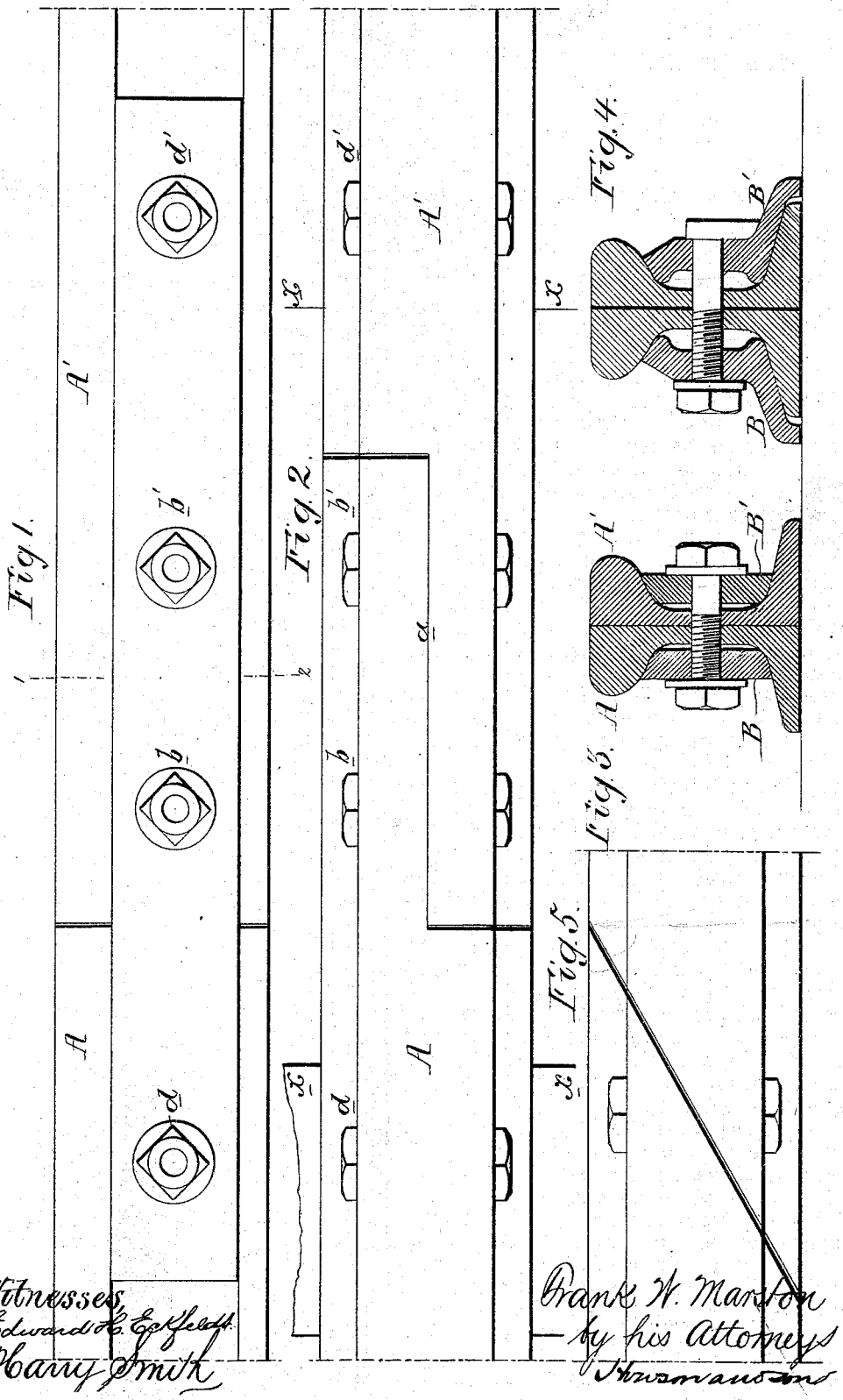
F. W. MARSTON.

RAILROAD-RAIL JOINT.

No. 182,459. Patented Sept. 19, 1876



Witnesses,
Edward C. Eckfeldt.
Harry Smith

Frank W. Marston
by his Attorneys
Munn & Co

UNITED STATES PATENT OFFICE.

FRANK W. MARSTON, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF HIS RIGHT TO JOHN MARSTON, JR., OF SAME PLACE.

IMPROVEMENT IN RAILROAD-RAIL JOINTS.

Specification forming part of Letters Patent No. **182,459**, dated September 19, 1876; application filed September 10, 1875.

To all whom it may concern.

Be it known that I, FRANK W. MARSTON, of Philadelphia, Pennsylvania, have invented certain Improvements in Rail-Joints, of which the following is a specification:

The object of my invention is to make a rail-joint which shall obviate the defects of ordinary joints as regards the loosening of the joint itself, the damaging of the rails, and injury to the rolling stock, and shall at the same time be of a permanent character. This object I attain in the manner which I will now proceed to describe, reference being had to the accompanying drawing, in which—

Figure 1 is a side view of parts of two rails coupled together according to my invention; Fig. 2, a plan view; and Figs. 3 and 4, vertical sections.

The rails A and A′ are halved where they are united, as best observed in the plan view, Fig. 2, where the line *a* represents the longitudinal joint.

This plan of halving adjoining rails, so that the tread of a car-wheel on passing the joint never leaves one rail before it is bearing on the other, has heretofore been carried out to some extent, with the view of obviating two prominent evils which result from the ordinary abrupt butt-joints—for rails coupled together in the usual manner are not in absolute contact with each other, a narrow space intervening between them to allow for expansion and contraction; hence the extreme ends of the treads of the rails are subjected to deterioration due to the passage of the car-wheels over this narrow space, the joint itself being impaired. The second evil is the subjecting of the wheels, axles, and axle-boxes of the cars, as well as the cars themselves, to damaging shocks of more or less severity as they pass over the said spaces.

The obviating of these evils by halved rails cannot, however, be thoroughly effected unless the halved portions of the adjoining rails are always maintained in their proper relative positions in respect to each other, for the slightest vertical yielding of one halved end of one rail independently of that of the adjoining rail would neutralize the advantages of the halved joint.

To prevent the possibility of such yielding I combine with the said halved ends of the rails two splicing-bars, which will effectually maintain the integrity of the joint.

In Fig. 3 two plain splicing-bars, B and B′, are fitted snugly, one to each side of the rails, and two bolts, *b b′*, pass through the splicing-bars, and through slots in the webs of the halved portions of the rails, a bolt, *d*, passing through a slot in the solid web of the rail A, and through the splicing-bars, and a fourth bolt, *d′*, through the latter, and through a slot in the solid web of the rail A′. When these bolts are screwed tight, and the halved portions as well as entire portions of the two rails are firmly griped by and between the two bars, the latter must effectually prevent the vertical yielding of the halved portion of one rail independently of that of the other.

It is well known that rails are subjected to the most severe deteriorating shocks at points above the cross-ties, because the latter present rigid supports of the rails, which are incapable of yielding to the shocks to any appreciable extent where the ties occur. In order to relieve from the shocks the halved portions of the rails, which must necessarily be the weakest, I prefer to suspend them between the ties, as described, so that they can yield, to a limited extent, to the passing car-wheels; this yielding of the two halved portions of the rails, however, being simultaneous, not one portion independently of the other, for this is effectually prevented by the splicing-bars.

It will be evident that my invention may be applied to rails halved in the manner shown in Fig. 5, or to rails the ends of which are made to overlap each other at the joints in any other manner.

Although the joints of the rails themselves are suspended between the ties, the splicing-bars should in all cases be long enough to extend over the same, as shown in Fig. 1.

I prefer the use of the splicing-bars shown in the transverse section, Fig. 4, as these bars, which are well known to engineers, are more rigid than those shown in Fig. 3, and rest on the same cross-ties which support the rails, the joints of the latter, however, being, as in the former case, free from the cross-ties.

I claim as my invention—

The within-described rail-joint, consisting of the halved ends of two adjoining rails and the splicing-bars B and B′, in combination with cross-ties situated in respect to the said halved positions of the rails, as set forth.

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

FRANK W. MARSTON.

Witnesses:

EDWARD H. ECKFELDT,

HARRY SMITH.