2 Sheets--Sheet 1.

J. L. HAVEN & G. H. KNIGHT.

Furniture Fastenings.

No. 152,371. Patented June 23, 1874.

FIG. 1.

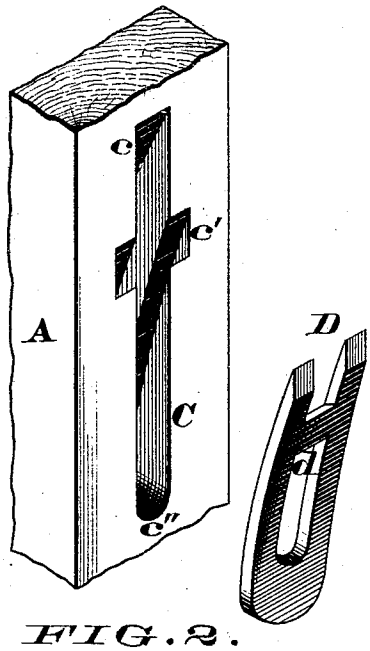


FIG. 5.

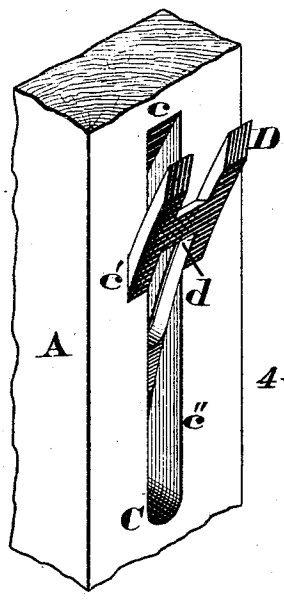


FIG. 6.

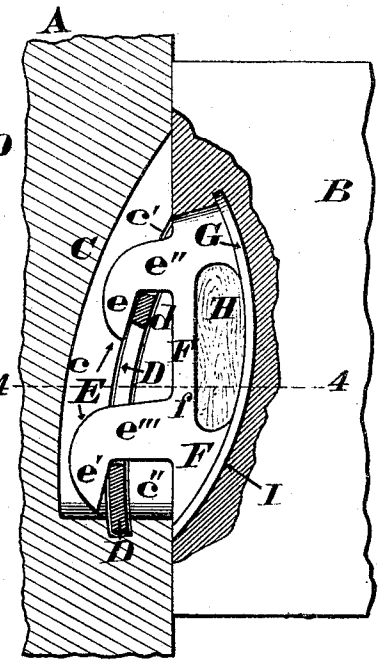


FIG. 2.

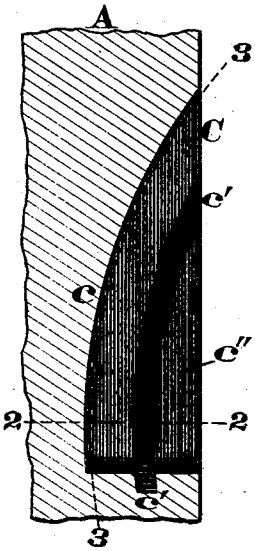


FIG. 4.

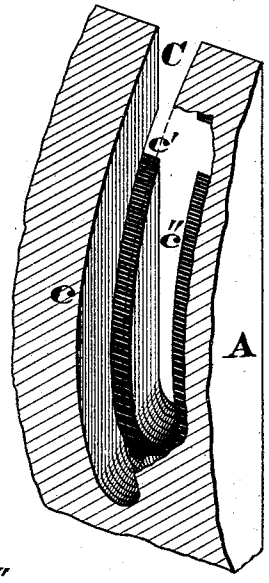


FIG. 7.

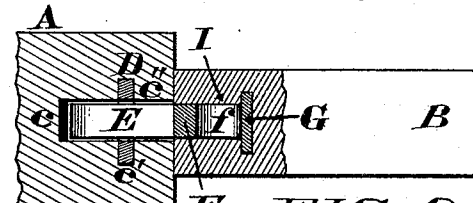


FIG. 8.

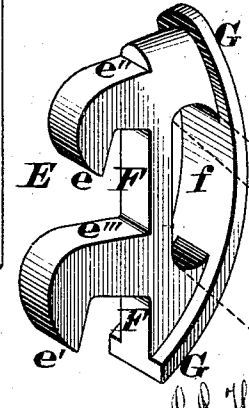


FIG. 9.

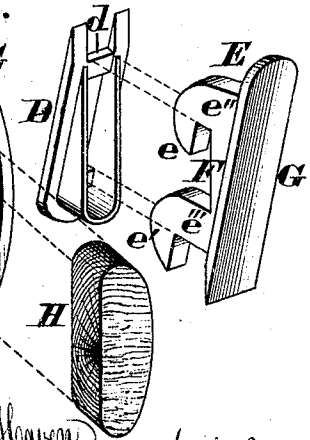
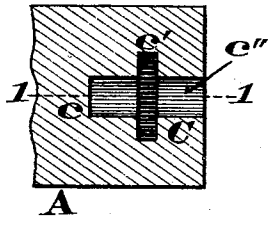


FIG. 3.



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2 Sheets--Sheet 2.

J. L. HAVEN & G. H. KNIGHT.

Furniture Fastenings.

No. 152,371. Patented June 23, 1874.

FIG. 10.

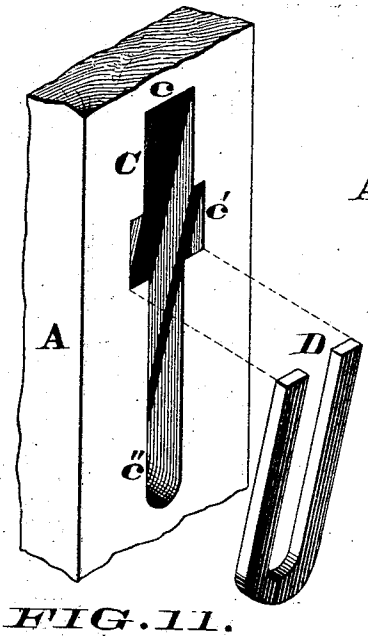


FIG. 14.

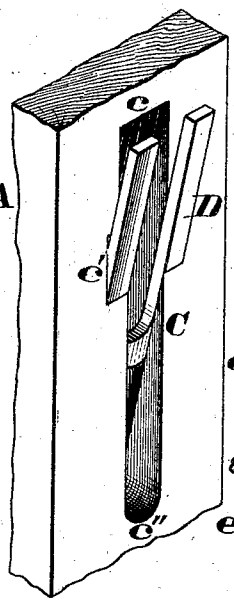


FIG. 15.

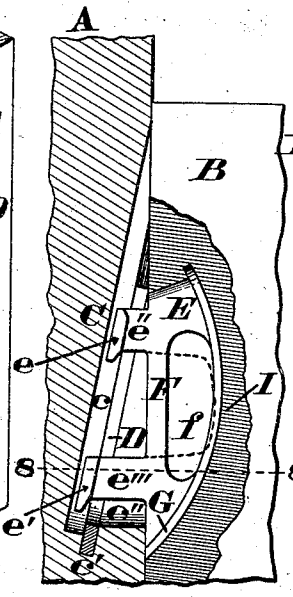


FIG. 17.

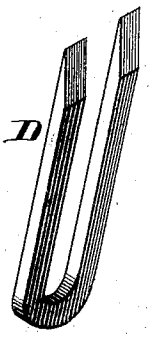


FIG. 11.

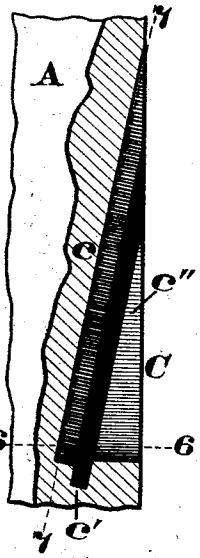


FIG. 13.

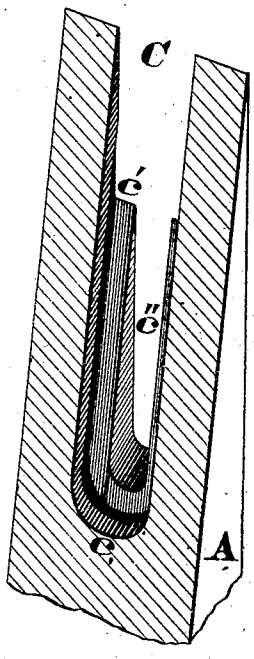


FIG. 16.

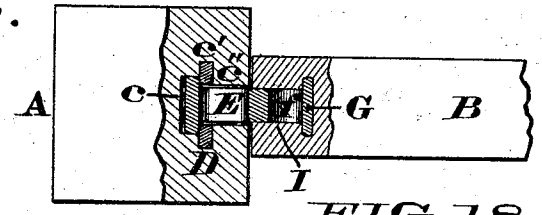


FIG. 18.

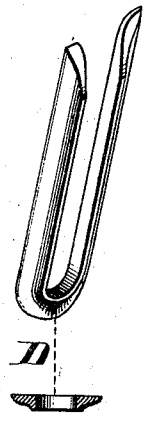


FIG. 19.

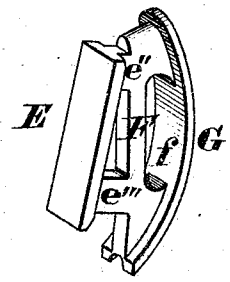
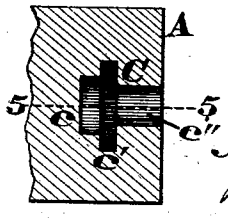


FIG. 12.



Attest.
Jas. H. Layman.
Walter Allen

J. L. Haven
G. H. Knight
By Knight Bros
Att'ys.

UNITED STATES PATENT OFFICE.

JAMES L. HAVEN AND GEORGE H. KNIGHT, OF CINCINNATI, OHIO, ASSIGNORS TO JAMES L. HAVEN & CO., OF SAME PLACE.

IMPROVEMENT IN FURNITURE-FASTENINGS.

Specification forming part of Letters Patent No. **152,371**, dated June 23, 1874; application filed November 6, 1873.

To all whom it may concern:

Be it known that we, JAMES L. HAVEN and GEORGE H. KNIGHT, both of Cincinnati, Hamilton county, Ohio, have invented a new and useful Improvement in Bedsteads and other Separable Furniture, of which the following is a specification:

Our invention is an improved form of those fastenings for the separable members of a bedstead, or other article of furniture, which consist essentially of a receiving part or mortise in one member, and an entering part or projection upon the other member; and the first part of our invention relates to the combination of a post having a sloping cruciform excavation and an open-topped mortise-plate driven endwise into said excavation, so that the lateral grooves of the excavation will firmly grasp and hold the edges of the plate, as hereinafter described.

Figure 1 shows our preferred form of mortise-plate, and a portion of a bed-post suitably excavated to receive it. Figs. 2, 3, and 4 are sections of said post at the lines 1 1, 2 2, and 3 3, respectively. Fig. 5 shows our mortise-plate partially engaged in its excavation. Fig. 6 shows our preferred tenon-plate engaged in a mortise-plate, which is shown in section. Fig. 7 is a section at the line 4 4. Fig. 8 is a perspective view of our preferred form of tenon-plate, and Fig. 9 of modified forms of both mortise and tenon plates. Modifications of our mortise-plate and tenon-plate and of our cruciform excavation are shown by Figs. 10 to 16 inclusive, corresponding, respectively, to Figs. 1 to 7 inclusive. Figs. 17 and 18 show modifications of our mortise-plate. Fig. 19 shows a modification of our tenon-plate.

A and B represent, respectively, portions of a post and rail of a bedstead. An essential element of our invention is the cruciform excavation C, which descends obliquely into the abutting face of the post, either by a curved path, corresponding to a circular arc, as in Figs. 1 to 7 inclusive, or by a rectilinear path, as in Figs. 10 to 16 inclusive. The cruciform excavation C is made by a rotary cutter, against which, while cutting, the post is moved in the desired curve for the excavation shown in Figs. 1 to 7 inclusive, and with a simple oblique motion for the excavation shown in Figs. 10 to 16 inclusive; or the post may be held immovable and the cutter be fed to its work, if desired. The deepest portion or compartment *c* of our cruciform excavation is of such size as enables it to receive the naked head of the rail-tenon, while the middle compartment or groove *c'* is adapted to receive and hold, in the represented oblique position, our U-formed mortise-plate D; and, finally, the front portion *c''* is a narrow slit, just wide enough to receive the neck of the tenon-plate.

Our mortise-plate D may be of wrought, cast, or malleable iron, or of steel, its preferred form being shown in Figs. 1, 5, 6, and 7. This form may be stamped out of boiler-iron, or may be cast, as stated. The modification shown in Figs. 10, 14, 15, and 16, and those shown in Figs. 17 and 18, may also be formed as above, or simply by cutting and bending a bar of proper transverse section.

The cruciform excavation C, Figs. 1 to 7 inclusive, and the mortise-plate employed therewith, are formed to receive our preferred type of tenon, E, Figs. 6, 7, and 8, whose hooked heads *e e'* are of the same thickness as the necks *e'' e'''* and the web F, and whose upper hook *e* engages over a cross-bar, *d*, in the mortise-plate, while its lower hook *e'* engages behind the bight of said plate. The cruciform excavation, Figs. 10 to 16 inclusive, and the mortise-plate employed therewith, are adapted to receive a T-headed tenon, such as shown at E, Figs. 15 and 16, or E, Fig. 19, or the common (Rodefer) tenon.

The features of useful novelty in our tenon-plate are wholly restricted to those portions which, when in use, are permanently embedded in the substance of the rail, or, in other words, the anchoring devices. These devices consist of a web or shank, F, which terminates rearward in an anchor-flange, G, in the form of a circular arc, so that the entire shank has a T-formed transverse section, and is adapted to be inserted from below, endwise, in a corresponding excavation, I, in the abutting face of the rail. Said shank has also, preferably, an open hole, *f*, both to economize material and to receive, when desired, a glued wooden plug, H, which, being introduced into said

hole before the plate is driven, serves to reunite the walls of the excavation and to retain the fastening immovable therein. This hole may extend through the front of the shank, as indicated by dotted lines in Fig. 15, the plug coming flush with the abutting face of the post. In this latter form the plug may be driven after the insertion of the plate.

The above-described fastener, while possessing some features in common with the prototype of its class—to wit, the bedstead-fastener patented to John Lemman, October 2, 1866—differs therefrom, and from all others of the same class, in the following particulars: Our excavation for the mortise-plate is cruciform or cross-shaped—a form which allows the said plate to be supported sufficiently in front of the rear wall of the excavation to admit the tenon-heads, thus rendering unnecessary any rear projection from the plate for that purpose; and the front and rear compartments of our said cruciform excavation are not necessarily of greater size than will admit the naked heads and necks of the tenon-plate, their moderate dimensions enabling the employment of a smaller post or the use of two excavations, one above the other, for a double fastening within moderate limits. The oblique cruciform excavation is also valuable in permitting the use of an open-topped or U-shaped mortise-plate.

While designed more especially for bedsteads, our device is manifestly applicable to other separable articles of furniture, such as "knock-down" wardrobes, camp-tables, &c.

We do not claim, broadly, an undercut and gradually-deepening excavation for the shank of a metallic fastening, such being shown and described in the mortise-plate patented to John Lemman aforesaid. Neither do we claim a slotted tenon-plate inserted in a T-shaped excavation, with bearings at its extremities, as we are aware that this has been used before; but

What we do claim, and desire to secure by Letters Patent, is—

1. The combination of the post A, provided with the cruciform excavation C, and the flat open-topped U-formed mortise-plate D, grasped at front and back within the lateral grooves *c'* of said excavation, as described, so as to be firmly held without screws or other separate fastenings.

2. The combination of the rail B, provided with a T-shaped excavation on its end, and the tenon E, constructed with a web or neck, F, and a T head or flange, G, to fit within said excavation, all as herein described, for the purpose set forth.

In testimony of which invention we hereunto set our hands.

JAMES L. HAVEN.
GEO. H. KNIGHT.

Attest:
S. B. SPEAR,
JAMES H. LAYMAN.