

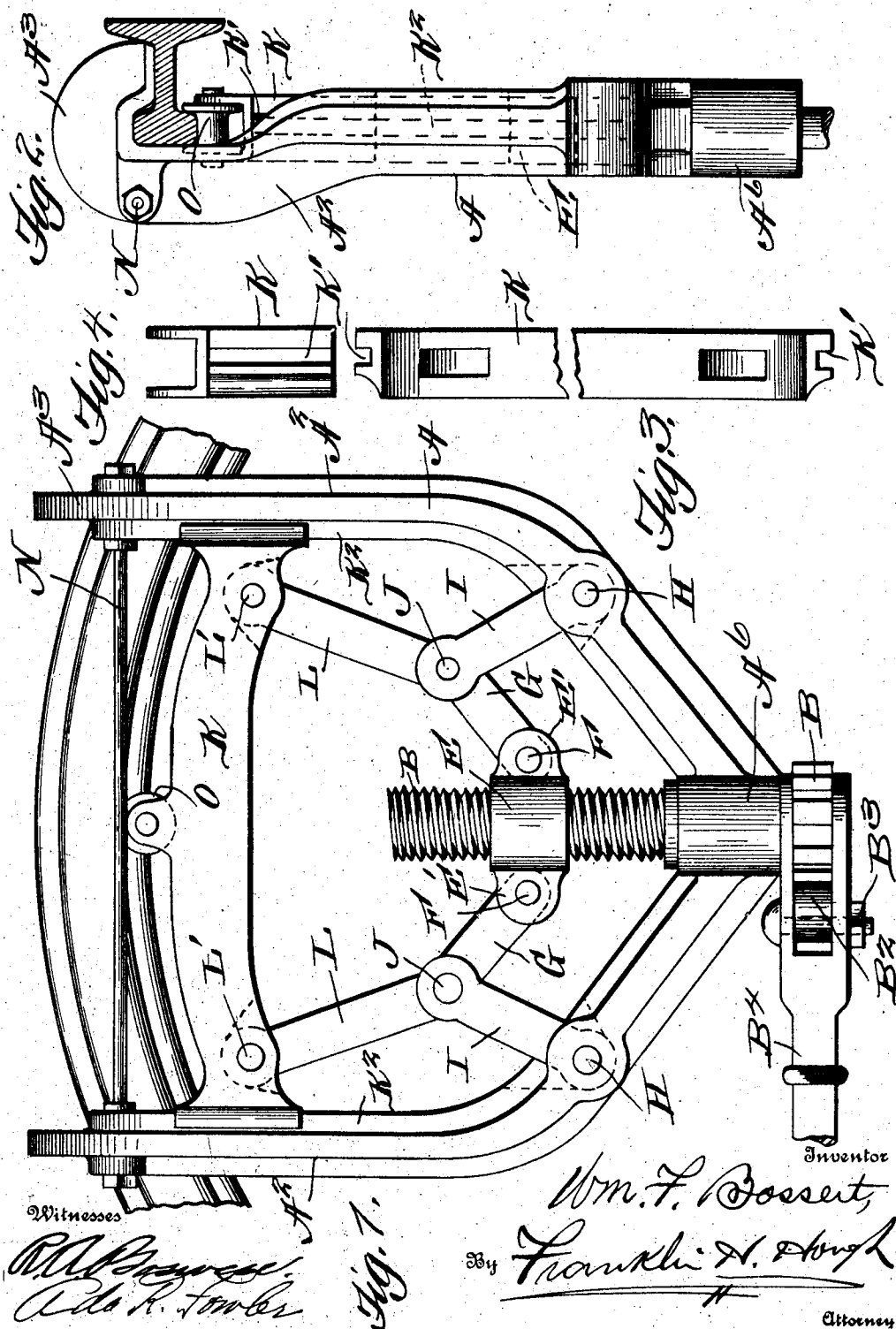
No. 839,264.

PATENTED DEC. 25, 1906.

W. F. BOSSERT.
THREE POINT JACK.

APPLICATION FILED SEPT. 20, 1906.

2 SHEETS—SHEET 1.



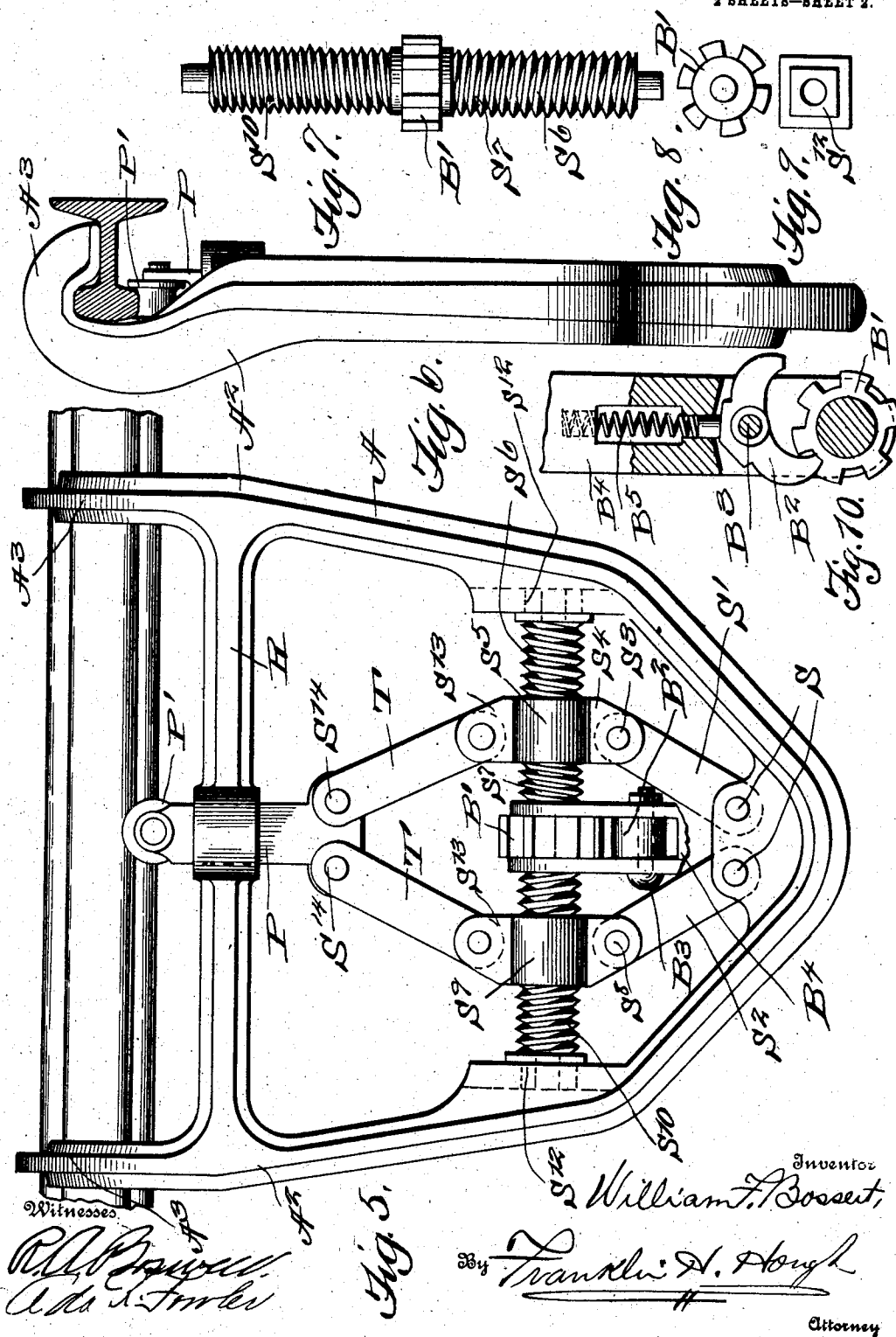
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UNITED STATES PATENT OFFICE.

WILLIAM F. BOSSERT, OF UTICA, NEW YORK.

THREE-POINT JACK.

No. 839,264.

Specification of Letters Patent.

Patented Dec. 25, 1906.

Application filed September 20, 1906. Serial No. 335,485.

To all whom it may concern:

Be it known that I, WILLIAM F. BOSSERT, a citizen of the United States, residing at Utica, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Three-Point Jacks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in three-point jacks or rail-benders; and the object of the invention is to produce a simple and efficient device of this nature whereby the power derived from the same may be greater than that usually obtained by the ordinary jacks commonly in use.

More specifically, the invention comprises a rail-bending apparatus in which increased power is obtained over that obtained by the turning of a screw and without complicated gears or worm-wheels; and it consists of a frame in which is mounted a ram actuated by means of a suitable ratchet mechanism and in the provision of toggle-links so arranged that excessive power may be applied to the ram by the manipulation of the ratchet means.

My invention comprises various details of construction and combinations and arrangements of parts, which will be hereinafter fully described and then specifically defined in the appended claims.

I illustrate my invention in the accompanying drawings, in which—

Figure 1 is a plan view of my improved rail-bender. Fig. 2 is an edge view of the invention. Fig. 3 is a detail view of the movable ram-block. Fig. 4 is an end view of the construction shown in Fig. 3. Fig. 5 is a plan view of a modification of the invention. Fig. 6 is an edge view of the modification of my invention shown in Fig. 5. Fig. 7 is a detail view of the screw having right and left threaded portions. Fig. 8 is a detail view of the ratchet upon the screw. Fig. 9 is a detail view of the bearing-block in which one end of the screw is mounted. Fig. 10 is a detail view of the double pawl.

Reference now being had to the drawings, A designates a frame which has a screw B

mounted in a suitable shell-bearing A⁶, which portion having the bearing is threadless as well as the shell carrying the same, and the threaded portion of the screw passes through a shell E, which has interior threads adapted to engage the threads of the screw, and lugs E' project therefrom at positions diametrically opposite, forming fulcrums carrying the pivot-pins F, to which the inner ends of the links G are connected. A double pawl B² is mounted upon a pivot B³ upon the handle B⁴, one or the other of the ends of which pawl being adapted to be thrown, so as to engage the teeth of the ratchet B', accordingly as it may be desired to cause the screw to turn in one direction or the other, by swinging the handle B⁴. A spring B⁵ tends to hold the pawl so that one or the other of its arms will be held in the path of the teeth of the ratchet-wheel. H H designate two stationary fulcrum-pins carried by said frame and to which the links I are pivoted at corresponding ends, the other ends of said links I being connected to pivots J, to which the outer ends of the links G are also pivoted. K designates a ram-block having grooves K' in the ends thereof adapted to receive the ribs K², formed upon the arms of said frame, and L L designate two links which are pivotally connected to the pins L', carried by said ram-block, and their inner ends connected to the pivots J. In Fig. 1 will be observed an antifriction or grooved block O, adapted to conform to the face of the rail or other object to be bent, and N designates a stay-rod connecting the two hooked arms of the frame.

Referring to Figs. 5 to 9, inclusive, will be seen a still further modification of my invention, in which the frame A is provided with a fixed cross-piece R, connecting the arms of the device, and fixed fulcrums S have links S' and S² pivoted thereto, one of said links S' being pivotally connected to a pin S³, carried by a lug S⁴ upon the shell S⁵, which is interiorly threaded and mounted upon the right-threaded portion S⁶ of the screw S⁷, while the link S² is pivoted to a pin S⁸, which is formed integral with the shell S⁹, which latter is also interiorly threaded and adapted to fit the left-threaded portion S¹⁰ of said screw. The ends of the screw S⁷ are mounted in a suitable bearing S¹² in the frame of the apparatus, and the usual ratchet-wheel B' is fixed intermediate the two threaded portions of said screw, and the handle B⁴, carrying the

double pawl, is mounted intermediate the sets of links, as shown clearly in Fig. 5. Links T are pivotally connected at their inner ends to lugs S¹³ upon the shells S⁹ and S⁴ and their other ends pivotally connected to the pins S¹⁴, which are mounted upon the head of the ram-block P, which has an anti-friction-roller P' journaled at its end and works through an aperture formed in a cross-piece R.

In operation it will be noted that in the construction shown in Fig. 1 of the drawings by giving a swinging motion to the handle carrying the double-ended pawl the screw may be rotated, thereby driving the ram against the rail or other object being bent, which latter has been previously engaged by the hooked arms of the frame, and by the swinging movement of said arms an excessive power may be applied by the toggle mechanism to the article being bent and much more rapidly than by the ordinary means employed in devices of this nature, relieving to a large extent the direct strain upon the screw and the threaded shells. It will be readily understood that by turning the screw illustrated in Fig. 1 in one direction or the other, the shell E may be driven in one direction or the other thereon, and, the links I having stationary fulcrums upon the arms of the frame, the links L and L' will change their positions in unison with the links I, thereby raising or lowering the ram or cross-piece K, thereby exerting a great amount of power upon the rail or other article being acted upon. It will also be obvious that the amount of power so gained is distributed equally upon the four fulcrum-points to which the outer ends of the links I and L', respectively, are connected, thereby reducing to a minimum the strain upon the screw and the threaded shell.

In the modified form illustrated in Fig. 5 of the drawings the principle is illustrated in a slightly-modified manner, in which the ram instead of having bearings at its ends and being actuated by the two sets of toggle-links in the manner disclosed is shown as having a bearing centrally in a cross-piece of the frame and the toggle-links connected upon right and left threaded portions of the screw, which latter is caused to be turned by the same ratchet mechanism. It will be understood that various forms of dies or anti-friction-blocks may be carried by the rams, adapting the same to the particular shape of the rail or other article being acted upon.

It will thus be seen that by the provision of the apparatus shown and described in the various figures a rail, bar, or other article may be easily bent by the increased power afforded by the simple manipulation of the handle carrying the double pawl which actuates the screw for driving the ram, thus dispensing with the complicated use of gears and worm-

wheels, which are commonly employed in devices of this nature.

What I claim is—

1. A three-point jack comprising a frame having arms adapted for engagement with the article to be bent, a screw mounted in suitable bearings in said frame, ratchet mechanism for rotating said screw, a ram mounted in suitable bearings intermediate the arms of the frame, and toggle-link connections between the ram and screw, as set forth.

2. A three-point jack comprising a frame having arms adapted for engagement with the article to be bent, a ram mounted in suitable bearings intermediate the arms of the frame, a right and left threaded screw mounted in suitable bearings in the frame, ratchet mechanism for rotating said screw, threaded shells mounted upon the screw, and link connections between said shells and ram, and also link connections intermediate the shells and stationary fulcrums upon the frame, as set forth.

3. A three-point jack comprising a frame having arms adapted for engagement with the article to be bent, a ram mounted in suitable bearings intermediate the arms of the frame, a right and left threaded screw, bearing-blocks carried by the arms of the frame and in which the ends of said screw are mounted, a ratchet-wheel intermediate the threaded portion of the screw and pawl and handle for actuating said ratchet-wheel, whereby the screw may be turned in one direction or the other, threaded shells mounted upon the screw, link connections between said shells and ram, links pivotally connected at corresponding ends to fixed fulcrums upon the frame and having pivotal connections with said shells, as set forth.

4. A three-point jack comprising a frame having arms adapted for engagement with the article to be bent, a ram having a longitudinal movement in a bearing in a cross-piece of the frame, a screw mounted in suitable bearings in the frame and having right and left threads, threaded shells mounted upon the screw, links pivotally connecting the shells with said ram, links pivotally connected at corresponding ends to stationary fulcrums upon the frame and also pivotally connected to said shells, and ratchet mechanism for rotating the screw, as set forth.

5. A three-point jack comprising a frame having arms adapted for engagement with the article to be bent, a ram having a longitudinal movement in a bearing in a cross-piece of the frame, a block mounted upon said ram adapted to conform to the surface of the rail or other object being bent, a right and left threaded screw mounted in bearings in the frame, threaded shells mounted upon the screw, link connections between the shells and said ram, a ratchet-wheel upon the

5 screw intermediate its threaded portions, a handle and pawl carried thereby for actuating said ratchet-wheel, and link connections between fixed fulcrums upon the frame and said shells, as set forth.

10 6. A three-point jack comprising a frame having arms adapted for engagement with the article to be bent, a ram having a longitudinal movement in a bearing in a cross-piece of the frame, a block mounted upon said ram
15 adapted to conform to the surface of the rail or other object being bent, a screw mounted in suitable bearings in the frame of the apparatus and parallel with the cross-piece carrying said ram, right and left threads upon said screw, a ratchet fixed to the latter intermedi-

ate its threaded portions, a handle, a pawl carried thereby adapted to engage the ratchet-wheel, threaded shells mounted upon the screw and provided with lugs at positions 20 diametrically opposite, links pivotally connecting said shells with said ram, fixed fulcrums upon the frame opposite said ram, and links pivotally connecting said fulcrums with said shells, as set forth.

25 In testimony whereof I hereunto affix my signature in the presence of two witnesses.

WILLIAM F. BOSSERT.

Witnesses:

H. V. D. HOWE,
ANNA BARRY.