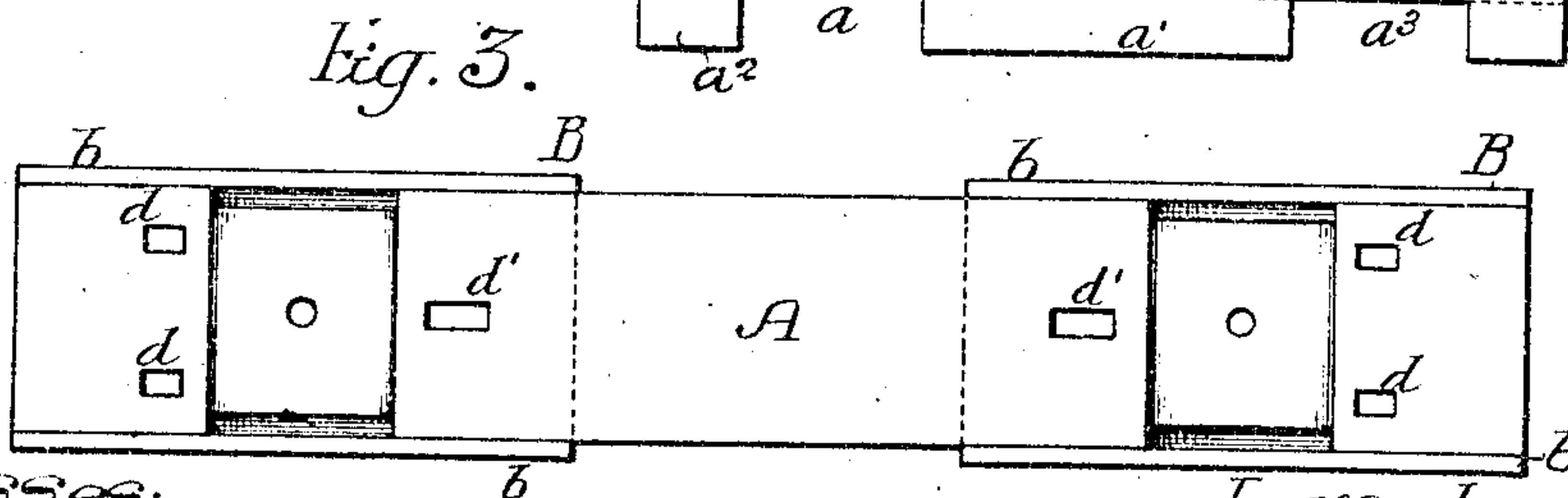
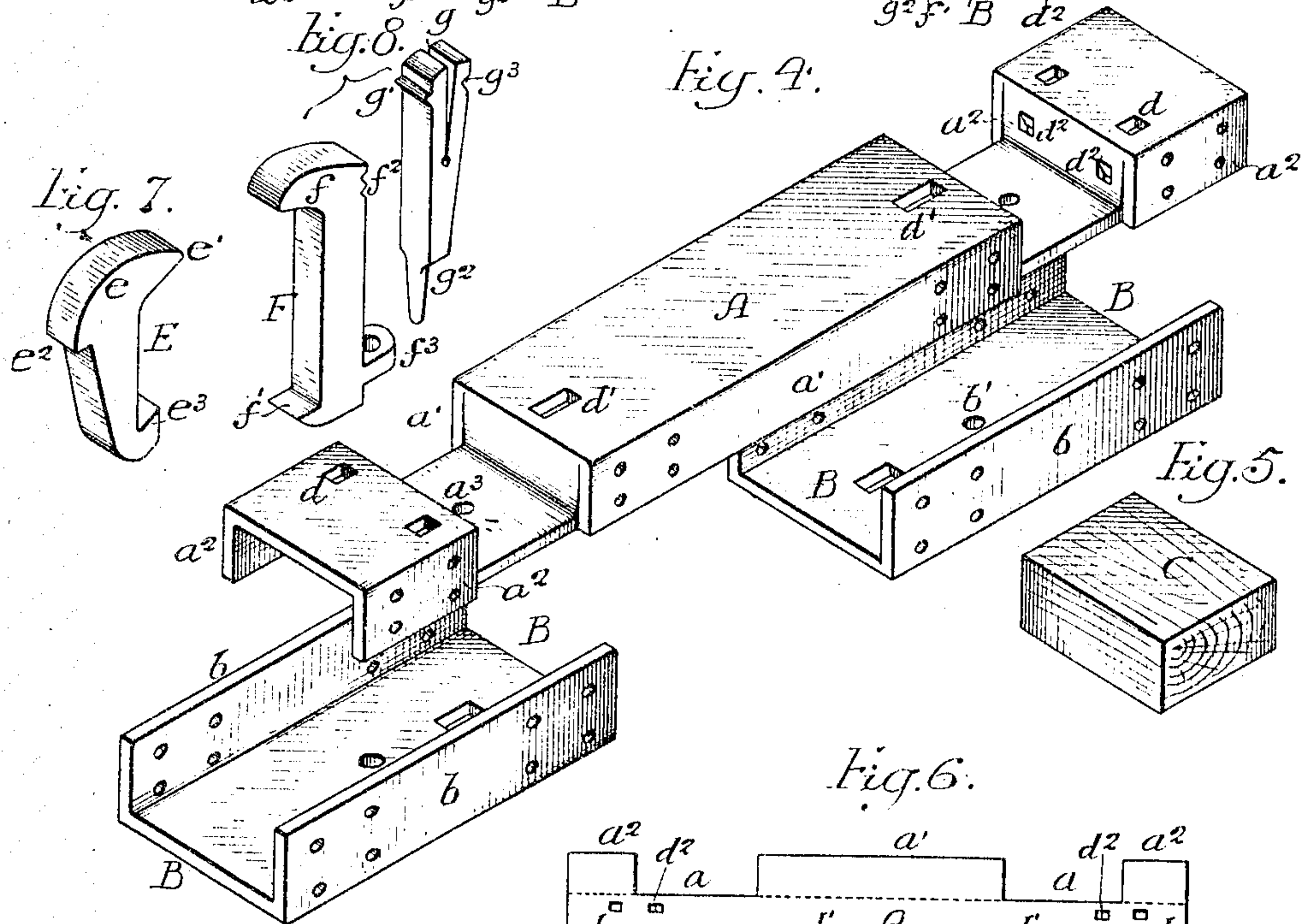
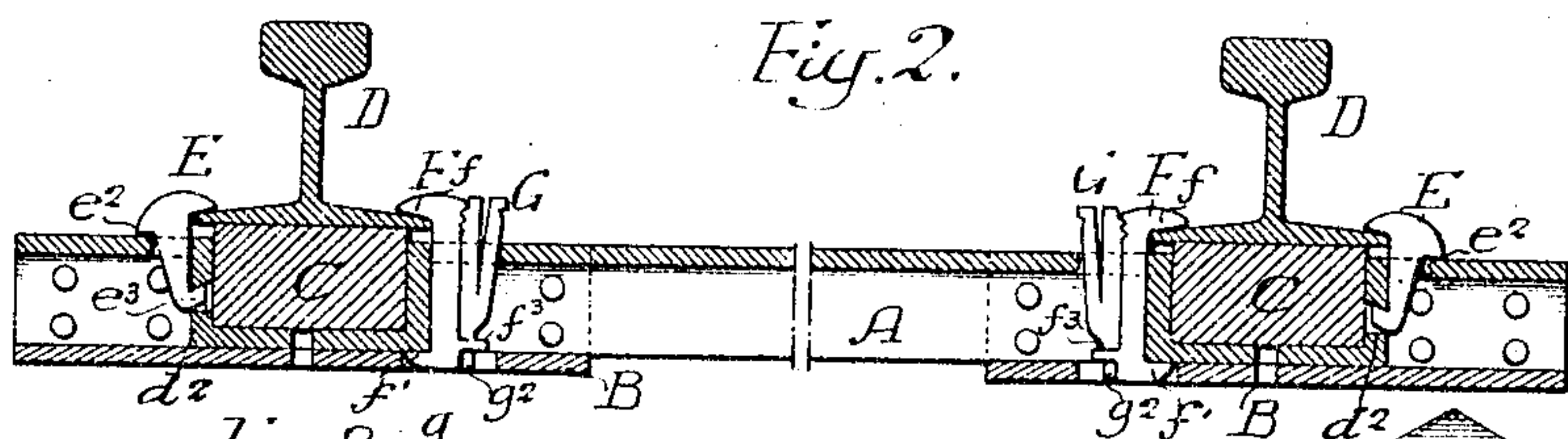
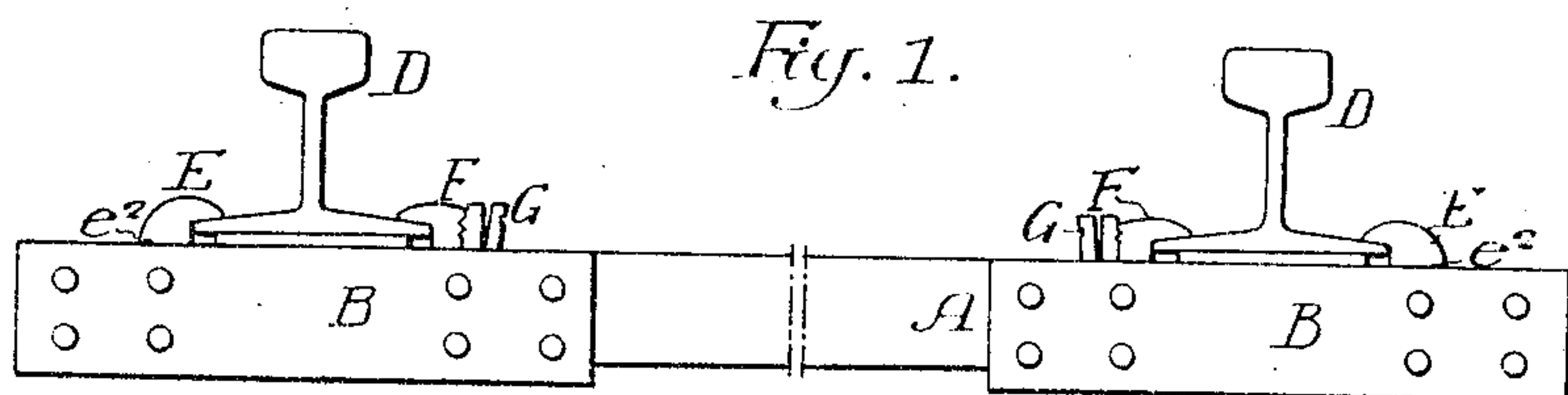


No. 871,472.

PATENTED NOV. 19, 1907.

F. P. BRINING.
METALLIC RAILWAY CROSS TIE.
APPLICATION FILED MAR. 19, 1907.



Witnesses:
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UNITED STATES PATENT OFFICE.

FRANK P. BRINING, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO
ROBERT F. WHITMER, OF PHILADELPHIA, PENNSYLVANIA.

METALLIC RAILWAY CROSS-TIE.

No. 871,472.

Specification of Letters Patent.

Patented Nov. 19, 1907.

Application filed March 19, 1907. Serial No. 363,282.

To all whom it may concern:

Be it known that I, FRANK P. BRINING, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Metallic Railway Cross-Ties, of which the following is a specification.

My invention relates to certain improvements in metallic cross ties for railways and the object of my invention is to construct the tie in such a manner that the parts can be readily shaped and assembled. I also desire to provide a cushion for the rails and means for firmly attaching the rails to the cross ties, which means can be readily detached when desired.

In the accompanying drawings:—Figure 1, is a side view of my improved metallic cross tie, showing the rails in place; Fig. 2, is a longitudinal sectional view; Fig. 3, is a plan view of the tie; Fig. 4, is a perspective view, showing the parts of the tie detached; Fig. 5, is a perspective view of one of the cushion blocks; Fig. 6, is a plan view of the blank from which the body of the tie is formed, and Figs. 7 and 8, are perspective views of the fastenings for securing the rails to the ties.

A is the body portion of the tie made of plate iron or steel and formed from a blank made in the manner shown in Fig. 6. The plate is recessed at $a-a$ forming projections $a'-a^2$, which are turned down to form the flanges of the body portion A, as illustrated in Fig. 4. The portions a^3 are bent down, as illustrated in Fig. 4, so as to form pockets for the reception of the cushion blocks C, Fig. 5.

At each end of the body portion are reinforcing members B—B. These members are formed of flat plates, bent so as to form flanges $b-b$ and a base b' , Fig. 4. The flanges are spaced a sufficient distance apart to allow the body portion A to rest on the base b' . Then the parts are secured together by rivets, bolts, or other fastenings. I preferably use rivets so as to firmly secure the parts together.

The channel members B form, with the body portion A, pockets for the reception of the blocks C. In the present instance the

body portion is perforated at $d-d$ on the outside of the pockets and perforated at d' on the inner side of each pocket and the outer end walls of the pockets are perforated at d^2 , as shown. The portions A and B are perforated to allow water to escape from the pockets preventing the decaying of the wooden blocks.

E, E are clamps, which are adapted to openings $d-d$ in the tie and each clamp has a head e and the extension e' of the head passes over the flange of the rail, while the projection e^2 rests on the upper surface of the tie. At the lower end of the clamp E is a hook e^3 , having its bearing surface tapered and this hook enters the cavity d^2 in the side walls of the pockets. These clamps are placed in position before the rail is set and then the base flange of the rail is forced under the projection e' of the clamp, holding it rigidly in position.

On the opposite side of the rail is the clamp F which has a head f extending over the other base flange of the rail and at the lower end is a hook f' , which extends under the pocket of the body portion A and when this clamp is forced towards the rail it will hold the rail firmly onto the cushion block C.

In order to fasten the clamp F, a wedge G is used which is forced between the edges of the opening d and the clamp F; the wedge being split at g to allow it to yield when driven so as to firmly clamp the rail.

In order to lock the wedge of the clamp F, I form a projection g' on the wedge which enters one of the series of recesses f^3 in the clamp F. The wedge has a projection g^2 at its lower end which enters an opening in a lug f^3 at the rear of the clamp so as to hold the lower end of the wedge close to the clamp. The wedge is notched at g^3 in such a manner that a bar can be inserted in the notch to forcibly remove the wedge when it is desired to detach a rail.

My improved metallic cross tie can be readily made from plate metal cut and bent into shape and reinforced at each end, the rails rest upon cushions and clamps are provided for readily attaching the rails to the tie.

It will be understood that these clamps

may extend and bear against the web of the rails or the under side of the head, if so desired, and this is particularly so when the clamps are used at curves where the side strains are excessive.

I claim:—

1. The combination in a metallic cross tie, of a channeled body portion having its flanges turned down, and reinforced channel members having their flanges turned up and directly secured to the flanges of the channel body portion, substantially as described.

2. The combination in a metallic cross tie, of a body portion bent to form a channel and recessed to form pockets, with inverted channel members secured to the end of the body portion and forming sides of the pockets, substantially as described.

3. The combination in a metallic cross tie, of a body portion formed of a channel bar depressed to form pockets at each end, reinforcing channel members secured to each end of the bar, the flanges of the channel members being upturned and extending on each side of the pockets and riveted to the body portion of the tie, with a cushion block mounted in the pockets, substantially as described.

4. The combination in a metallic cross tie, of a body portion formed of a flat plate notched at each side near each end and bent to form flanges, the portions of the plate reduced in width being bent to form pockets at each side, with reinforcing members secured to each end of the tie and forming the side walls of the pockets, substantially as described.

5. The combination in a metallic cross tie, of a body portion formed of a channel member cut away at each side near each end, two channel reinforcing members secured to each end of the tie and forming, with the body portion, pockets for the reception of cushion blocks, blocks mounted in the ties, the body portion being perforated on its upper surface, with clamps for the rails passing through the perforations and hooked to the body portion,

said clamps extending over the base flanges of the rail, substantially as described.

6. The combination in a metallic cross tie, of a flanged body portion and flanged reinforcing members secured to each end of the body portion, pockets formed in the cross tie, perforations in the body portion, hooked fastenings extending through the perforations and engaging the tie, the hooked portion of each fastening engaging the tie and having a head extending over the base flange of the rails at one side, and hooked fastenings having a head extending over the other base flange of the rail, the hooked portion engaging the tie, with a wedge back of said fastenings, substantially as described.

7. The combination of a metallic cross tie, a rail mounted on the cross tie, a hooked fastening extending through perforations in the cross tie, the hooked portion engaging the cross tie, said fastenings having a head extending over the base flange of the rail and a fastening having a head engaging the other base flange of the rail and also having a projection engaging the tie, a split wedge arranged to be driven back of the last mentioned fastening, and a projection on the wedge entering a notch in the fastening, substantially as described.

8. A fastening for a metallic railway tie consisting of a body portion having a head overlapping the base flange of the rail, and having a projection at its lower end engaging the tie, a perforated lug at the back of the fastening, a split wedge having a reduced end adapted to the perforations in the lug, and a projection on the wedge adapted to enter notches in the fastening, substantially as described.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

FRANK P. BRINING.

Witnesses:

WM. E. SHUPE,
WM. A. BARR.