

M. J. Waldron,

Railroad-Rail Joint,

No 21,097.

Patented Aug. 3, 1858.

Fig: 1.

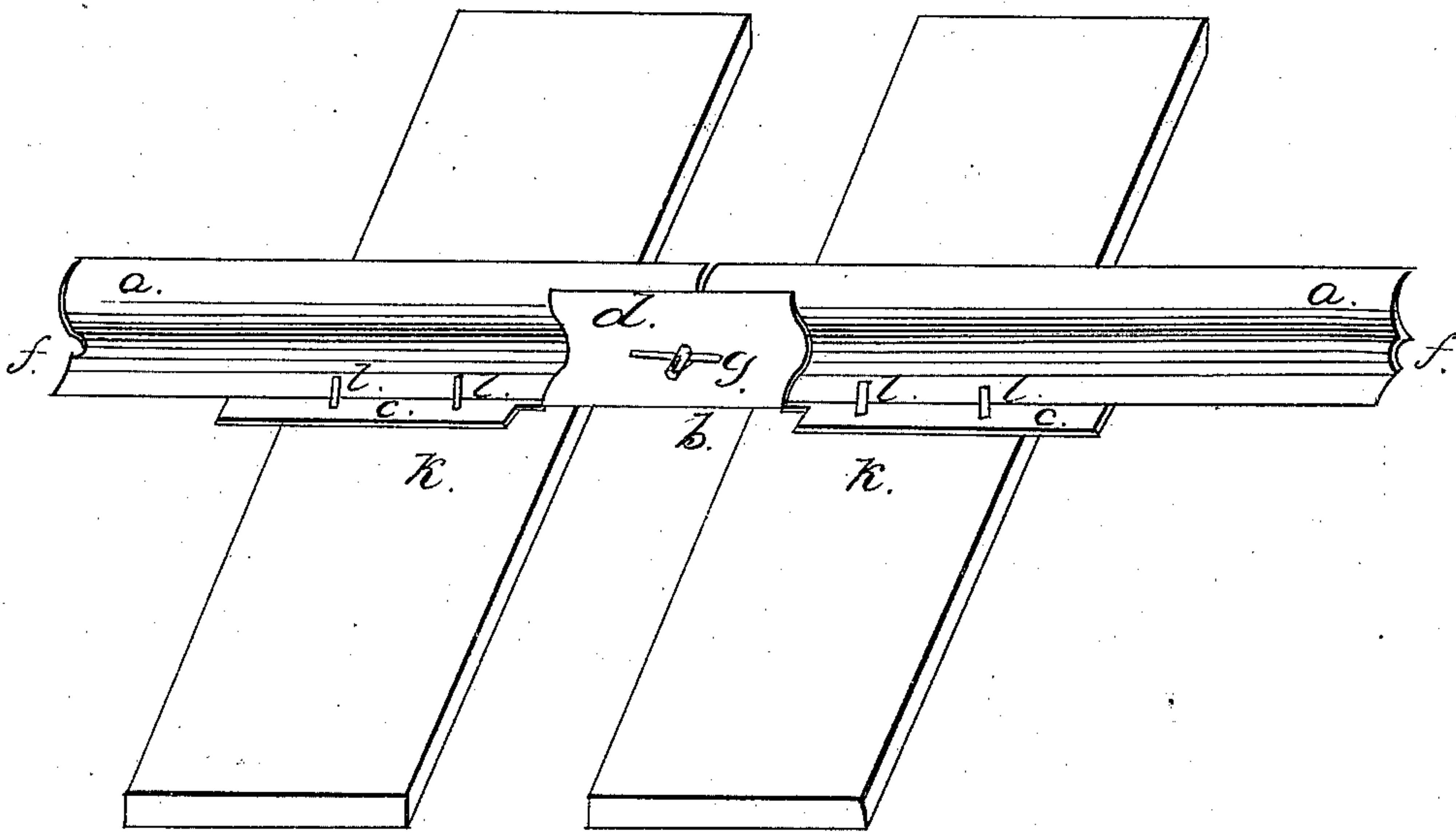


Fig: 2.

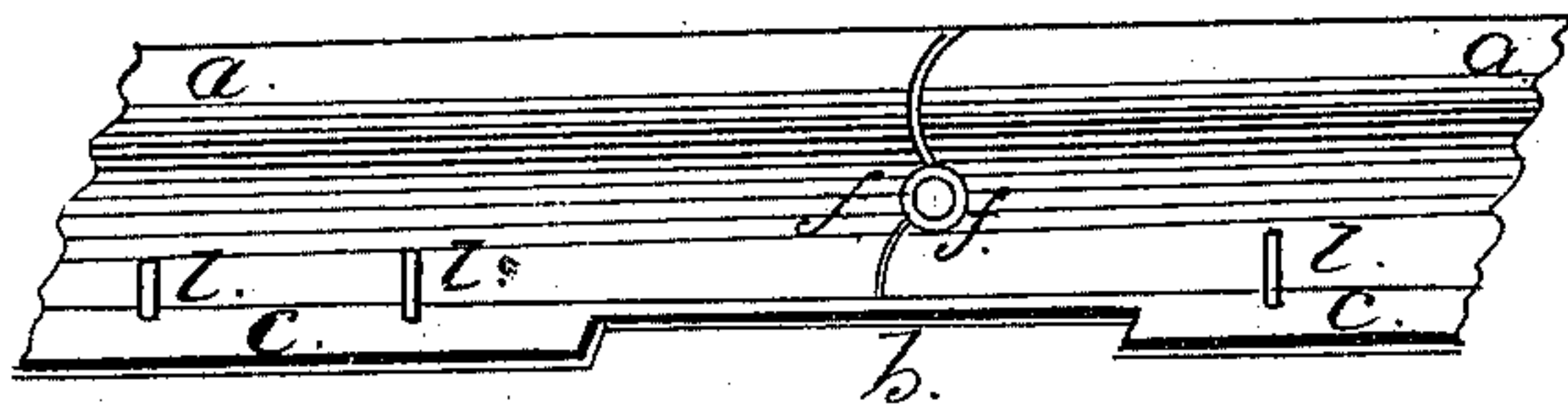
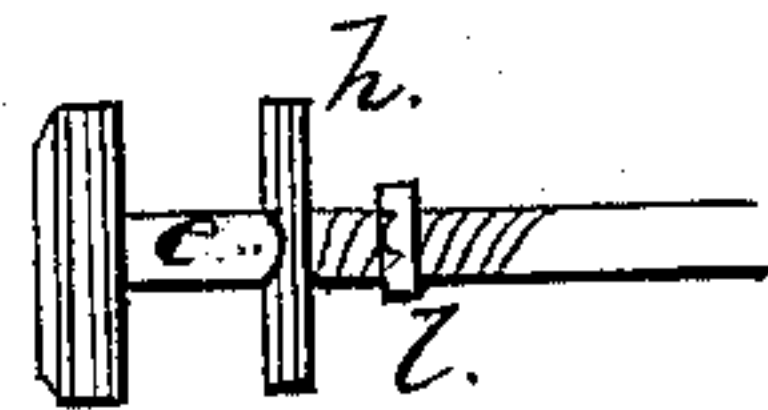


Fig: 3.



UNITED STATES PATENT OFFICE.

M. J. WALDRON, OF DUNKIRK, NEW YORK.

CONNECTING RAILROAD-RAILS.

Specification of Letters Patent No. 21,097, dated August 3, 1858.

To all whom it may concern:

Be it known that I, MICHL. J. WALDRON, of Dunkirk, in the county of Chautauqua and State of New York, have invented a new and useful Improvement in Connecting the Ends of Rails for Railways; 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 and marks thereon.

Figure 1 of the drawings is a view of my improvement shown as connecting the ends of two rails. Fig. 2 is a view of the ends of the rails, one side of the chair having been removed in order to show the notch or recess in the ends of the rails and the bolt passing through the recess; and Fig. 3, is a view of a bolt, washer, and nut designed as a substitute for the bolt and key shown by the other figures.

In each of the figures, (a) indicates the rails, (b) the chair, (c) the prolongation of the chair, (d) the sides of the chair embracing the ends of the rails, (e) the bolt, (f) the recess in the ends of the rails, (g) the key of the bolt, (h) the washer, (i) the nut, (k) the ties, and (l) the spikes.

In laying down rails for railroads it is usual to confine the ends of the rails in the chair and to secure the chair to the tie. Experience has shown that certain evils result from this course, of which the settling or sinking of the ends of the rails or the joint, and the battering and breaking of the ends are among the more important and expensive.

My invention is designed to remedy these evils, and it consists in so placing the ends of the rails within a suitably constructed chair that neither of the ends shall be over a tie and that the ends of both rails shall be between ties; and in so arranging the means for securing the ends of the rails within the chair that there shall be sufficient play to allow the elasticity or spring of the ends of the rails and chair to be available.

In carrying out my invention I use a chair about twenty-five inches long, or longer if preferred, which is made of plate iron of $\frac{3}{8}$, $\frac{1}{2}$ or $\frac{5}{8}$ of an inch thick.

As will be seen by referring to the figures of the drawings the bottom part or plate of the chair is prolonged so that its ends rest upon the two ties, the entire prolongation and a part of the chair proper bearing upon each tie. Both sides of the chair proper are

lapped against the rail. The chair bearing on two ties and lapping the rail makes a joint of the rails almost as strong as a whole rail and saves the ends of the rails or joints from settling or sinking lower than the centers of the rails, and also saves the ends of the rails from being battered by concussion, as there is always spring or elasticity enough in the chair to yield when the weight is on it and to spring back when the weight is off to its original level; and thus making a continuous rail without any danger of the rail's breaking near the end for want of strength or in frosty weather, as they frequently do. I lap the plate snugly to the joint, the weakest part of the track, and combining the strength of both rail and chair where most required and extending the plate to cover the tie each side, I thereby make a perfect splice and prevent all the dangers and loss attending the old system of joint or rail coupling.

The slot or recess cut out of the end of each rail is intended to be larger than the bolt, so that when the rails are closely jointed they do not press on the bolt; the bolt being only intended to keep the jaws or lapped part of the chair snug to the rail and to keep the rail from moving endwise. It also prevents all vertical and lateral motion of the rails, and by laying the track with the bolt in the recessed ends sufficient room or space is left for expansion. The chair being 25 inches long, there will be 9 inches turned up or lapped around the rail and 8 inches on each end to bear on the ties. The ties can be laid six inches apart, allowing $1\frac{1}{2}$ inches of the lapped part of the chair to bear on each tie, thus making the joint fully strong enough for all practical purposes. Having so long and strong a bearing when the trains are moving over it, the ends of the rails are made to bear the weight alike, and made, as it were, a whole rail. The jaws or lapped portion of the chair can be tightened upon the rail either by the wedge-key or by the nut and washer as the one or the other may be used. Instead of the one bolt only being used an additional bolt may be placed on either side of it, a slot being made in the rails for the passage and play of the bolts.

By my improvement the ends of the rails will not flatten or batter, as is the case with cast and wrought iron chairs, where both ends of the rails in the chair meet on a tie,

as the tie must be tamped solid to hold the great weight that passes over it, and when solid it does not yield to the weight moving over it and thus the railroad bar being
5 placed on an iron plate between a solid tie and the wheel running over it the ends flatten and batter. I lessen the expenses of keeping the track in smooth and even surface, because the joints by the combined
10 strength of rails and chair can be made strong enough for any purpose and not too strong to yield when the weight is moving over it. I dispense with the joint tie. Consequently I can lay the track with one tie
15 less to a rail, thus making a saving of 200 ties to a mile and four spikes to every joint or 800 to a mile. The track is not liable to get out of line, as the top and sides of the rails are always smooth and even and
20 the flange of the wheels meet no obstruction. The projection inward of one rail more than another $\frac{1}{4}$ of an inch, when the trains are running fast, would cause the
25 flange to strike hard against such projection and jolt the wheel with great force

against the rail on the opposite side of the track, thus putting the track out of line and shape. This my improvement will completely prevent.

Having thus described the construction 30 and set out the advantages of my improvement, what I claim as of my invention and desire to secure by Letters Patent is—

1. Placing the ends of the rails in a suitably constructed chair between two ties, 35 both of the ties being used as a bearing or supporting surface to the chair, substantially as described.

2. I claim the bolt in the enlarged recess in the ends of the rails and the jaws or 40 lapped part of the chairs as an arrangement of means for forming an elastic or spring joint for the ends of the rails, as herein set forth.

Signed at Dunkirk Chautauqua county 45 New York this 10th day of June, 1858.

MICHL. J. WALDRON.

Witnesses:

O. F. DICKINSON,
W. L. BRUNDAGE.