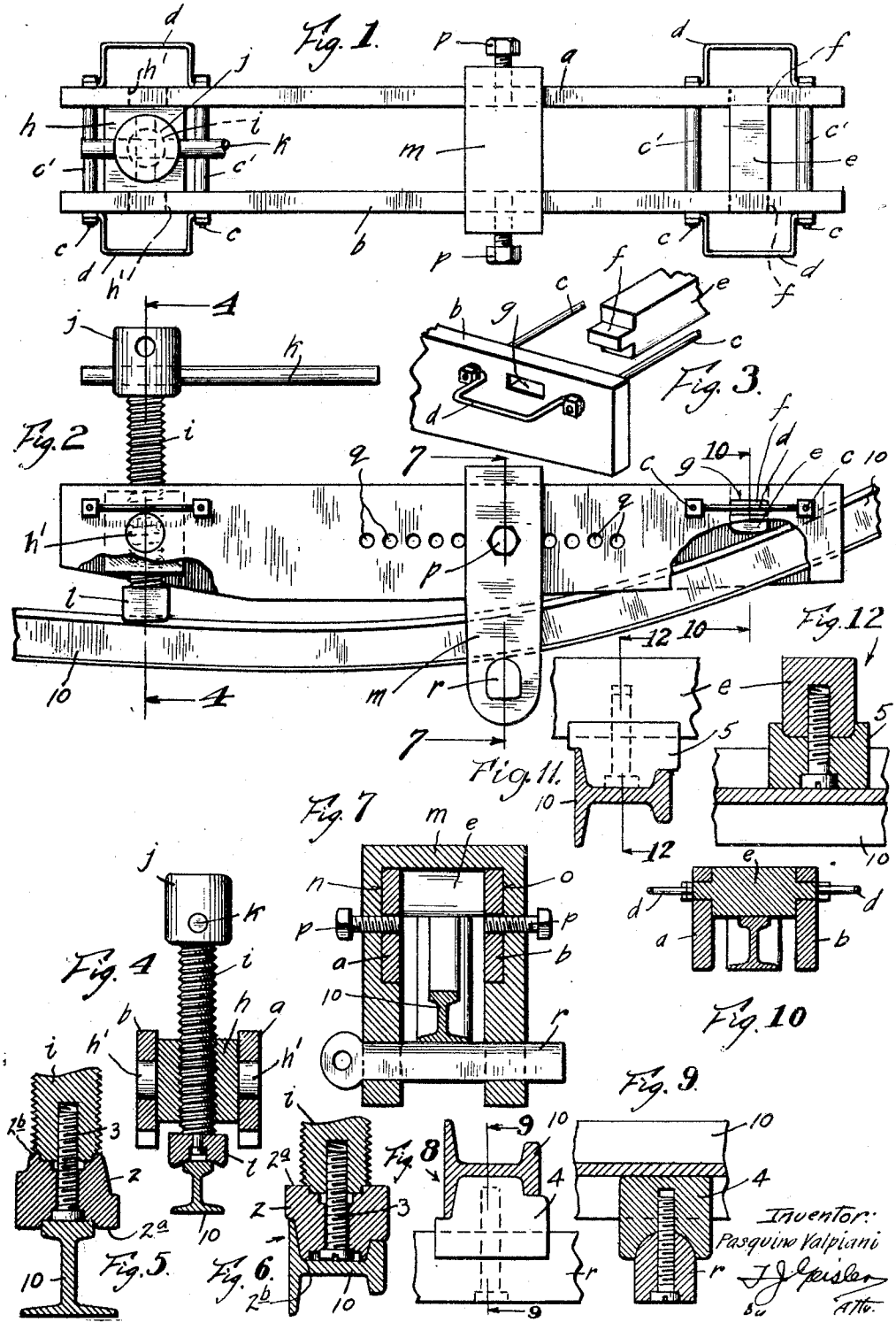
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RAIL BENDER

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RAIL BENDER.

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My invention relates to a device for removing short bends and kinks from rails, especially such, for example, as are used for a logging and construction railroad.

The object of my invention is to provide a rail bender which may be used without removing the rails from the ties.

A further object is to provide a cheap and efficient rail bender which is easily portable, and which may be operated by one man.

Light rails, such as used on temporary railroad construction of various kinds, easily become warped from heat and bent out of shape because of the extremely heavy duty they are forced at times to perform, and the cost of the maintenance necessary for the upkeep of this type of railroad is out of proportion to its value when done by the methods usually employed on standard railroad construction.

I attain my objects in a device comprising a pair of companion elongate side-bars provided with a block removably transversely secured between and at one end of said side-bars, a bending screw being threaded in said block and provided with means for rotation, said bending screw being adapted to have a bearing head affixed thereto. A second block is secured between and at the opposite end of said side-bars. A shackle consisting of an inverted U-shaped member is mounted to ride on said side-bars, being longitudinally movable thereon, but restrained to such movement. Means are provided for adjustably securing said shackle at the longitudinal middle of said side-bars, and a fulcrum bar is removably carried by said shackle below said side-bars.

These details of the construction and mode of operation of my invention are hereinafter fully described with reference to the accompanying drawings, in which:

Fig. 1 shows a plan view of my rail bender, and the details of construction;

Fig. 2 shows a side elevation of my rail bender, and illustrates a rail mounted thereon in the process of being straightened;

Fig. 3 shows a fragment of the end of one side and the tongue and slot union with the end block;

Fig. 4 shows a section taken on the line 4—4 of Fig. 2, illustrating the details of construction and function of the bending screw, mounted on a swivel block, for bearing against the rail;

Fig. 5 shows by a fragment of a section similar to Fig. 4 the rotatable head on the bending screw being adaptable for bending a rail in a plane coincident with that of the web;

Fig. 6 shows a section similar to Fig. 5, the rotatable head on the bending screw being adjusted for bending a rail in a plane normal to that of the web;

Fig. 7 shows a section taken on the line 7—7 of Fig. 2, and shows a rail mounted in position in my rail-bender, and bearing against the removable fulcrum-bar;

Fig. 8 shows a side elevation of the fulcrum-bar adapted for bending a rail in a plane normal to that of the web;

Fig. 9 shows a section taken on the line 9—9 of Fig. 8, and illustrates further details of construction;

Fig. 10 shows a section taken on the line 10—10 of Fig. 2, and illustrates a rail in position on my rail-bender and bearing against the end block;

Fig. 11 shows a similar section to that of Fig. 10 illustrating the end block adapted for bending a rail in a plane normal to that of the web; and

Fig. 12 shows a section taken on the line 12—12 of Fig. 11; and illustrates further details of construction.

My rail-bender comprises two spaced parallel members *a* and *b* held together by suitable bolts *c*, over which are mounted spacing sleeves *c'*, and provided with handles *d*. A transverse end block *e* is joined between the members *a* and *b* by tongues *f* which fit into slots *g* in the members *a* and *b*, and a block *h* is similarly mounted at the other end between the members *a* and *b* on trunnions *h'*, and provided with a hole bored at right angles to the trunnions and threaded so as to receive a threaded bending screw *i*.

The screw *i* is provided at one end with a head *j* adapted to receive a cross bar *k*, and at its other end with a rotatable bearing head *l* permanently fixed thereon.

The head cap *l* is adapted on its face to grip a transverse section of the rail in order to prevent the rail from slipping.

A shackle *m* fits over the members *a* and *b* in grooves *n* and *o* on its inner sides. The position of the shackle *m* may be varied lon-

gitudinally on the members *a* and *b* by bolts *p*, which extend through the shackle *l* into corresponding holes *q* in the members *a* and *b*.

A fulcrum-bar *r* extends through holes located in the extremity of the shackle *m*.

Referring now to Figs. 7–12 I will describe a modification of certain parts of my rail-bender in which it is adapted for bending a rail in a plane either normal to or coincident with the web by providing removable bearing heads adapted for conforming to the side or face of a rail.

In Figs. 5 and 6, I provide in the place of the head *l* a reversible head 2 held to the screw *i* by a bolt 3 in which the face 2^a of the cap 2 is adapted for bearing against the rail when the rail is to be bent in a plane coincident with that of the web, and in Fig. 6, I show the cap 2 reversed and the face 2^b turned outward for bearing against the side of the rail, when the rail is to be bent in a plane normal to that of the web. In Figs. 8 and 9, I likewise show the fulcrum-bar *r* provided with a block 4 to be bolted thereon and adapted for conforming to the side of a rail to be bent in a plane normal to that of the web. Figs. 11 and 12 show the end block *e* provided with a similar block 5 mounted thereon and likewise adapted for bending the rail in a plane normal to that of the web.

The operation of my device is as follows:

For bending the rail in a plane coincident with the web, the fulcrum-bar *r* is removed, and my rail bender is placed over the rail as shown in Fig. 2, after which the fulcrum-bar *r* is then replaced, and the screw *h* is rotated by the operator using the cross-bar *k*. The rotating of the screw *h* advances the bearing head *l* which bears against the rail, and the rail being restrained by the fulcrum-bar *r* and the end block *e*, will thus be forced by adjusting itself to the pressure from the screw *h* to bend itself to the desired shape.

When my rail bender is to be adapted for bending a rail in either a plane normal or coincident with that of the web, such slight changes as above mentioned need only be made.

The reversible cap 2 is substituted for the head *l*, and the face 2^a is turned outward for bending the rail in a plane coincident with the web; and for bending the rail in a plane normal to the web, the cap 2 is easily reversed by removing the bolt 3 and bringing the face 2^b into position for bearing against the side of the rail.

A similar change is made with the fulcrum-bar *r* in that the supplementary block 4, for conforming to the side of the rail, that is when bending the rail in a plane normal to the web and with the end block *e* by affixing the supplementary block 5.

I claim:

1. A rail-bender comprising a pair of companion elongate side-bars, a block secured transversely between and at one end of said side-bars, a bending screw threaded in said block, said bending screw adapted to have a bearing-head affixed thereto, a second block secured between and at the opposite end of the said side-bars, a shackle riding on said side-bars and longitudinally movable thereon, means for adjustably securing said shackle at the longitudinal middle of said side-bars, a fulcrum-bar removably carried by said shackle below said side-bars, and said second block adapted to have a bearing-head affixed thereto.

2. A rail-bender comprising a pair of companion elongate side-bars, a block removably secured transversely between and at one end of said side-bars, a bending screw threaded in said block, said bending screw provided with a relatively rotatable bearing-head affixed thereto, a second block removably secured between and at the opposite end of the said side-bars, a shackle riding on said side-bars and longitudinally movable thereon but restrained in such movement to the plane of the said side bars, means for adjustably securing said shackle at the longitudinal middle of said side-bars, and a fulcrum-bar removably carried by said shackle below said side-bars.

3. A rail-bender comprising a pair of companion elongate side-bars, a block secured transversely between and at one end of said side-bars, a bending screw threaded in said block, said bending screw adapted to have a bearing-head affixed thereto, a second block secured between and at the opposite end of the said side-bars, a shackle consisting of an inverted U-shaped member riding on said side-bars and longitudinally movable thereon provided with recesses on its interior faces adapted to receive said side-bars, means for adjustably securing said shackle at the longitudinal middle of said side-bars, and a fulcrum-bar removably carried by said shackle below said side-bars.

4. A rail-bender comprising a pair of companion elongate side-bars, a block pivoted transversely between and at one end of said side-bars, a bending screw threaded in said block, said bending screw adapted to have a bearing-head affixed thereto, a second block secured between and at the opposite ends of the said side-bars, a shackle riding on said side-bars and longitudinally movable thereon, means for adjustably securing said shackle at the longitudinal middle of said side-bars, and a fulcrum-bar removably carried by said shackle below said side-bars.

5. A rail-bender comprising a pair of companion elongate side-bars, a block removably pivoted transversely between and at one end of said side-bars, a bending screw threaded in said block, said bending screw adapted to have a bearing-head affixed thereto, a second block removably secured between and at the

opposite end of the said side-bars, a shackle riding on said side-bars and longitudinally movable thereon but restrained in such movement to the plane of the said side bars, means for adjustably securing said shackle at the longitudinal middle of said side-bars, a fulcrum-bar removably carried by said shackle below said side-bars, and said second block adapted to have a bearing head affixed thereto.

6. A rail-bender comprising a pair of companion elongate side-bars, a block secured transversely between and at one end of said side-bars, a bending screw threaded in said block, an adjustable bearing head carried by said bending screw, a second block secured between and at the opposite end of the said side-bars, a shackle riding on said side-bars and longitudinally movable thereon, means for adjustably securing said shackle at the longitudinal middle of said side-bars, a fulcrum-bar removably carried by said shackle below said side-bars, and an adjustable bearing-head carried by said second block.

7. A rail-bender comprising a pair of companion elongate side-bars, a block secured transversely between and at one end of said side-bars, a bending screw threaded in said block, means for rotating said bending screw, a second block secured between and at the opposite end of the said side-bars, a shackle riding on said side-bars and longitudinally movable thereon, means for adjustably securing said shackle at the longitudinal middle of said side bars, a fulcrum-bar removably carried by said shackle below said side-bars, said second block adapted to have a bearing-head affixed thereto, and a bearing-head removably mountable on said fulcrum-bar.

8. A rail-bender comprising a pair of companion elongate side-bars, a block provided with trunnions bearing in the side-bars at one end thereof, a bending screw threaded in said block, said bending screw adapted to have a bearing-head affixed thereto, a second block provided with lateral tongues bearing in the side-bars at their opposite ends, a shackle riding on said side-bars and longitudinally movable thereon, spacing elements, and bolts tying said companion side-bars together, means for adjustably securing said shackle at the longitudinal middle of said side-bars, a fulcrum-bar removably carried by said shackle below said side-bars, and said second block adapted to have a bearing head affixed thereto.

9. A rail bender comprising a pair of companion elongate side-bars, a block secured transversely between and at one end of said side-bars, a bending screw threaded in said block, said bending screw adapted to have a bearing-head affixed thereto, a second block secured between and at the opposite end of said side-bars, a shackle riding on said side-bars and longitudinally movable thereon, means for adjustably securing said shackle at the longitudinal middle of said side-bars and a fulcrum-bar removably carried by said shackle below said side-bars.

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