M. LACHMAN.

REINFORCEMENT FOR CONCRETE COLUMNS.

APPLICATION FILED AUG. 22, 1911.

1,196,872. Patented Sept. 5, 1916.

Fig. 1.

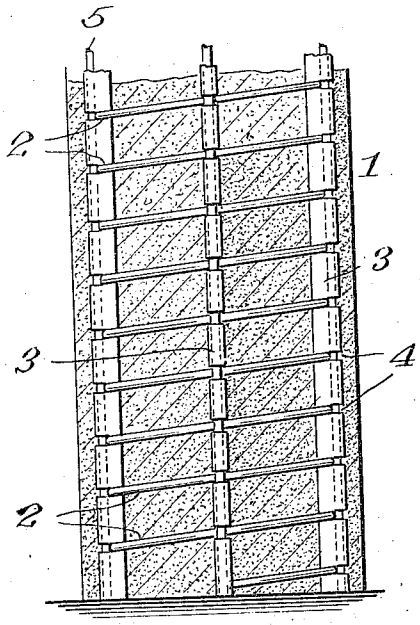


Fig. 3.

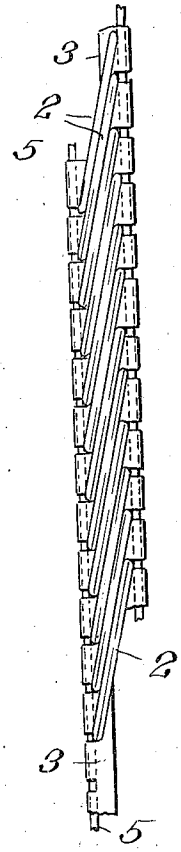


Fig. 2.

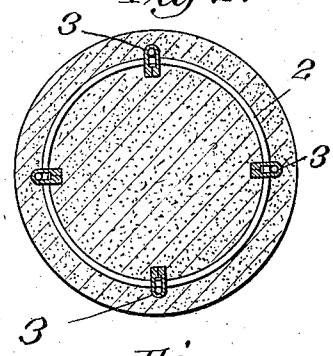


Fig. 4.

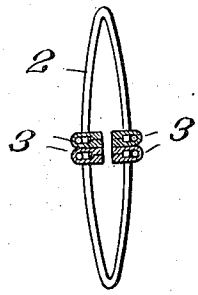


Fig. 5.

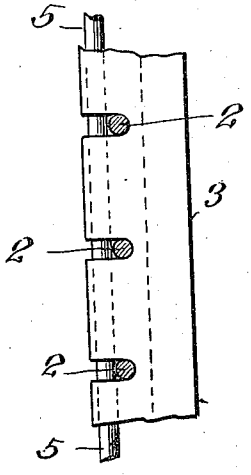


Fig. 6.

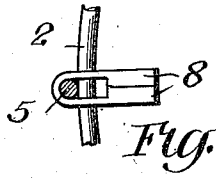


Fig. 7.

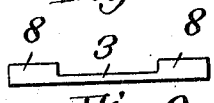


Fig. 8.

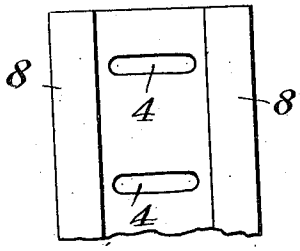
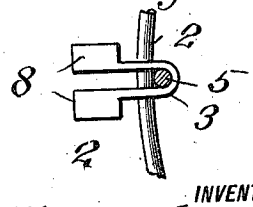


Fig. 9.



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REINFORCEMENT FOR CONCRETE COLUMNS.

1,196,872. Specification of Letters Patent. Patented Sept. 5, 1916.

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To all whom it may concern:

Be it known that I, MAURICE LACHMAN, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Reinforcements for Concrete Columns, of which the following is a specification.

This invention relates to reinforcing structures for concrete constructions and more particularly to that class of reinforcements used in reinforcing concrete columns.

The object of the invention is to provide a reinforcement for columns of concrete or other similar material which will be very easily and quickly assembled and by which the parts will be positively held in proper relation.

It is also the object to provide a collapsible reinforcement, that is one in which the reinforcing structure is capable of being collapsed into compact form without necessarily detaching the various parts and whereby economy of space and therefore low rates in storing and shipping is attained.

The invention consists in the improved reinforcement for concrete columns and in the combinations of parts and details of construction hereinafter more particularly described and then specified in the claims.

In the accompanying drawings, Figure 1 is a longitudinal section through a concrete column having a reinforcing frame constructed in accordance with this invention in its preferred form embedded therein. Fig. 2 is a transverse section through the same. Fig. 3 is a side elevation of the reinforcement shown in Fig. 1 and illustrates the same in collapsed condition. Fig. 4 is a top view of the reinforcement when in the position shown in Fig. 3 and illustrating the position taken by the spacing members, when more than two are employed, to permit the collapsibility. Fig. 5 is an enlarged side elevation of a portion of one of the spacing and locking members. Fig. 6 is an enlarged transverse section through the same. Figs. 7 and 8 are respectively an edge view and a plan of the blank from which the spacing member is formed, Fig. 9 illustrates a modification.

Referring to the drawings, the preferred form of reinforcing frame or structure in accordance with this invention is shown in Figs. 1 and 2, as embedded in a mass of concrete 1, the whole taking the form of a column such as commonly used for the upright supporting elements of a building or other structure. The reinforcing frame or structure comprises an encircling reinforcing element 2 adapted, when embedded in the concrete column, to resist the transverse or lateral stresses therein. The said encircling element may be of any desired and suitable type and may take various forms, the one preferred and shown being in the form of a spiral coil which preferably extends from the top to the bottom of the column. The spiral coil is formed preferably of continuous round wire or rod, the coils of which are spaced apart any desired distance depending upon the size and style of column proposed. The coils are maintained in the desired spaced relation by seating each coil in the notch 4 formed in the outer edge of longitudinal spacing members 3. The spacing members, as regards their general form, are preferably formed of thin metal bent longitudinally into a U or trough shape. The notches 4 in which the coils of the encircling element are seated are of any suitable character and disposition and are preferably located along the outer edge of the spacing members 3 when set in position. The notches may be formed in any desired manner, a convenient method being to punch suitable openings in the strip or plate of metal before bending it into U shape and in such location that the notches in the completed spacing bar are represented by the removal of parts of the spacing bars at intervals along the bent portion or trough of the U section.

5 indicates a locking device which, after the coils have been seated in the notches, slides longitudinally in the spacing member between the outer edge and the coils and locks the coils securely in the notches by closing the entrances through which the coils were inserted therein. The locking device is preferably a round rod which after the coils are seated in the notches is slid into the spacing member outside the coil and in the pocket formed by the base or trough of the U section. The coils of the encircling element are rotatably seated in the notches 4 and preferably secured therein in such manner that the spacing members can slide in a lateral direction around the

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encircling element, the locking device securely retaining the coils in their seats but not causing a sufficient wedging action to prevent the rotating and lateral movement of the parts above referred to.

The facility and speed with which this reinforcement can be assembled will, it is thought, be readily recognized without describing in minute detail the process of manufacture. The spacing bars or members 3 are suitably held on a mandrel or other support and the coils of the encircling element placed in the notches 4 after which the one operation of sliding the locking device 5 longitudinally in the spacing member securely fastens all the coils to the spacing members or uprights 3.

If desired, but two diametrically opposed spacing members or uprights secured to the encircling member may be employed, in which case the reinforcement can be collapsed by merely shifting the one member or upright toward the other as shown in Fig. 3. If it is desired to employ more than two uprights, for instance four, the two additional members are secured to the encircling element as before and located between the diametrically opposed members. To collapse the encircling element, two of the uprights are shifted laterally around the encircling element into sidewise proximity with the other two uprights after which the structure can be collapsed by shifting the pairs of uprights or spacing members relatively toward each other, the positions taken by the spacing members being indicated in Fig. 4. When it is desired to set up the column the spacing members are moved away from each other and two of them shifted around the encircling element into the position shown in Fig. 2.

It will be noted that the structure lends itself to be shipped "knocked-down" if desired, owing to the simplicity of the operation of assembling it, which assembling can be readily accomplished at the scene of building operation. After the locking device has been slid into position it can be clenched therein in any suitable manner.

To provide a "bar" of considerable strength an additional mass of metal in the shape of a continuous lug 8 is provided along the free ends of the members and integral therewith as indicated in Fig. 6. This form can be readily and cheaply obtained by rolling the plate or strip from which the members are formed with the increased masses of metal or lugs as shown in Figs. 7 and 8. When this plate or strip is bent longitudinally into U shape the sides of the lugs preferably contact and have the effect of a solid upright bar for additionally strengthening the column. If desired the strips may be bent in the reverse direction so that the lugs project outwardly as shown in Fig. 9 and in which case they can be of any desired size.

It will be understood that the forms shown and described are for the purposes of illustration only and that the details of construction may be widely varied without departing from the spirit of the invention as set forth in the appended claims.

What I claim as my invention is:

1. A reinforcement for concrete columns, comprising an encircling element having a plurality of spaced coils, longitudinal spacing members extending throughout the reinforcement, U-shaped in cross-section and having a plurality of notches in which said coils are seated, locking members adapted to slide longitudinally in said spacing members and retain said coils in said notches and an increased mass of metal extending along the free edges of said U shaped spacing bars throughout their length and adapted to form increased strengthening means for said column.

2. A reinforcement for concrete columns comprising an encircling element having a plurality of spaced coils, U-shaped longitudinal spacing members extending throughout the reinforcement and having a plurality of notches in which said coils are seated, locking members adapted to slide longitudinally in said spacing members and retain said coils in said notches and a longitudinal enlargement along each free edge of the U-shaped spacing members, the enlargements of each spacing member being in side contact with each other as and for the purpose described.

Signed at New York in the county of New York and State of New York this 18th day of August A. D. 1911.

MAURICE LACHMAN.

Witnesses:
IRENE LEFTOWITZ,
F. B. TOWNSEND.