E. R. Shepard,

Railroad Rail,

No. 82,881. Patented Oct. 6, 1868.

Fig. 1.

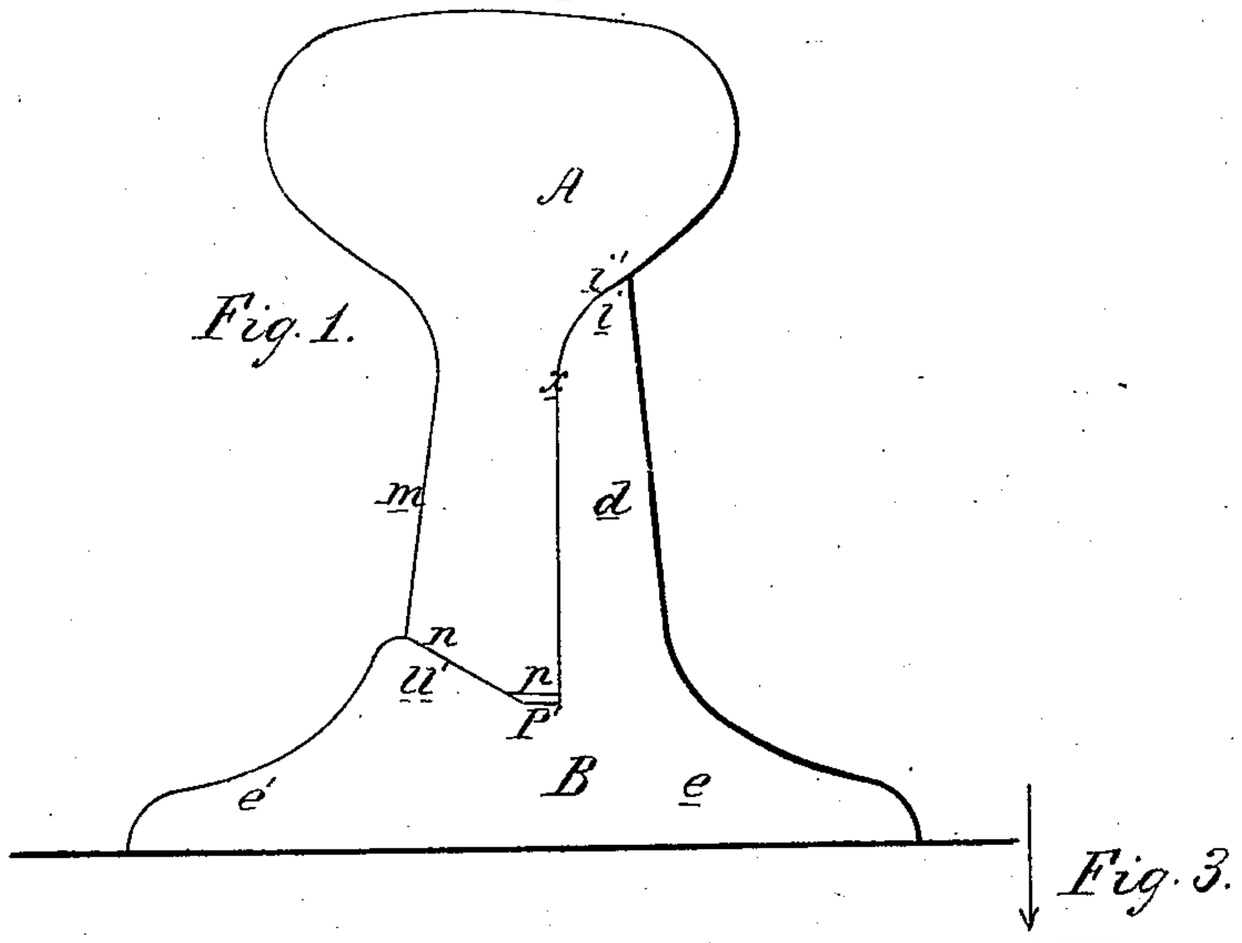

Fig. 4.

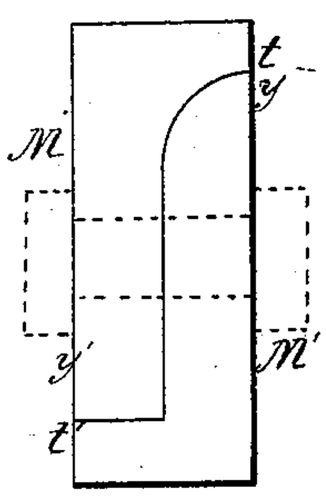

Fig. 2.

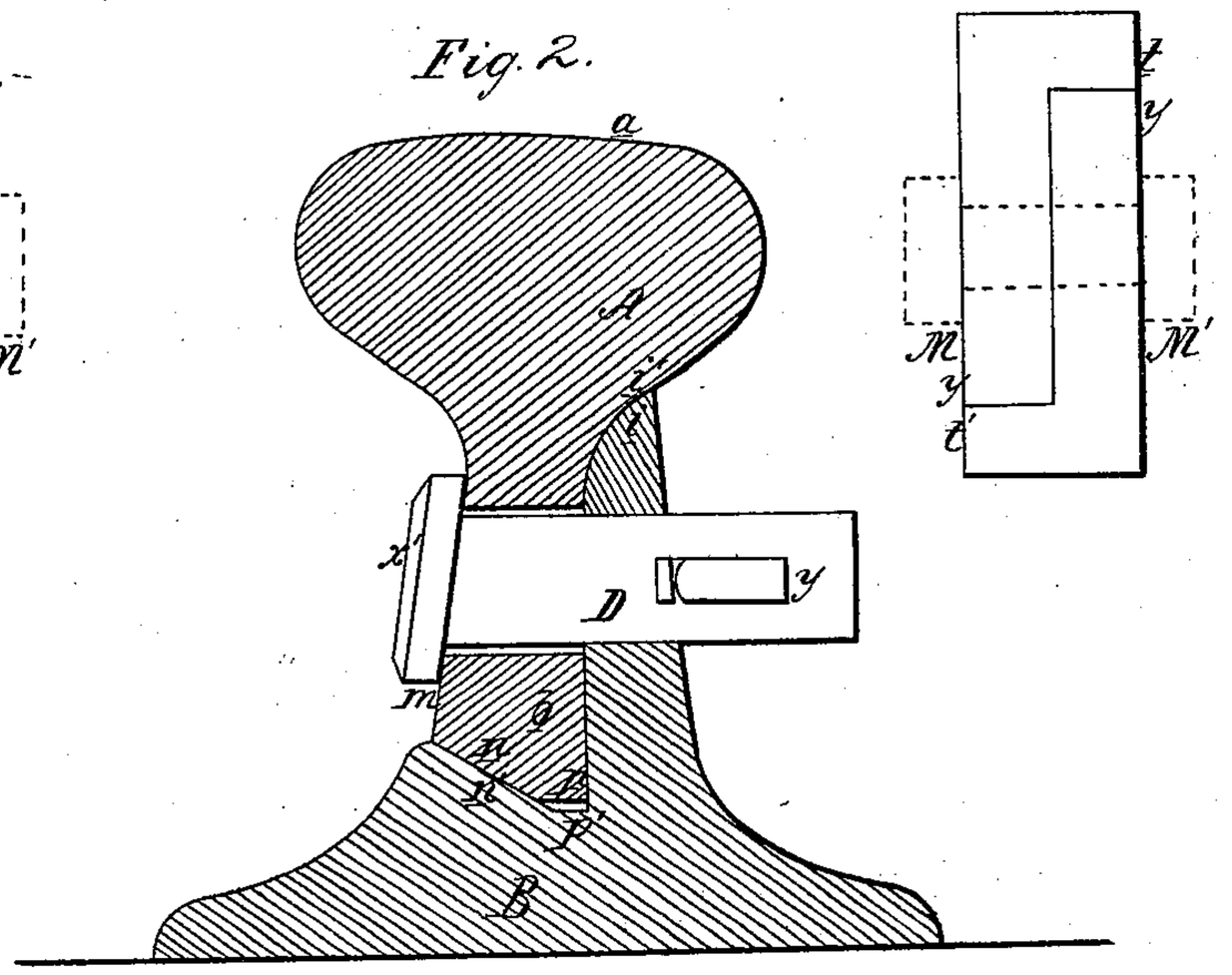

Fig. 3.

Witnesses;
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John Parker

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By his Atty
H. Howson

United States Patent Office.

EDWIN R. SHEPARD, OF SCRANTON, PENNSYLVANIA.

Letters Patent No. 82,881, *dated October* 6, 1868.

IMPROVED RAILROAD-RAIL.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, EDWIN R. SHEPARD, of Scranton, Luzerne county, Pennsylvania, have invented an Improved Compound Rail; and I do hereby declare the following to be a full, clear, and exact description of the same.

My invention consists of a compound rail, composed of two sections, constructed and adapted to each other, substantially as described hereafter, so that the pressure and shocks imparted to the rail will tend to bind the two sections more firmly together, both vertically and laterally.

My invention further consists in a mode, described hereafter, of securing the two sections together, whereby the upper section is maintained in the position to which it may have been depressed.

In order to enable others skilled in the art to make and apply my invention, I will now proceed to describe its construction and operation, reference being had to the accompanying drawing, which forms a part of this specification, and in which—

Figure 1 is a sectional view of my improved compound rail, and

Figure 2 the same, showing the manner of securing the two sections of the rail together.

A is the upper, and B the lower section of the rail, the two combined being in form nearly similar to that of an ordinary rail.

The upper section, A, consists of the tread, *a*, of the usual shape, and the rib *b*, the section B consisting of the rib *d* and two flanges, *e* and *e'*.

The line *x*, which represents the junction of the rib *b* of the upper section with the rib *d* of the lower section, should be vertical, or very nearly so, and the upper end, *i*, of the rib *d*, must be rounded to conform to the hollow, *i'*, which occurs at the junction of the rib *b* with the tread of the upper section of the rail.

The rib *b* is thicker below than above, its side, *m*, being inclined, and the lower end of the rib is bevelled outwards at *n*, to conform to the inclination, *n'*, formed on the lower section, B, of the rail, as shown in the drawing. The extreme lower end, *p*, of the rib *b*, is made straight, and is always at a short distance from the straight termination *p'* of the inclination *n'* of the section B.

The two sections are secured together by bolts D, arranged at suitable distances apart, each bolt having an inclined head, *x'*, to conform to the inclined side *m* of the rib *b*, and being provided with a key, *y*, or its equivalent. While each bolt may fit tightly in the rib *d* of the section B, the hole for its reception in the rib *b* of the section A should be larger than the bolt, for a purpose rendered apparent hereafter.

It will be observed that there are two points where the upper bears against the lower section, the upper point being where the hollow, *i'*, bears against the rounded upper end of the rib *d*, and the lower point where the inclined end *n* of the rib *b* bears upon the inclination *n'* of the section B.

The better to illustrate my invention, I will refer to the diagram, Figure 3, in which two metal bars, M and M', are bolted together, the horizontal rib *t* of the first bar being supposed to bear on the vertical rib of the bar M', and the vertical rib of the bar M being supposed to rest on the horizontal rib *t'* of the bar M'.

Supposing a pressure in the direction of the arrow to be imparted to these combined bars, the bearing of the upper against the lower bar would be at one point only, owing to the difficulty in practice of making perfectly-fitting joints at both points; but if the upper edge of the vertical rib of the bar M' be rounded and adapted to the hollow under side of the horizontal rib of the bar M, as seen in Figure 4, and a pressure be imparted in the direction of the arrow, as before, then the upper bearing must yield, the upper bar seeking the lower positive bearing.

This is precisely the principle upon which my invention is based, as will be readily understood on referring to fig. 1, the upper bearing of the upper section against the lower section of the rail being of a character to yield, should the lower end of the rib *b* not be in closely-fitting contact with the lower bearing; hence in all cases there is a certainty of the upper section of the rail bearing on the lower section at the desired point.

This yielding of the upper joint will take place, to a very limited extent, of course, in spite of the bolts D, and will have the same effect as that of tightening the bolts and securing the two sections more firmly together.

It will thus be seen that the act of forcing the upper section firmly down to its lower bearing, serves, at the same time, to bind the two sections more firmly together.

The inclined head x' of the bolt serves, in conjunction with the inclined side of the rib b, the important duty of keeping the upper section down to its lower bearing, without interfering with the downward movement of the rail, a result which, it will be apparent, cannot be accomplished in the ordinary compound rails where the head of the bolt bears against the inclined or straight side of the rib on the lower section, and consequently serves no other purpose than to hold the two rails together laterally.

I claim as my invention, and desire to secure by Letters Patent—

1. A rail, consisting of two sections, A B, the former having an inclined bearing below the head, adapted to the inclined edge of a rib on the lower section, and the latter having at the base an inclined bearing for the rib on the upper section, substantially as and for the purpose described.

2. The lower section B, with its rib d, the upper section A, with its slotted rib b inclined at the outer side, and the bolt D, with its head bearing against the inclined side of the rib b, the whole being constructed and arranged substantially as and for the purpose specified.

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

E. R. SHEPARD.

Witnesses:

JOHN WHITE,

C. B. PRICE.