No. 756,861. PATENTED APR. 12, 1904.

R. C. LAYTON.

LATTICE WORK STRUCTURE.

APPLICATION FILED SEPT. 4, 1903.

NO MODEL.

Fig. 1.

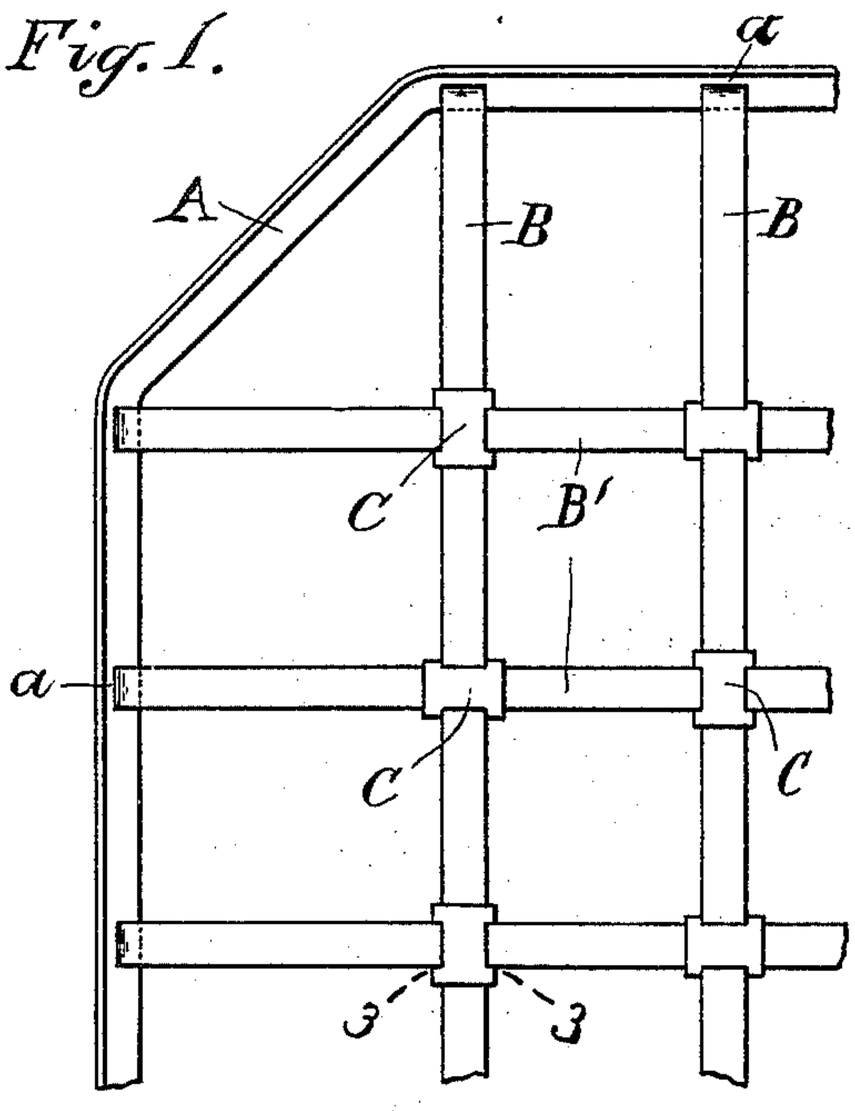


Fig. 2.

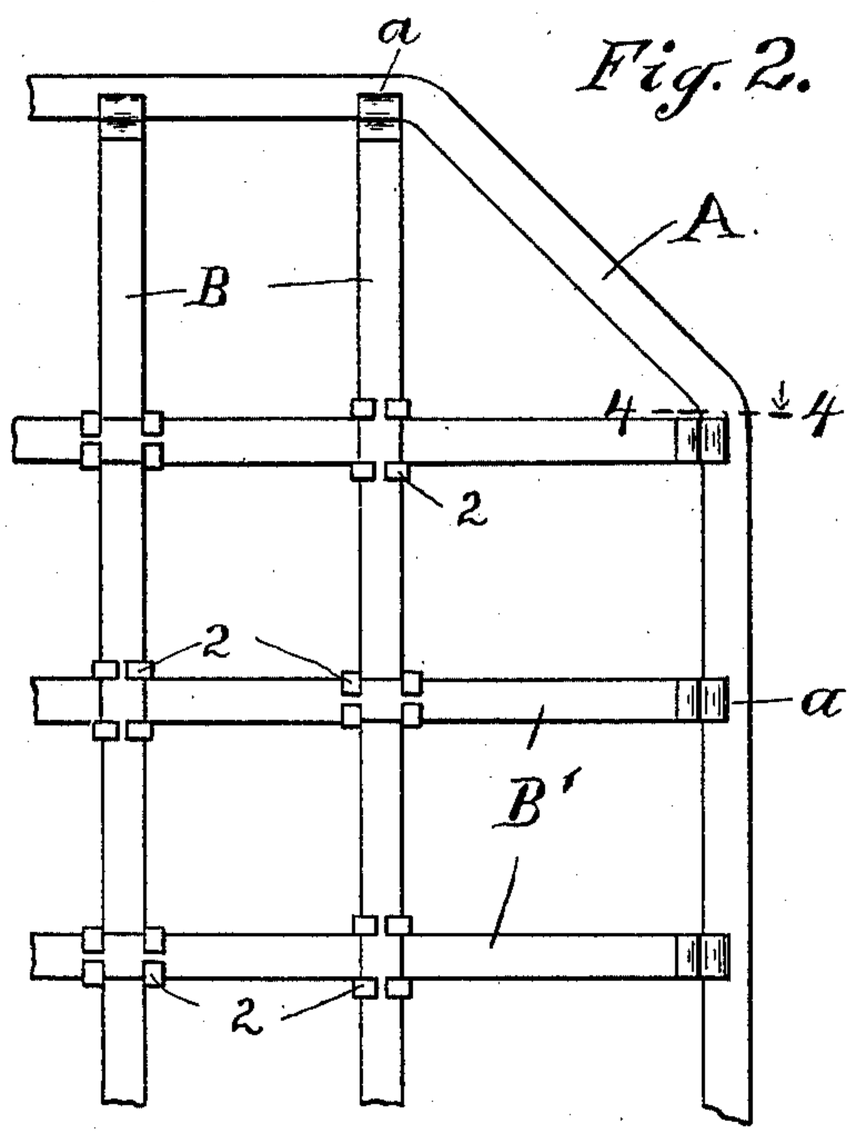


Fig. 3.

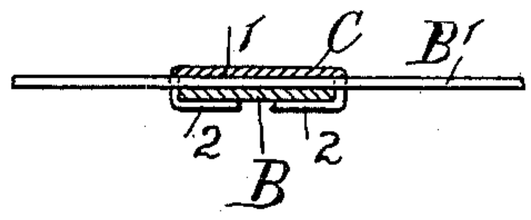


Fig. 4.

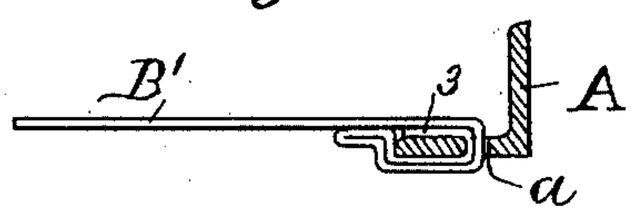


Fig. 5.

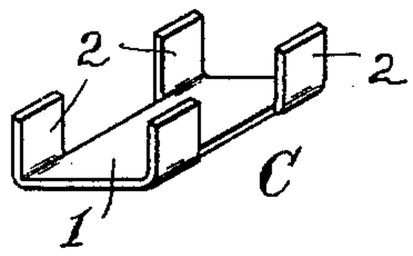


Fig. 6.

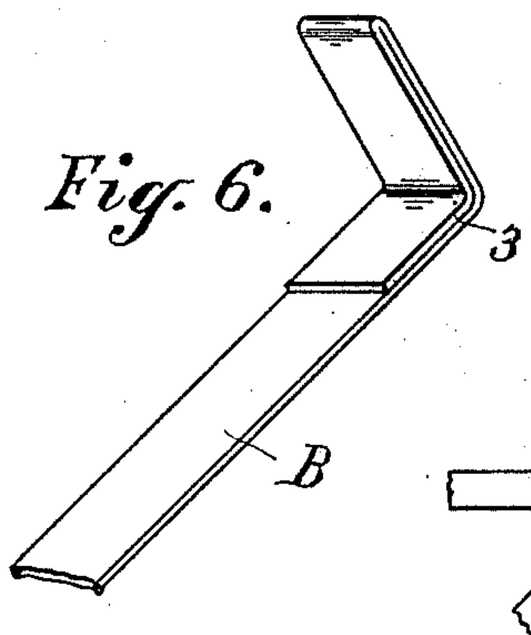


Fig. 7.

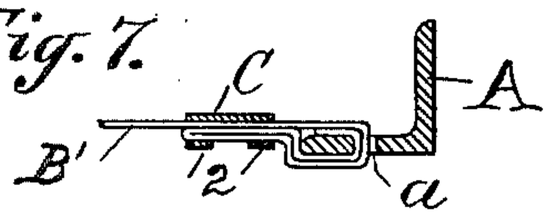
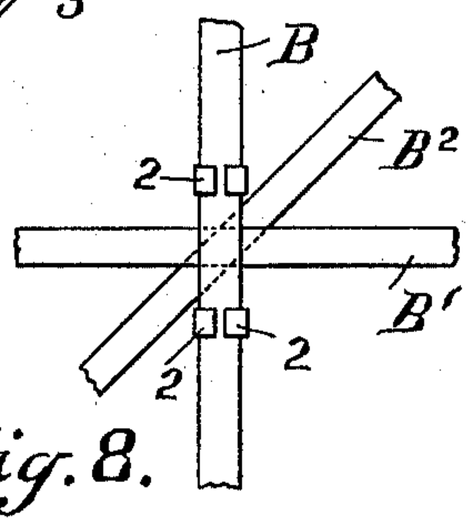


Fig. 8.



WITNESSES:

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No. 756,861. Patented April 12, 1904.

UNITED STATES PATENT OFFICE.

RICHARDSON C. LAYTON, OF NEW YORK, N. Y., ASSIGNOR TO EMPIRE PIPE BENDING AND SUPPLY COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

LATTICE-WORK STRUCTURE.

SPECIFICATION forming part of Letters Patent No. 756,861, dated April 12, 1904.

Application filed September 4, 1903. Serial No. 171,961. (No model.)

To all whom it may concern:

Be it known that I, RICHARDSON C. LAYTON, a citizen of the United States of America, residing at the borough of Brooklyn, New York city, in the county of Kings and State of New York, have invented certain new and useful Improvements in Lattice-Work Structures, of which the following is a specification.

My invention has reference to improvements in lattice structures, and has for its object to provide a very strong and durable structure which can be readily and economically manufactured and which in case of breakage of any of its bars can be quickly and easily repaired either temporarily or permanently without the use of special tools. These qualities are important factors when lattice-work is employed in constructions subject to rough usage and shocks—such, for instance, as street-car fenders, for which latter this lattice is particularly intended, although it may be used for other purposes.

In the usual type of lattice-work the bars are either secured to the frame or at their points of intersection by rivets or else the bars are simply bent outwardly to form sockets at such points and their ends riveted to the frame. The riveting materially weakens the structure, while the unriveted structures are insufficiently strong for rough usage.

With the above objects in view my invention consists, essentially, in a lattice-work structure comprising a frame, a plurality of intersecting bars having their ends looped around the frame, clips clenched about the overlapping portions of the ends, and clips located at the intersections and having their bodies overlapping the overlying portions of the bars, and ears clenched upon the underlying portions of the bars.

My invention also relates to certain novel features in the details of construction, all of which is more fully pointed out in the following specification and claims and illustrated in the accompanying drawings, in which—

Figure 1 represents a face view of part of a lattice structure embodying my invention. Fig. 2 is a similar view of the reverse side of the same. Fig. 3 is a section on the line 3 3, Fig. 1, drawn on an enlarged scale. Fig. 4 is a section on the line 4 4, Fig. 2, on the same scale as Fig. 3. Fig. 5 is a perspective view of one of the clips for fastening the bars at their intersections. Fig. 6 is a similar view of the end of one of the bars. Figs. 7 and 8 illustrate modifications.

Similar letters and numerals of reference designate corresponding parts throughout the several views of the drawings.

Referring now to the drawings, the letter A designates a frame made of metal, such as wrought-iron or steel or other material possessing the proper degree of strength, said frame being provided with a number of sockets *a*. The frame may be of any suitable configuration and cross-section to adapt it for the purpose intended. The sockets *a* therein are spaced at suitable intervals and are adapted to receive the ends of the intersecting or interlacing bars B and B′. In the present instance, Fig. 2, I have shown the bars interlaced—that is to say, passing alternately over and under each other—although all the bars of one set may underlie those of the other.

C C are clips for securing the bars B and B′ together at their intersection. The clips are preferably made of metal, such as soft steel, and each consists, as best seen in Figs. 3 and 5, of a body 1, made substantially rectangular in form and having two sets of oppositely-placed ears 2 projecting therefrom substantially at right angles. The length of the body 1 is greater than the width of the bars B or B′, so as to overlap or extend beyond the same on both sides, as shown in Figs. 1 and 2, when the clip is applied. The space between the ears 2 is approximately the same as the width of the bars. The clips are applied to the bars B B′ at their intersections by placing the same on the overlying bar, as B, with the ears straddling the underlying bar, as B′, and the ears 2 are then clenched over onto the underlying bar, thus holding the bars firmly together at their intersection. With interlacing lattices I prefer to direct the clips on alternate lines of intersection in different direc-

tions—that is to say, place the same at substantially right angles to each other, thus further increasing the strength of the structure. The clips may be applied alternately to the intersections from opposite sides of the lattice, so that all clips face in the same direction. When the bars simply intersect without interlacing, the clips must be applied from opposite sides, if they are to be differently directed.

The ends of each of the bars B and B′ are first doubled or lapped over to obtain a double thickness of metal, as at 3, Fig. 6, and then bent about midway of the lap to extend substantially at right angles. The ends so bent are then hooked into the sockets *a* of the frame and the projecting portion bent down upon the latter and the bars. In this manner I obtain strong but flexible fastenings of the bars to the frame. In case of breakage of a bar it can be readily replaced by bending up the ears of the clips, inserting a new bar, and reclenching the ears. Damaged sections of a bar can also be replaced by cutting out the broken portion between the clips, unbending the ears of the two corresponding clips, and inserting a new section and reclenching.

In Fig. 7 I have shown the end fastenings of the bars to the frame reinforced and securely held against spreading by clips C, clenched about the laps at the ends.

In Fig. 8 the lattice is shown provided with diagonal bars B^2, and the intersections of the bars are secured by clips C′, made with correspondingly greater spaces between their ears.

While I have herein shown flat lattice-bars, it is of course to be understood that they may be round, square, or of any other desired cross-section.

What I claim as new is—

1. A lattice-work structure comprising a frame, a plurality of intersecting bars having their ends looped around the frame, clips clenched about the overlapping portions of the ends, and clips located at the intersections of the bars and having bodies overlapping the underlying portions of the bars, and ears clenched over on the underlying portions, substantially as described.

2. A lattice-work structure comprising a frame, a plurality of intersecting bars having their ends lapped over to form a double thickness and said ends looped around the frame to again overlap the bars, and fastenings at the intersections of the bars, substantially as described.

3. A lattice-work structure comprising a frame provided with suitably-spaced sockets, a plurality of intersecting bars having their ends lapped over and hooked through the slots, and clips located at the intersections and having bodies overlapping the overlying portions of the bars and ears clenched over on the underlying portions, substantially as described.

4. A lattice structure comprising a frame provided with suitably-spaced sockets and a plurality of intersecting bars having their ends lapped over to form a double thickness and the ends passed through said sockets and doubled over to overlap the bars, substantially as described.

5. A lattice structure comprising a frame provided with suitably-spaced sockets, a plurality of intersecting bars having their ends lapped over and hooked through said sockets and clips clenched about the lap, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

RICHARDSON C. LAYTON.

Witnesses:
A. Faber du Faur, Jr.,
R. B. Bloemcke.