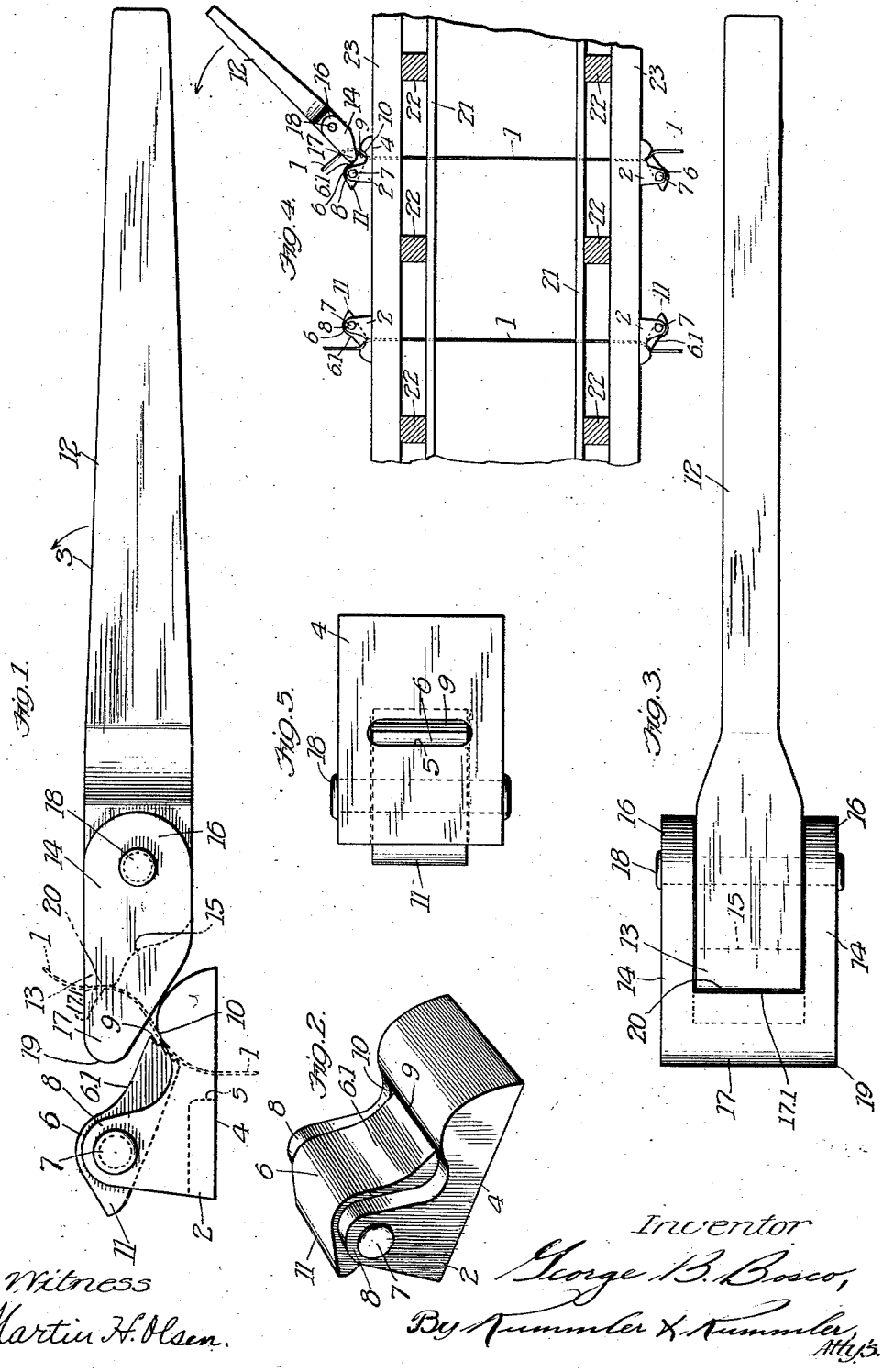
June 16, 1925. 1,541,896

G. B. BOSCO

FORM CLAMP

Filed Nov. 26, 1923



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UNITED STATES PATENT OFFICE.

GEORGE B. BOSCO, OF CHICAGO, ILLINOIS.

FORM CLAMP.

Application filed November 26, 1923. Serial No. 677,041.

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 is an improvement over that shown in my Patent No. 1,475,424, issued November 27, 1923, which relates to form clamps involving the use of a flexible tie element and a holding member in the form of a collar mounted on the tie element and adapted to be adjusted along the tie by means of a detachable tool.

The main objects of the present invention are to provide improved means for clamping the collar on the flexible tie element without the use of separate fastening means; and to provide an improved form of detachable tool for tensioning the tie and adjusting the collar.

An illustrative embodiment of this invention is shown in the accompanying drawings, wherein—

Figure 1 is a side elevation of the clamp, showing the flexible tie element in dotted outline.

Fig. 2 is a perspective view of one of the improved collars.

Fig. 3 is a plan of the improved detachable tool.

Fig. 4 is a plan of a wall mold, showing two of the improved clamps applied thereto.

Fig. 5 is a bottom view of one of the collars.

In the construction herein shown, the invention is applied to a form clamp comprising a tie element 1, a holding element or collar 2, and a tool 3 adapted to grip the tie element at a point beyond the collar for pulling the tie through the collar and which is detachable so that one such tool may serve a large number of clamps.

In the specific construction illustrated, the tie element 1 comprises a flexible metal band, the size of which is dependent upon the character of the mold to which the clamp is applied.

In the embodiment shown in the drawing, the collar 2 is in the form of a block, preferably comprising a metal casting, having a flat face 4 for bearing against the mold to which the clamp is applied. Formed in the collar, is a slot 5 for receiving the tie band 1 which extends through the collar and which is adapted to be clamped thereto by improved fastening means in the form of a locking dog 6, which forms part of the collar.

The locking dog 6 is pivotally mounted on a pin 7 supported by a pair of spaced ears 8 formed at one end of the collar 2. The outer face of the dog 6 is slightly concave to provide a seat 6.1 adapted to form a bearing for the tool 3 to permit the tool to be fulcrumed on the locking dog for pulling the tie band relative to the collar 2. One end of the dog 6 is serrated, as shown at 9, and is arranged to coact with the tie band 1 for clamping the band between the serrated face 9 of the dog and a shoulder 10 formed on the collar adjacent the slot 5. The other end of the dog 6 projects rearwardly beyond the pivot pin 7 to form a releasing arm 11 adapted to receive the blow of a hammer or other similar tool for releasing the dog from the tie band.

As illustrated, the tool 3 comprises a shank 12 providing a handle having an enlarged head 13 on which is pivotally mounted a clamping member 14. The head 13 is recessed at its outer end, as shown at 15 in Fig. 1, so that, when the clamping member 14 is swung to an angular position relative to the handle 12, 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.

In the form shown, the clamping member 14 is substantially U-shaped to provide spaced arms 16 and a central bearing portion 17. The arms 16 straddle the head 13 and are pivotally connected thereto by a pin 18. The bearing part 17 is rounded at its outer edge, as shown at 19, so as to be adapted to permit the tool to be fulcrumed on the seat 6.1 of the locking dog 6, which forms a part of the collar 2. The inner edge 17.1 of the bearing part 17 is arranged so as to be adapted to coact with the tie band for frictionally clamping said band between the bearing part 17 and a shoulder 20 formed at the extremity of the head 13.

The form clamp herein described is adapt-

ed for use with various forms of molds such as those used in the construction of concrete columns, girders and walls. In the particular embodiment herein illustrated, the clamp is shown in connection with a common form of wall mold comprising the usual side sections 21, cross pieces 22 and battens 23. When 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. To strip this type of mold, the collars 2 are removed for further use and the tie bands 1 are left embedded in the concrete.

In operation, the tie band is inserted through the slot 5 of the collar 2 so as to project beyond the shoulder 10 and the locking dog 6 is swung into engagement with the band to secure it against withdrawal. The projecting part of the band 1 is inserted into the tool 3 between the clamping parts 17 and 20, and the tool is then fulcrumed on the seat 6.1 of the dog 6 and swung in the direction of the arrow as shown in Figures 1 and 4, thereby pulling the band relative to the collar without any appreciable resistance between the dog 6 and the tie band. The parts 17 and 20 of the tool limit relative rotation of the clamping member 14 and handle 12 so that when the tool is swung on its fulcrum for tightening the clamp the member 14 and handle 12 move as a unit so as to firmly clamp the tie band between the bearing parts 17 and 20. Upon releasing the tool 3, the locking dog 6 is drawn by the tie band into locking engagement therewith. The tool 3 may then be removed for use on other clamps.

Although but one specific embodiment of this invention has 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. A clamp comprising a flexible tie element, a collar mounted on said element and adapted for adjustment along said element, a locking dog pivotally mounted on said collar and adapted to coact with said tie element for clamping said collar thereto, and a separate tool for tensioning said tie element and setting said collar.

2. A clamp comprising a flexible tie element, a collar mounted on said element and adapted for adjustment along said element, a locking dog pivotally mounted on said collar and adapted to coact with said tie element for clamping said collar thereto, and a detachable tool arranged to grip said tie element and being adapted to be fulcrumed on said locking dog for pulling said element relative to said collar.

3. A clamp comprising a collar having a slot extending therethrough, a flexible tie band extending through said slot, a locking dog pivotally mounted on said collar and coacting with said tie element at a point adjacent said slot for clamping said collar to said element, and a separate tool for tensioning said tie element and setting said collar.

4. A form clamp comprising a collar having a slot extending therethrough, a shoulder on said collar adjacent said slot, a locking dog pivotally mounted on said collar opposite said shoulder, and a flexible tie element extending through said slot and frictionally clamped between said locking dog and shoulder.

5. A form clamp comprising a collar having a slot extending therethrough, a shoulder on said collar adjacent said slot, a locking dog pivotally mounted on said collar opposite said shoulder, a flexible tie element extending through said slot and adapted to be clamped between said locking dog and shoulder, and a detachable tool arranged to grip said tie element in advance of said shoulder and being adapted to be fulcrumed on said locking dog for pulling said element relative to said collar.

6. The combination with a clamp comprising a tie element, a collar mounted on said element and adapted for adjustment along said element, of a detachable tool for pulling said element relative to said collar, said tool comprising a pair of parts hinged together and relatively arranged so as to be adapted to provide an opening between them for receiving a part of said element projecting through said collar, said hinged parts being relatively shiftable into position to grip said element when said tool is fulcrumed on said collar and swung in one direction.

7. The combination with a clamp comprising a tie element, a collar mounted on said element and adapted for adjustment along said element, said collar having a part adapted to grip said element, of a detachable tool for pulling said element relative to said collar, said tool comprising a handle and a clamping member pivotally mounted thereon, said handle and member being relatively arranged so as to be adapted to provide an opening between them for receiving part of said element projecting through said collar, said handle and member being relatively shiftable into position to coact for gripping said element when said member is fulcrumed on said collar and said handle is swung around said fulcrum in one direction.

8. The combination with a clamp comprising a tie element, a collar mounted on said element and adapted for adjustment along said element, said collar having a part adapted to grip said element, of a detachable tool for pulling said element relative to said collar, said tool comprising a handle and a substantially U-shaped clamping member

pivotally mounted thereon, said member and handle being relatively arranged so as to be adapted to provide an opening between said member and one end of said handle for receiving a part of said element projecting through said collar, said clamping member being shiftable into position to coact with said one end of the handle for gripping said tie element when said member is fulcrumed on said collar and said handle is swung around said fulcrum in one direction.

Signed at Chicago this 16 day of Nov. 1923.

GEORGE B. BOSCO.