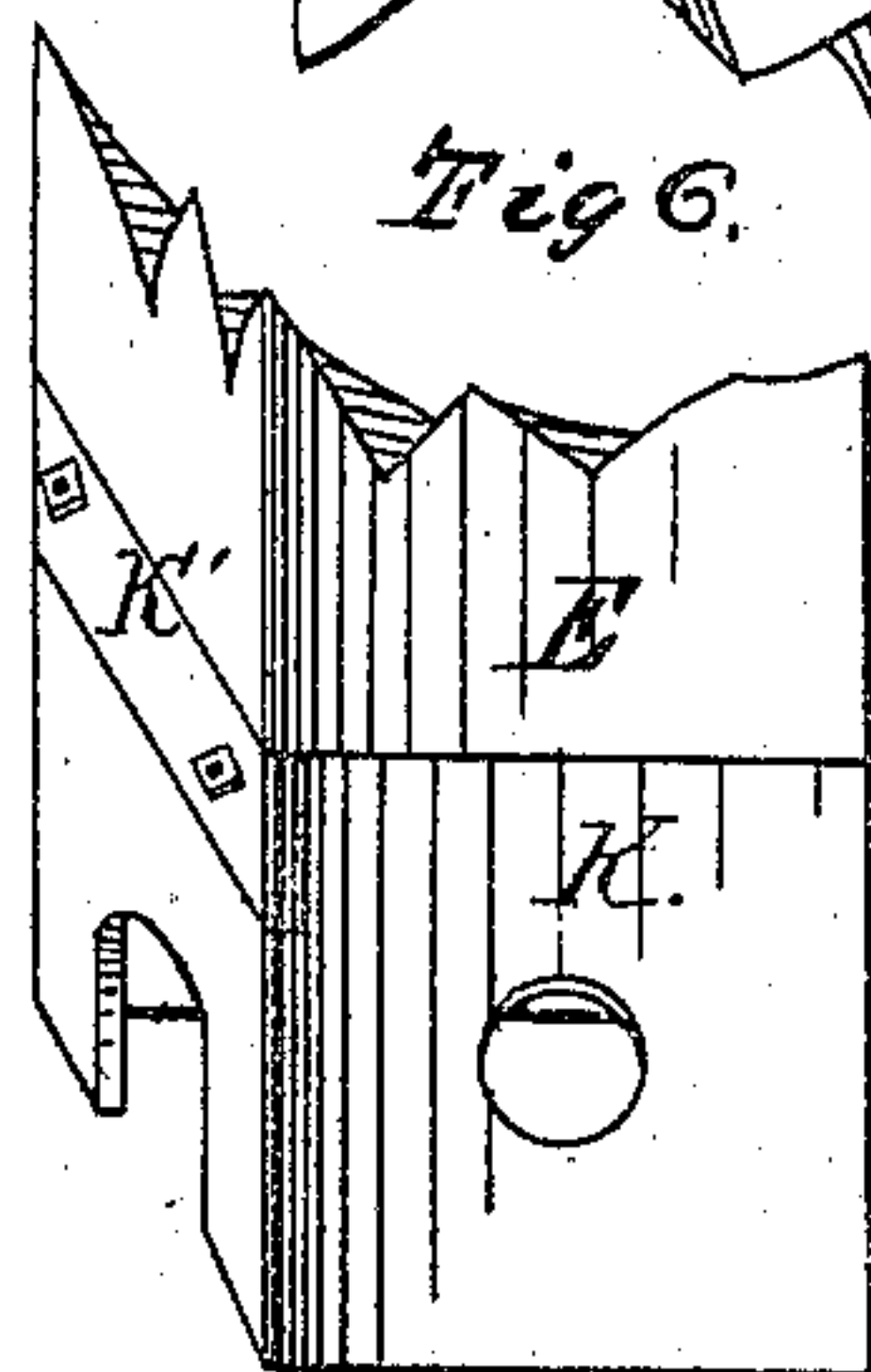
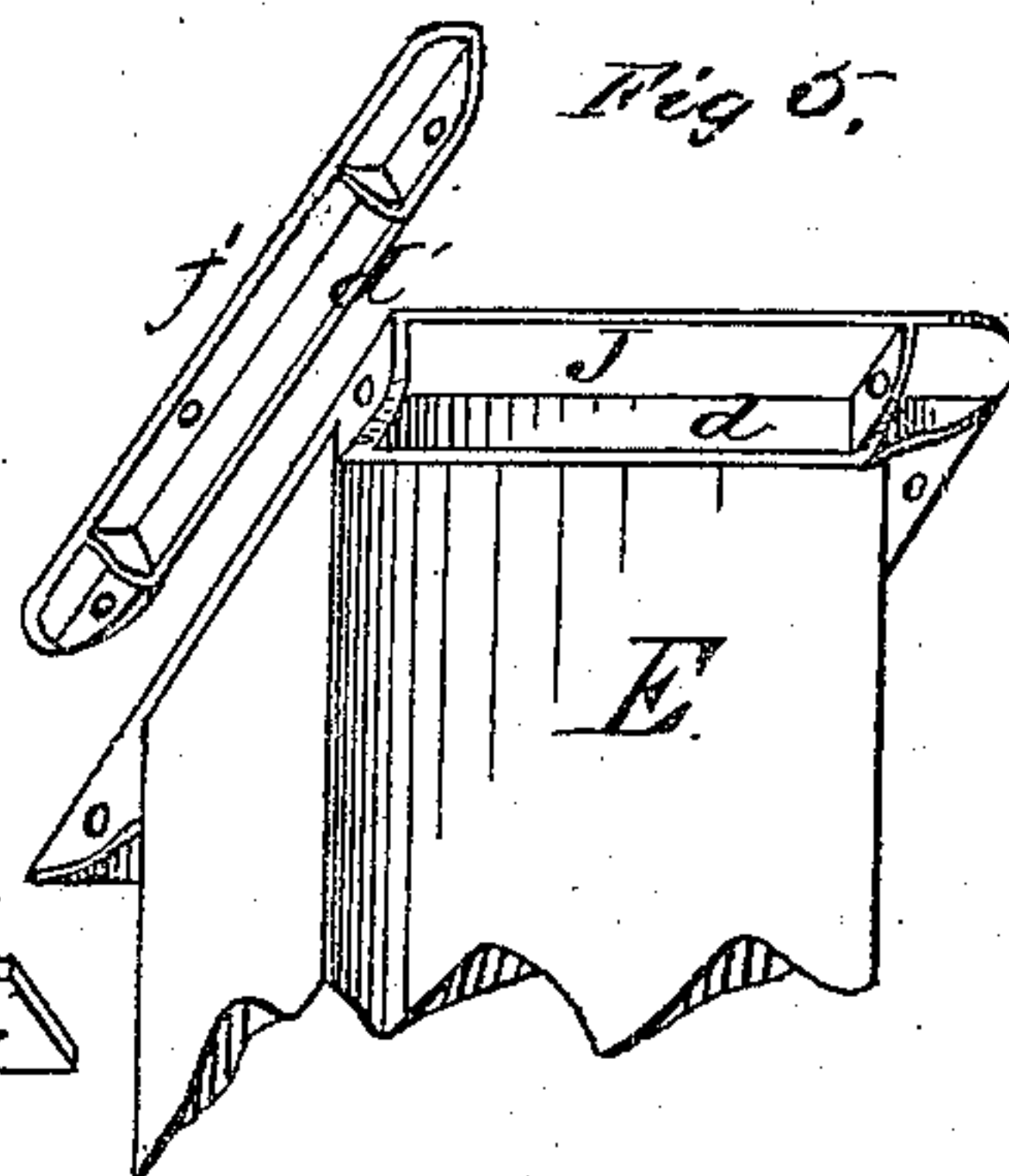
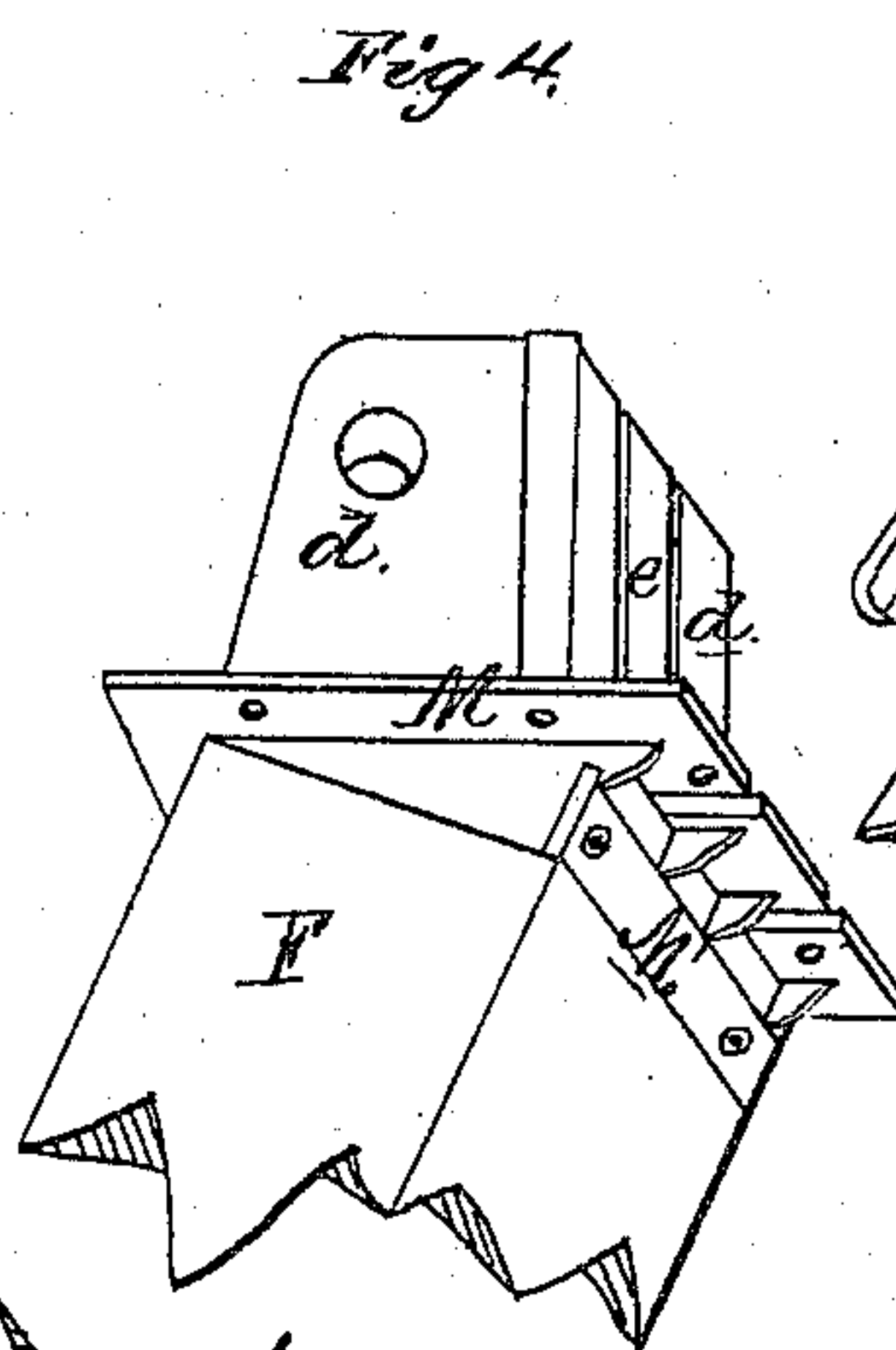
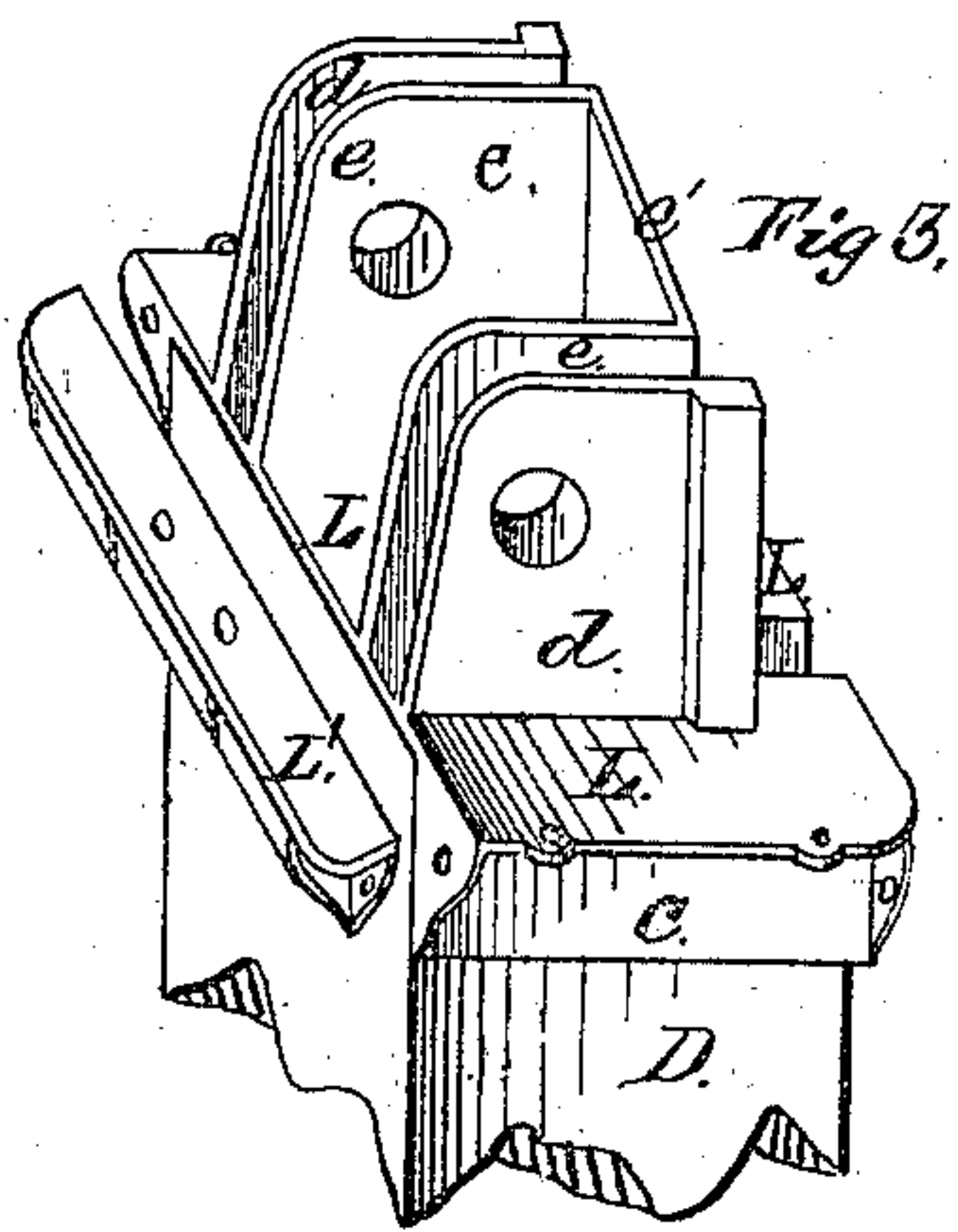
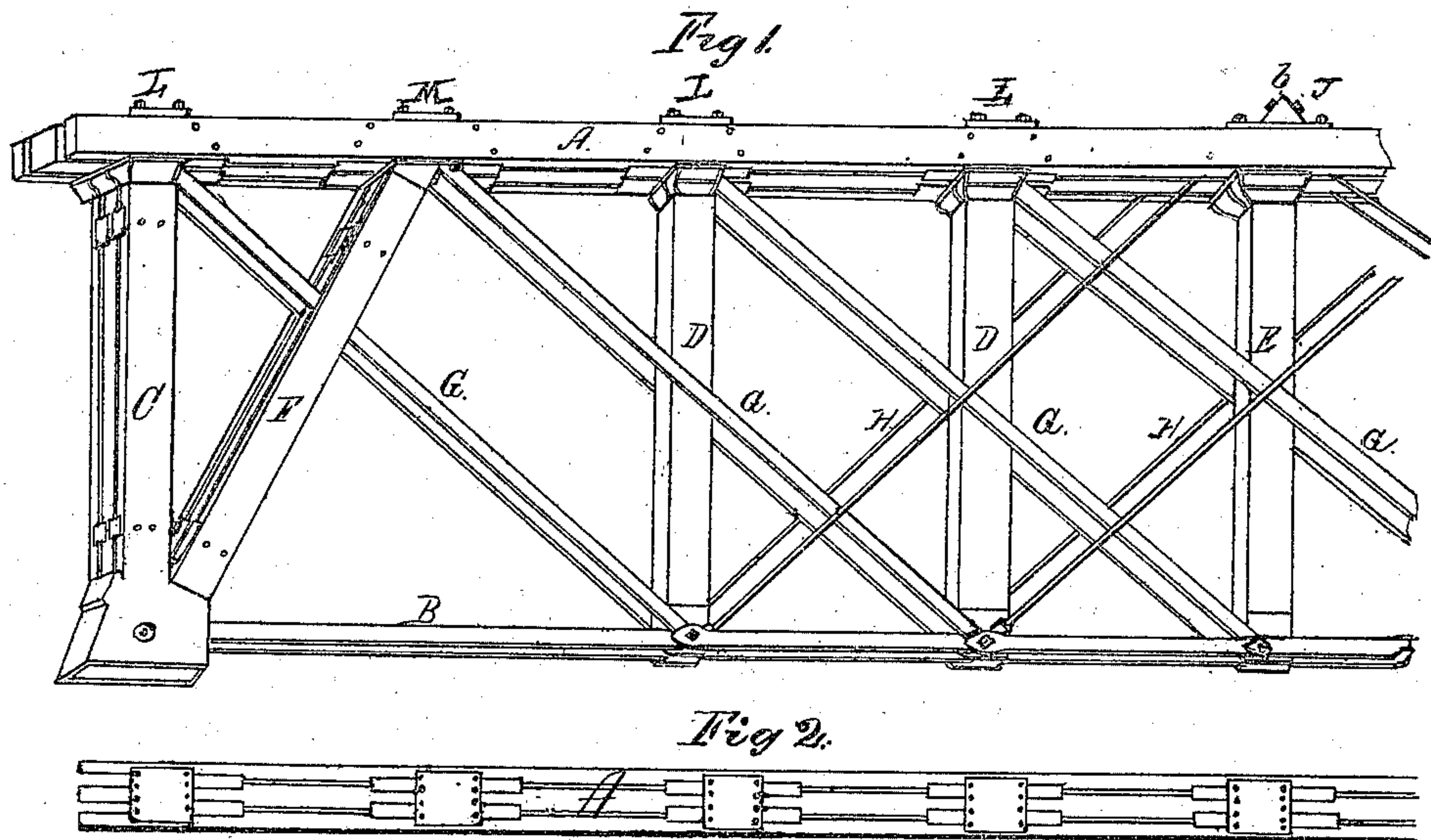


M. LASSIG.

Improvement in Shoes for Truss-Bridges.

No. 133,232.

Patented Nov. 19, 1872.



Witnesses:
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 C. E. Clark

Inventor.
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 Attys.

UNITED STATES PATENT OFFICE.

MORITZ LASSIG, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN SHOES FOR TRUSS-BRIDGES.

Specification forming part of Letters Patent No. 133,232, dated November 19, 1872.

To all whom it may concern:

Be it known that I, MORITZ LASSIG, of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Combination Bridges; and I do declare that the following is a true and accurate description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon and being a part of this specification, in which—

Figure 1 is a partial perspective view of my bridge; Fig. 2 is a plan of the top chord; Fig. 3 is a perspective view of a top shoe for end and intermediate post; Fig. 4 is a perspective view of the top shoe of a brace; Fig. 5 is a similar view of the top shoe of the center post; and Fig. 6 is a similar view of a bottom shoe for middle and intermediate posts.

Similar letters of reference indicate corresponding parts in the several figures.

The nature of this invention relates to certain improvements in the details of the construction of combined wood and iron truss-bridges; and has for its object to facilitate the exchange and renewal of the wooden posts and diagonal braces when they have decayed or proved defective, and to the construction of the top shoes in such a manner that they will transmit the compressive strains from the diagonal braces and tension-bars directly into the top chord of the truss. The invention consists in the peculiar construction of the top shoes of the posts and braces, open at one side or at two opposite sides, and provided with detachable flanges at the open sides to permit the removal of the post or brace by removing said flanges and jacking the upper and lower chords apart; also in the similar construction of the lower shoes of the middle and intermediate posts for the like purpose, as more fully hereinafter set forth.

In the drawing, A represents the upper wooden chord, and B the metallic bars of the lower chord of the bridge; C is an end post; D are the intermediate, and E is the middle, post of the truss; F are the diagonal wooden braces; G are the diagonal tension-bars, and H the tie-rods; the construction and arrangement of which form no part of the present invention, and which I hereby disclaim. The upper chord is made up of three members, and the shoes shown in the detail drawing are pat-

terned accordingly. The top shoe J of the middle post is a flat plate projecting on three sides from the faces of the post, and is cast with pendent rib-flanges *a*, which form three sides of a socket to receive the top of the post. J' is a plate cast with a pendent flange, *a'*, and forms the projection for the fourth side of the shoe, to which it is bolted by bolts passing through the ribs of both. The shoe J is bolted to the under side of the top chord by bolts, which also confine the top plate and angle-block *b*. After the post is swung under the shoe the plate J' is bolted fast thereto, confining the post in the socket of the shoe. By detaching the plate J' and jacking the chords (upper and lower) apart the post may be removed and replaced by another. If desired, the shoe J may be cast with two open sides opposite each other, to which two flange-plates, J', may be bolted, the bolts passing through the ribs of both. K, Fig. 6, represents a shoe for the lower ends of the middle and intermediate posts. It is cast in the form of a rectangular box with a bolt-hole in the side walls, through which a bolt passes, which bolt also passes through the eyes of the bottom chord-bars and diagonals. Above the horizontal plane of the bolt-holes is a diaphragm, which forms a bearing-plate for the foot of the post, the upper part of the shoe forming a socket for the post, as in the ordinary construction, with this exception, that I leave off one of the ends of the socket at and above the plane of the bearing-plate, and bolt on in place thereof a removable plate, K', by removing which the lower end of the post may be moved out of the shoe. L is the bearing-plate of the upper shoe for any vertical post, with projections on three sides, which bear on all the members of the upper chord. On three sides there is a pendent rib-flange, *c*, forming three sides of a socket for the post-head. L' is a flanged plate, which is bolted across the open end of the socket, and thus incloses the post-head; or the two opposite sides of the shoe may be left open and provided with the detachable flange-plates, so that the post may be removed from either side. One side of the plate L, outside the rib-flange, is slotted to coincide with the spaces between the members, and on the top are cast therewith two vertical webs, *d*, one of which comes against the inner

cheek of each outer member of the upper chord. Between these webs *d* are two others, *e*, parallel therewith, their outer faces being on a plane with the sides of the middle member of the upper chord, which is recessed or cut out on the under side to receive them and a lateral web, *e'*, which connects their ends. Through all the webs *d e*, a transverse opening is made to receive a pin, which also passes through the eyes of the diagonal tension-bars G. In practice this pin should be passed through the webs and ends of the tension-bars before the outer members of the upper chord are bolted to place. The slots in the one edge of the bearing-plate L allow the diagonal bars to pass up between the webs to the bolt or pin which secures them. The top shoe M for the diagonal brace is similar in construction above the bearing-plate, below which it is cast with a diagonal socket, the plate M' on the lower or inclined face of which is detachable, as already described. The bearing-plates of the shoes are bolted through the members of the top chord, which have the usual covering-plates, and the effect of this arrangement is that the compressive strains of the diagonal bars are transmitted directly into the top chord. The bearing-plates, ribs, and webs which constitute a shoe are cast in one piece complete,

with the exception of the flanged plate or plates, which are bolted thereto.

If any post or brace should prove defective, from decay or otherwise, to remove and replace it, all that is necessary is to jack the upper and lower chords apart, remove the flanged plates from the shoes, slip out the post or brace, insert a new one, ease down the jack-screws, and bolt on the flanged plates again.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The shoe J cast with rib-flanges *a*, and the flanged plate J' cast with the pendent flange *a'*, as and for the purpose set forth.

2. The bottom shoe K with one open side to its socket, closed by a plate, K', removably bolted thereto, as and for the purpose set forth.

3. The shoe L cast with rib-flanges *c* and vertical webs *d d e e e'*, and the flanged plate L' bolted thereto, substantially as described, for the purpose specified.

4. The top shoe M, constructed, as described, with an inclined shoe-socket open at one side, with the plate M' for securing the brace-head therein, substantially as described.

MORITZ LASSIG.

Witnesses:

WM. H. LOTZ,
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