

(No Model.)

R. MANNESMANN.
TUBULAR RAIL JOINT.

No. 548,998.

Patented Oct. 29, 1895.

Fig. 1.

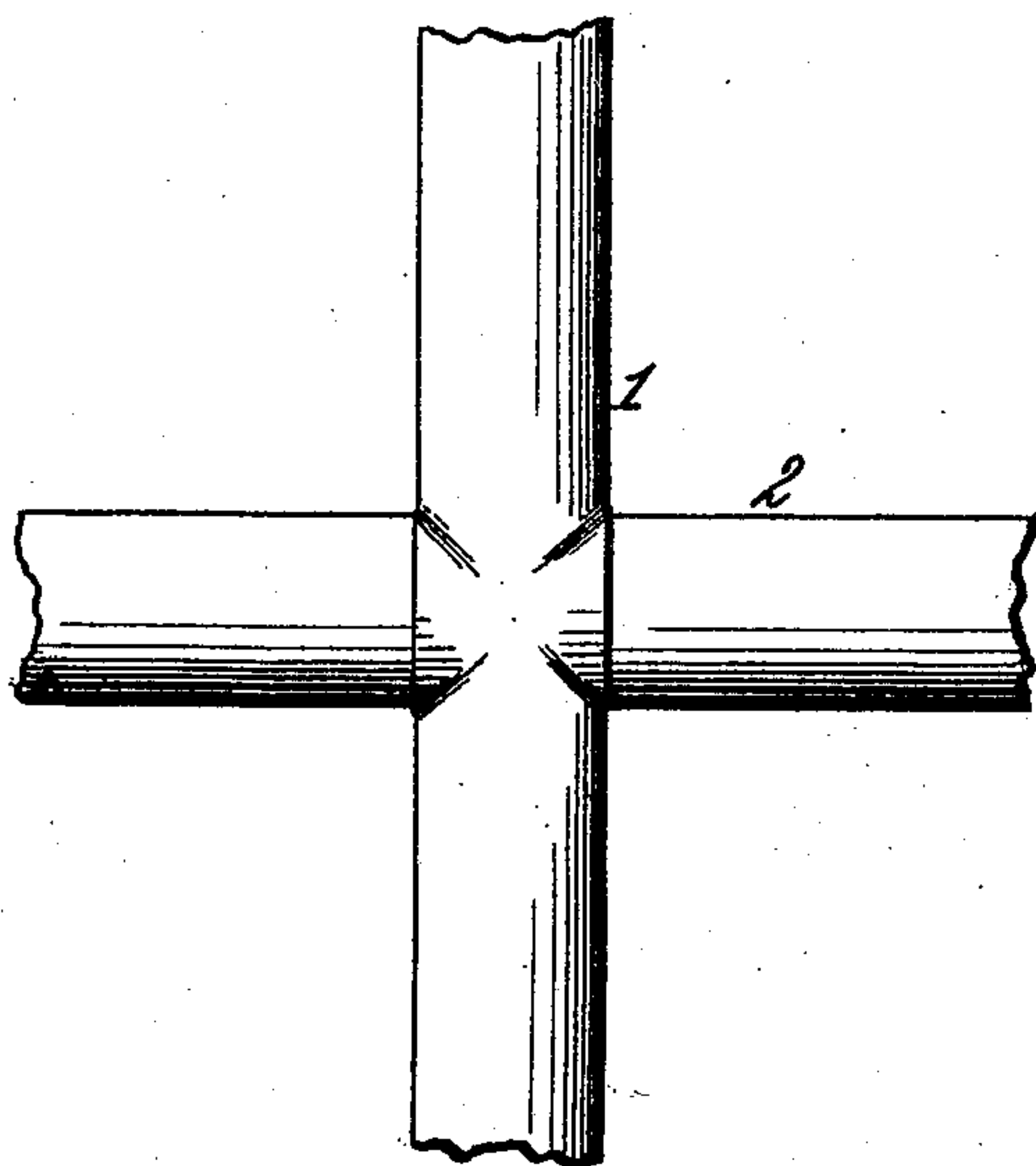


Fig. 2.

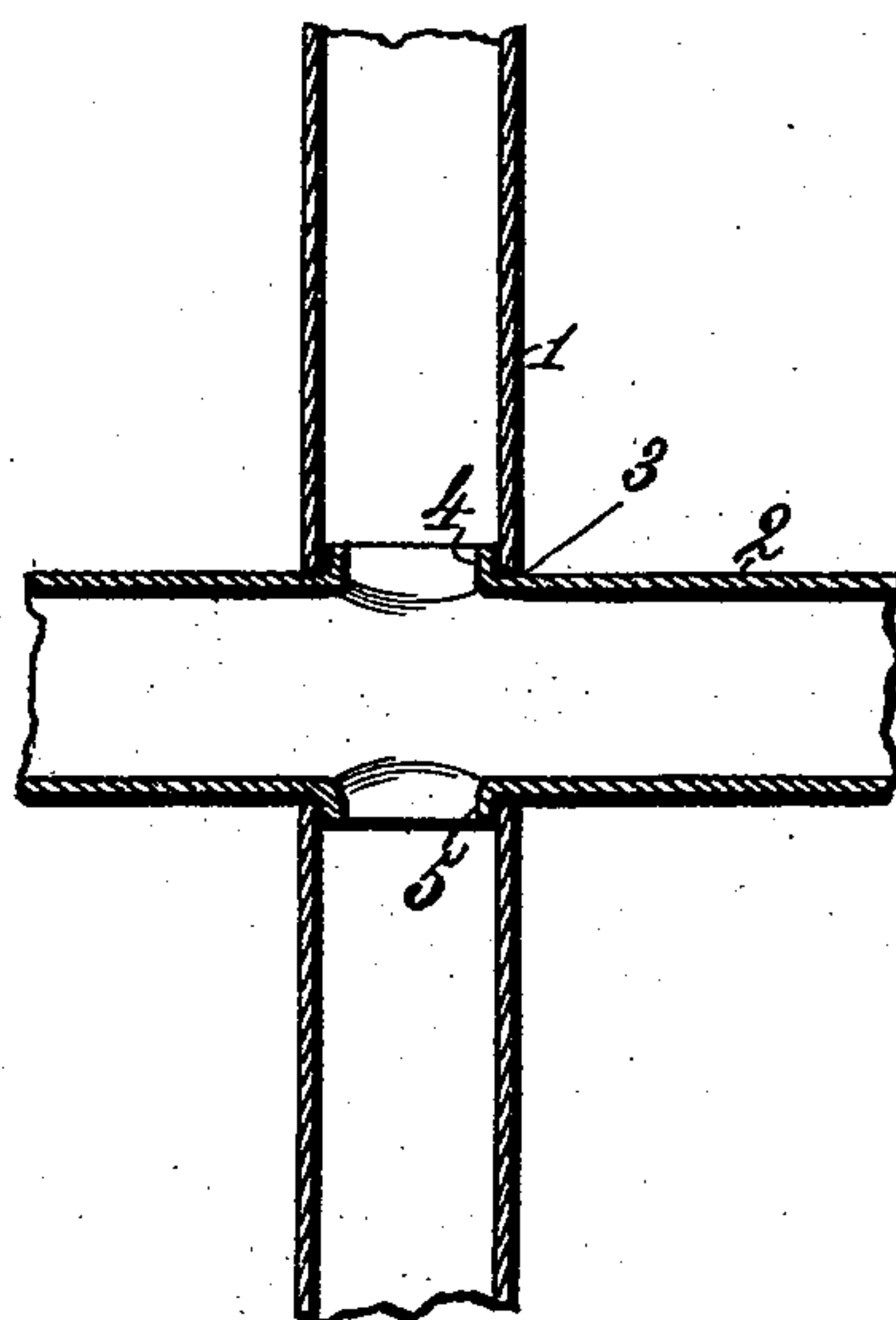


Fig. 3.

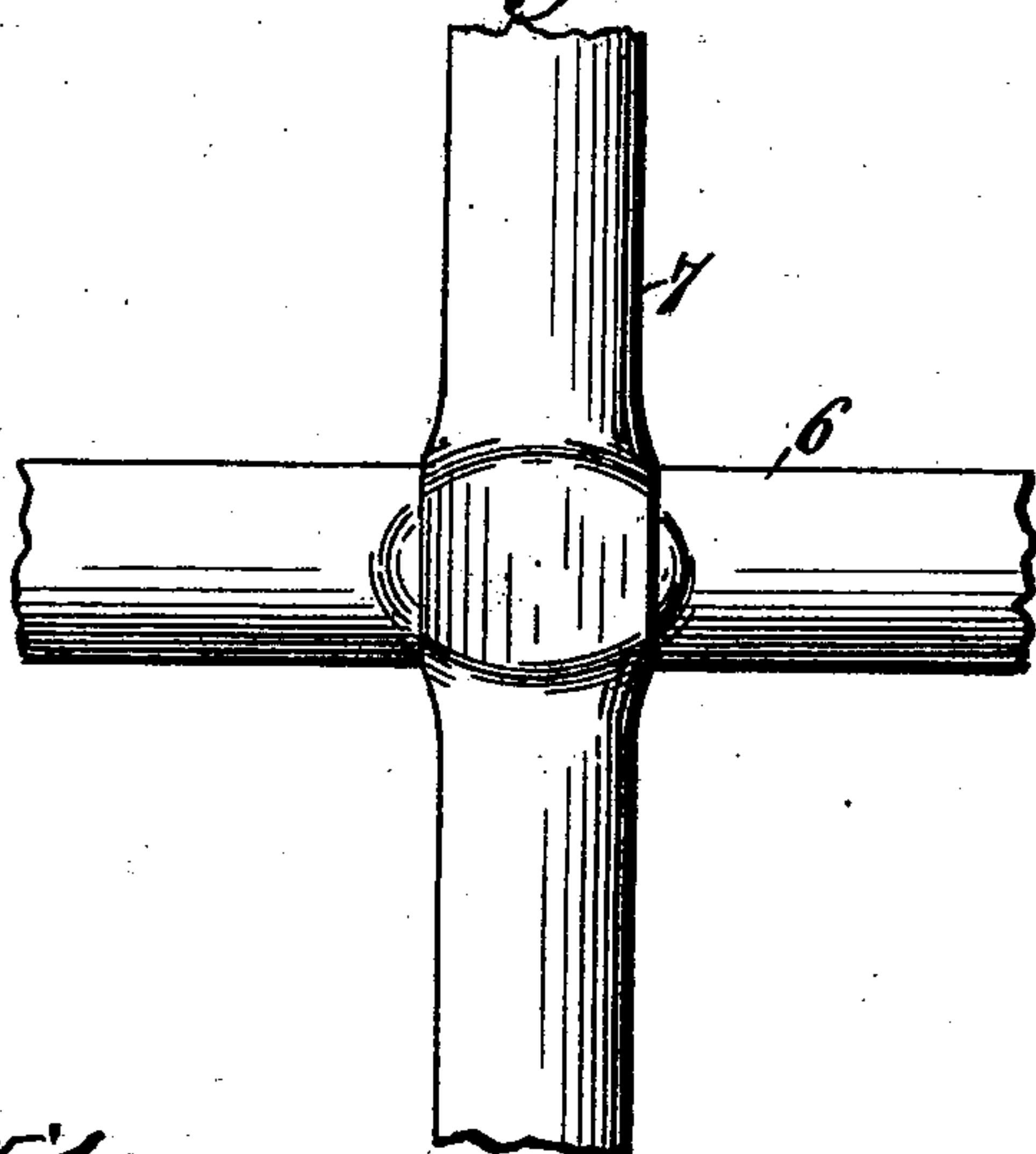
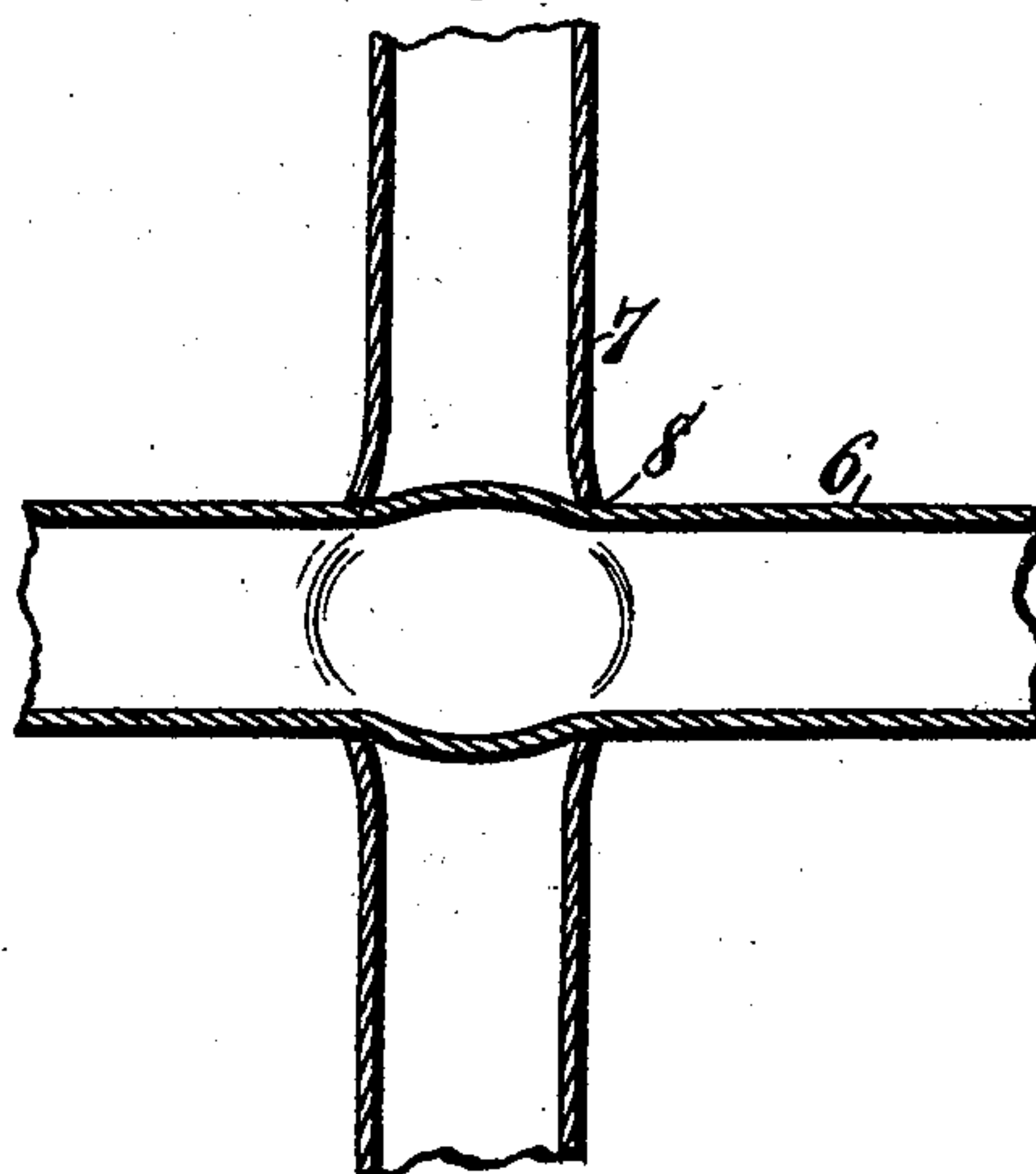


Fig. 4.



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UNITED STATES PATENT OFFICE.

REINHARD MANNESMANN, OF REMSCHEID, GERMANY, ASSIGNOR TO THE
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TUBULAR-RAIL JOINT.

SPECIFICATION forming part of Letters Patent No. 548,998, dated October 29, 1895.

Application filed March 6, 1895. Serial No. 540,767. (No model.)

To all whom it may concern:

Be it known that I, REINHARD MANNESMANN, a citizen of Germany, residing at New York, in the county of New York and State
5 of New York, have invented new and useful Improvements in Tubular-Rail Joints, of which the following is a specification.

In the construction or manufacture of various articles from tubes, such as frames of
10 any kind, railings for cars, carriages, or vehicles, buildings, and many other purposes, the tubular parts are ordinarily connected by brazing, soldering, or casting metal about the joints, or by screw-threaded union-couplings
15 into which the tubes are screwed.

In all prior methods the joints are difficult and troublesome to construct, and materially increase the expense of the railing or other article or frame, and in addition to this the
20 joints are liable to break or become disconnected, especially if subjected to excessive vibrations.

The objects of my invention are to avoid the objections stated; to provide novel, simple, efficient, and economical means for uniting tubes where one tube passes through another; to provide such a construction of the parts that they cannot become disconnected or separated under ordinary circumstances or
30 if subjected to excessive jars or vibrations, and to entirely avoid brazing, soldering, and screw-threading the parts together.

To accomplish all these objects, the invention consists, essentially, in a tubular structure composed of a tube formed with a transverse orifice and another tube extending through said orifice and having a part of its shell struck into engagement with the interior of the other tube to prevent movement of the
40 two tubes relatively to each other.

The invention also consists in a tubular structure composed of a tube having a transverse orifice through its shell and another tube extending through the transverse orifice
45 and flanged into engagement with the edge of the said orifice.

The invention also consists in certain other features of construction hereinafter described and claimed, reference being made to the accompanying drawings, in which—
50

Figure 1 is a side elevation of portions of

two tubes connected or united according to my invention. Fig. 2 is a sectional view of the same. Fig. 3 is a side elevation showing a modification of the invention, and Fig. 4 is
55 a sectional view of the modified construction.

In order to enable those skilled in the art to make and use my invention, I will now describe the same in detail, referring to the drawings, wherein—
60

The numerals 1 and 2 indicate two tubes, arranged, as here shown, at right angles to each other.

The tubes are preferably made according to the well-known Mannesmann method or
55 process of producing seamless elastic tubes of steel or other metal; but my present invention is useful in connection with tubes of any kind, and therefore I do not wish to confine myself to any particular method or process of
70 manufacturing the tubes.

The shell of the tube 1 is constructed with a transverse orifice 3, having a form substantially the same as the tube 2 in cross-section. The tube 2 is then inserted through the transverse orifice, and its shell at a point inside of
75 the tube 1 is perforated by suitable tools in such manner as to produce or strike up a flange 4, which projects laterally and engages behind the edge of the transverse orifice.
80

I prefer to construct the tube 2 at a point inside the tube 1, so that oppositely-projecting flanges 4 and 5 are produced. This can be accomplished in any suitable manner—as, for instance, by making a comparatively
85 small perforation in one side of the shell of the tube 2 by the employment of a pointed instrument therethrough, so that the metal is flanged outwardly—as, for instance, as at 5. The
90 other flange 4 can be formed, after the flange 5 has been constructed, by forcing a larger tool through the shell of the tube opposite the flange 5, so as to force the metal outward and produce the flange 4.
95

The interlocking engagement of the tubes by a flanged construction of one of the tubes provides a joint which effectually prevents disconnection or separation of the tubes and entirely avoids connecting tubular parts by
100 brazing, soldering, or casting metal about the joints, or employing screw-threaded union-

couplings into which the tubes are screwed.

In the modification, Figs. 3 and 4, the tubes 6 and 7 are flattened out at the joint and the transverse orifice 8, pierced through the shell 5 of the tube 7, is of an oblong form to correspond to the oblong form imparted to the tube 6, where the latter lies in the transverse orifice. The tube 7 is preferably provided in the first instance with a circular orifice and 10 the tube 6 inserted through said orifice to the extent desired, after which the parts are compressed to flatten them together, and a part of the shell of the tube 6 is expanded laterally in an outward direction or is struck up with 15 a part which engages the interior of the tube 7, whereby the two tubes are firmly and permanently united, and movements of the same relatively to each other are prevented.

The tubes connected together in the manner described and shown can be used for many purposes not necessary to specifically mention. The invention, however, is particularly designed for railings intended for cars, carriages, and other vehicles, and for frames 25 of any kind composed of tubular parts.

Having thus described my invention, what I claim is—

1. In a tubular structure, the combination of a tube formed with a transverse orifice, with a tube extending through said orifice and 30 having a part of its shell struck into engagement with the interior of the other tube to prevent movement of both tubes relatively to each other, substantially as described.

2. In a tubular structure, the combination 35 of a tube having a transverse orifice through its shell, with a tube extending through said orifice and flanged into engagement with an edge thereof, substantially as described.

3. In a tubular rail joint, the combination 40 of a metal tube having a transverse orifice through its shell, with a tube extending through said orifice and having its shell perforated and struck up with a flange which engages the inside of the edge of the transverse 45 orifice, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

REINHARD MANNESMANN.

Witnesses:

EMIL KIPPER,

ALBERT H. NORRIS.