Nov. 11, 1924. 1,515,335

G. B. BOSCO

FORM CLAMP

Filed March 3, 1924

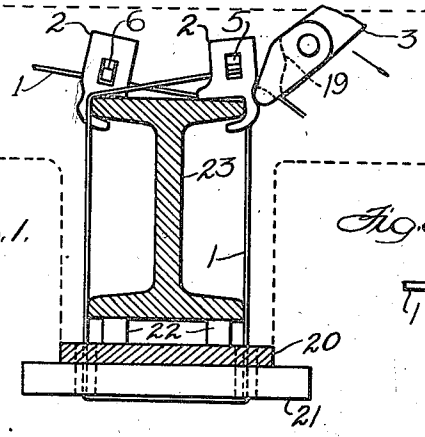


Fig. 1.

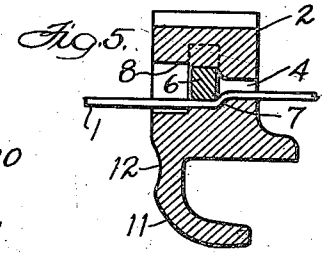


Fig. 5.

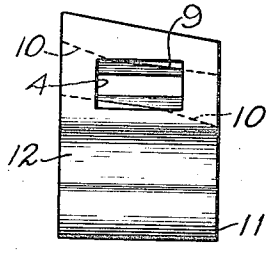


Fig. 2.

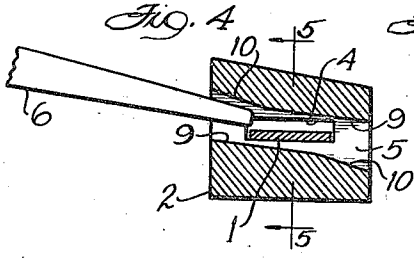


Fig. 4.

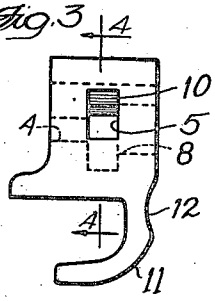


Fig. 3.

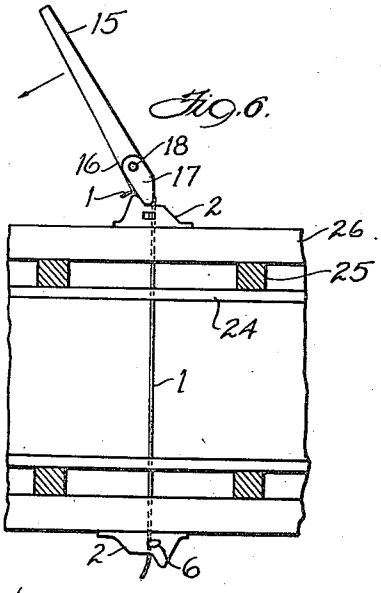


Fig. 6.

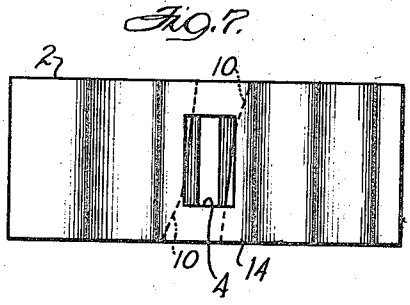


Fig. 7.

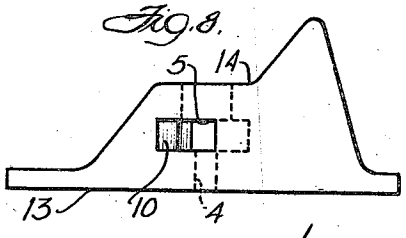


Fig. 8.

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UNITED STATES PATENT OFFICE.

GEORGE B. BOSCO, OF CHICAGO, ILLINOIS.

FORM CLAMP.

Application filed March 3, 1924. Serial No. 696,605.

To all whom it may concern:

Be it known that I, GEORGE B. BOSCO, a citizen of the United States of America, and a resident of Chicago, county of Cook, and State of Illinois, have invented a new and useful Improvement in Form Clamps, of which the following is a specification.

This invention relates to clamps, and in its principal embodiment is applied to form clamps wherein a holding member or collar is adjustably mounted on a tie element.

The main objects of this invention are to provide an improved form of collar for a clamp of the above type; and to provide improved means for detachably securing the collar to the tie element.

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

Figure 1 is a transverse section of a girder mold having one form of clamp applied thereto.

Fig. 2 is a side elevation of the holding member or collar shown in Figure 1.

Fig. 3 is an enlarged side elevation of the same taken from the left of Fig. 2.

Fig. 4 is a central section taken on the line 4—4 of Fig. 3, showing a tie band extending therethrough, and also part of a wedge being inserted through one side thereof for buckling the tie band to lock it to the collar.

Fig. 5 is a central section taken on the line 5—5 of Fig. 4, but showing the wedge driven into position to buckle the tie band.

Fig. 6 is a plan of a wall mold having applied thereto another form of clamp embodying this invention.

Fig. 7 is an enlarged plan of the collar or holding member shown in Fig. 6.

Fig. 8 is a side elevation of the same.

In the construction shown, the form clamps to which this invention is applied involve the use of a tie element and a holding member in the form of a collar mounted on the tie element for adjustment longitudinally thereof. Adjustment of the holding member on the tie element is accomplished by means of a detachable tool, adapted to grip the tie element at a point beyond the collar for pulling the former relative to the latter. Improved means are also provided for locking the collars to the tie elements without the use of screw threads.

As illustrated, the form clamp comprises a tie element 1, a holding member or collar 2, and a tool 3, which is detachable so that one such tool may serve a number of clamps.

In the form shown, the tie element 1 is in the form of a flexible metal band, the size of which is dependent upon the character of the mold to which the clamp is applied.

The form clamp which is the subject of Patent No. 1,475,424, issued to me on November 27, 1923, comprises a collar having a pair of intersecting slots arranged to permit the tie band which extends through one of the slots to be clamped to the collar by a wedge extending into the other slot. In the specific construction illustrated in said patent, the slot which receives the wedge is constructed so as to permit the wedge to be inserted into the collar through only one side thereof. The present invention relates to a specific improvement of the collar or holding member, which is constructed so as to permit the insertion of the wedge through either side thereof.

Referring to the drawings, there are shown two types of holding members or collars 2. One type of collar for use with clamps applied to girder molds is shown in Figures 1 to 5 inclusive. Another type of collar for use with clamps applied to other forms of molds is shown in Figures 6, 7 and 8.

In the particular embodiments herein illustrated, the holding member or collar 2 comprises a block having a pair of intersecting slots 4 and 5 extending therethrough. The slot 4 is arranged to receive the tie band 1 which extends through the holding member. The slot 5 is formed to provide a keyway for a wedge 6, which is adapted to coact with the tie band for clamping the latter to the collar.

One end of the slot 4 is smaller in width than the slot 5 at the intersection between the two slots so as to form shoulders 7, which will permit a buckling of the tie band under the action of the wedge, thereby affording a better grip on the band. As shown in Fig. 5, the shoulders 7 are tapered with respect to the slot 5 so as to avoid a too abrupt bend in the tie band, which might tend to weaken it at the buckle. The other end of the slot 4 is larger than the slot 5 at the point of intersection between the two slots, as shown at 8, so as to facilitate the removal of the collar from the tie band in stripping the mold.

The slot 5 has substantially parallel sides 9 which are inclined with respect to the slot 4, as clearly shown in Fig. 4. The sides 9 are tapered at respectively opposite ends thereof to form inclined approaches 10, which are arranged to permit the same wedge to be inserted through either end of the slot 5. This improved construction and arrangement of the slot 5 permits the wedge to be inserted through either end of said slot for engagement with either side of the tie band 1 with equal binding force and effect.

The type of collar shown in Figures 1 to 5 inclusive is provided with an extension 11 forming a hook for engagement with one of the flanges of an I-beam or other supporting structure, as shown in Figure 1. Formed in the outer face of the extension 11 is a slight depression 12 to provide a seat for the tool 3, which is adapted to be fulcrumed on the collar for pulling the tie band relative to said collar. The type of collar shown in Figures 6, 7 and 8 is provided with a comparative large bearing face 13 for engagement with the mold, and on its opposite side is provided with a seat 14 adapted to form a bearing for the tool 3.

As illustrated, the tool 3 is of the same construction as that shown in my copending application, Serial No. 677,041, filed November 26, 1923, and comprises a shank 15, providing a handle having a head 16 on which is pivotally mounted a U-shaped locking dog 17 which straddles the head 16 and which is pivotally secured thereto by means of a pin 18. The head 16 is recessed, as shown at 19, so that when the locking dog 17 is swung to an angular position relative to the handle 15 an opening is provided for receiving the tie band 1, so as to permit the tool to grip the portion of the band projecting beyond the collar 2 for tightening the clamp.

The particular form of girder mold shown in Figure 1 comprises the usual sections 20, battens 21, and spacer blocks 22 suspended from the I-beam 23 by the tie band 1. In this construction, the mold is stripped by cutting the tie band to release the battens 21 and sections 20, and the collars 2 and tie band 1 remain embedded in the concrete after the concrete has set. The projecting ends of the tie band may then be trimmed off.

The mold shown in Fig. 6 is the common type used in concrete wall construction, and comprises the usual side sections 24, cross pieces 25, and battens 26. In the clamp applied to this type of mold, the tie bands 1 project through the mold so as to become embedded in the concrete, and the collars 2 abut against the outside of the mold so as to be readily removable for further use on other molds.

In operation, the tie band is inserted through the slot 4 of the collar 2 so as to project beyond the collar. The projecting part of the band 1 is inserted into the tool 3 between the locking dog 17 and head 16, and the tool is then fulcrumed on the collar and swung in the direction of the arrows, Figures 1 and 6, thereby pulling the band relative to the collar. When the tie band 1 has been adjusted to the proper position relative to the collar 2, the wedge is inserted into the slot 4 through either end thereof so as to clamp the collar to the band. The tool may then be removed for use on other clamps.

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

I claim:

1. In a device of the class described comprising a collar having a pair of intersecting slots extending therethrough, one of said slots being adapted to receive a tie band, the other slot having opposite sides thereof inclined with respect to said one slot and the openings at both extremities thereof being of substantially similar size and shape whereby the same wedge may be inserted through either end of said other slot for clamping the tie band to said collar.

2. A device of the class described comprising a collar having a pair of intersecting slots extending therethrough, one of said slots being adapted to receive a tie band, the other slot being inclined with respect to said one slot and having substantially parallel sides to permit the same wedge to be inserted through either end thereof for clamping the tie band to said collar, each of said sides being tapered at one end thereof.

3. A device of the class described comprising a collar having a pair of intersecting slots extending therethrough, one of said slots being adapted to receive a tie band, the other slot being inclined with respect to said one slot and having substantially parallel sides, said sides having respectively opposite ends thereof tapered to form inclined approaches whereby the same wedge may be inserted through either end of said other slot for clamping the tie band to said collar.

4. A device of the class described comprising a collar having a pair of intersecting slots extending therethrough, one of said slots being adapted to receive a tie band, the other slot being adapted to receive a wedge for clamping the tie band to said collar, one end of said one slot being smaller than the said other slot and being tapered adjacent the point of intersection between said slots.

5. A device of the class described comprising a collar having a pair of intersecting

slots extending therethrough, one of said slots being adapted to receive a tie band, the other slot being adapted to receive a wedge for clamping the tie band to said collar, and a hook formed on said collar for attaching said collar to a support.

6. A device of the class described comprising a collar having a pair of intersecting slots extending therethrough, one of said slots being adapted to receive a tie band, the other slot being adapted to receive a wedge for clamping the tie band to said collar, and a hook formed on said collar for attaching said collar to a support, part of said hook forming a bearing for a detachable tool adapted to be fulcrumed on said part for pulling said tie band relative to said collar.

Signed at Chicago this 1 day of March 1924.

GEORGE B. BOSCO.