C. M. MARKHAM.

ROUND COLUMN CLAMP TIGHTENER.

APPLICATION FILED DEC. 26, 1919.

1,430,576. Patented Oct. 3, 1922.

Fig. 1.

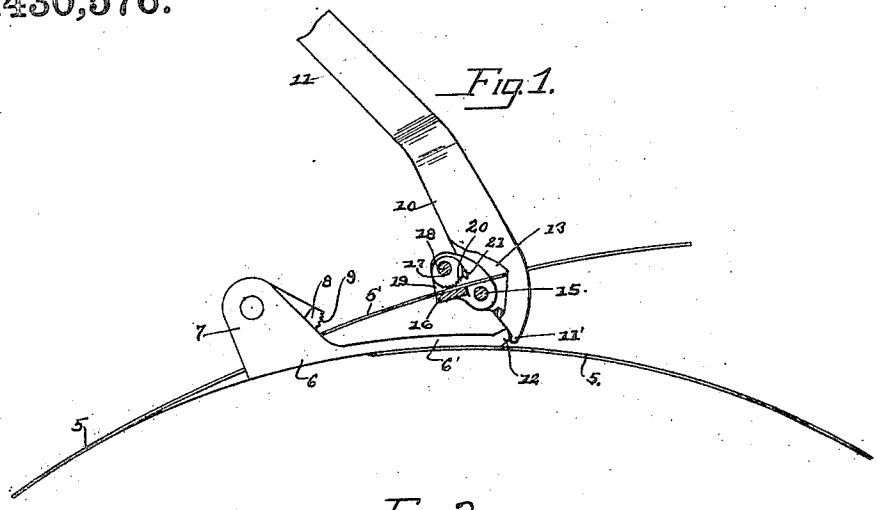



Fig. 2.

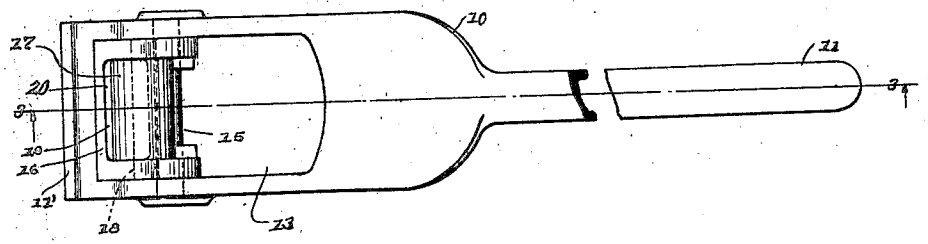
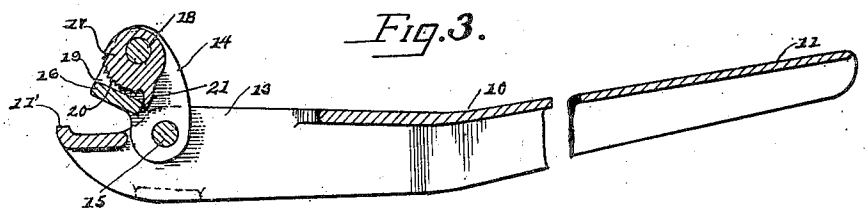



Fig. 3.




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# UNITED STATES PATENT OFFICE.

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## ROUND-COLUMN-CLAMP TIGHTENER.

Application filed December 26, 1919. Serial No. 347,619.

*To all whom it may concern:*

Be it known that I, CHARLES M. MARKHAM, a citizen of the United States, and resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented new and useful Improvements in Round-Column-Clamp Tighteners, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

This invention relates to improvements in round column clamp tighteners.

This invention relates more particularly to a means for tightening the clamps for bonding or holding segmental forms or sections together in concrete constructions.

It is one of the objects of the present invention to provide a round column clamp tightener which is adapted to easily engage and tighten the adjustable metal straps used in holding concrete forms together.

A further object of the invention is to provide a round column clamp tightener in which the means for gripping the metal bonding strip is pivotally connected to the clamping lever to exert strain in a straight line pull.

A further object of the invention is to provide a round column clamp which is of simple construction, is strong and durable and is well adapted for the purpose described.

With the above and other objects in view the invention consists of the improved round column clamp tightener and its parts and combinations as set forth in the claims, and all equivalents thereof.

In the accompanying drawing in which the same reference characters indicate the same parts in all of the views:

Fig. 1 is a side view of the improved round column clamp tightener shown in connection with a round column clamp, parts broken away and other parts being in section to show interior construction;

Fig. 2 is a top view of the tightener on a larger scale; and

Fig. 3 is a longitudinal sectional view thereof taken on line 3—3 of Fig. 2.

Referring to the drawing, the numeral 5 indicates a flexible metal band or strap, one end of which is connected to a clamping member base 6, and the other end portion 5′ extends between upstanding clamping ears 7. A clamping jaw 8 positioned between the ears and pivotally connected thereto extends towards the base portion and its inner cam face is formed with teeth 9 which bite into the strap end interposed between the said teeth and the base portion 6. The clamp member 6 is formed with an extension base 6′ and the portion of the cam face of greater diameter extends towards this extension so that the cam member will automatically clamp the strap end engaged thereby.

The clamp tightener which coacts with the clamping member and its metal strap comprises a lever member 10 having a handle portion 11, an angular or hooked end portion 11′ which is adapted to engage the angular end portion 12 of the clamp extension 6′. The lever member 10 is formed with an opening 13 and a clamping member 14 extends into the opening and is pivotally connected to the side portions of the lever by a pivot pin 15. Said clamping member is formed with a transversely extending fixed jaw 16 and a movable jaw 17 which is pivotally connected to the opposite side portions of the clamping member 14 by a transversely extending pivot pin 18. The movable jaw 17 is of cylindrical shape in cross section and is eccentrically journaled on the pivot pin 18 to approximately close the strap space 19 between the said movable and fixed jaws when the movable jaw is in its closest position to the fixed jaw to clamp the strap portion 5′ extending between the two jaws. The strap engaging portion of the movable jaw is serrated or formed with teeth 20 which bite into the portion of the strap engaged and more firmly clamps the said strap portion. The movable jaw is also provided with a projecting lug 21 which acts as a stop to limit the movement of the movable jaw towards the clamping member.

In use the free end 5′ of the metal strap is extended between the clamping jaws 16 and 17 and through the opening 13 of the lever member, and the weight of the movable eccentrically pivoted jaw will cause it to swing into biting engagement with the strap as shown in Fig. 1. The hooked end of the lever is placed in engagement with the angular end portion of the clamping member as a fulcrum. When thus arranged the free long end portion of the lever member is pulled away from the clamping member and the metal band or strap will be drawn tightly around the form which it encircles. If the first pull does not sufficiently tighten the band it is only necessary to swing the

lever inwardly to automatically release the strap and upon again pulling the lever the jaws will automatically grip the strap at a point closer to the clamping member and by further pulling the strap may be tightened to the desired extent. In working the lever to and fro the clamping jaw 8 of the clamping member will automatically release and reclamp the strap to permit the tightening operation.

From the foregoing description it will be seen that the improved column clamp tightener is of very simple construction and is well adapted for the purpose described.

What I claim as my invention is:

1. A column clamp tightener, comprising a clamping base member having an angular end portion a lever member having a handle portion at one end and an angular portion at its other end for engaging the angular end of the base member, said lever member also having a medial opening, a clamping jaw member extending into the medial opening and pivotally connected to the lever member, a strap connected to the base member and extending through the lever opening, and a movable clamping jaw member eccentrically and pivotally connected to the clamping jaw member and coacting therewith to clamp the strap therebetween when the lever member is pulled in one direction.

2. A column clamp tightener, comprising a lever member having a handle portion at one end and an angular portion at its other end for engaging the end portion of the column clamp, said lever member also having a medial opening, a clamping jaw member extending into the medial opening and pivotally connected to the lever member, and a cylindrical jaw member eccentrically and pivotally connected to the clamping jaw member and coacting therewith to clamp a strap therebetween when the lever member is in engagement with the end portion of the clamp member and is pulled in one direction and to release the strap when the lever member is moved in the other direction.

3. A column clamp tightener, comprising a lever member having a handle portion at one end and an angular portion at its other end for engaging an end portion of the column clamp, said lever member also having a medial opening, a clamping jaw member extending into the medial opening and pivotally connected to the lever member, and a cylindrical jaw member eccentrically and pivotally connected to the clamping jaw member and coacting therewith to clamp a strap therebetween when the lever member is in engagement with the end portion of the clamp member and is pulled in one direction and to release the strap when the lever member is moved in the other direction, said cylindrical jaw member having teeth on its strap engaging face and also having a projecting portion to limit the movement of the said cylindrical member.

In testimony whereof, I affix my signature.

CHARLES M. MARKHAM.