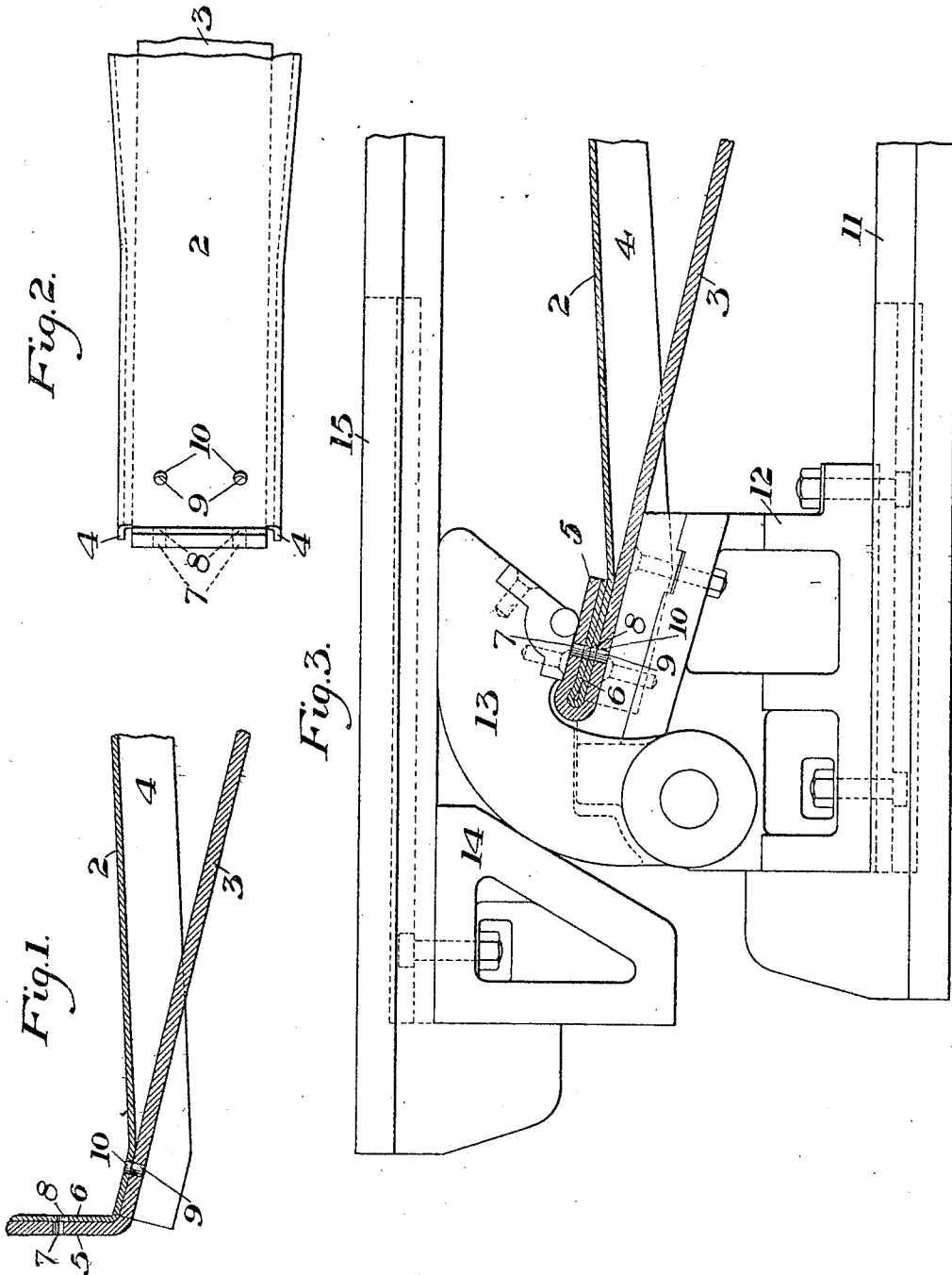


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METHOD OF MAKING BOLSTERS AND SIMILAR ARTICLES.  
APPLICATION FILED FEB. 27, 1907. RENEWED FEB. 15, 1908.

943,968.

Patented Dec. 21, 1909.

2 SHEETS—SHEET 1.



WITNESSES

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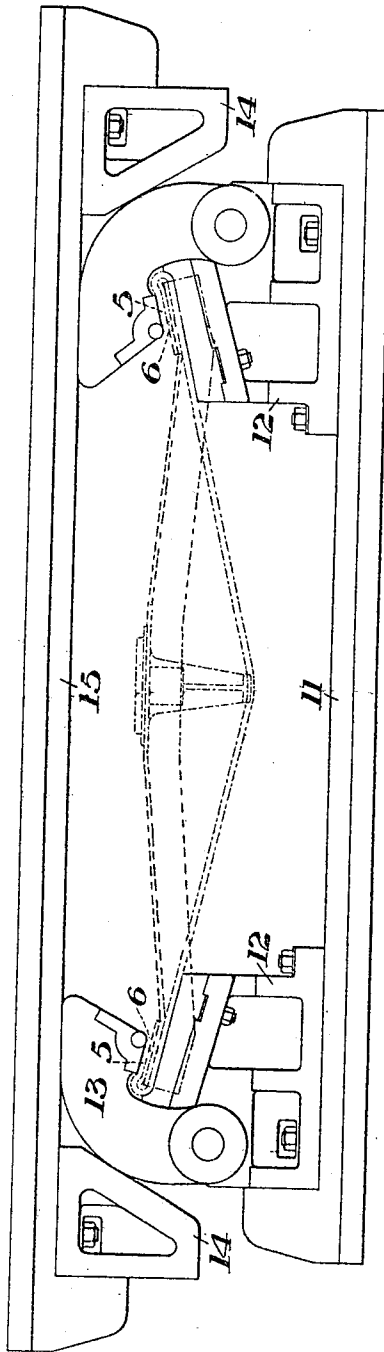
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2 SHEETS—SHEET 2.

Fig. 4.



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# UNITED STATES PATENT OFFICE.

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## METHOD OF MAKING BOLSTERS AND SIMILAR ARTICLES.

943,968.

Specification of Letters Patent.

Patented Dec. 21, 1909.

Application filed February 27, 1907, Serial No. 359,546. Renewed February 15, 1908. Serial No. 416,111.

*To all whom it may concern:*

Be it known that I, FRANK DITCHFIELD, of Bellevue, Allegheny county, Pennsylvania, have invented a new and useful Method of Making Bolsters and Similar Articles, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—  
Figure 1 is a partial longitudinal section showing two bolster parts prepared for final bending; Fig. 2 is a partial plan view of Fig. 1; Fig. 3 is an enlarged detail view showing the bending operation at one end; and Fig. 4 is a front elevation showing the bending operation, which takes place simultaneously at both ends.

My invention relates to the manufacture of bolsters, brake beams, or similar articles, wherein tension and compression members are employed with the ends of the tension member bent around the ends of the compression member.

The object of the invention is to provide a simple, rapid and economical method of forming such articles, which will do away with the necessity for drilling the rivet holes after the parts have been bent to final position. It is also designed to do away with separate bending of the parts, and also with the preheating.

In carrying out my invention, I prepare the tension and compression members preferably by bending up the end portions of both so that they will substantially interfit with each other and be in position to be acted upon by bending dies. I also punch or otherwise form the rivet holes in the end portions which are to be doubled back, these rivet holes being so positioned that they will be brought into substantial alinement during the bending operation. The parts are thus interfitted and both doubled back at the same time, preferably by cold bending under die pressure. This bending operation brings the rivet holes into alinement, causes the two members to fit each other neatly in their bent-back portions, and produces a strong and long-lived joint.

In the drawings, in which I show my invention as applied to the manufacture of bolsters, I show in Fig. 1 the parts 2 and 3, of which the tension member 3 is preferably a plain bar, while the compression member has a web 2 and side flanges 4. The end

portions 5 and 6 of these members are provided with rivet holes 7 and 8, preferably by punching them, and these ends are preferably bent up into the position shown in this figure. The punching and bending operations may be carried out while the metal is cold; and the parts are fitted together with these rivet holes out of alinement but spaced so that they will come substantially into alinement with each other and with rivet holes 9 and 10 in the lower portions, in the bending operation. After these parts are fitted together in the form shown in Fig. 1, they are placed in a suitable press and both members are simultaneously bent down cold at both ends, as shown in Figs. 3 and 4. In the apparatus shown for this purpose, the lower press member 11 is provided with end supports 12 suitably arranged to receive the bolster parts, and with rocking bending dies 13 having curved outer surfaces which are acted upon by inclined or wedge-shaped blocks 14 of the upper press member 15. When one or both of these press members is moved toward the other, the end portions of the tension and compression members at both ends are simultaneously bent down or doubled back upon themselves to give the interlocking joint shown in Figs. 3 and 4. The holes in the four layers are thus brought into substantial alinement and a pair of rivets is inserted and riveted up in each end of the bolster.

The advantages of my invention result from the simultaneous bending of both the tension and compression members to form a doubled-back joint. This gives a well fitted strong joint, since both members being in contact so that one member forms a fulcrum for the other during the bending operation, they will fit neatly upon each other in the final joint. A further advantage is that the parts may be bent cold, and much time and expense is saved by making the rivet holes prior to the bending. This does away with the expensive operation of drilling these rivet holes after the joint has been made. The operations may be easily and rapidly carried out, and at small expense. By simultaneously bending both ends of the tension member the endwise thrust at one end is neutralized or absorbed by the opposite endwise thrust at the other end, thus greatly simplifying and improving the operation.

Many variations may be made in the form

and arrangement of the tension and compression members, and in the apparatus employed, etc., and as to some features the method may be applied to the manufacture of bolsters or similar articles wherein a filler block is employed instead of doubling back the end of the compression member. It is also obvious that the member or members at the two ends of the bolster or other article operated upon do not necessarily have to be bent simultaneously, as each end may be bent separately if so desired without departing from my invention.

I claim:—

1. The method of making bolsters and similar articles, consisting in fitting together the tension and compression members at their ends and simultaneously doubling back the two layers upon themselves; substantially as described.

2. The method of making bolsters and similar articles, consisting in fitting together the tension and compression members at their ends and simultaneously doubling back the two layers upon themselves while the metal is cold; substantially as described.

3. In the manufacture of bolsters or similar articles, the steps consisting of providing the tension and compression members with rivet holes in their end portions, fitting said members together, and simultaneously bending their end portions to form a doubled back joint; substantially as described.

4. In the manufacture of bolsters or similar articles, the steps consisting of providing the tension and compression members with rivet holes in their end portions, fitting said members together, and simultaneously bending their end portions to form a doubled back joint while the metal is cold; substantially as described.

5. In the manufacture of bolsters and similar articles, the steps consisting of forming each member with two rivet holes in longitudinal alinement, fitting said members together, and then doubling back both members simultaneously at their ends to bring the holes of the four layers into alinement; substantially as described.

6. In the manufacture of bolsters and similar articles, the steps consisting of forming rivet holes in their end portions, fitting the parts together with the rivet holes out

of alinement, and then simultaneously bending the end portions and bringing said rivet holes into substantial alinement with each other; substantially as described.

7. In the manufacture of bolsters and similar articles, the method of making a doubled back joint, consisting in providing the end portions of the tension and compression members with rivet holes, and doubling back the tension member to bring the holes into alinement; substantially as described.

8. In the manufacture of bolsters and similar articles, the method consisting in fitting the parts together and applying die pressure to simultaneously bend back both ends of the tension member; substantially as described.

9. In the manufacture of bolsters and similar articles, the steps consisting of inter-fitting the end portions of the tension and compression members, and simultaneously doubling back both end portions of the tension member while the metal is cold, thus opposing the thrust at one end to that of the other end; substantially as described.

10. In the manufacture of bolsters and similar articles, the steps consisting of forming registering rivet holes in the nested together end portions of the tension or compression members, forming other rivet holes in the outer end portion of the tension member, and then doubling over the tension member to bring its outer end holes into alinement with the rivet holes through both members; substantially as described.

11. In the manufacture of bolsters or similar articles, the steps consisting of providing the end portions of two members with rivet holes, fitting such portions together, and simultaneously bending them while maintaining their shape without reforaging; substantially as described.

12. The method of making bolsters and similar articles which consists in bending the ends of one member upon itself and the ends of the other member around and upon the bent ends of the first named member.

In testimony whereof, I have hereunto set my hand.

FRANK DITCHFIELD.

Witnesses:

CHALLIS BOWKER,  
J. V. MAHER.