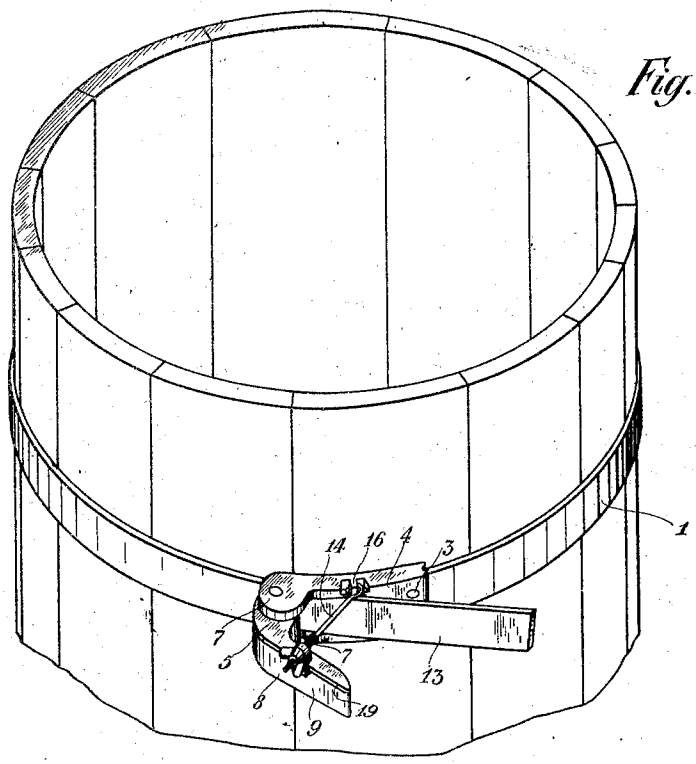
C. M. MARKHAM.

BOND FOR CONCRETE CONSTRUCTION FORMS.

APPLICATION FILED NOV. 25, 1908.

928,392. Patented July 20, 1909.

Fig. 1.



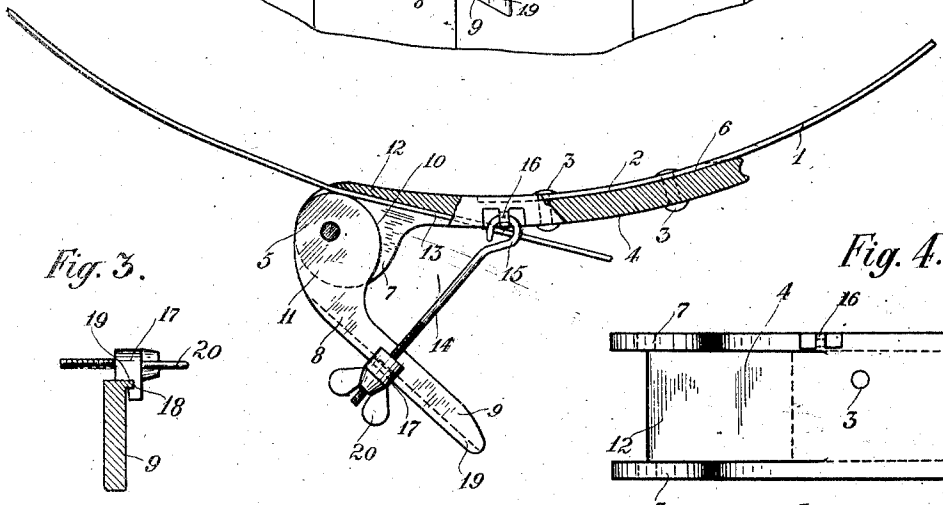




Fig. 2.

Fig. 3.




Fig. 4.




Witnesses:

P. C. Pretch

A. A. Olson

Inventor:

Charles M. Markham

By Joshua R. H. Potts

Attorney.

# UNITED STATES PATENT OFFICE.

CHARLES M. MARKHAM, OF CHICAGO, ILLINOIS.

## BOND FOR CONCRETE-CONSTRUCTION FORMS.

No. 928,392. Specification of Letters Patent. Patented July 20, 1909.

Application filed November 25, 1908. Serial No. 464,438.

*To all whom it may concern:*

Be it known that I, CHARLES M. MARKHAM, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Bonds for Concrete-Construction Forms, of which the following is a specification.

My invention relates to forms for concrete construction and more particularly to improvements in devices commonly known as bonds employed in the process of such construction for clamping or holding segments of a form together.

The object of my invention is to provide a device of the character mentioned so constructed as to be especially applicable to forms employed in the concrete construction of columns.

A further object of my invention is to provide a device of the character mentioned adjustably constructed, the same being so designed as to adapt the same to be applicable to a column form of any diameter.

A still further object of my invention is to provide a bond which may be readily and quickly applied to or moved from a form, the same being adapted when in use to rigidly and securely hold in position the segments of the form, my object being to provide a bond which will be of the highest possible efficiency and one which will be simple of construction, hence of low cost to manufacture.

Other objects will appear hereinafter.

With these objects in view my invention consists generally in a flexible metallic band or strap of such a length as to be adapted to encircle an ordinary column of the maximum diameter.

My invention further consists in a clamp or lock provided at one end portion of said band, the same being adapted to securely grip or hold the opposite end portion of said band in such a manner as to prevent the enlargement of the loop formed thereby.

My invention further consists in certain details of construction and arrangement of parts all as will be hereinafter fully described and particularly pointed out in the claims.

My invention will be more readily understood by reference to the accompanying drawings, and in which—

Figure 1 is a perspective view of a column form to which is applied the preferable form of my device. Fig. 2 is a top plan view of the bond detached, portions of the same being broken away so as to better illustrate its construction. Fig. 3 is a detail cross sectional view of the cam lever thereof, and Fig. 4 is a detail of an end portion of the clamp base.

Referring now to the drawings, my invention consists in a flexible metallic band or strap 1 to one end 2 of which is securely fixed, preferably by means of rivets 3, the base portion 4 of a clamp or lock 5. Said band may be of any suitable length but is preferably of such length as to adapt the same to encircle a column form of the largest diameter ordinarily constructed, and though flexible, should be of great tensile strength. In order to receive said end portion 2 of the band and permit the device to lie close against the form, the inner surface of said base portion 4 is preferably channeled as at 6, as clearly shown in Fig. 2 of the accompanying drawings, thereby bringing the inner surface of said band flush with that of said clamp portion 4. The outer end of the member or base 4 is provided with parallel ears 7 which extend outwardly therefrom. Pivotally secured between said ears is a cam lever 8. Said lever is so constructed that by forcing the shank thereof inwardly causes the cam face 10 of the end portion 11 thereof to clamp the free end 13 of the band firmly against the inner surface of the wall 12 of the clamp base 4 as clearly shown in Fig. 2. It should be noted that the wall 12 between the ears is outwardly tapered so that the strap 1 shall lie close against the form until it is practically within the clamp.

In order to guard against accidental releasement of said cam lever I provide an eyebolt 14, the eye 15 thereof being pivotally secured to the clamp base 4 by engagement with a lug 16 preferably formed integrally with said base at the upper edge portion thereof, and by cutting away or recessing the base each side of the lug as shown in Figs. 2 and 4. Slidably mounted upon the outer end portion of the bolt 14 is a dog 17 having a recess or groove 18 formed in the inner surface thereof to engage a projecting flange 19 formed upon the upper outer edge of said lever shank 9 and extending longitudinally thereof. A thumb nut 20 is threaded upon the outer end portion of the member 14 and

engages with said dog to hold the latter in engagement with said flange and to hold the lever in position.

By the provision of a bond of a construction as described it is evident that after once applying the same to a mold (any suitable means being employed to tighten the loop thereof around the form) any outward pressure upon the form segments, as is ordinarily the case upon filling the form with concrete, tends only to more securely lock the end portion 13 of the band 1 in the clamp 5 of the bond, resulting in obvious advantages. By the provision of a bond of such construction the size of the form upon which it is used is immaterial it being adapted to serve just as efficiently in conjunction with a form of small diameter as upon one of great diameter, this being of a great financial as well as practical advantage when it is taken into consideration that at the present time in the concrete construction of columns it is necessary to employ separate bonds for each of the forms of different diameters.

While I have shown what I deem to be the preferable form of my device I do not wish to be limited thereto as there might be many changes made in the details of construction without departing from the spirit of my invention. I also wish it understood though I have designed my device with special reference to forms for concrete construction I may use it for any other purpose to which it is applicable.

Having described my invention what I claim as new and desire to secure by Letters Patent is:

1. A bond of the class described comprising a flexible strap, a cam lever, a supporting member therefor fixed to one of the end portions of said strap, said lever and support being adapted to clamp the opposite end portion of said strap between the same, an eye-bolt in pivotal connection with said lever support, a dog and thumb nut carried by said bolt, said dog being adapted to engage the shank of said lever, substantially as and for the purpose specified.

2. In a device of the class described, a flexible strap, a member secured to one end thereof, a pair of outwardly extending ears on said member, a cam lever pivotally mounted between said ears and adapted in one position to clamp the free end of the strap against said member, an eye bolt, pivotally connected to said member, a flange on said lever, a dog adapted to engage said flange and a thumb nut on said bolt adapted to engage said dog, said dog being grooved to receive said flange, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES M. MARKHAM.

Witnesses:
HELEN F. LILLIS,
JANET E. HOGAN.