

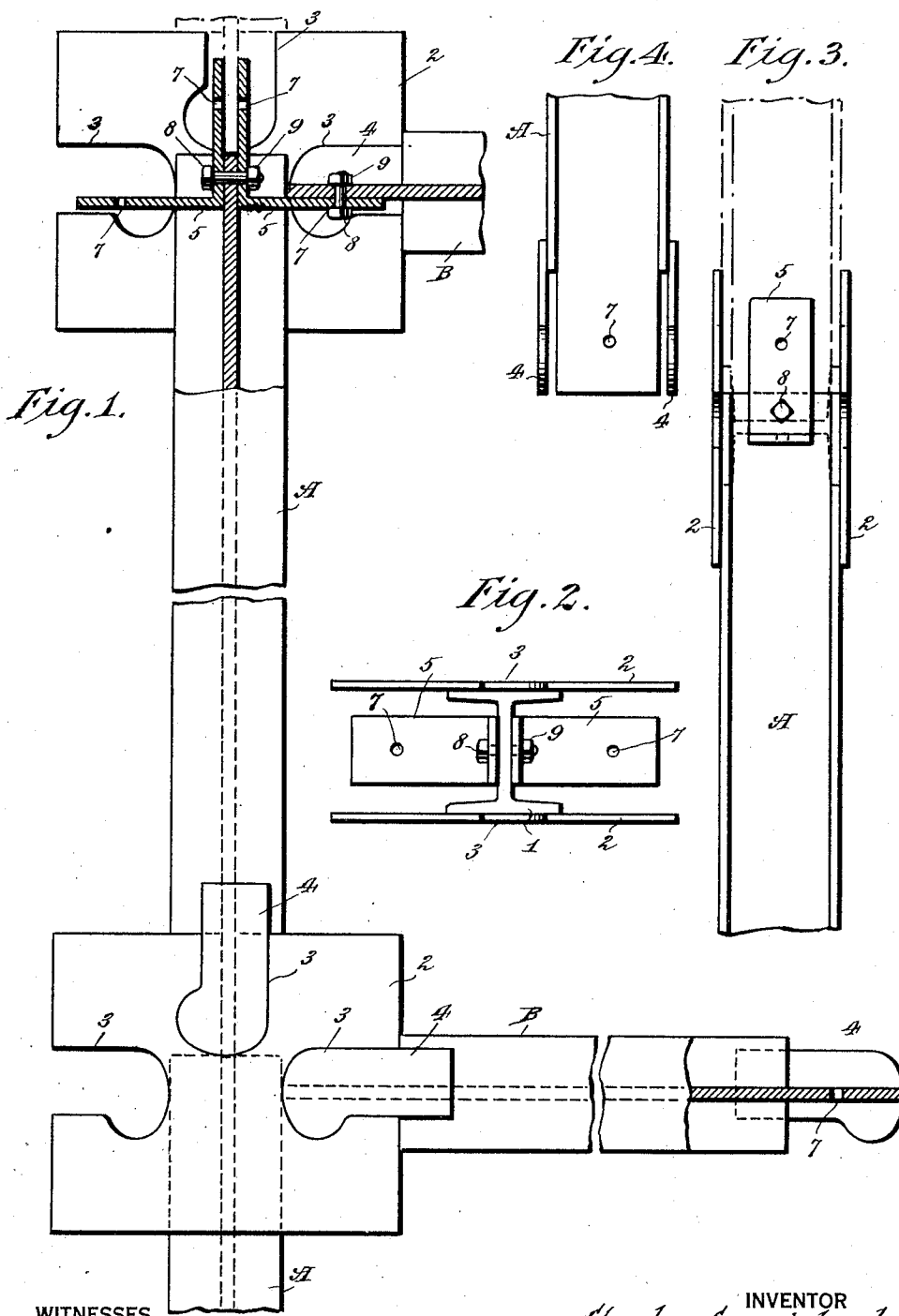
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INTERLOCKING JOINT FOR STEEL CONSTRUCTION

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WITNESSES

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INTERLOCKING JOINT FOR STEEL CONSTRUCTION

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This invention relates to interlocking joints for steel construction and has more particularly to do with joints for columns and girders in connection with building frame structures and for any other analogous purpose.

The object of the invention is to dispense altogether with the necessity for the use of rivets, particularly at the place where the building is being constructed, thus doing away with the noise, inconvenience and handling of hot rivets.

A further object is to provide a joint of this character which enables all parts to be interlocked and securely welded so that the structure becomes an integral one.

A further object is to provide a joint of this character which facilitates the joining of columns and girders and other frame sections at an angle to each other so that the work can be more rapidly done than is possible under existing conditions.

With these and other objects in view, the invention consists in certain novel features of construction and combinations and arrangements of parts which will be more fully hereinafter described and pointed out in the claims.

In the accompanying drawings—

Figure 1 is a view partly in elevation and partly in section illustrating my improved joint or joints connecting sections of column and connecting girders to the column;

Figure 2 is a top plan view of Figure 1;

Figure 3 is a view in side elevation of Figure 1 looking at the end of said figure;

Figure 4 is a view in side elevation in the lower end of a column section.

While of course my invention is adapted for use as a joint or coupling means for connecting beams of any sort at right angles to each other I shall for convenience of description refer to the different types of beams as columns, indicating vertical beams, and girders, indicating horizontal beams.

The beams are preferably of I-form and in carrying out my invention I employ vertical or column sections A and horizontal or girder sections B. The column sections A at their upper ends have plates 2 secured to

opposite sides thereof by welding or by any other improved means. These plates 2 have at their side edges recesses 3 which are enlarged at their inner ends.

The lower ends of the column sections A and both ends of the girder sections B have keys or tongues 4 welded or otherwise secured thereto and of a shape and size to fit within the recesses 3 and be anchored in said recesses so as to prevent removal from said recesses except by lateral movement. In other words, the tongues or keys 4 have enlarged inner ends fitting in the enlarged inner ends of the recesses 3 so that they cannot be drawn out of the recesses by longitudinal movement of the girders or beams and when in position are securely welded, as will be more fully hereinafter explained.

I preferably secure angles 5, 5 to the opposite sides of the column sections A at the upper ends of the latter, and employ bolts 8 and nuts 9 for this purpose. These angles 5, 5 have their vertical members projecting above the upper ends of the column sections so that they can receive between them the web of the continuing section above, and a bolt may be projected through aligned openings 7 in the angles and in the column sections respectively to temporarily hold them when assembled.

The horizontal portions of the angles 5 also have openings 7 therein and the web portions of the girders B may rest upon these horizontal portions of the angles and be secured preferably by bolts. I have shown a bolt 8 with a nut 9 thereon connecting one of the girders B (Figure 1) and it is of course to be understood that similar bolts will be employed to connect all of the girder sections and the column sections to the angles when they are assembled.

After assemblage the meeting faces of the angles and beams as well as the edges of the tongues 4 with the walls of the recesses 3 are securely welded so that the joint becomes an integral structure.

A construction of this kind can be easily assembled. It is simply necessary to place the column sections and girders on the angles or between the angles and then give them a

slight lateral movement in order to position the tongues 4 in the recesses 3. The parts then can be bolted so as to hold them together until the parts can be securely welded.

5 While I have illustrated one embodiment of my invention it is to be distinctly understood that various changes and alterations might be made in the general form of the parts described without departing from my invention and hence I do not limit myself to the pre-
10 cise details set forth but consider myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of the appended claims.

15 I claim:

1. A joint for steel frame construction, including column sections and girder sections, plates secured to opposite sides of the column sections at one end and having recesses there-
20 in extending inwardly from the edges thereof and largest at their inner ends, and tongues on one end of each column section and on both ends of the girder sections fitting in the recesses of the plates and adapted to be welded therein.

2. A joint for steel frame construction, including column sections and girder sections, plates secured to opposite sides of the column sections at one end and having recesses there-
30 in extending inwardly from the edges thereof and largest at their inner ends, and tongues on one end of each column section and on both ends of the girder sections fitting in the recesses of the plates and adapted to be welded therein, said tongues and recesses having en-
35 larged inner ends whereby the tongues are anchored in the recesses.

3. A joint of the character described, including a column section, plates secured to opposite sides of the column section and having
40 recesses in their upper and side edges, angles secured to the upper end of the column section, an upper column section adapted to be positioned between said angles, girder sections adapted to be supported on said angles,
45 and tongues on the lower end of the column section and on the ends of the girder section fitting in the recesses of the plates and all of said parts welded together.

50 Signed at New York, in the county of New York, and State of New York, this 2nd day of June, A. D. 1928.

CHARLES CARMICHAEL.

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