G. D. Emerson,

Rail Bender.

No. 108,123. Patented Oct. 11. 1870.

Fig. 1

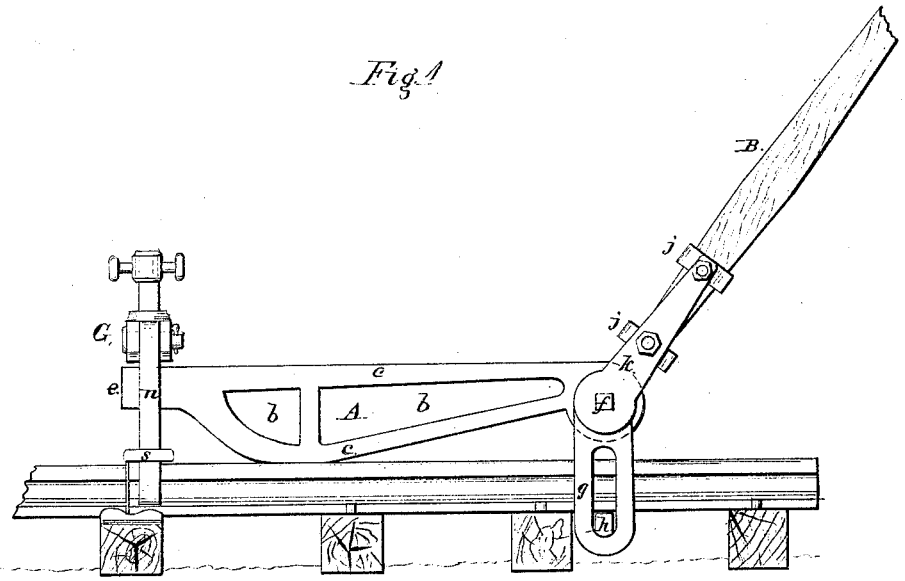


Fig. 4.

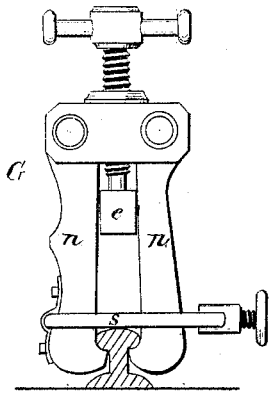


Fig. 2.

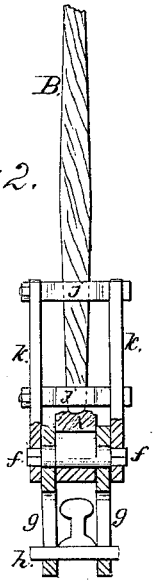
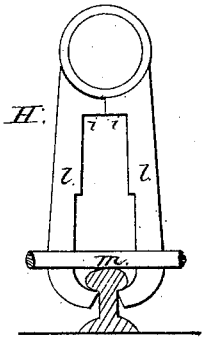


Fig 3.



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GEORGE D. EMERSON, OF CALUMET, MICHIGAN.

Letters Patent No. 108,123, dated October 11, 1870; antedated September 26, 1870.

IMPROVEMENT IN APPARATUS FOR BENDING RAILROAD-RAILS.

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

I, GEORGE D. EMERSON, of Calumet, in the county of Houghton and State of Michigan, have invented a new and improved Apparatus for Straightening Bent and Worn Rails on Railway-Tracks, of which the following is a specification.

The object of my invention is to straighten, without removing from the road-bed, such rails as have become bent at their ends while in use; and

It consists essentially of a lever-beam, constructed as hereinafter described, and operating in connection with a hand-lever and eccentric slotted plates, or other suitable clutch, for connecting with the bottom flange of the rail, and with clutch-hooks of suitable construction, for clasping around the head of the rail at the part to be acted upon.

Figure 1 is a side elevation of my device, showing it applied to a rail.

Figure 2 is an end elevation of the same, the parts adjacent to the eccentric being in section.

Figure 3 is a separate view of one form of clutch-hook.

Figure 4 is a view of a clutch-hook with adjusting-screw.

The wear upon railways has the effect to cause the ends of the rails to bend downward at the joints, which point is apt to be inadequately supported by the chair; and it is desirable to effect the straightening of the part without removing them from their place.

To accomplish this I provide a lever-beam, A, which may be constructed of cast-iron, the form being one of great strength, to resist vertical strains. Its upper side is preferably straight, while its lower outline is curved downward, giving it a cam-shape at the point designed to rest upon the surface of the rail-head.

It is formed of a vertical web, *b b*, having a flanche or frame, *c*, extending around its boundary, and the top and bottom portions strengthened, at or near its point of bearing upon the rail, by a vertical member, *d*, of corresponding size.

The short arm *e* is left free, but connected with the right arm is a hand-lever, fixed to a movable axis, which has an eccentric portion working in the lever-beam.

On either side of the beam are slotted plates *g g*, attached to the lever-axis *f*, extending below the flanche of the rail, through which is passed a key, *h*, firmly holding the axis *f* in its relative position to the rail, so that the cam, when turned by the hand-lever B, acts upon the long arm of the lever-beam, depressing it, and elevating the free end or short arm *e*.

The part which receives the hand-lever B consists of two side-plates *k k*, fig. 2, rigidly connected with the axis *f*, by being fitted to the ends of the latter, with the slotted plates *g g* intervening between them and the lever-beam on each side.

The plates *k k* have transverse bars *j j* with sockets, in which the hand-lever is inserted.

To operate upon a bent rail, a clutch, of one or other of the forms hereinafter described, is clamped below the depressed part of the rail and properly adjusted thereto, while the hand-lever is in a vertical position. The hand-lever is then moved to a horizontal position, bringing the power of the lever-beam to act upon the clamp in an upward direction, thus restoring the rail to its normal straightness.

This motion is produced by an eccentric pin, the larger circle of which is in the lever-beam, the smaller set eccentric to the larger in the slotted plates, and the ends square, to receive the plates of the hand-lever B.

For some purposes the clutch-hook may be of the simple form shown in fig. 3, consisting of two arms *l l* jointed together; their free ends bent toward each other, adapting them to clasp under the head of the rail, and a loose link, *m*, to hold them engaged.

Shoulders *i i* are provided, against which the lever-beam acts in lifting, thus relieving the joint from any strain.

But the form of clutch best adapted for general use, is that shown at fig. 4, which combines with the two hooked arms *n n*, the adjusting-screw *o*, and cross-head *p*, which forms a nut for the screw, and to which the arms are pivoted.

The link *n* is also provided with a set-screw, *s*, by which the hooks are held to their position under the rail.

When applied, the free end of the lever-beam lies between the arms *n n*, and the screw *o* is turned down by its hand-rod *t*, until it bears on the beam, so that no motion of the latter takes place without acting on the rail.

The link *m* may be hinged to one of the arms, if desired.

Another method of operating with this device consists as follows:

Remove the key *h* from below the rail, and place it through the slotted plates above the rail; place the clutch on the lever-beam in a position corresponding with the rib *d*, and a block, or other adequate support, under the end *e* resting on the rail-head, when the operation of the lever B, and eccentric connected with its axis, elevates the lever-beam, and with it the rail at the point where the clutch is attached, the block at *e* serving as a fulcrum.

I claim as my invention—

1. The combination of the lever-beam A, the ec-

centric *f*, hand-lever B, slotted plates *g*, and the grasping- clutch, when arranged for joint operation, substantially as set forth.

2. The clutch G, consisting of the hooked arms *n n*, head *p*, adjusting-screw *o*, link *m*, with or without the set-screw *s*.

3. The side-plates *k* with cross-pieces *j*, forming a socket for the handle B, in combination with the slotted plates *g*, when all are arranged and turn on the axis of the eccentric *f*, by which the beam is operated, substantially as described.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

GEO. D. EMERSON.

Witnesses:

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JONA. AUSTIN.