

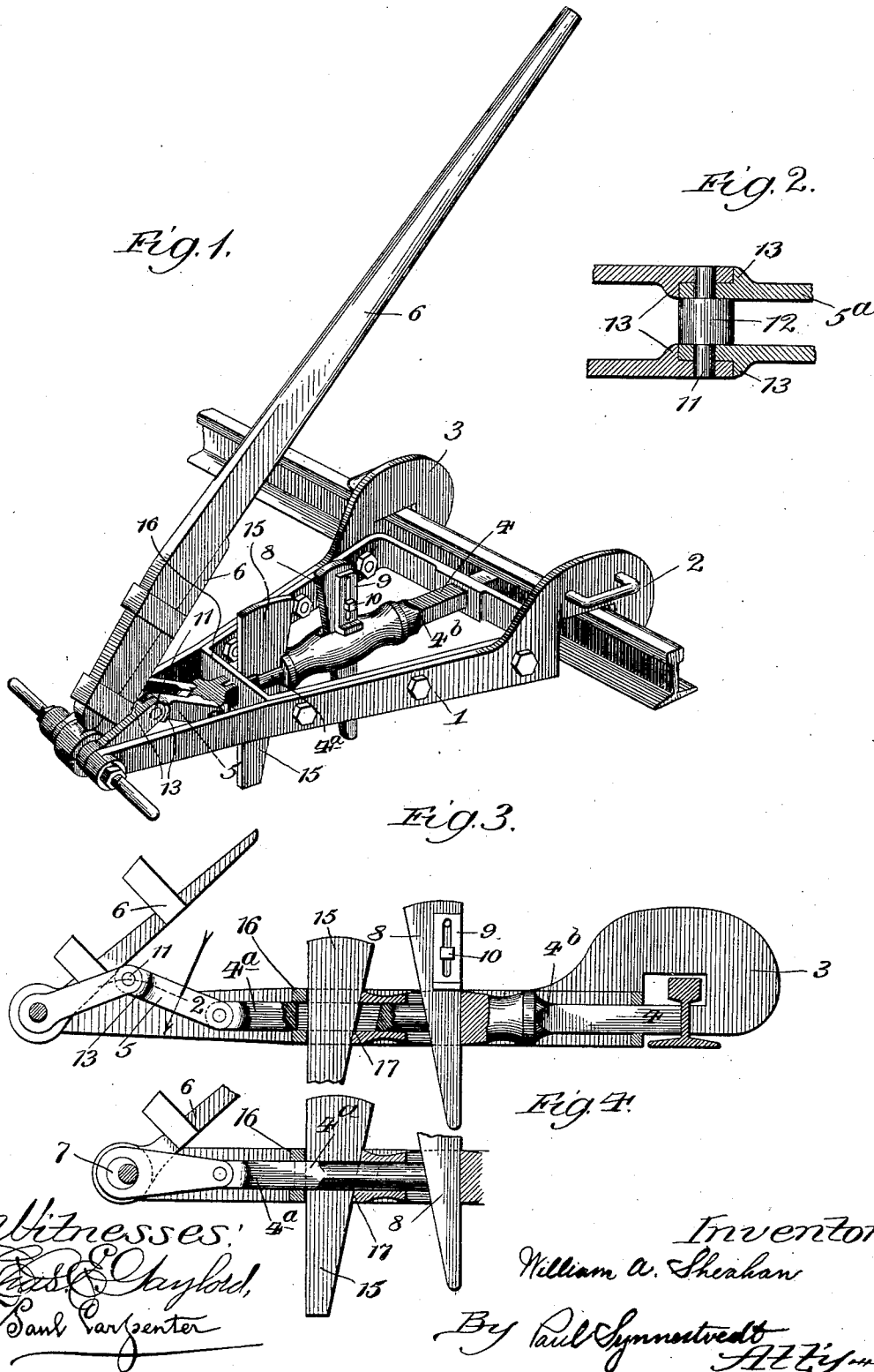
No. 677,284.

Patented June 25, 1901.

W. A. SHEAHAN.
RAIL BENDER.

(Application filed Nov. 9, 1900.)

(No Model.)



UNITED STATES PATENT OFFICE.

WILLIAM A. SHEAHAN, OF EFFINGHAM, ILLINOIS.

RAIL-BENDER.

SPECIFICATION forming part of Letters Patent No. 677,284, dated June 25, 1901.

Application filed November 9, 1900. Serial No. 35,924. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. SHEAHAN, a citizen of the United States of America, residing at Effingham, in the county of Effingham and State of Illinois, have invented certain new and useful Improvements in Rail-Benders, of which the following, taken in connection with the accompanying drawings, is a specification.

The object of my invention is to provide a rail-bender which while of simple and economical construction will still be capable of greater facility and rapidity of operation than the prior devices of like kind with which I am familiar.

In the accomplishment of the above-mentioned object I provide a device for taking up automatically the slack which is caused by the movement of the actuating means in the operation of bending the rail.

As commonly constructed the usual form of rail-bender comprises, essentially, two parts, one of which has two bearing-points on the rail and the other a single bearing-point on the rail so located with reference to the other two that a longitudinal movement of the two parts relative to each other will curve or bend the rail between the two outermost points of contact. In the prior constructions the bending is generally done through the instrumentality of some actuating means, generally a hand-lever and an eccentric, the eccentric being arranged to give the requisite movement to the two parts longitudinally of each other. As these devices are generally operated by hand and the power thus developed is relatively small, the great force necessary to secure the bending of the rail necessitates a very heavy leverage. The result of this is that for a large range of movement of the actuating device on each throw of the lever but a very small amount of curvature will be imparted to the rail. It is thus necessary in order to get the desired degree of bend in the rail to operate the actuating means or lever a number of times, each time taking up the slack or lost motion in the longitudinal relation of the two parts of the bender, so that the next movement of the lever will be effective. In the devices of the prior art this has been commonly done by the use of

some hand-operated take-up device—such, for example, as a turnbuckle in the thrust-bar. Such hand adjustment is open to some objections, prominent among which is to be mentioned the loss of time involved in the operating of it.

In the practice of my invention I overcome the objection last mentioned and accomplish the other objects enumerated, as well as such as may hereinafter appear, by means of the construction which I have illustrated in preferred form in the accompanying drawings, in which—

Figure 1 is a perspective view of a rail-bender embodying my improvements. Fig. 2 is a section on line 2 2 of Fig. 3. Fig. 3 is a vertical section with the operating parts shown in side elevation. Fig. 4 is a modification of my invention in which a different form of actuating means is employed to operate the two longitudinally-movable parts.

In constructing my improved form of bender I take, first, the usual form of frame 1, provided with the two tension-hooks 2 and 3, the same constituting one of the two movable members to which I have above referred. The other movable member I arrange, preferably, as is common in the art, in the shape of a thrust-bar 4, adapted to bear against the rail on the side opposite the tension-hooks and intermediate thereof. As an actuating means to move the two parts relative to each other I prefer to employ the system of toggle-levers 5 and coöperating hand-actuated lever 6 shown in Figs. 1, 2, and 3 as calculated to stand an extremely-heavy pressure with a minimum of frictional resistance, although the eccentric device of the prior art (shown in Fig. 4) could be used in this place, if desired. The thrust-bar 4 I construct of two parts adjustable longitudinally relative to each other and preferably telescopic. As a means of adjusting said two parts I provide the wedge 8, so disposed as to be actuated by gravity or other force—such as a spring, for example—in such a manner as to take up automatically the slack or lost motion caused between the two parts of the thrust-bar by their return movement or the relaxation of the actuating means.

In order to prevent any backward spring of

the rail when the actuating-lever is retracted and consequent backward movement of the portion of the thrust-bar which bears against the rail, I have provided an additional improvement comprising a supplemental take-up mechanism having a wedge 15 inserted through a slot in the part 4^a of the thrust-bar and adapted upon reciprocation of the actuating-lever to descend by gravity between the cross-bar 16 and the end 17 of the forward portion of the thrust-bar 4. This feature of my invention is valuable and greatly increases the efficiency of the whole; but since a bender like mine in other respects, but omitting this improvement, would have some of the advantages I desire here to state that I do not desire or intend to limit my broader claims to include this device.

It will be seen that one of the marked advantages of my improvements lies in the fact that after the rail is bent the thrust-bar can be retracted to its full extent by merely lifting up the wedges or keys 8 and 15.

In order to determine the extent to which the rail shall be bent, I provide my automatically-operated mechanism with an adjustable stop 9, which can be set in any desired position by means of a set-screw 10.

In Fig. 2 I have shown the preferred form of toggle-joint, the pin 11 being enlarged at its middle 12 to avoid any possibility of its bending and the toggle-levers 5^a being formed with projecting shoulders 13 to take some of the shearing strain off the pin.

In operating my invention a downward movement of the actuating-lever moves the thrust-bar to the right, permitting the supplemental wedge 15 to drop slightly. When the actuating-lever is moved upward or back, the supplemental wedge holds the forward portion of the thrust-bar 4 from springing back, while the main automatic take-up mechanism, containing the wedge 8, falls a little to take up the slack caused by the advance of the bar 4 and provide for its further advance on the next downward movement of the actuating-lever.

Having thus described my invention, what

I claim as new, and desire to secure by Letters Patent, is—

1. The combination with two adjustable parts in a power-applying device, of take-up mechanism comprising a movable wedge interposed between said two adjustable parts and adapted to be advanced automatically upon relaxation of the force applied, substantially as described.

2. The combination with two adjustable parts in a power-applying device, of take-up mechanism comprising a gravity-actuated wedge interposed between said two adjustable parts and adapted to be advanced automatically upon relaxation of the force applied, substantially as described.

3. The combination with two adjustable parts in a power-applying device, of take-up mechanism comprising a movable wedge interposed between said two adjustable parts and adapted to be advanced automatically upon relaxation of the force applied, and an adjustable stop, substantially as described.

4. The combination with two adjustable parts in a power-applying device, of take-up mechanism comprising a movable wedge interposed between said two adjustable parts, and adapted to be advanced automatically upon relaxation of the force applied and supplemental take-up mechanism whereby the operation of said first-mentioned take-up mechanism is facilitated, substantially as described.

5. The combination with two adjustable parts in a power-applying device, of take-up mechanism comprising a movable wedge interposed between said two adjustable parts, and a supplemental wedge, whereby the operation of said first-mentioned wedge is facilitated, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

WILLIAM A. SHEAHAN.

Witnesses:

PAUL SYNNESTVEDT,
PAUL CARPENTER.