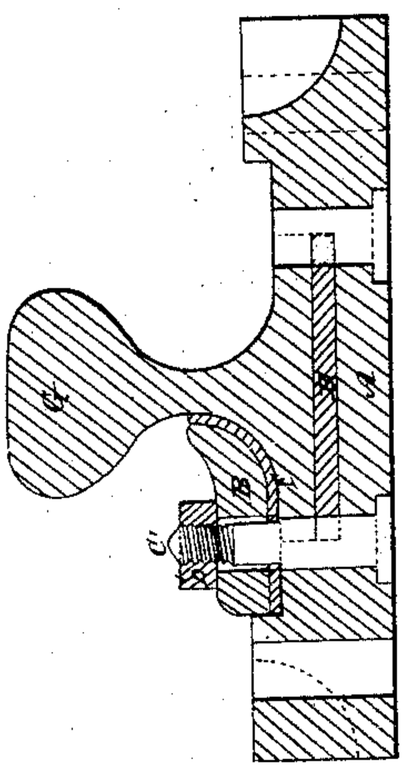
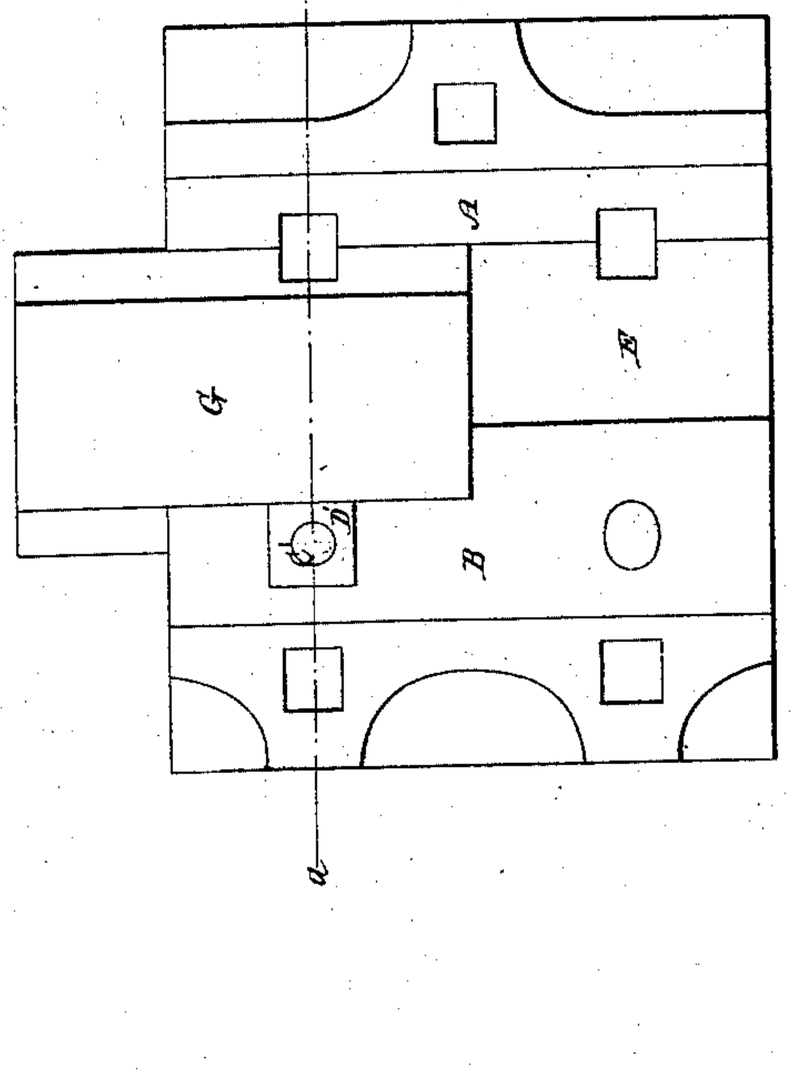
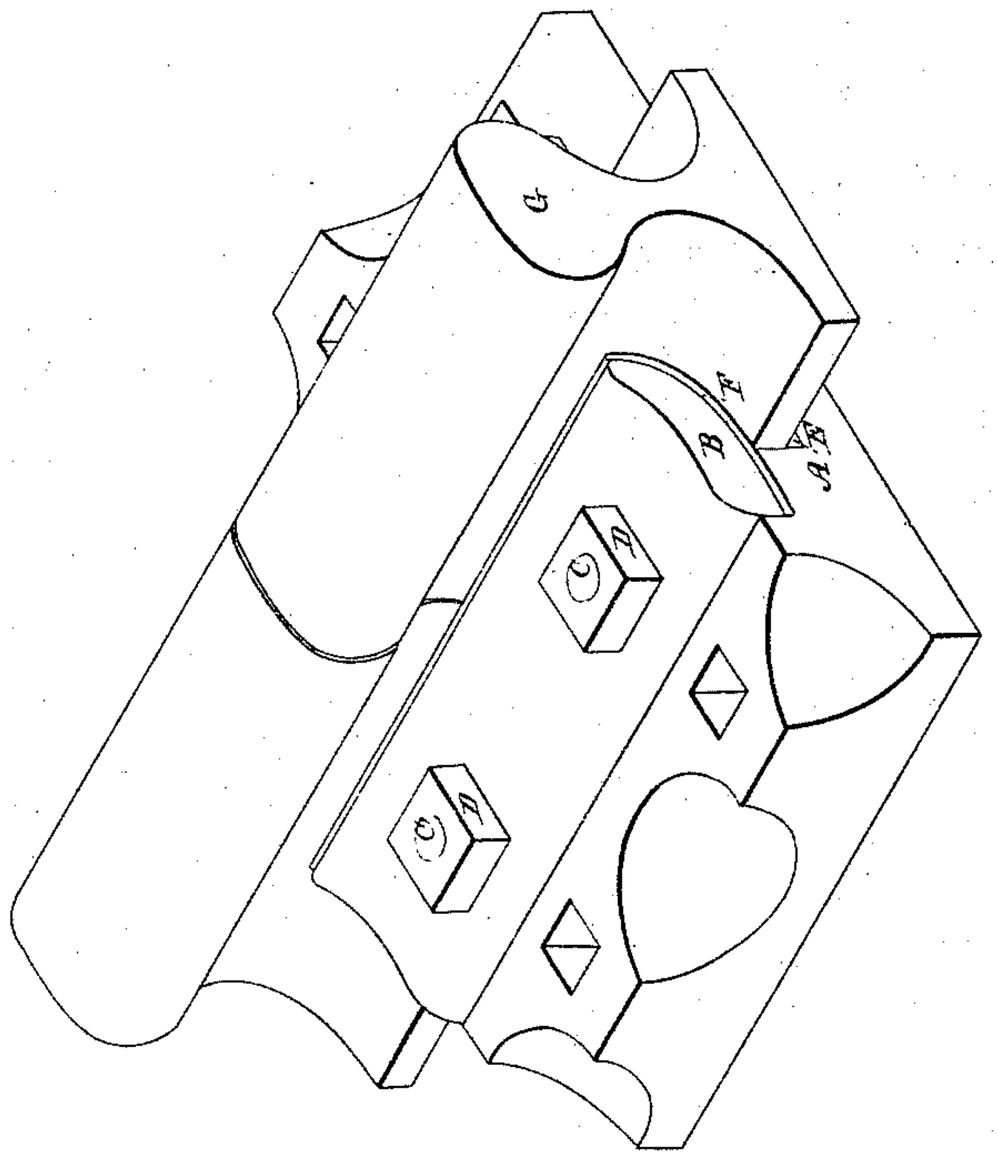
E. Barnes.

Railroad Chair.

No. 20,464. Patented Jun. 1, 1858.







Witnesses.

Chauncey Smith.

J. L. I. Curling.

Inventor.

Elzir Barnes

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UNITED STATES PATENT OFFICE.

E. BARNES, OF DORCHESTER, MASSACHUSETTS, ASSIGNOR TO EDWARD CRANE, OF SAME PLACE.

RAILROAD-CHAIR.

Specification of Letters Patent No. 20,464, dated June 1, 1858.

To all whom it may concern:

Be it known that I, ELIZUR BARNES, of Dorchester, in the county of Norfolk and State of Massachusetts, have invented a new and improved railroad-chair for confining and securing the rails to the sleeper in such manner that the bruising of the rails or the jarring of the cars and engines in passing is prevented and the rails are more easily laid down or taken up and removed than when fastened by any chair now in use.

My invention consists, 1st, in a mode of constructing a chair so that it may be fastened to the sleeper independently of the rail, and the rail laid down and fastened in its place, or taken up at any time without disturbing the chair or removing the spikes or other fastenings which confine it to the sleeper. 2nd, in confining the rail between elastic substances of a suitable nature under a great pressure in such manner that when the ends of the rails meet the upper surfaces can be made to correspond exactly, and when a train passes along no sensible depression of the rail shall be produced.

The manner of constructing and using my chair will be sufficiently explained by the following description with the drawings annexed to enable any one skilled in the art to make and use the same.

The chair has a base or main part represented in the drawing by "A" which is constructed with spike holes on each side for confining it to the sleeper with spikes in the usual manner. On each side of the chair are two holes countersunk in the bottom or under side to admit square headed bolts. It is better that these holes should be so placed that the bolt should fit into the notch cut in the edge of the web of the rail as shown in the drawings. The bolts are placed in the chair before it is spiked to the sleeper and the heads rest upon the sleeper when the chair is in its place.

Through the middle of the upper side of the bases, a bed for the rail is made sufficiently deep to receive under the rail a piece of vulcanized india rubber or other suitable elastic substance, about one fourth of an inch thick. This elastic material or cushion is marked E, in the drawings. It should be as wide as the bed for the rail and as long as the chair and so thick that when the rail is placed upon it, the upper surface of the web of the rail should be a little higher than the adjoining shoulder of the bed of the chair, in order that the force of the screws when turned down upon the lips may be exerted principally upon the web of the rail and not on the shoulder. The base of the chair is also constructed with another shoulder forming a bed for the movable lip "B" as shown in the drawings. The outer edge of the lip rests against this shoulder and offers an effectual resistance to any lateral thrust or pressure on the rail and prevents any sidewise strain on the bolts. The base of the chair may be made either of cast or wrought iron. Over the web of the rail and on each side, is placed another cushion of vulcanized rubber or other suitable elastic substance about three eighths of an inch thick, of the same size as the lower surface of the movable lip, with holes to admit the bolts to pass through. This cushion is represented by "F" in the drawings. The movable lip represented by "B" in the drawings is made as long as the chair and wide enough to extend from the upper and outer shoulder of the base of the chair, as seen in the drawings to the side of the rail, and the lower surface is curved to fit the upper surface of the web of the rail. Through the lip are two oblong holes for the bolts, the longest diameter of the holes being transverse to the lips in order that the bolts may pass through readily.

The mode of using my chair is as follows: 1st. The bolts are placed in the base of the chair, which is then spiked to the sleeper in the usual manner. 2nd. The elastic cushion is then placed in the bed of the chair. 3rd. The rail is laid into the bed resting upon the elastic cushion. 4th. The upper cushions are then placed over the web of the rail. 5th. The movable lips are placed over the cushions and the bolts, till the lower cushion is compressed by force equal to any weight which will ordinarily pass over it. By drawing the bolts more or less tightly also the upper surface of the rails may be made to correspond exactly. 6th. By turning off the nuts the rails may be taken up without moving the base of the chair or drawing any of the spikes which fasten it to the sleeper.

The operation of my chair when in use is as follows: The lower cushion being compressed by the screws with a force equal to any weight ordinarily brought to bear upon

it, the rail will not be sensibly depressed by the passing of a train over it, and there will therefore be no concussion or strain upon the rail, and no shock or jar to the engines or cars. If the rail should be depressed by an unusual weight upon it, the compression of the lower cushion will be followed by an equal expansion of the upper cushion, and thus an equal tension will be kept upon the screws, and there will be no opportunity for the screws to work loose. The elasticity of the upper cushion will counteract the reaction of the lower cushion when the weight is removed. The vertical portion of the upper cushion where it is turned up against the side of the rail, will also counteract the effect of any lateral thrust or pressure on it.

I am aware that elastic substances or cushions have been heretofore placed between the chair and the sleeper and also under the rail upon the chair but the cushion not being firmly compressed and held under a constant strain, yields under the weight of a train so the rails at the joints are more uneven than when no elastic substance is used, and the action of the rails soon destroys the cushion itself. I am also aware that the movable lips have been heretofore devised, but they have been fastened together with the base of the chair itself, by bolts passing down through the sleepers. But the rails cannot be removed without taking up the chair itself. I do not therefore claim the use of elastic cushions under the rail nor the use of movable lips, they having been used before.

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

1. The use of elastic cushions over the web of the rail, in such manner as to counteract the reaction of any downward force upon the rail, or any lateral thrust or pressure upon it substantially as herein described.

2. The confining of the rail between elastic cushions placed above the web of the rail, and under the base of the rail under such a pressure that the rail will not be sensibly depressed by the weight of an engine or train passing over it, and a constant tension will be maintained upon the screws which confine the rail, substantially in the manner herein described.

3. The mode of bringing the upper surfaces of the rails to an exact level by the compression of the elastic cushion on which the rail rests and the whole device arranged and operating as described.

ELIZUR BARNES.

Witnesses:

CHAUNCEY SMITH,

J. S. T. CUSHING.