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R. B. HARTMAN.  
APPARATUS FOR BENDING METAL RODS.  
APPLICATION FILED JUNE 17, 1909.

1,042,112.

Patented Oct. 22, 1912.

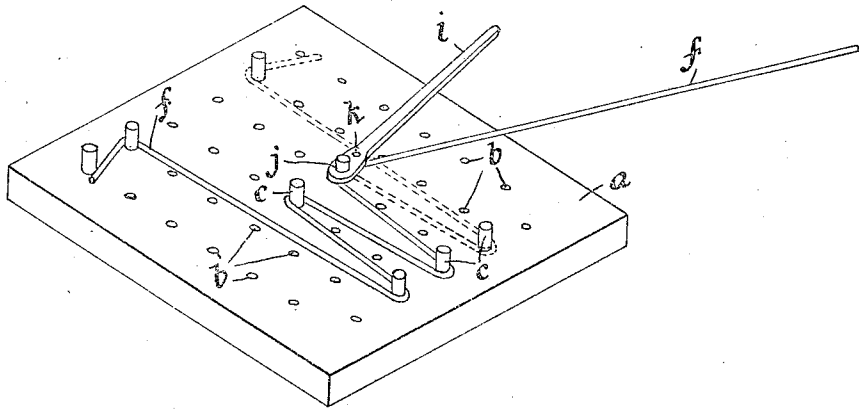


Fig. 1

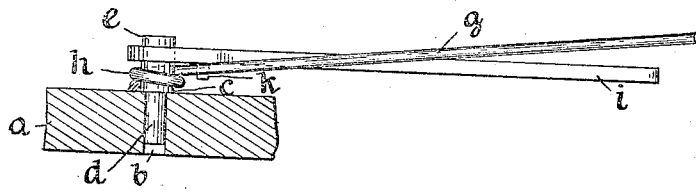


Fig. 2

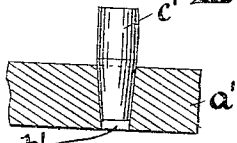


Fig. 3

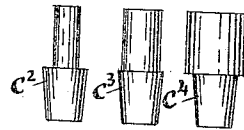


Fig. 4

Rudolph B. Hartman, Inventor

Witnesses

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# UNITED STATES PATENT OFFICE.

RUDOLPH B. HARTMAN, OF MILWAUKEE, WISCONSIN.

## APPARATUS FOR BENDING METAL RODS.

1,042,112.

Specification of Letters Patent.

Patented Oct. 22, 1912.

Application filed June 17, 1909. Serial No. 502,676.

*To all whom it may concern:*

Be it known that I, RUDOLPH B. HARTMAN, of Milwaukee, Wisconsin, have invented an Apparatus for Bending Metal Rods, of which the following is a specification.

My invention relates to structural concrete work, and the object which I have in view is to provide means for rapidly and accurately forming the reinforcement-rods into the various shapes which are used to reinforce concrete structural elements, such as beams, columns, slabs and other structural forms, and one which is especially adapted for bending hoops, stirrups and other transverse reinforcements which have many bends or loops.

The apparatus comprises briefly a templet-table or base provided with holes suitably disposed upon its surface; pins fitting in and projecting from said holes; and a hand-lever provided at its fulcrum with an eye which turns upon any of said pins, with means for engaging the metal-rod which is to be bent.

The invention consists further of the constructions and combinations which will be hereinafter explained in connection with the accompanying drawings, wherein—

Figure 1 is a perspective view of the apparatus constructed according to my invention; Fig. 2 is a section through the same in the center of one of the holes of the templet-table or base, showing the manner of turning an eye upon a reinforcing-rod or hoop; Fig. 3 is a section through the templet-table showing an improved form of pin; and Fig. 4 shows a set of pins of different sizes which may be supplied with the apparatus to adapt it to eyes and loops of different diameters.

In these drawings the same part is designated by the same reference letter in each figure.

In shaping reinforcement stirrups and hoops during building-construction it becomes an important question to provide some readily available means for forming rods into any desired shape rapidly and cheaply, and inasmuch as the design of the structural elements is different in each case, due to different conditions of dimensions, disposition, loading, etc., a wide variation of shape must be provided for. This is accomplished by the present apparatus, which comprises simply a templet-table or

platen *a* having holes *b* therein at various points. The holes *b* are preferably disposed in regular order, as shown, but may be disposed in any desired relation. In these holes fit movable pins *c*, said pins being formed with shanks *d* of a size to fit in the holes *b*, and with heads *e* of a size corresponding to that of the reinforcing-rods which are destined to engage in the loops or eyes formed in the stirrups. A rod *f* in the process of being bent into stirrup form is shown in Fig. 1, while Fig. 2 shows a rod *g* having an eye *h* turned thereon.

For bending the rods I employ a hand-lever *i*, which has at its fulcrum a hole *j* adapted to fit the heads of the pins *c*, which form successively the pivot upon which it is turned, and it is further provided with a peg *k* on its under side a short distance from the pivot, which peg is adapted to catch the rod and twist it around the pin when the lever is turned. This is clearly exemplified in Figs. 1 and 2 of the drawing.

To prevent undue looseness of the pins, the holes in the templet-table may be made tapered as shown at *b'* in Fig. 3; in which case the pins, *c'*, will receive a corresponding taper, and it will be unnecessary to provide any supporting shoulder for them; and the apparatus may be furnished with a set of pins of different-sized heads, as shown at *c<sup>2</sup>*, *c<sup>3</sup>*, *c<sup>4</sup>*, in Fig. 4, corresponding to different sizes of reinforcing-bars so as to turn upon stirrups and hoops eyes or loops of corresponding diameter.

By means of my improved apparatus any of the stirrup forms and hoops, as well as many other reinforcing forms used in concrete work, may be formed by unskilled labor.

While I have herein shown the most improved form of my apparatus it will be understood, of course, that certain changes of form and dimensions may be made without departing from the spirit of my invention.

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

A device for shaping reinforcing-members for concrete structures, comprising a templet-table having a plurality of tapered holes therein, a plurality of pins having tapered shanks fitted removably in said

holes and provided with heads extended above the face of said templet-table, and a lever having a hole near one end to removably engage over the head of a pin to  
5 form a fulcrum for the lever, and a depending projection to engage the material being acted upon to twist it around a pin when the lever is rotated on its fulcrum, whereby metal bars may be twisted into

zig-zag form comprising alternate straight portions and bends. 10

In witness whereof I have hereunto set my hand this 15th day of June, 1909.

RUDOLPH B. HARTMAN.

Witnesses:

S. ROSENHEIMER,

W. D. SCHIENBEIN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents.  
Washington, D. C."