

W. H. Elliot,

Bedstead Fastening.

No. 93186.

Patented Aug. 3 1869.

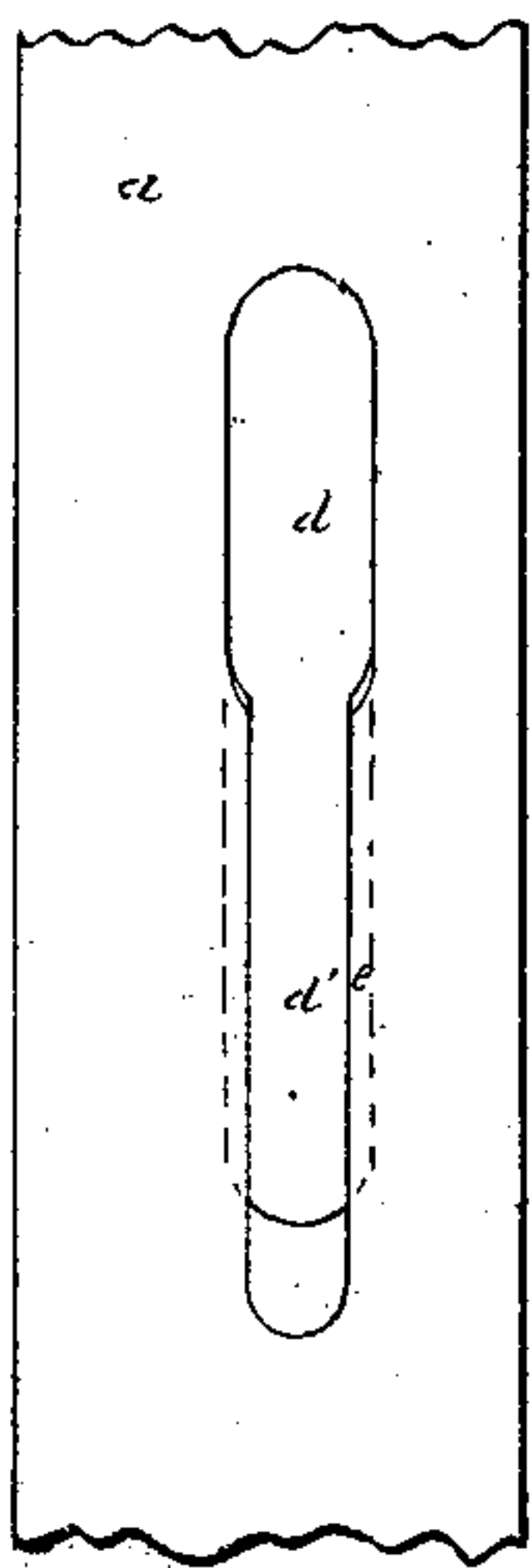


Fig. 1.

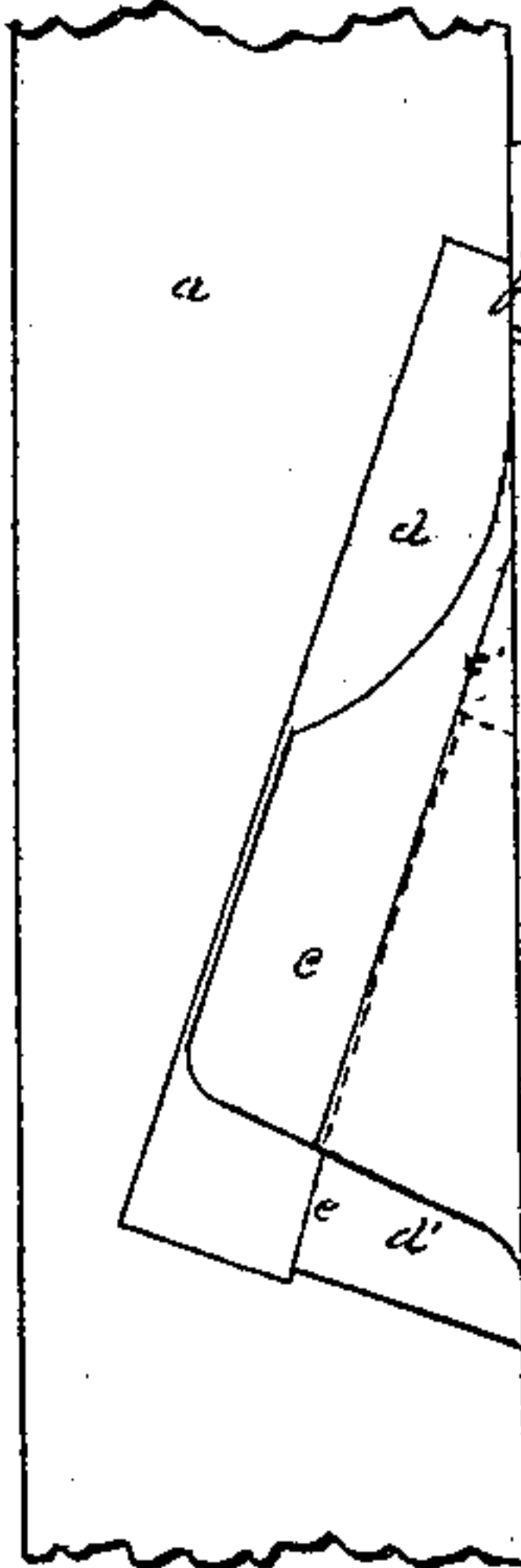


Fig. 2.

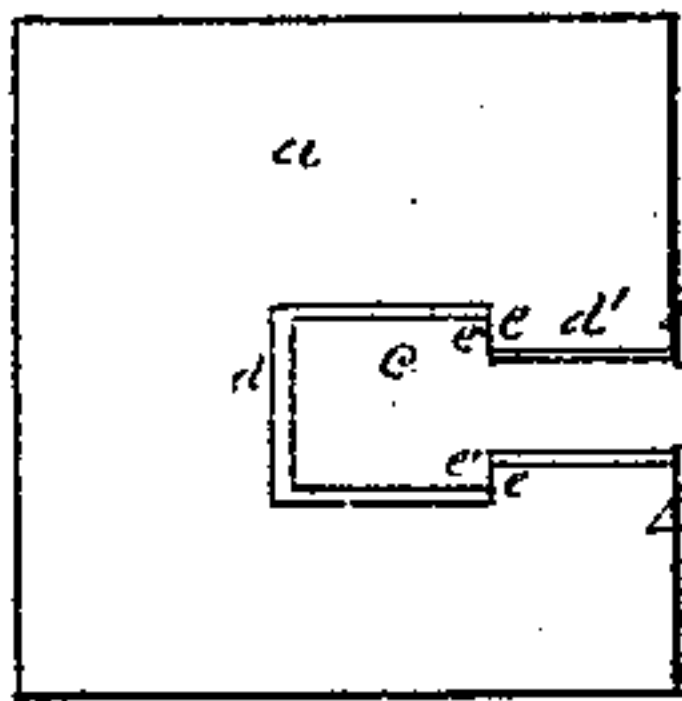


Fig. 3.

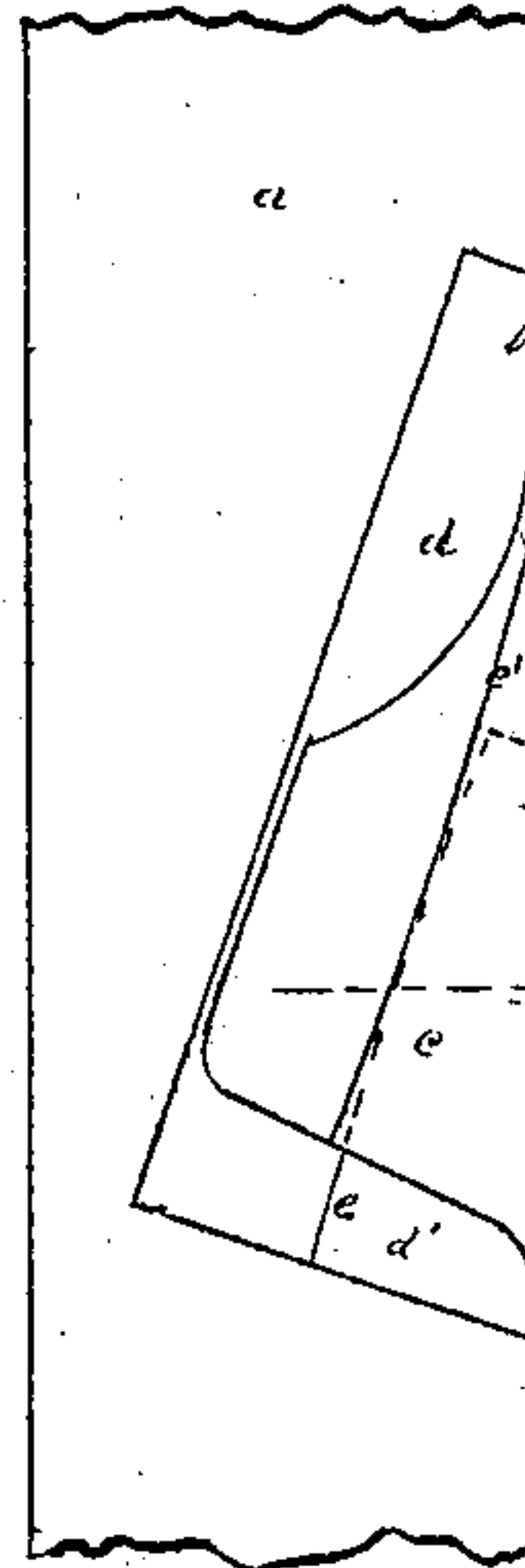


Fig. 4.

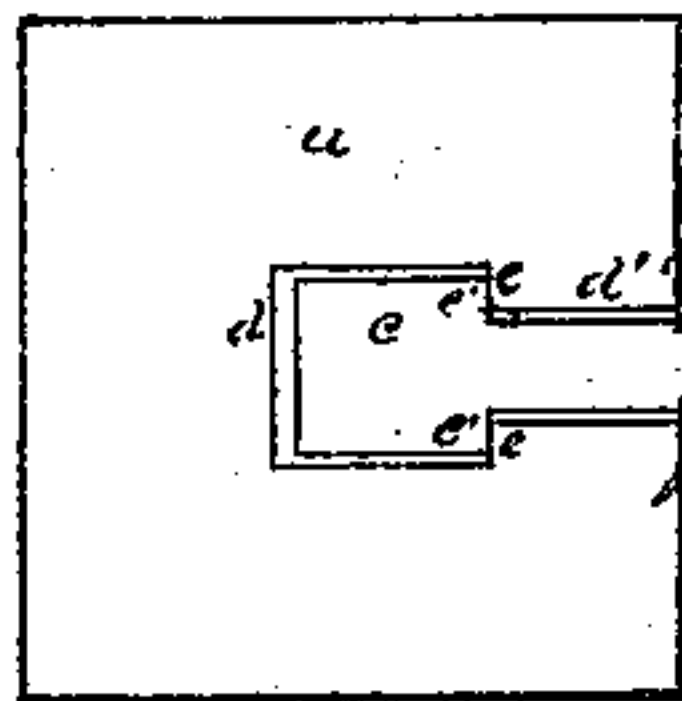


Fig. 5.

Witness

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WILLIAM H. ELLIOT, OF NEW YORK, N. Y.

Letters Patent No. 93,186, dated August 3, 1869.

IMPROVEMENT IN BEDSTEAD-FASTENINGS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern :

Be it known that I, WILLIAM H. ELLIOT, of the city, county, and State of New York, have invented a new and improved Bedstead-Fastening; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Similar letters of reference indicate the same devices in all the figures.

To enable others skilled in the arts to comprehend, make, and use my invention, I will proceed to describe its nature, construction, and operation.

The nature of my invention consists in the employment of shoulders between the tenon and side-rail, which shall resist the tendency of the diagonal shoulders in the mortise to draw the tenon out of the rail when in use; in curving the diagonal shoulders of the post and tenon, so as to provide for the shrinkage of the parts; in the employment of square shoulders, with lateral space between the post and tenon; in so shaping and proportioning the mortise and tenon that the tenon shall enter the post by a horizontal movement, and then commence a downward movement before it is all in the mortise; and in the employment of a cleat, in combination with a wooden tenon, with shoulders, for holding it on to the end of the rail.

Figure 1 is an elevation of a portion of a bed-post, showing the mortise.

Figure 2 is a section of a post and side-rail, showing a double tenon in and between the post and rail.

Figure 3 is a horizontal section of a post and rail, at dotted line *n*, fig. 2.

Figure 4 is a section of a post and side-rail, showing a double tenon covered by a cleat.

Figure 5 is a horizontal section of a post and rail, at dotted line *o*, fig. 4.

a, post of a bedstead.

b, side-rail of the same.

c, that portion of a double tenon which enters the post.

c', that portion of a double tenon which is fastened in or to the side-rail.

d, wide part of the mortise in the post.

d', narrow part of the same.

e, diagonal shoulders of the mortise.

e', diagonal shoulders of the tenon.

f, shoulders formed by the end of the side-rail.

i, shoulders formed by depressions cut in the side-rail.

i', shoulders formed on the side of that part of the tenon which is fastened to the rail.

h, cleat over the tenon and across the end of the rail. This is nearly all broken away, in fig. 5, to show the tenon.

My invention relates to improvements in wooden-bedstead fastenings, of the kind now in general use, and upon which several patents have heretofore been issued to me; and

The object of my invention is to provide for defects, which practical experience in the manufacture and use of my fastenings have shown to exist, and they are as follows:

First. To fasten a tenon in the end of a side-rail, and give it sufficient strength, requires something more reliable than a glue-joint and pins, as the glue is sometimes of bad quality, and the pins are often carelessly put in. My improvement for increasing the strength of the joint between the side-rail and tenon consists in cutting shoulders *i* on the end of the rail, and shoulders *i'* on the tenon, which rest upon each other, as seen in figs. 3 and 5. In addition to these shoulders, I use glue between the tenon and side-rail, which makes the fastening of the tenon to the rail perfectly reliable.

Second. It is not practicable for manufacturers to procure lumber for bedsteads so well seasoned as not to alter the shape of both mortise and tenon by shrinkage, after they have been put into use. Shrinkage of the post decreases the angle of the diagonal shoulder *e*, and shrinkage of the side-rail and tenon increases the angle of diagonal shoulders *e'*, so that however well these angles may agree when the fastening is first made, one is sure to become larger and the other smaller in time, and the shoulders *e* and *e'*, instead of touching each other their whole length, will only touch at the top, where the fastening is weakest. I provide for the change in angles by shrinkage by curving one or both of the shoulders, *e* and *e'*, as shown in figs. 2 and 4. The shoulder *e*, in both figures, is curved, and the shoulder *e'* is curved in fig. 5. In this case the change of angles by shrinkage raises the point of contact between the shoulders a little higher up, but not enough higher to weaken the fastening, as it does in case the shoulders are straight.

Third. In my former patents, and in the bedsteads now in use, the diagonal shoulders have been made round, so that a strain put upon them, by weight upon the side-rail, tends to open the mortise and split the post. Experiments that have been made for testing the strength of the fastening, with round shoulders, have always split the post; but, in every instance, experiments made for the same purpose, with square shoulders, have resulted in tearing out the front of the post without splitting it, and to do this requires a much greater force. In my improved fastening, I make the shoulders square, cutting them at right angles, or nearly so, to the direction of the strain, and also cutting all parts of the tenon thinner than the mortise, so that the shoulders *f* and *e'* are the only points upon

the tenon where it touches the post. By making the shoulders *e* and *e'* square, instead of round, they need not be cut but little more than half as deep as round shoulders, and yet be fully as effectual and cheaper, as a mortise for a tenon with square shoulders, of a given strength, may be narrower, and would be covered by a much thinner side-rail than would a mortise for a tenon with round shoulders of the same strength.

Fourth. It has been found that the mortise and tenon shown in my former patents, and now in practical use, are not only too wide, but they are too long, and require a side-rail too wide, as well as too thick to cover them, and, consequently, too expensive for cheap bedsteads. I therefore construct my improved mortise so that the tenon will enter it by a horizontal movement, and then take a downward movement before the shoulders *e'* have passed into the mortise. By this construction of my mortise and tenon, I am able to use thinner, narrower, and, consequently, cheaper side-rails, and yet retain a great width of tenon, which is necessary to prevent the side-rail from twisting over, so as to let the slats fall out of their places.

In putting the bedstead together, the thick part of the tenon passes into the wide part of the mortise, by a horizontal movement, till the end of the tenon touches the bottom of the mortise. In this position very little more than the thick part of the tenon has entered the mortise.

The operation is then completed by giving the tenon an inward and downward movement, the thick part of it passing down behind the shoulders *e*, in the sides of the mortise, till it is stopped by the end of the side-rail coming in contact with the face of the post. By the horizontal movement the tenon enters, but it requires the downward and inward movement to bring the thin part of the tenon all within the mortise.

The thick part of the tenon passes into the post, horizontally through the wide part of the mortise, while the thin part of the tenon passes into the post by a downward and inward movement through the thin part of the mortise.

This peculiar construction of my mortise and tenon enables me to use a much narrower and cheaper side-rail than if they were constructed so as to allow the whole tenon to pass into the mortise, by a direct downward and inward movement.

The construction and proportions of my improved mortise and tenon are such that no part of the tenon touches the mortise, except the shoulders *e'* and *f*, there being an open space between the tenon and post at all other points; and the shoulders *e* and *e'* being cut square, at right angles, or nearly so, to the sides of the tenon, any ordinary use of the bedstead, such as sleeping upon it, or dragging it from one part of a room to another by a post, has no effect upon the mortise other than to compress the wood between the should-

ers *e* and the face of the post, with no tendency whatever to split the post.

The shrinkage which always occurs in bedsteads after manufacturing them, increases the angles of the tenon, and decreases the angles of the mortise, so that the shoulders of the tenon touch the shoulders of the mortise only at the extreme top, where they are weakest; but by curving one or both of the shoulders, *e* and *e'*, and so shaping them that they will touch about in the middle shrinkage of the parts only brings the point of contact a little higher up, without changing it sufficiently to weaken the fastening.

In my improved fastening, I employ the shoulders *i* and *i'* to resist the tension of the diagonal shoulders *e* and *e'*. In addition to this, I fasten the surfaces of the tenon to the surfaces of the side-rail, by glue or other cement, which makes the fastening of the tenon to the side-rail all that can be desired.

By fastening the tenon to the side-rail, as shown in figs. 4 and 5, I am able to use a much thinner side-rail than by the modification shown in figs. 2 and 3. In the former case the tenon is let into the side of the rail, and afterwards covered by a cleat, and all the surfaces fastened together by glue or other cement.

When a cleat is used, the shoulders *i* are only cut on one side of the tenon, with a corresponding shoulder on the side-rail.

When the tenon is put into the end of the rail, as shown in fig. 3, the rail must be thick enough to cover the mortise, but in the other modification of my invention the cleat comes up to the post, covers one side of the mortise, and forms shoulder *f*, on one side of the rail. In either modification, the tenon may be fastened to the side-rail, by the use of pins, screws, or nails, in addition to the glue, if desired, these devices being equivalents.

Having described my invention,

What I desire to have secured to me by Letters Patent of the United States, is—

1. The combination of the post *a*, side-rail *b*, and double tenon *c* and *c'*, with its shoulders *i* and *i'*, when the surfaces of the tenon and side-rail are fastened together, substantially as described.

2. Curving the diagonal shoulders *e* and *e'* of a self-tightening wooden bedstead-fastening, substantially as shown, and for the purpose specified.

3. So constructing a mortise, cut in the solid material, of a bed-post, and a tenon attached to the end of a side-rail, that the tenon shall enter by a horizontal movement, and then complete its passage into the mortise by a direct downward and inward movement, substantially as set forth.

WM. H. ELLIOT.

Witnesses:

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E. ROCHE.