C. H. KIMBALL.

JOINT FASTENER.

APPLICATION FILED NOV. 29, 1909.

960,340.

Patented June 7, 1910.

2 SHEETS—SHEET 1.

Fig. 3.

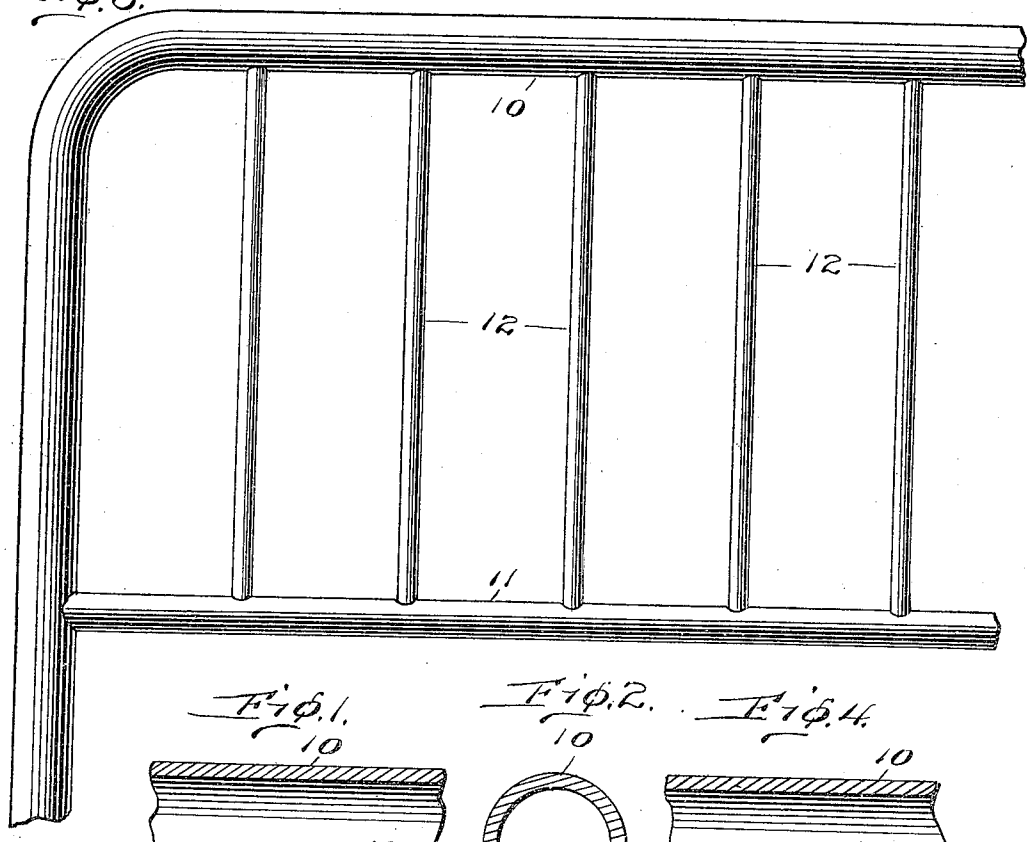


Fig. 1.

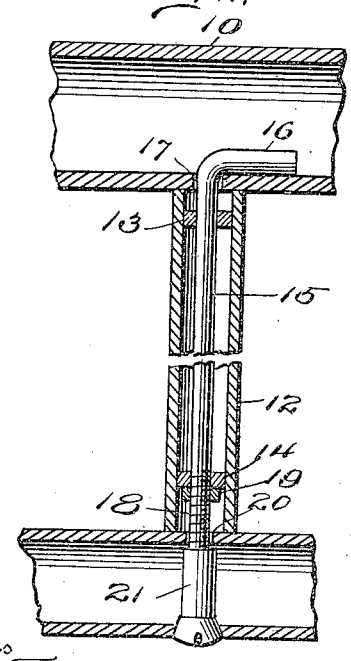


Fig. 2.

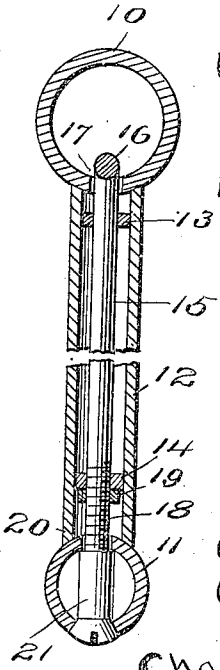
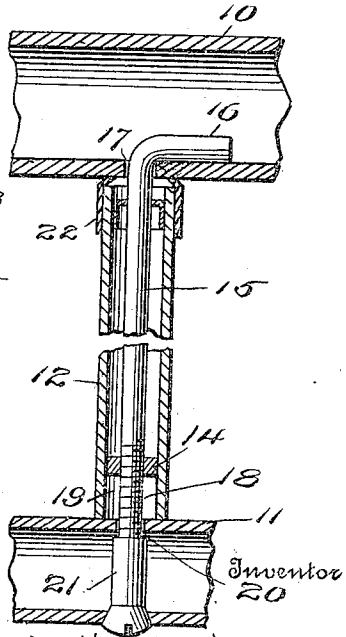


Fig. 4.



Witnesses

E. M. Fowler Jr.

W. Straus

Inventor

Charles H. Kimball.

By Mason Fenwick & Lawrence,

Attorneys

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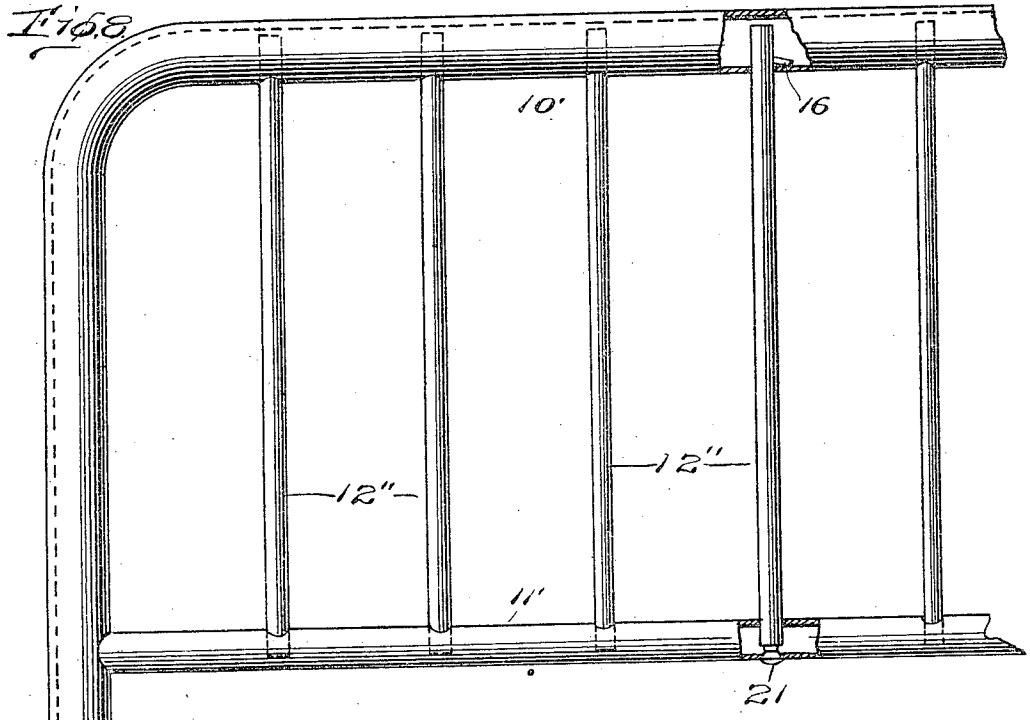
2 SHEETS—SHEET 2.

Fig. 8.



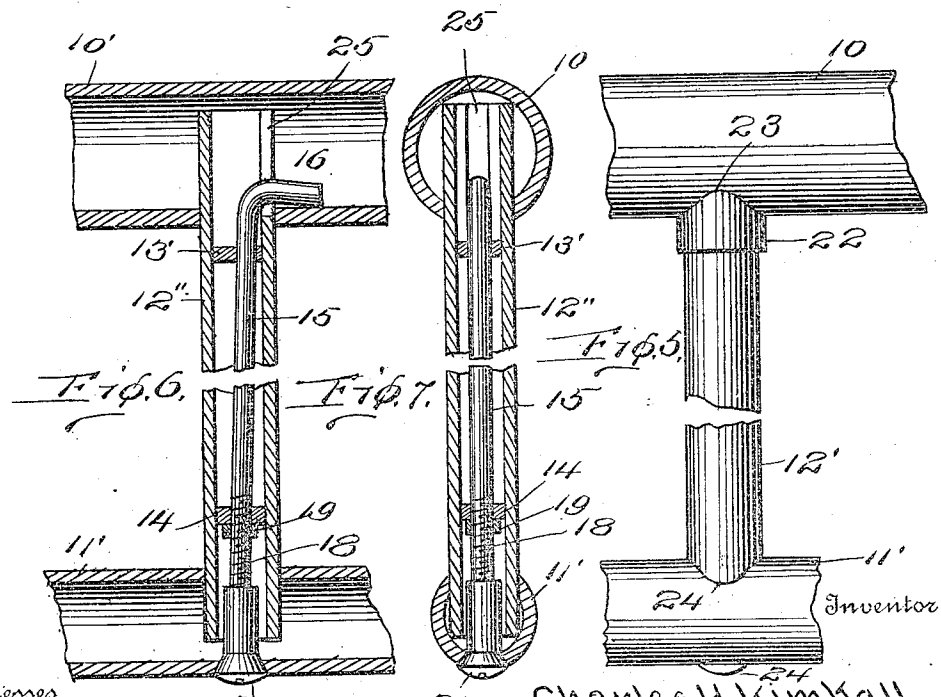


Fig. 6.

Fig. 7.

Fig. 5.

Witnesses

J. M. Fowler Jr.

A. Strand.

Inventor

Charles H. Kimball.

By Mason Fenwick & Lawrence,

Attorneys

UNITED STATES PATENT OFFICE.

CHARLES H. KIMBALL, OF CHICAGO, ILLINOIS.

JOINT-FASTENER.

960,340. Specification of Letters Patent. Patented June 7, 1910.

Application filed November 29, 1909. Serial No. 530,460.

To all whom it may concern:

Be it known that I, CHARLES H. KIMBALL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Joint-Fasteners; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to joint fasteners, and while especially designed for fastening the joints of a metal bedstead is not limited to such use in its general application.

An object of the present invention is to provide means extending entirely through a tube ordinarily employed in bedstead and similar construction with means for engaging the contacting tubes at each end of said tube.

A further object of the invention is to provide in combination with parallel tubes and with a tube extending between such parallel tubes, a fastening device extending longitudinally through such cross tube and having means for engaging the parallel tubes to hold them rigidly in contact with the ends of the cross tube.

With these and other objects in view, the invention comprises certain novel constructions, combinations and arrangements of parts as will be hereinafter fully described and claimed.

In the drawings:—Figure 1 is a view in vertical section of the improved fastening associated with a cross tube abutting the parallel tubes or producing what is called in the art a "mitered joint". Fig. 2 is a transverse sectional view of the embodiment shown at Fig. 1 and taken at right angles to such figure. Fig. 3 is a fragmentary view of a bedstead showing the mitered joints employed thereon. Fig. 4 is a view similar to Fig. 1 but showing the upper end of the tube provided with a ferrule which is mitered instead of mitering the upper end of the tube itself. Fig. 5 is a view in side elevation of the embodiment shown at Fig. 3 showing the ferrule mitered and also showing the lower end of the tube itself mitered. Fig. 6 is a transverse sectional view of the embodiment of the present invention where the cross tube is inserted into openings in the parallel tubes. Fig. 7 is a view of the embodiment shown at Fig. 5 taken on a plane at right angles to such figure. Fig. 8 is a view of a fragment of a bedstead showing the application of the fastening as shown at Figs. 5 and 6.

Like characters of reference designate corresponding parts throughout the several views.

In the construction and fastening of joints especially in metal work, and still more especially in the construction of metal beds, it is found desirable to produce a joint by abutting the ends of one tube against the side of another tube or by forming a curved cut in the end of such cross tube which fits the periphery of the side of the tube to produce what is known in the art as a "mitered joint". It has been found very difficult heretofore to properly secure such mitered joint to produce a rigid connection without employing means which spoils the looks of the joint so constructed.

In the present invention parallel tubes 10 and 11 are employed shown at Fig. 3 as the top and bottom rail of a bed and with cross tubes or spindles 12 having curved recesses formed in the ends of such cross tubes or spindles so that where such tubes or spindles 12 abut the tubes 10 and 11 a mitered joint is formed as shown at Figs. 2 and 4.

Spindle 12 is provided adjacent its upper end with a collar 13 secured in such spindle in any approved manner as by shrinking and adjacent its lower end with a similar collar 14 similarly secured. The collars 13 and 14 are bored to permit the passage of a rod 15 having a knee 16 adapted to be inserted through an opening 17 in the rail 10 and to bear against the lower internal side of such rail 10.

At its lower end the rod 15 is screw-threaded as at 18 and a nut 19 is secured upon such threaded portion to bear against the collar 14 to hold the spindle 12 temporarily in connection with the tube 10. This is simply for the purpose of permitting all of the spindles 12 to be assembled on the tube 10 before applying the tube 11 thereto. When the spindles 12 have all been put in place and temporarily secured by the nuts 19 the tube 11 provided with openings 20 is inserted over the extended screw-threaded ends of the rod 15 such extremities extending only about half way across the diameter of the tube 11. Internally threaded screws 21 are now inserted through alined openings

in the opposite sides of the tube 11 and engage upon the threaded portion 18 whereby by tightening such screws the three tubes 10, 11, and 12 are rigidly secured together.

At Figs. 3 and 4 a ferrule 22 is secured externally upon the upper end of the spindle 12′ which is cut to form a mitered joint as indicated at 23 in Fig. 4 similar to the mitered joint 24 at the lower end of such spindle. In some constructions, especially in employing iron tubing, it is found desirable to insert the ends of the spindle 12″ through openings formed in the sides of the upper rail 10′ and lower rail 11′. In such case the spindle 12″ is provided with a slot 25 through which the knee 16 extends, the upper collar 13′ being preferably eccentrically bored so that the rod 15 is disposed at an inclination within the spindle 12″ as shown particularly at Fig. 5.

It will be noted, especially from Figs. 5 and 6, that the ends of the spindle 12″ inserted through openings in the sides of the rails 10′ and 11′ engage against the opposite walls of such tubes, and that the tightening of the screws 21 will serve to hold the extremities of such spindles 12″ more rigidly in contact with the inner walls of the rails 10′ and 11′. In constructions where rigid tubing as iron tubing is used, it is not usually found necessary to lock more than one of the spindles as indicated at Fig. 7 whereas in the employment of softer tubing, as brass tubing, it is found necessary or highly desirable to lock each and every spindle. For this reason the embodiment shown at Figs. 1 to 5 inclusive, is preferable for brass tubing while in the embodiment shown at Figs. 6 to 8 inclusive are equally as effective for iron tubing.

What I claim is:—

1. In a device of the class described, spaced tubes provided with alined openings, a cross tube extending between the spaced tubes and registering with the openings, collars rigidly secured adjacent the opposite ends of the cross tube, a rod inserted through the cross tube and positioned by the collars and having a hook at one end adapted to engage one of the spaced tubes, a lock nut engaging the rod and bearing against one of the collars, and a screw engaging the extremity of the rod and exerting tension against the other spaced tube.

2. In a device of the class described, a spindle, spaced tubes abutting the opposite ends of the spindle, a rod extending longitudinally through the spindle, a knee joint formed at the end of the rod and hooked into one of the spaced tubes, and means inserted through the other spaced tube adapted to exert tension upon the rod to clamp the spaced tubes rigidly against the ends of the spindles.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES H. KIMBALL.

Witnesses:

RALPH R. KIMBALL,

W. L. BURT.