No. 702,462. Patented June 17, 1902.

C. O. NELSON.

BRIDGING FOR JOISTS.

(Application filed Dec. 23, 1901.)

(No Model.)

Fig. 1.

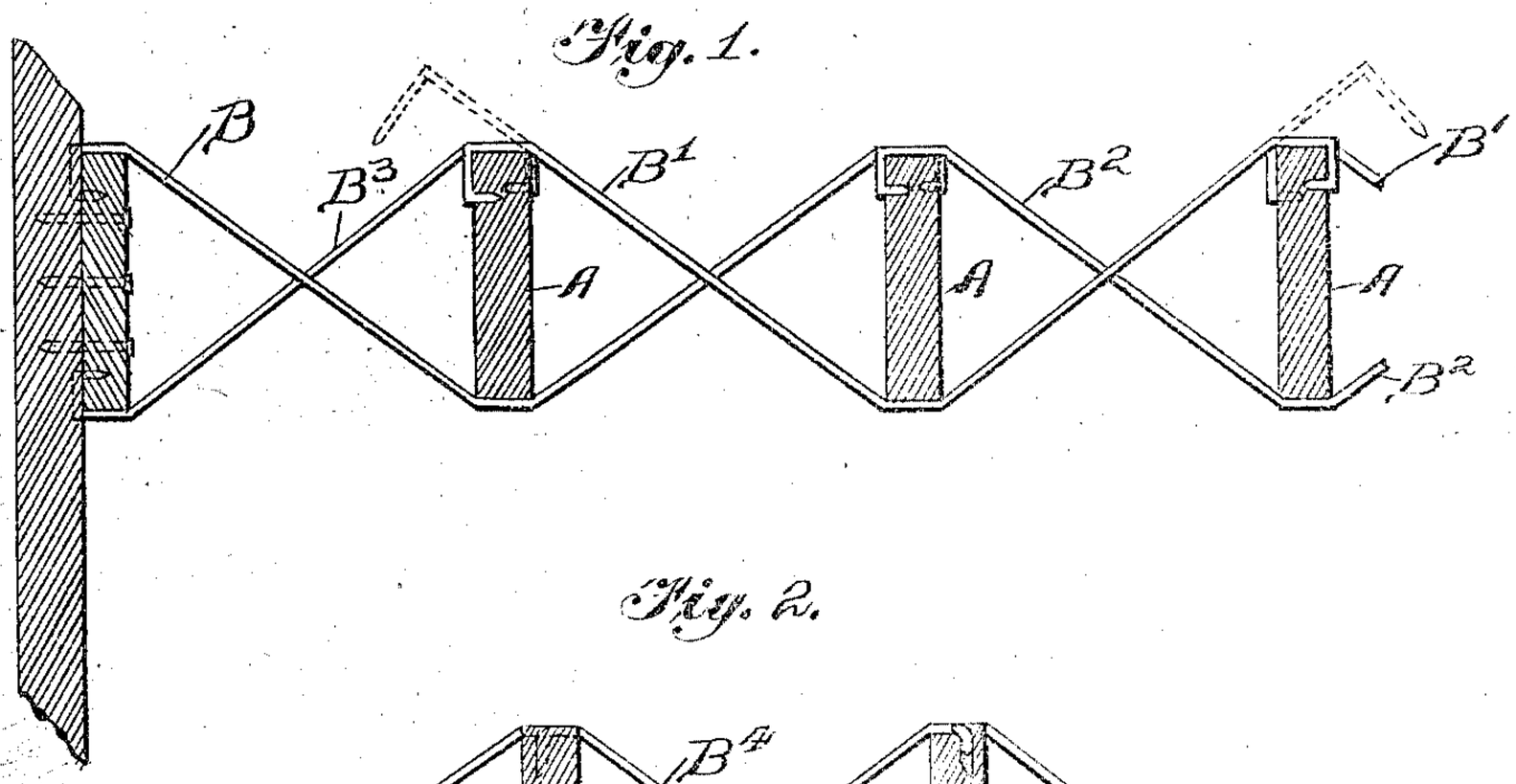


Fig. 2.

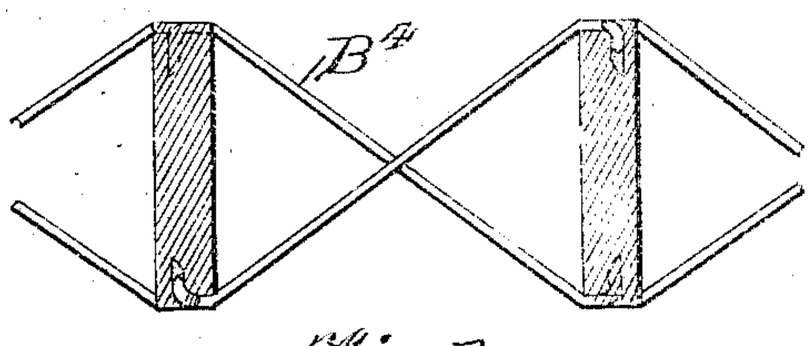


Fig. 3

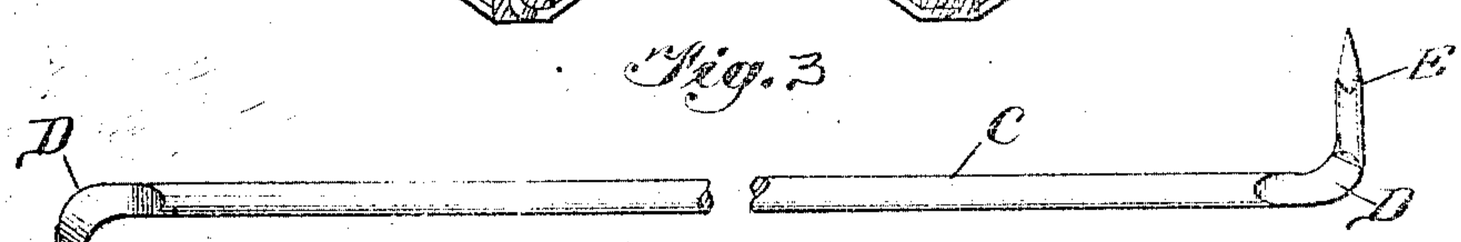


Fig. 4.

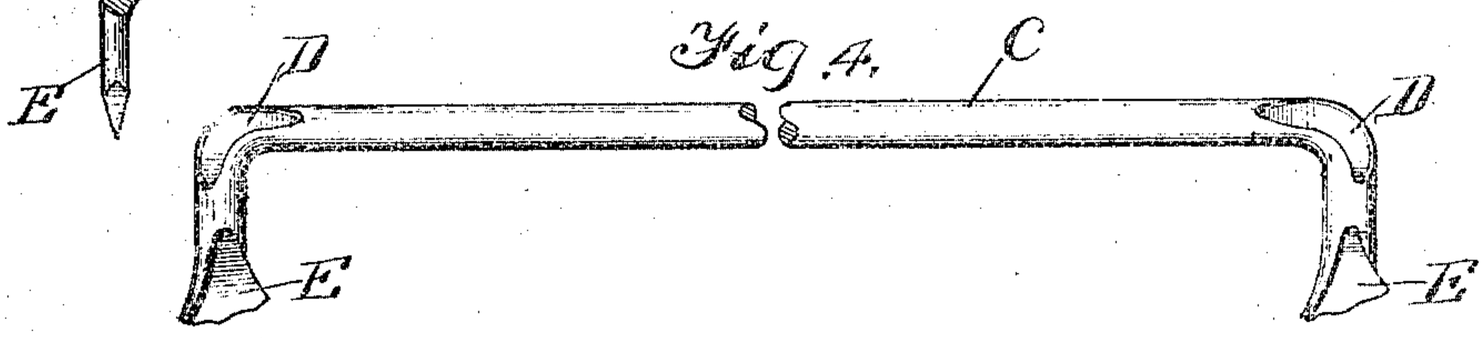


Fig. 5.

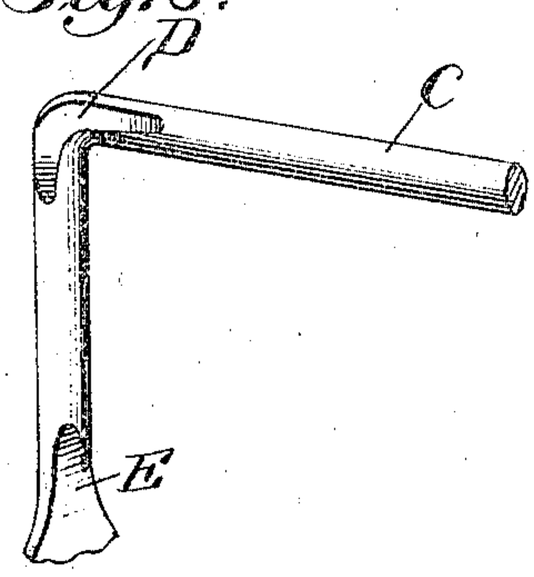
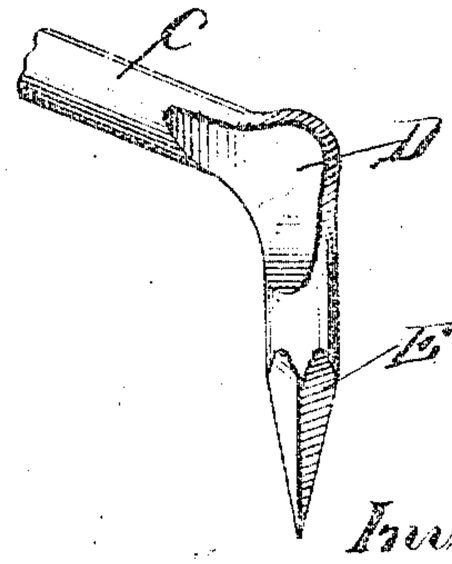


Fig. 6.



Witnesses:

J. B. Weir

W. E. Shields

Inventor:

Charles O. Nelson

By Raymond & Barnett

Attorneys

UNITED STATES PATENT OFFICE.

CHARLES O. NELSON, OF WINNETKA, ILLINOIS, ASSIGNOR OF ELEVEN FIFTEENTHS TO HORACE M. CAPRON, OF WINNETKA, ILLINOIS

BRIDGING FOR JOISTS.

SPECIFICATION forming part of Letters Patent No. 702,462, dated June 17, 1902.

Application filed December 23, 1901. Serial No. 86,985. (No model.)

To all whom it may concern:

Be it known that I, CHARLES O. NELSON, a citizen of the United States, residing at Winnetka, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Bridging for Joists, of which the following is a specification.

My invention relates to improvements in metallic bridging or bracing for use in connection with floor-joists and in analogous situations.

The object of my invention is to provide a form of bridge which while exceedingly simple in construction and application and cheap will not be materially affected by age or atmospheric changes, will not be readily displaced or loosened, and will connect the floor-joists or similar elements in such a manner as to form, in effect, a series of trusses and a very rigid structure. These and such other objects as may hereinafter appear are attained by the devices illustrated in the accompanying drawings, in which—

Figure 1 represents a broken cross-section through adjacent joists connected by the preferred form of my improved bridging. Fig. 2 is a like view of joists connected by a modified form of my bridging. Fig. 3 is a broken side view of my improved metallic bridging-piece in the form shown in Fig. 2. Fig. 4 is a like view of the preferred form of my bridging, and Figs. 5 and 6 are broken perspective views showing alternative forms for the driving-head of the bridging-piece.

Referring by letter to the accompanying drawings, A represents joists connected by the bridging pieces B, each of which pieces, both in my preferred and modified forms, preferably comprises a rod or web C, two driving-heads D, and two points E, angularly disposed with reference to the web C. The driving-heads D may be most readily formed by swaging or flattening the metal after the pointed ends E have been turned at an angle to the web C.

In the preferred form of my bridging each bridging-piece is formed of sufficient length to be attached to one edge of a joist, extending thence diagonally upward and over the next adjacent joist, and thence downwardly to and engaging the second joist beyond the first-mentioned joist. When so formed, although each bridging-piece is sufficiently compact to be quickly and conveniently applied by the workmen each bridging-piece serves to connect three joists, while at the same time it is only necessary to attach each piece to two of the joists. Preferably also the bridging-pieces are of sufficient length to allow the ends thereof to pass around one edge and thence along the farther face of each of the joists which it engages, as shown in Fig. 1, as with this construction the bridging-pieces can be more readily placed under the desired tension, and the strain exerted on each joist through the bridging-pieces will be borne by the full thickness of the joist instead of by a part of its thickness where the bridging-pieces are driven into the edges of the joists, as shown in Fig. 2. If desired, however, the bridging-pieces, whether made in the form shown in Fig. 1 or in that shown in Fig. 2, may be of such a length as to be driven into the edges of the joists, as in the manner shown in Fig. 2, instead of being passed around the edges and driven into the farther faces of the joists. I prefer, however, to pass the ends of the bridging around the edges of the joists to which it is to be attached, so as to drive the sharpened ends into the farther face of each of these joists, for the reason that when so bent around the edge of the joists the sharpened end of the bridging will engage the joist at a point in advance of the driving-head, with the result that as the bridging is driven into the joist until the driving-head is flush with the surface thereof the driving-head will be drawn to the point first engaged by the sharpened end of the bridging, thereby placing the bridging under the desired tension.

Of course the connections between adjacent joists are made by the use of my improved bridging members in pairs, which cross each other between joists in the manner shown in the drawings.

In the modified form of my device shown in Figs. 2 and 3 the pointed ends are oppositely bent and each member is of sufficient length only to extend diagonally between

and engage two adjoining joists. In applying this form of member one of the driving-points is presented to the surface of one joist and the other one of the driving-points is presented to the lower surface of the adjacent joist. The points are then driven into the joists. In this operation the rod is bent somewhat close to the driving-heads, as shown in Fig. 2.

In using the preferred form of my bridging the bridging-piece is loosely bent sufficient to allow of its ends being passed between adjacent joists upon opposite sides of an intermediate joist, and the ends are then driven to place in the two outer joists, either in the edges thereof, as shown in Fig. 2, or in the farther faces thereof, as shown in Fig. 1. Another bridging-piece is then similarly located, so as to cross the webs of the first bridging-piece between the adjacent joists. If desired, however, it is entirely practical to use my preferred form of bridging, having all of the bridging members driven into the joists adjacent to one edge thereof only. In this manner the workmen may often work much more rapidly and conveniently, as it is evident that it will be much simpler and easier to drive the bridging members into or adjacent to only the upper or lower edges of the joists instead of alternately driving them into both the upper and lower edges of the joists. When this is done, the long and short forms of my bridging may be used to advantage together, the short lengths being used to complete the cross connections between the side sills and the next adjacent joists.

Although I prefer using the form of driving head and point shown in Fig. 6, that shown in Fig. 5, although somewhat similar, is simpler, as the bridging is not so heavily swaged to make the driving-head and its end is simply flattened to a beveled edge to form a point for engaging or driving into the joist.

Obviously the particular cross-sections of the web may be varied without departure from the spirit of my invention.

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

1. An improved metallic bridging for joists, &c., comprising a rod or web provided at its ends with oppositely-turned points adapted to be driven into the upper and lower portions of adjacent joists, substantially as and for the purpose set forth.

2. An improved metallic bridging for joists, &c., comprising a body portion or web of sufficient length to extend from near the top of one joist to near the bottom of the adjacent joist and provided with oppositely-turned points and adjacent to said points with driving-heads, substantially as and for the purpose set forth.

3. An improved metallic bridging for joists, &c., comprising a web a, driving-heads a' on opposite sides of the web a, said driving-heads being formed by swaging the material at the ends of the web, and oppositely-turned driving-points adjacent to said driving-heads, substantially as and for the purpose set forth.

4. The combination with joists A, A', of metallic bridging members B, B' connecting said joists, each of said members extending from the top of one joist to the bottom of the adjacent joist and having at its ends oppositely-turned driving-points embedded in the material of the joists, substantially as and for the purpose set forth.

5. A metallic bridging comprising a web and angularly-disposed ends arranged to extend diagonally between joists and to be secured thereto by having said angular ends driven therein, substantially as described.

6. A metallic bridging for joists comprising a web arranged to extend across one edge of a joist and thence diagonally to the farther edges of the next adjoining joists on each side thereof, and sharpened ends adapted to engage each of said adjoining joists, substantially as described.

7. A metallic bridging comprising a web adapted to extend diagonally between joists, and sharpened ends angularly disposed with relation to said web so as to form driving-heads whereby said ends may be driven into joists, substantially as described.

8. A metallic bridging comprising a web, sharpened ends angularly disposed with relation to said web, the bridging having its sides flattened at the angle between the web and the ends so as to form driving-heads, substantially as described.

CHARLES O. NELSON.

Witnesses:
H. M. CAPRON,
O. R. BARNETT.