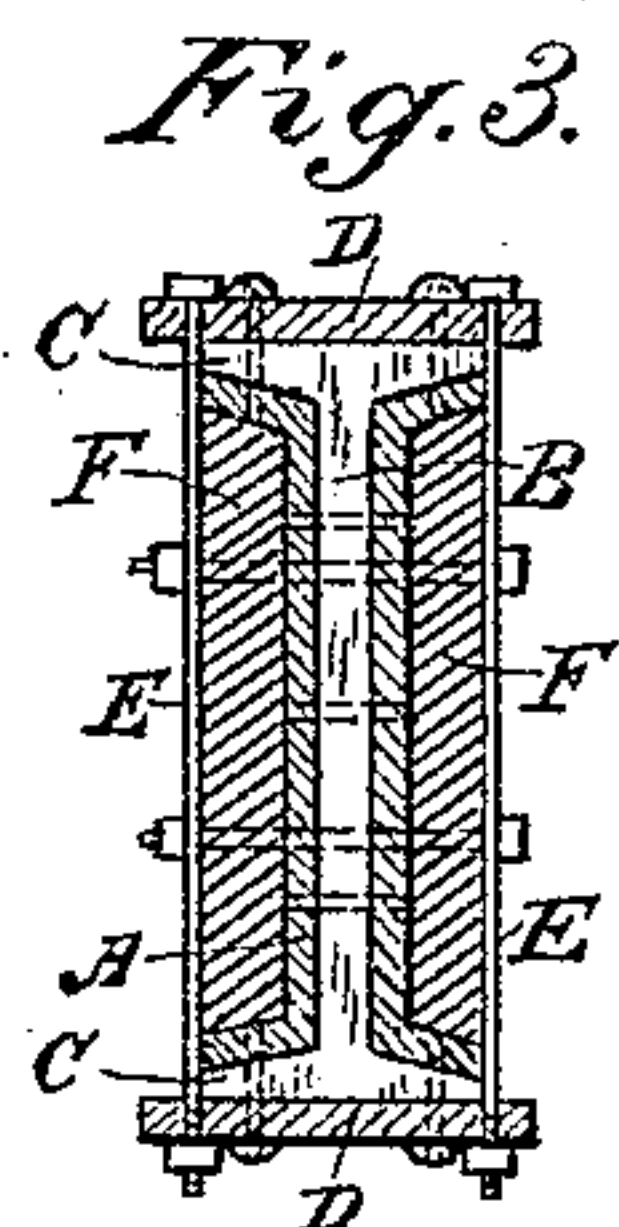
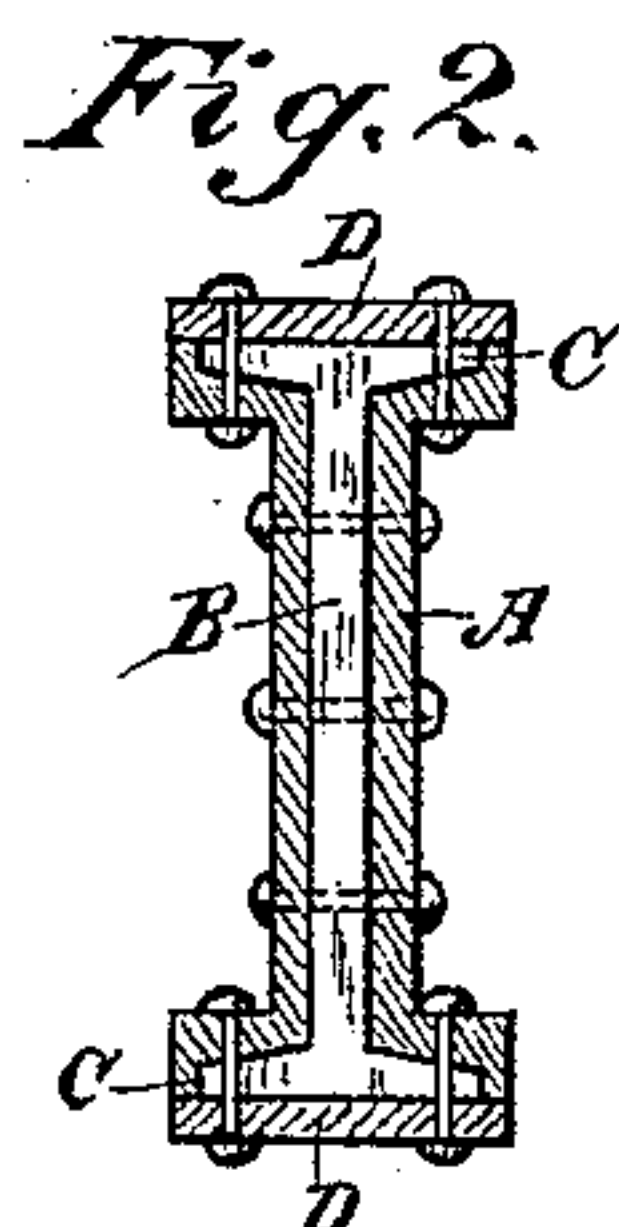
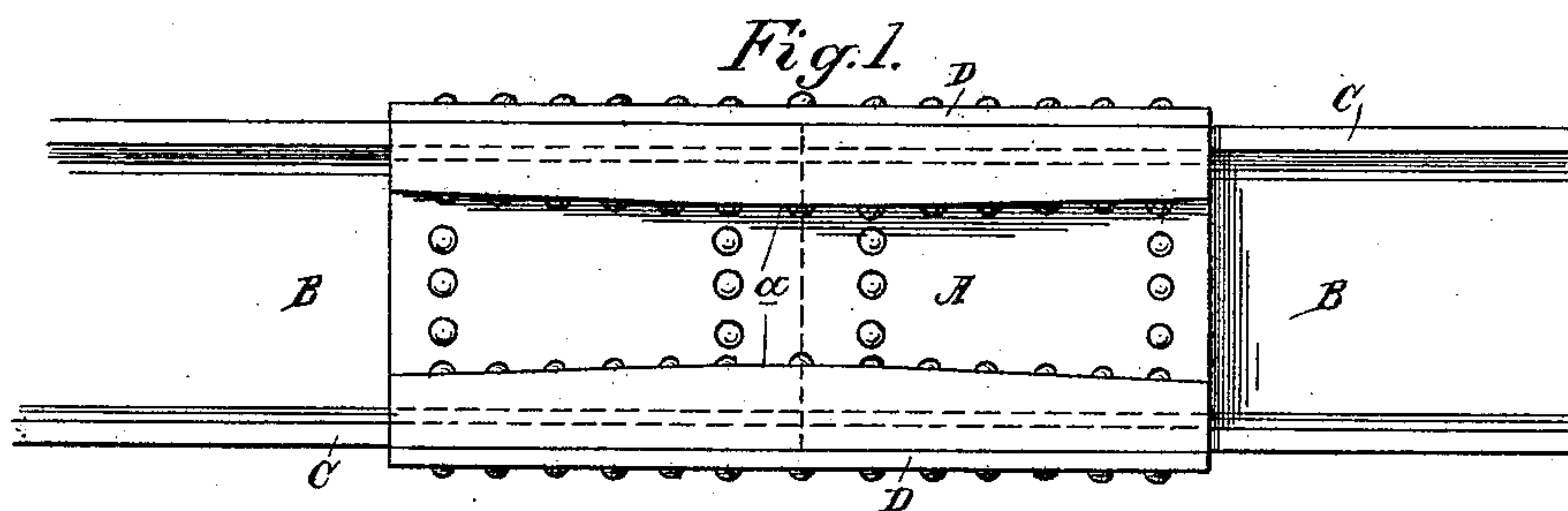


(No Model.)

P. H. JACKSON.
LENGTHENING METALLIC BEAMS.

No. 444,578.

Patented Jan. 13, 1891.



Witnesses,
Geo. H. Strong.
J. H. Morse.

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UNITED STATES PATENT OFFICE.

PETER H. JACKSON, OF SAN FRANCISCO, CALIFORNIA.

LENGTHENING METALLIC BEAMS.

SPECIFICATION forming part of Letters Patent No. 444,578, dated January 13, 1891.

Application filed March 19, 1890. Serial No. 344,557. (No model.)

To all whom it may concern:

Be it known that I, PETER H. JACKSON, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented an Improvement in Lengthening Metallic Beams; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to a means for lengthening iron and steel rolled and other metal beams and strengthening the joint; and it consists in a means for uniting the abutting ends of such beams in such a manner as to increase the strength of the beam thus united at its point of union.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a side elevation showing one form of union. Fig. 2 is a transverse section of the same. Fig. 3 is a view showing cheek-pieces used with this coupling.

The capacity of rolling-mills limits the length of rolled beams, and when beams are needed of greater length to span large rooms or other spaces, either a supporting column, pier, or post must be used, or if such support be inadmissible it is necessary to build up what is known as a "plate" or "box girder" at an increased cost over the rolled beams and with a less reliable strength on account of its being built of a number of pieces and riveted together.

It is important when a number of beams or girders of great length are employed that there should be as little deflection as possible, and my improved construction is designed to increase the strength of the girder at the point where the joint is made. In the first method of construction which I have shown I employ cheek-pieces A, which are made of iron or steel, the latter being preferred. These pieces are of sufficient length to extend some distance on each side of the abutting ends of the beams B, and they inclose the beams upon each side of their abutting ends, extending upon each side of the web and inclosing the top and bottom flanges of the beam, as shown.

The plates D extend along the top and bottom, projecting on each side so that their edges are flush with the flanges C of the

beams. The cheek-pieces A are secured to the webs B and also to the flanges C of the beams by a sufficient number of rivets, and the top and bottom plates D are secured to the cheek-pieces and also through the top and bottom flanges of the beams in a similar manner by rivets, so that the whole is solidly secured together. The cheek-pieces practically form external girders having a similar shape to the girder or beam which they inclose, and being secured thereto with the top and bottom plates they form an inclosing box, within which the ends of the beams meet and by which they are held with a strength which is even greater than any other portion of the beam and in excess of all requirements for the strain to which the beam will be subjected. The top and bottom flanges of these cheek-pieces may be made thicker in the middle than at the ends, the swell or taper giving additional strength at the joint or meeting point of abutting beams, as shown at *a*.

In some cases it may be desirable to extend the top and bottom plates beyond the beam flanges, and employ tie-bolts E, which pass through these plates, being secured by nuts screwed upon the ends of the bolts, and blocking-pieces F may be fitted into the concavity or depression formed in the sides of the cheek-pieces, so as to fill up these spaces flush with the outer edges of the top and bottom plates. These blocking-pieces may be secured in place by bolts passing transversely through them or may be recessed for the vertical bolts E, the cheek-pieces, and the webs of the abutting beams with the top and bottom flanges, thus providing sufficient strength to resist all tensile, compressive, and shearing strains which may occur.

In place of the bolts or rivets which are used to secure the cheek-pieces, plates, and blocking-pieces, it will be manifest that the continuous bands K may be employed to hold these parts in place, as shown in Fig. 4.

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

1. A means for lengthening metallic beams, consisting of metallic inclosing plates or cheek-pieces extending across the point of meeting of two abutting beams and fitting

the webs and heads of said beams, in combination with top and bottom plates extending over said heads and said cheek-pieces, and the top and bottom plates being riveted together and to the heads of the inclosed beams, substantially as herein described.

2. The improvement in lengthening rolled beams and strengthening the joints formed by the meeting ends of two beams, consisting of metal cheek-pieces fitting the webs and heads of the beams, top and bottom plates

riveted to said cheek-pieces and to the heads, and rivets passing through the cheek-pieces and the webs of the beams, substantially as herein described.

In witness whereof I have hereunto set my hand.

PETER H. JACKSON.

Witnesses:

GEO. H. STRONG,
S. H. NOURSE.

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