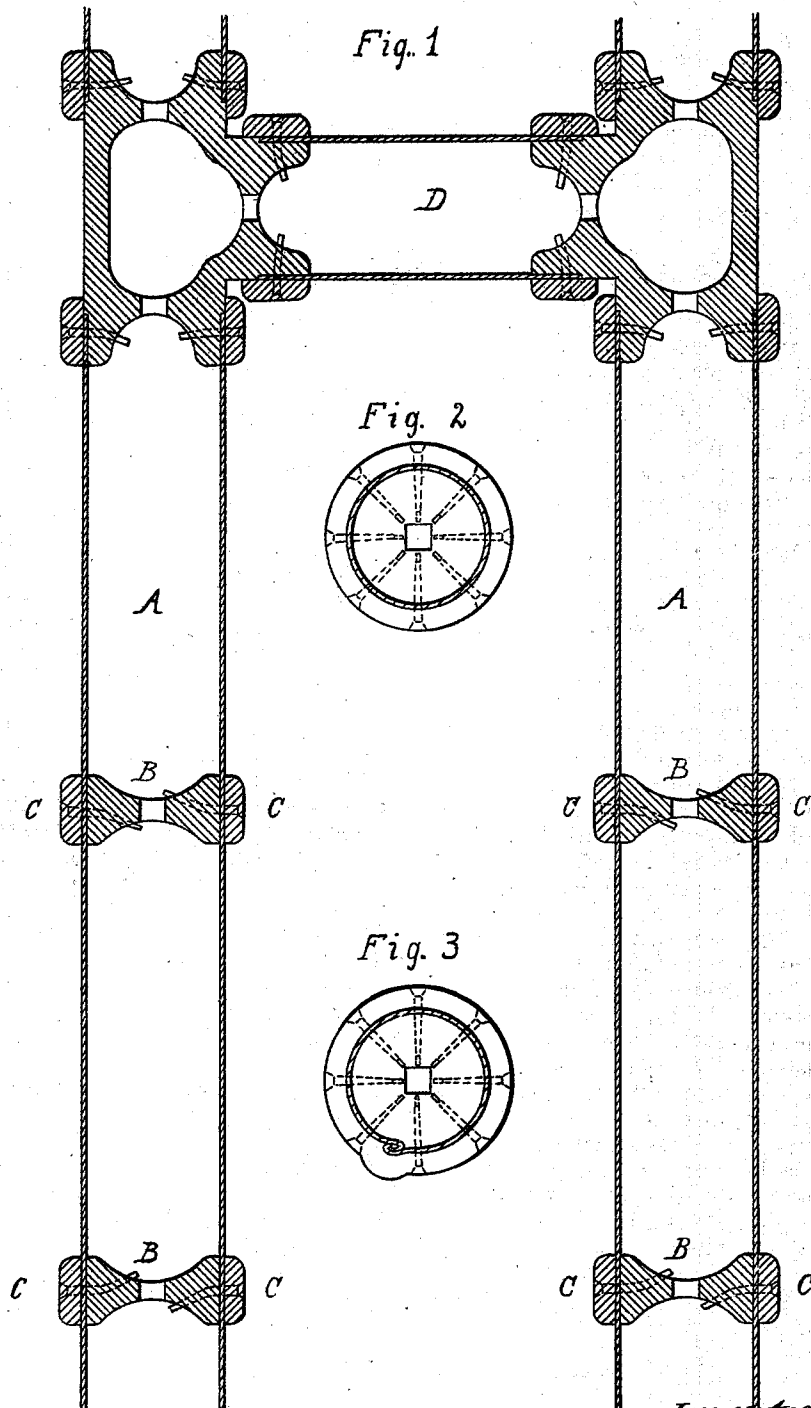


E. T. POTTER.
Beams and Rafters.

No. 146,779.

Patented Jan. 27, 1874.



Attest
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UNITED STATES PATENT OFFICE.

EDWARD T. POTTER, OF NEW YORK, N. Y.

IMPROVEMENT IN BEAMS AND RAFTERS.

Specification forming part of Letters Patent No. **146,779**, dated January 27, 1874; application filed September 10, 1873.

To all whom it may concern:

Be it known that I, EDWARD T. POTTER, of the city, county, and State of New York, have invented a new and useful Improvement in Beams and Rafters; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the annexed drawing, making part of this specification, in which—

Figure 1 is a longitudinal section of the beam or rafter in which my invention is embodied. Fig. 2 is a cross-section of said beam, and Fig. 3 is a modified form of said invention.

It is well known that if a tube be loaded transversely its power to resist the weight will lessen as the deflection increases, or as its walls are forced nearer and nearer together, until the tube be flattened; but if the walls of the tube be kept apart and deflection avoided, its strength will be greatly increased—will, in fact, be equal to the tensile strength of the wall of the tube on its convex side.

The object of my invention is the production of a very light but stiff beam or rafter, to be used in the construction of buildings, by making said beam or rafter in the form of a tube braced or trussed to obtain the maximum strength of the material in that form; and my invention consists of a metal tube braced or trussed transversely to stiffen it, lessen its deflection, and keep it from collapsing.

In the drawing, A A represent tubes made of metal, in which there are disks or plugs of wood or metal driven, as shown by B B, and around the outside of which a band, C C, is shrunk, forged, or raised, to hold the wall of the tube firmly on the disk. The effect of this trussing is to divide the tube in sections, and confer, in a great measure, the strength of a short tube upon a long one.

There may be as many of these disks and

bands as, in the judgment of the maker or user, may be necessary. They should be as near together, however, as they can be, having due regard to the weight of the structure, as the strength of the tube will be increased as the disks and bands are multiplied, until their weight is more than equal to the strength they confer.

After the disk has been duly inserted and the band applied, I propose to drive a nail through the band and tube into the disk, in the manner shown, should I deem it necessary, the beam and tube being first duly perforated to admit the nail. The tubes may, of course, be riveted, drawn, welded, or lapped up, as shown in Fig. 3.

In using this style of rafter or beam in the construction of any extended work, they must, of course, be joined or braced by means of struts, as shown by D. To accomplish this no particular form of union is necessary; but the one shown in the drawing answers a very good purpose, and is submitted as a good form for adoption.

These tubes may, of course, be combined together in various ways in the formation of the beams or rafters, and they are intended to be used in all sorts of iron or wooden structures. My intention is to patent the tube and use it wherever it may be desirable.

Having now described the object and use of my invention, I claim and desire to secure by Letters Patent—

The external band C C and the internal disk B B, in combination with the tube or hollow cylinder, for the purpose of trussing or bracing the same, substantially as described.

EDWARD T. POTTER.

Witnesses:

AMOS BROADNAX,
STURGES ALLEN.