasteboard. The sleeve separates the tie rod from the concrete and permits the entire rod to be withdrawn after the concrete has set.

The sleeve is preferably collapsible be-

cause, under some circumstances, it is desirable to remove the tie rods from the form before the concrete has completely set. In such cases, after the tie rods are removed, the sleeves may be collapsed by the settling action of the concrete.

In the construction shown in Figs. 4 and 6, the sleeve comprises a tube 7 having its ends formed to provide annular flanges 8 which engage the inner faces of the form sides to serve as spacers.

In the form shown in Figs. 2, 3 and 5, the sleeve comprises a tube 9 having separable spacing collars mounted on its ends.

The preferred form of spacing collar, shown in Figs. 1, 2 and at the right hand end of Fig. 5, comprises a substantially hemispherical body 10 having a counter bore 11 forming a seat for the sleeve. The inner faces of the collars 10 are convex so as to be readily removable from the concrete.

Another spacing collar 12, shown in Fig. 3 and at the left of Fig. 5, is of frusto-conical form and has a counter bore 13 for receiving the sleeve. The outer face of this collar is provided with a slot 14 for receiving a screw driver or other tool used in removing the collars from the concrete.

In operation, the improved form tie is mounted on the form in the manner shown in Fig. 1. When the form is to be dismantled, the collars 6 are removed and the tie rod 5 is completely withdrawn from the sleeve which is left embedded in the concrete. After the form sides are dismantled, the spacer collars may be removed from the ends of the embedded sleeves. To remove the collars 11, a suitable tool is inserted into the slots 13. To remove the collars 10, the outer faces of the collars are tapped with a hammer so as to cause the inner convex faces to slide in their concrete sockets. The holes left in the wall by the removal of the collars may be filled with concrete.

Although but certain specific embodiments of this invention have been herein shown and described, it will be understood that details of the construction shown may be altered without departing from the spirit of the invention as defined by the following claims.

We claim as our invention:

1. In a concrete form tie of the class described, the combination of a tie rod, a collapsible sleeve surrounding an intermediate portion of the length of said tie rod, said rod being longitudinally slidable through said sleeve, collars removably mounted on said sleeve at its ends, said collars having convex inner end surfaces entirely convex and unobstructed, and means mounted on said rod in spaced relation to said collars for co-operating therewith to hold oppositely disposed form parts in predetermined spaced relation with said sleeve extending therebetween, said sleeve being sufficiently flexible to permit said collars to turn in the concrete when the outer faces of said collars are struck with a tool.

2. In a concrete form tie of the class described, the combination of a tie rod, a collapsible sleeve surrounding an intermediate portion of the length of said tie rod, said rod being longitudinally slidable through said sleeve, and substantially hemi-spherical collars removably mounted on said sleeve at its ends with their convex ends inwardly disposed, the convex ends of said collars being unobstructed and said sleeve being sufficiently flexible to permit said collars to turn in the concrete when the outer faces of said collars are struck with a tool.

LAWRENCE H. UMBACK.  
WILLIAM K. DIACK.

35

40

45

50

55

60

65