

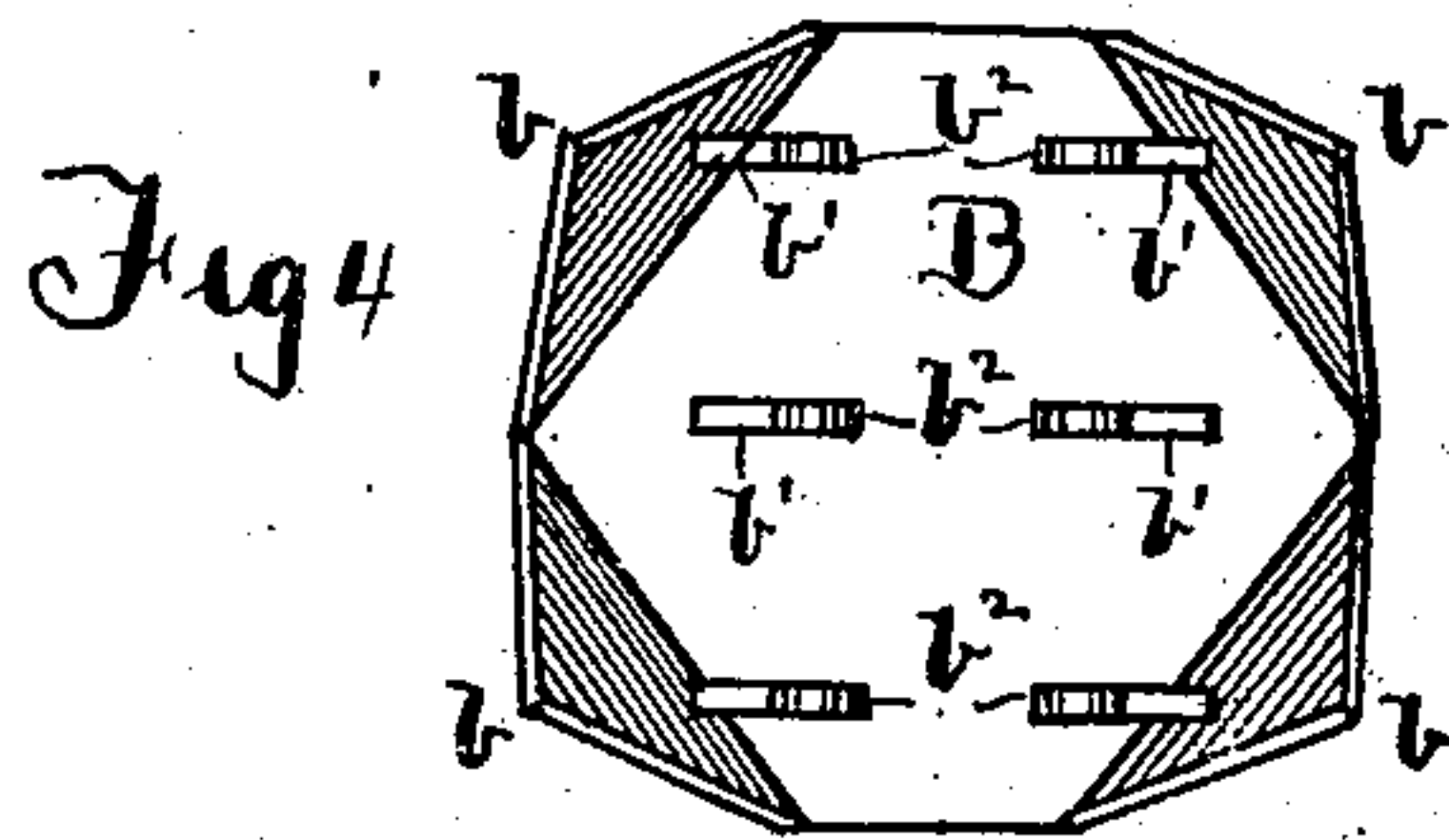
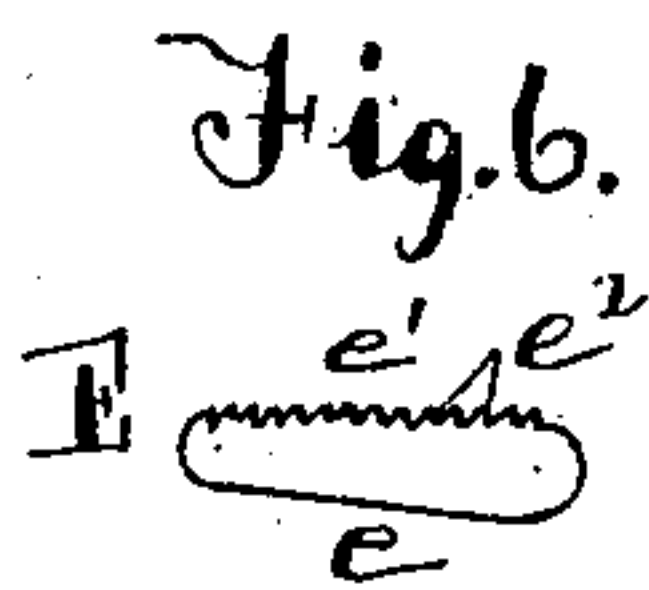
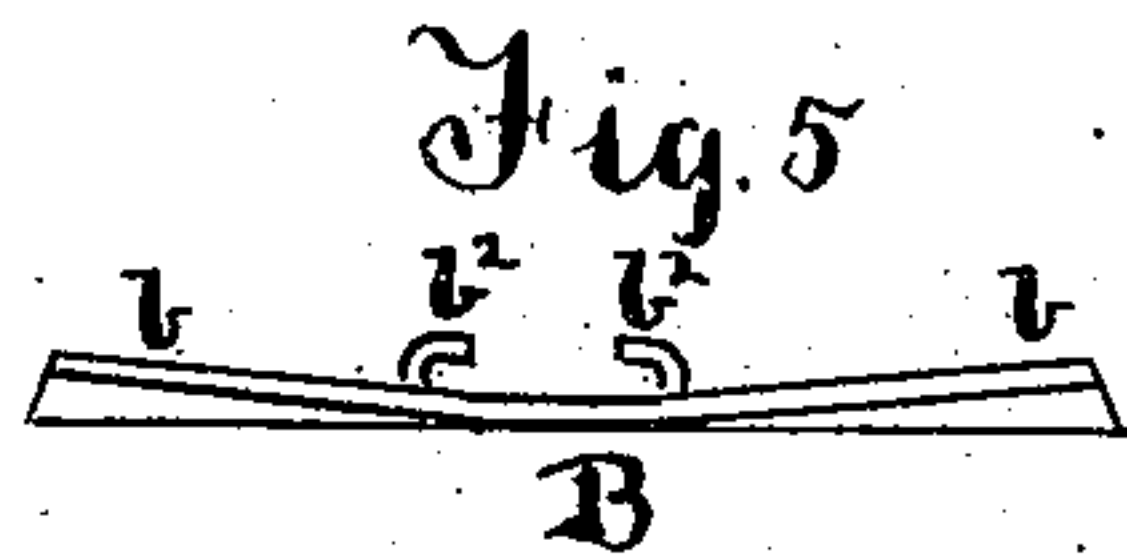
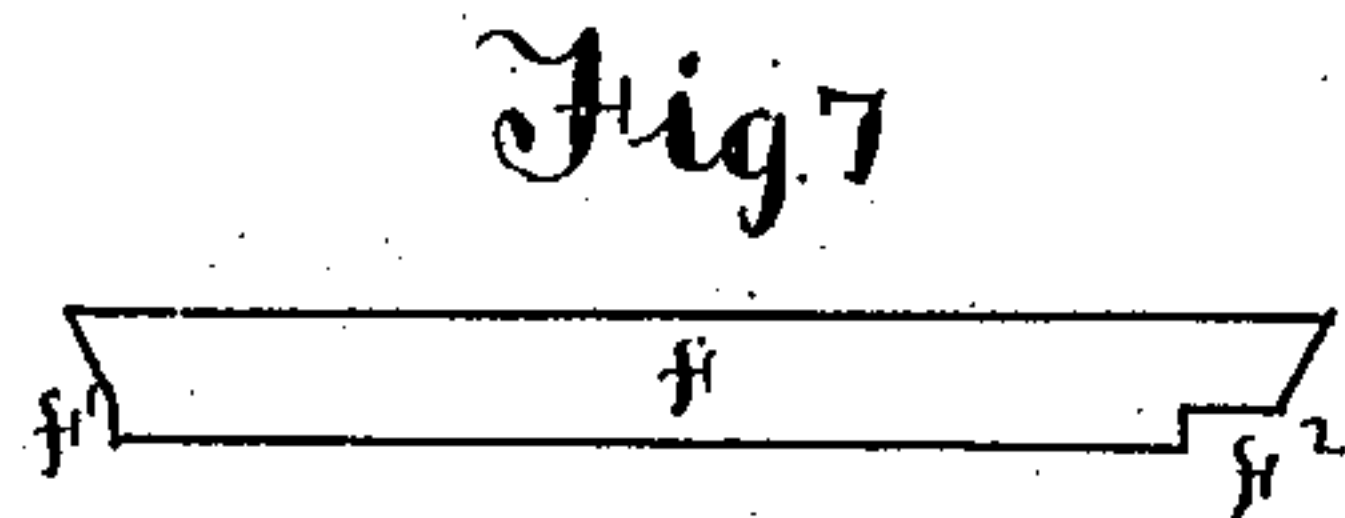
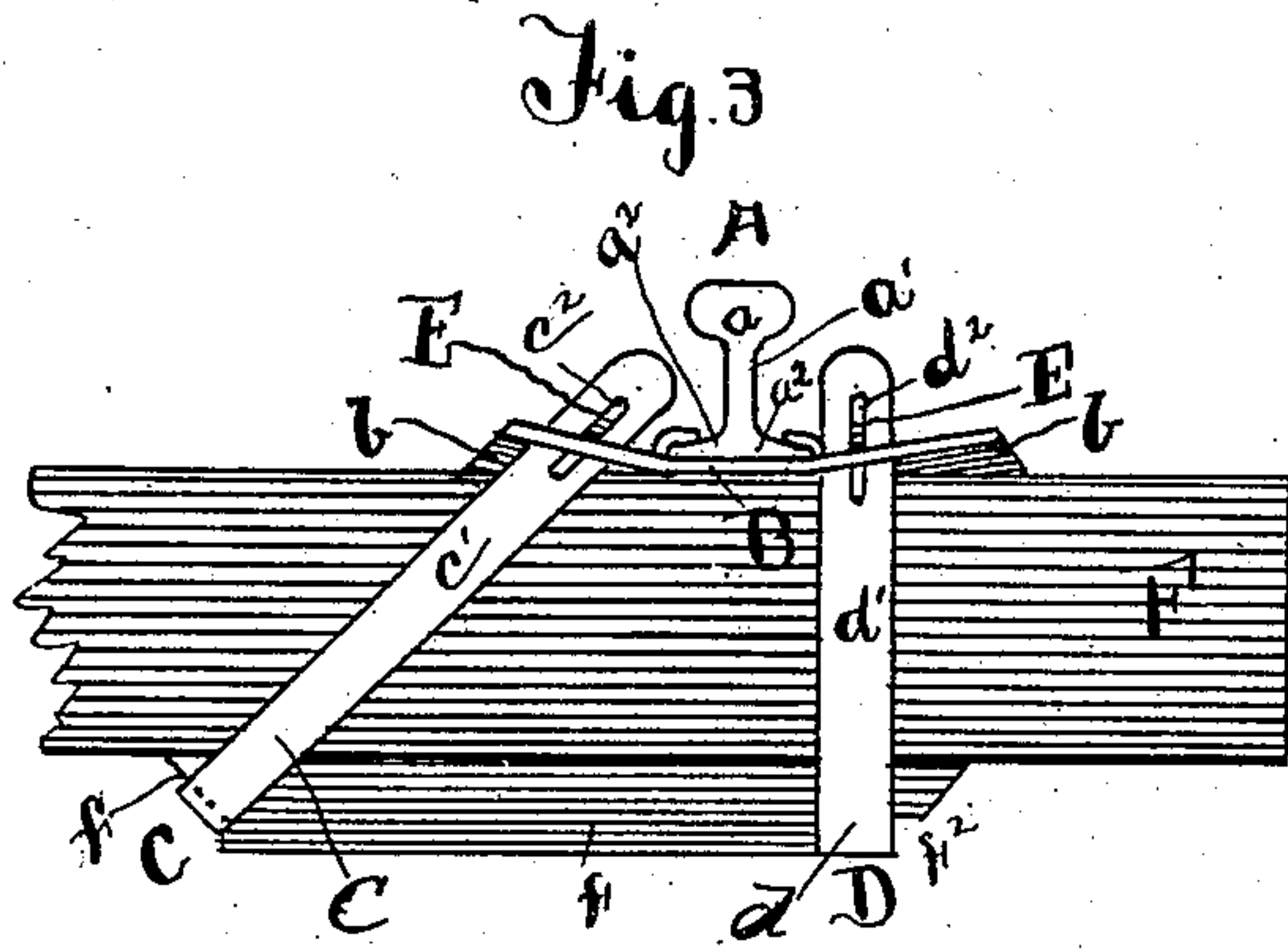
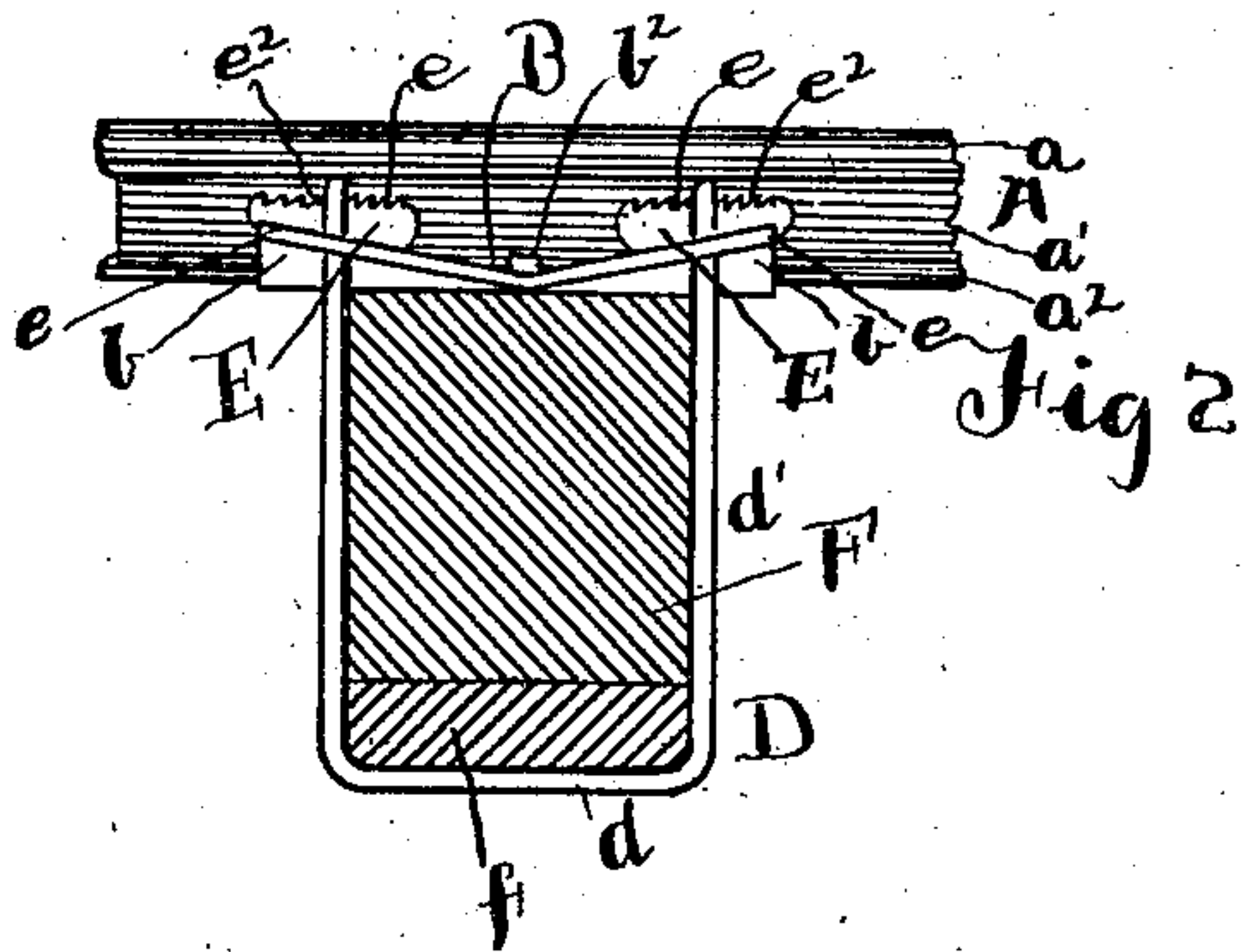
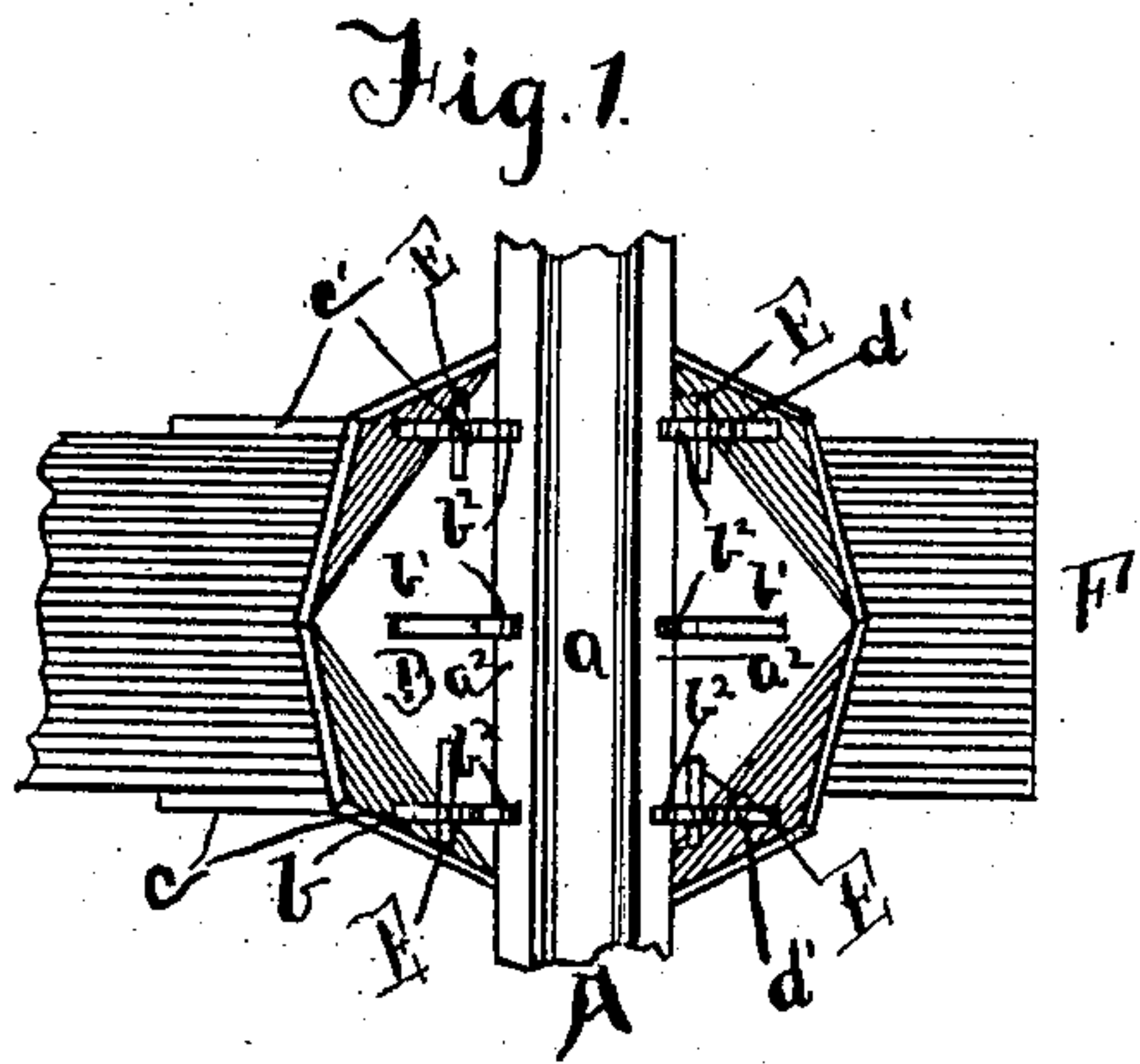
No. 763,153.

PATENTED JUNE 21, 1904.

W. V. BUTTERFIELD.
RAIL PLATE AND FASTENER.

APPLICATION FILED MAR. 10, 1904.

NO MODEL.



Witnesses:
William P. Bond
Walker Banning

Inventor:
Walter V. Butterfield
By Banning Banning
Attys.

UNITED STATES PATENT OFFICE.

WALTER V. BUTTERFIELD, OF SILSBEE, TEXAS.

RAIL PLATE AND FASTENER.

SPECIFICATION forming part of Letters Patent No. 763,153, dated June 21, 1904.

Application filed March 10, 1904. Serial No. 197,470. (No model.)

To all whom it may concern:

Be it known that I, WALTER V. BUTTERFIELD, a citizen of the United States, residing at Silsbee, in the county of Hardin and State of Texas, have invented a certain new and useful Improvement in Rail Plates and Fasteners, of which the following is a specification.

It is the common and general practice in securing the rails of a railway to the ties to spike the rails in place, the spikes being driven into the body of the tie with their heads overlapping the flange at the base of the rail on each side or otherwise. It is well known that while this method of fastening the rails to the ties is efficient at first it becomes objectionable in use, owing to the loosening of the spikes, allowing the rail to vibrate and slip more or less and finally destroying the tie or rendering it unfit for use. Owing to the scarcity of proper tie-timber, various plans have been tried to hold the rails firmly in position, and thereby give a longer life to the ties and prevent destruction, but without any marked degree of success.

The primary object of the present invention is to furnish a plate and fastener by means of which the rails can be firmly secured in place, and this without the use of spikes or other fastening means driven into the body of the tie; and further objects are to construct a plate which can be readily and quickly attached to the flange at the base of the rail and which can be fixedly locked to the face of the tie without the use of spikes or other means driven into the body of the tie, to construct a plate having tongues to take over the flanges at the base of the rail and having corner-slots for the reception of the ends of tie-straps, by means of which and interlocking keys or other securing means the plate can be firmly and fixedly clamped to the face of the tie, holding the rail firmly in place, to furnish a plate having its corners upturned and provided with slots and tie-straps entered into the corner-slots of the plate and held in place on the under side of the tie, and to improve generally the construction and operation of the several elements which enter into the formation of the plate and its attachment to the tie.

The invention consists in the features of construction and combination of parts hereinafter described and claimed.

In the drawings illustrating the invention, Figure 1 is a top or plan view showing the rail broken off and the end of the tie, with the plate and its locking means, in position; Fig. 2, a cross-section of the parts shown in Fig. 1; Fig. 3, a side elevation of the parts shown in Fig. 1; Fig. 4, a plan view of the plate; Fig. 5, an edge view of the plate; Fig. 6, a side view of a locking key or wedge, and Fig. 7 a side view of a supplemental piece on the under side of the tie for engaging with the tie-straps.

The rail A is of the ordinary construction of T-rails, having a head a , a neck a' , and a base-flange a'' , and can be of the shape shown or of other suitable formation. The plate B, which receives the base-flange a'' of the rail and is supported on the upper face of the tie, is made of any suitable metal and of the form shown in Figs. 1, 2, 3, 4, and 5, having its corners b slightly upturned, so as to rise above the face of the tie. The body of the plate in the arrangement shown has strips cut out therefrom, so as to leave a slot b' , and the strip is turned inwardly, so as to form a clip b'' , which takes over the base-flange of the rail, as shown in Fig. 3, and, as shown, the plate B has three slots b' and three clips b'' , the clips furnishing a secure interlock of the plate, and the two outer slots are utilized for the passage of the ends of the yoke or tie straps by which the plate is held firmly in place on the upper face of the tie.

The force exerted on the rails from the passage of a train is an outward one, and for this reason the tie or brace of the plate B should be the strongest on the inside. The tie and brace for the plate on the inside in the construction shown is in the form of a yoke or open-ended stirrup C, made of suitable metal and having a base end c and side arms or straps c' , each strap at its free or outer end having therein a slot c'' . The outer end of each side arm or strap c' projects through the outer slots b' of the plate B on the inside of the rail when the securing yoke or stirrup is in place, with the slot c'' projected above the

turned corner of the plate B, as shown in Figs. 1, 2, and 3. The tie or brace for the plate on the outside of the rail is in the form of a yoke or open-ended stirrup D, made of suitable metal and having an end bar d and side arms or straps d' , each side arm or strap at its free or outer end having a slot d'' . The outer end of each side or strap d' projects through the outer slots b' of the plate B, as shown in Fig. 3. The entered ends of the yokes or stirrups C and D are securely held after being passed through the corner-slots of the plate B in any firm manner. As shown, the ends of the yokes or stirrups C and D are held in place by keys E, one for the slot of each arm or strap of the yoke, the body of the key passing through the slot and its edge faces engaging with the edge of the arm or strap adjacent to the slot and with the face of the plate, as shown in Fig. 2. The key shown has a straight-edge face e to engage with the face of the plate and an inclined face e' , provided with notches e'' , to engage with the edge of the arm or strap at the end of the slot and hold the key against easy withdrawal in use, and in case the key becomes loosened, so that the yokes or stirrups do not perform the office of holding the plate fixedly and firmly in place, by a slight blow the key or keys can be driven inwardly, again engaging the yokes or stirrups with the plate, so as to hold the plates fixedly and firmly in place and retain the rail in position.

In use the plates B are secured to the rail by interlocking or engaging the tongues or clips b^2 with the flange, and the rail, with the plate thereon, is set in position on the tie F, which tie can be of wood and of the usual form of ties, after which the yokes or stirrups are slipped in place from the under side of the tie for their free or upper ends to pass through the slots b' , and when entered the keys E or other fastening means are driven or otherwise engaged with the plate and the ends of the side arms or straps, so as to draw the plate firmly against the face of the tie, holding the plate in a fixed position and securing the rail in place, and this without the use of spikes or other fastening means driven into the body of the tie. The cross-bars of the yokes or stirrups C and D can be arranged to engage with notches or walls formed in the under face of the tie F; but it is preferred to use a supplemental wooden strip f , placed on the under side of the tie and having at one end an inclined face f' to engage with the cross-bar c of the yoke or stirrup C and having a shoulder or face f'' to engage with the cross-bar d of the yoke or stirrup D, the engagement being such as to prevent lengthwise movement of the yokes or stirrups in use after the yokes or stirrups are connected with the plate at their free or upper ends and to furnish an abutment against which the

yokes or stirrups will draw and hold the plate in a fixed position.

The plate by means of its tongues or clips is fastened securely to the rail in such manner as to prevent lateral slipping of the rail on the plate, and the plate by means of the draw-straps furnished by the yokes or stirrups is held securely against the face of the cross-tie and against movement on the face of the cross-tie that would wear the face, and at the same time the body of the tie is not weakened by spikes or other securing means driven therein, nor can the plate have lateral movement on the face of the cross-tie, as it is held against such movement by the draw-tie and brace-straps, and these straps will not be pushed out of place by the passage of trains over the trackway, as is the case where the rails are held by spikes or other securing means driven into the body of the tie. The supplemental piece of wood f furnishes an additional support directly under the rail and adds that much thickness to the depth of the tie to resist the downthrust on the rail, and in the event of too much wear that would loosen the yokes or stirrups it is only necessary to replace the supplemental piece of wood with a new piece, making the tie as good as new. The yokes or stirrups, if they fail to perform the office of drawing and holding the plate in its fixed position, can be tightened so as to act properly by simply driving the locking keys or wedges farther in or otherwise manipulating the uniting means between the ends of the yokes or stirrups and the plates to have the yokes or stirrups draw and brace the plates. The attachment as a whole is simple in construction, and by its use the life of a cross-tie will be lengthened and repairs, in case the rails become loose, can be easily made, it only being necessary to tighten up the draw-straps, so as to cause the plate to closely hug the face of the cross-tie, or in case of a looseness too great to be overcome by tightening the yokes or stirrups or the draw-straps a new supplemental piece can be employed to take the place of the old supplemental piece with sufficient increased thickness to give the required draw and brace for the straps of the yokes or stirrups. It will also be seen that no appreciable wear can take place between the face of the plate and the bottom of the rail, as the plate is locked to the rail closely, and that no appreciable wear can take place between the face of the plate and the face of the cross-tie when the draw-straps are properly set to draw and brace the plate in its relation to the rail, thus preventing slipping of the rail and slipping of the plate that would cause wear on the face of the cross-tie and destroy or impair its utility.

What I regard as new, and desire to secure by Letters Patent, is—

1. A rail plate and fastener, comprising a plate, adapted to be interlocked with the rail, and tie and brace straps, engaging with the plate and adapted to be held by the cross-tie, substantially as described.

2. A rail plate and fastener, comprising a plate having clips interlocked with the rail and slots for the passage of the ends of tie and brace straps; and tie and brace straps entered at their ends into the slots of the plate and when entered locked to the plate, substantially as described.

3. A rail plate and fastener, comprising a plate having its corners upturned and having clips to interlock with the rail and slots for the passage of the ends of tie and brace straps, and tie and brace straps entered at their ends into the slots of the plate and when entered locked to the plate, substantially as described.

4. The combination of a rail, a plate interlocked with the rail, tie and brace straps engaging with the plate, and a cross-tie on which the plate is located and having the tie and brace straps connected therewith, substantially as described.

5. The combination of a rail, a plate interlocked with the rail by clips and having slots for the passage of the ends of tie and brace straps, tie and brace straps entered at their ends into the slots of the plate and when entered locked to the plate, and a cross-tie having the tie and brace straps connected therewith on the under side, substantially as described.

6. The combination of a rail, a plate interlocked with the rail by clips and having slots at each corner, a yoke having a cross-bar and side arms and constituting tie and brace straps, with the ends of the arms entered into the slots of the plate and when entered locked to the plate, and a cross-tie underneath which the yoke passes and engages, substantially as described.

7. The combination of a rail, a plate interlocking with the rail by clips and having slots at each corner, a yoke having a cross-bar and side arms and constituting tie and brace straps, with the ends of the arms entered into the slots of the plate, slots in the end of each side

arm, a key entered into the slot of each side arm and engaging the plate, and a cross-tie underneath which the yoke passes and engages, substantially as described.

8. The combination of a rail, a plate interlocked with the rail by clips and having its corners upturned with a slot in each corner, a yoke having a cross-bar and side arms and constituting tie and brace straps, with the ends of the arms entered into the slots of the plate, slots in the end of each side arm, a key entered into the slot of each side arm and engaging the plate, and a cross-tie underneath which the yoke passes and engages, substantially as described.

9. The combination of a rail, a plate interlocked with the rail and having at each corner a slot, yokes each having an end bar and side arms and constituting tie and brace straps, with the yoke for the inner side of the rail running diagonally and the yoke for the outer side of the rail standing vertically, and with the ends of the side arms of both yokes passing through the corner-slots of the plate and when entered locked to the plate, and a cross-tie on which the plate is located and with the under side of which the yokes connect, substantially as described.

10. The combination of a rail, a plate interlocked with the rail and having at each corner a slot, yokes each having an end bar and side arms and constituting tie and brace straps, with the yoke for the inner side of the rail running diagonally and the yoke for the outer side of the rail standing vertically, and with the ends of the side arms of both yokes passing through the corner-slots of the plate and when entered locked to the plate, a cross-tie on which the plate is located, and a supplemental piece, having at one end an inclined face and at the opposite end a horizontal face and located on the under side of the cross-tie and having the yokes engaged with the inclined and horizontal faces, substantially as described.

WALTER V. BUTTERFIELD.

Witnesses:

OSCAR W. BOND,

WALKER BANNING.