(No Model.)

E. M. WOODIN & F. J. GIBBS.

RAILWAY RAIL BENDER AND STRAIGHTENER.

No. 377,184. Patented Jan. 31, 1888.

Fig. 1.

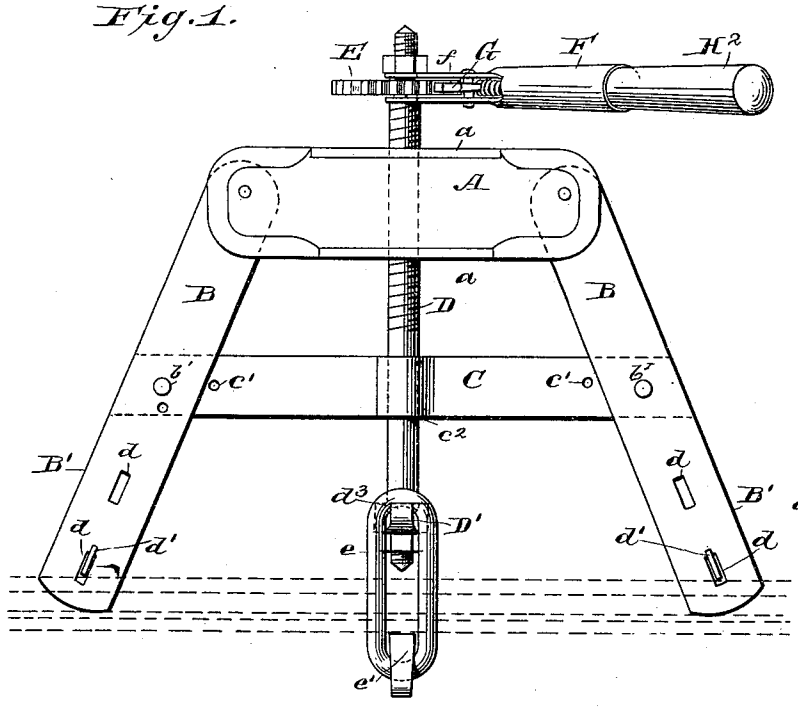


Fig. 2.

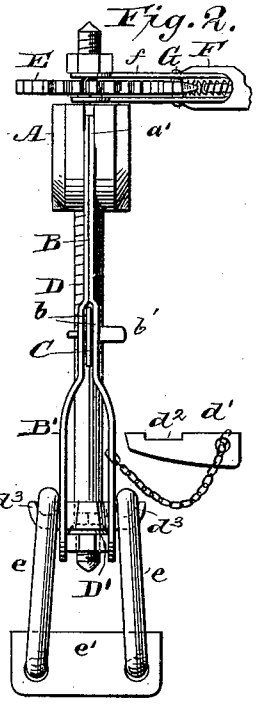


Fig. 3.

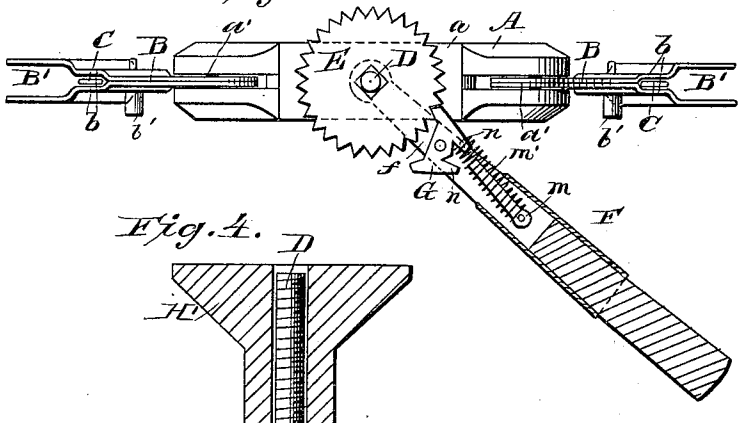
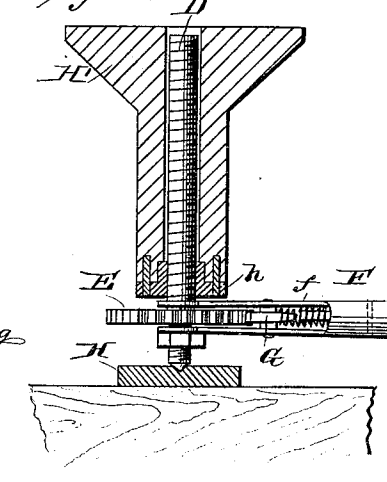


Fig. 4.



WITNESSES:

George Whittemburg

C. Sedgwick

INVENTOR:

E. M. Woodin

F. J. Gibbs

BY Munn & Co.

ATTORNEYS.

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE

EMORY M. WOODIN AND FRANK J. GIBBS, OF TYRONE, PENNSYLVANIA.

RAILWAY-RAIL BENDER AND STRAIGHTENER.

SPECIFICATION forming part of Letters Patent No. 377,184, dated January 31, 1888.

Application filed July 12, 1887. Serial No. 244,060. (No model.)

To all whom it may concern:

Be it known that we, EMORY M. WOODIN and FRANK J. GIBBS, of Tyrone, in the county of Blair and State of Pennsylvania, have invented a new and Improved Railway-Rail Bender and Straightener, of which the following is a full, clear, and exact description.

Our invention relates to an improvement in railway-rail benders and straighteners, and has for its object to provide a simple and powerful device whereby a rail may be quickly and effectively curved, or wherein any curvature in the rail when in position upon the ties may be straightened with ease and dispatch.

The invention consists in the construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the device, and Fig. 2 is an end view. Fig. 3 is a plan view of the same. Fig. 4 is a side elevation, partially sectional, showing the application of the device as a jack.

In carrying out the invention a head-block, A, is provided centrally at top and bottom with metallic plates *a*, and through said plates and block A, at the center, a vertical aperture is produced, the aperture in the said plates being threaded.

Each end of the head-block A is longitudinally slotted, as at *a'*, Figs. 2 and 3, and in each of said slots one end of a metal arm, B, is pivoted. Both arms are of equal length, and are provided with a bifurcated lower end, B', the two limbs of the bifurcation being nearer together above, as shown at *b*, than below, as shown at B', in Figs. 2 and 3.

A brace-rod, C, provided with a series of apertures, *c'*, at each end, and a central transverse sleeve, C^2, is entered in the slots *b* of the arms and adjustably held therein by a pin, *b'*, passing through the arms and one of the apertures *c'*, whereby the said arms may be adjusted to suit the radius of the curve to be made.

Two aligning slots, *d*, are made in the members of the bifurcated ends B', one above the other, adapted to be entered by wedge-pins *d'*, which pins are provided with one straight longitudinal edge, having a recess, d^2, and an opposing beveled edge, as shown in Fig. 2.

Through the aperture in the head-block a threaded rod, D, is entered, adapted to project above the same and pass downward through the sleeve c^2, carrying at its lower end a swivel, D', having outwardly-extending and upwardly-curved opposing wings, d^3, adapted each to receive one end of a link, *e*, supporting at the other end a metal block, *e'*.

Upon the upper end of the threaded rod D, above the head-block, a ratchet-wheel, E, is secured, and above and below the said wheel E the bifurcated ends *f* of a socket, F, are held, to turn upon the threaded rod independent thereof. Within the bifurcated end of the socket F a spring-actuated angular or double pawl, G, is pivoted, adapted to project out at each side of the socket and engage the ratchet-wheel in the direction in which the socket is turned by the handle H^2, fitted in the same. The said double pawl G is provided with rearwardly-extending fingers *n* at each side of its pivoted point, and to the rear of said pawl, also in the socket F, a guide-finger, *m*, is pivoted, encircled by a spring, *m'*, which spring is adapted to engage either of the fingers *n*, to retain the pawl in engagement with the ratchet upon that side.

In operation, when a rail is to be curved or bent, the arms B are adjusted at more or less of an angle to the head-block, according to the radius of the curve to be made. The wedge pins or keys *d'* are now, if the arms are at an angle, entered in the lower slots, *d*, and if perpendicular in the upper slots, the said keys being so entered in the slots, so that the members of the bifurcated ends of the arms B will be within the recess d^2, whereby the said ends are prevented from spreading and the inclined edge of said keys is made to bear against the head and base of the rail at each side of the center of the proposed curve. Thus a firm and straight bearing is had upon the rail, and the said rail is prevented from kinking or twisting. The screw-rod is now brought to bear upon the side of the rail by means of the ratchet device and the rail thereby bent to the requisite curve.

In the event that the rail has already been laid and has become sunken between the ties, to straighten the same the keys are made to engage the top of the rail, the block *e'* is passed beneath the rail at the point of depression, and the links *e* made to engage the wings of the swivel D', as shown in dotted lines, Fig. 1. By manipulating the ratchet device to raise the screw-rod the depressed portion of the rail is drawn up and straightened.

In Fig. 4 the rod-and-ratchet attachment is illustrated in use as a jack. The rod at the end where the ratchet-wheel is attached is pointed, and made to revolve in a depression in a metal block, H. The body H' of the jack is made, preferably, cylindrical in contour and provided at the base with a metal cap, *h*. The cap and body are centrally apertured and the aperture in the cap threaded. The threaded rod D is entered into the cap-aperture and screwed up into the body, as shown. Thus the object to be jacked, resting upon the top of the body, is by the manipulation of the ratchet attachment raised or lowered as the body is made to travel up or down upon the rod D.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a screw-rod, a ratchet fast on the same, and a handle operating the ratchet, of a double pawl provided with rearwardly-extending fingers at each side of its pivotal point, a guiding-pin pivoted in the handle, and a spiral spring on said pin and adapted to engage either of the fingers of the pawl, substantially as set forth.

2. The combination, with a ratchet and a handle adapted to operate the same, of a double pawl provided with a rearwardly-extending finger at each side of its pivotal point, a guiding-pin pivoted in the handle, and a spiral spring on said pin and adapted to engage either of the fingers of the pawl, substantially as shown and described, and for the purposes herein set forth.

3. The combination, with a screw-rod, a ratchet fast on the same, and a handle having pivoted therein a double spring-acting pawl adapted to operate the ratchet, a swivel upon the lower end of the screw-rod, links supported from said swivel, and a block suspended from said links, of a head-block, arms pivoted at the ends of said head-block having slotted bifurcated ends, a horizontally-adjustable brace-rod attached to said arms and constructed to receive the screw-rod, and keys adapted to enter said slots in the bifurcated ends of the said arms, substantially as herein shown and described.

4. The combination, with a screw-rod, a ratchet fast on the same, a handle adapted to operate said ratchet, having pivoted therein a double pawl provided with rearwardly-extending fingers, and a pivotal guiding-pin surrounded by a spring adapted to engage one of said fingers, a swivel upon the lower end of the screw-rod, links supported from said swivel, and a block suspended from said links, of a head-block having slotted bifurcated ends, a horizontal brace-rod attached to said arms and constructed to receive the screw-rod, and keys adapted to enter the slots in the bifurcated ends of said arms, substantially as shown and described.

5. The combination, with a screw-rod provided with a swivel at one end having opposing curved arms, links suspended from said swivel, and a block suspended from said links, a ratchet fast upon said screw-rod above the swivel, and a handle adapted to operate the same, of a head-block, arms pivoted at the ends of said head-block having slotted bifurcated ends, a horizontal adjustable brace-rod attached to said arms and adapted to receive the screw-rod, and keys adapted to enter the slots in the bifurcated ends of the said arms, all arranged to operate substantially as shown and described.

6. The combination, with a head-block, a screw-rod engaging the head-block provided with a swivel, links supported from said swivel, and a block suspended from said links, and means for operating the said rod, of arms pivoted in the ends of the head-block and having bifurcated ends provided with transverse slots, keys adapted to said slots, and an adjustable brace connecting said arms, substantially as shown and described.

EMORY M. WOODIN.
FRANK J. GIBBS.

Witnesses:
HARRY M. GROFFINS,
HARRY W. CUTTER.