

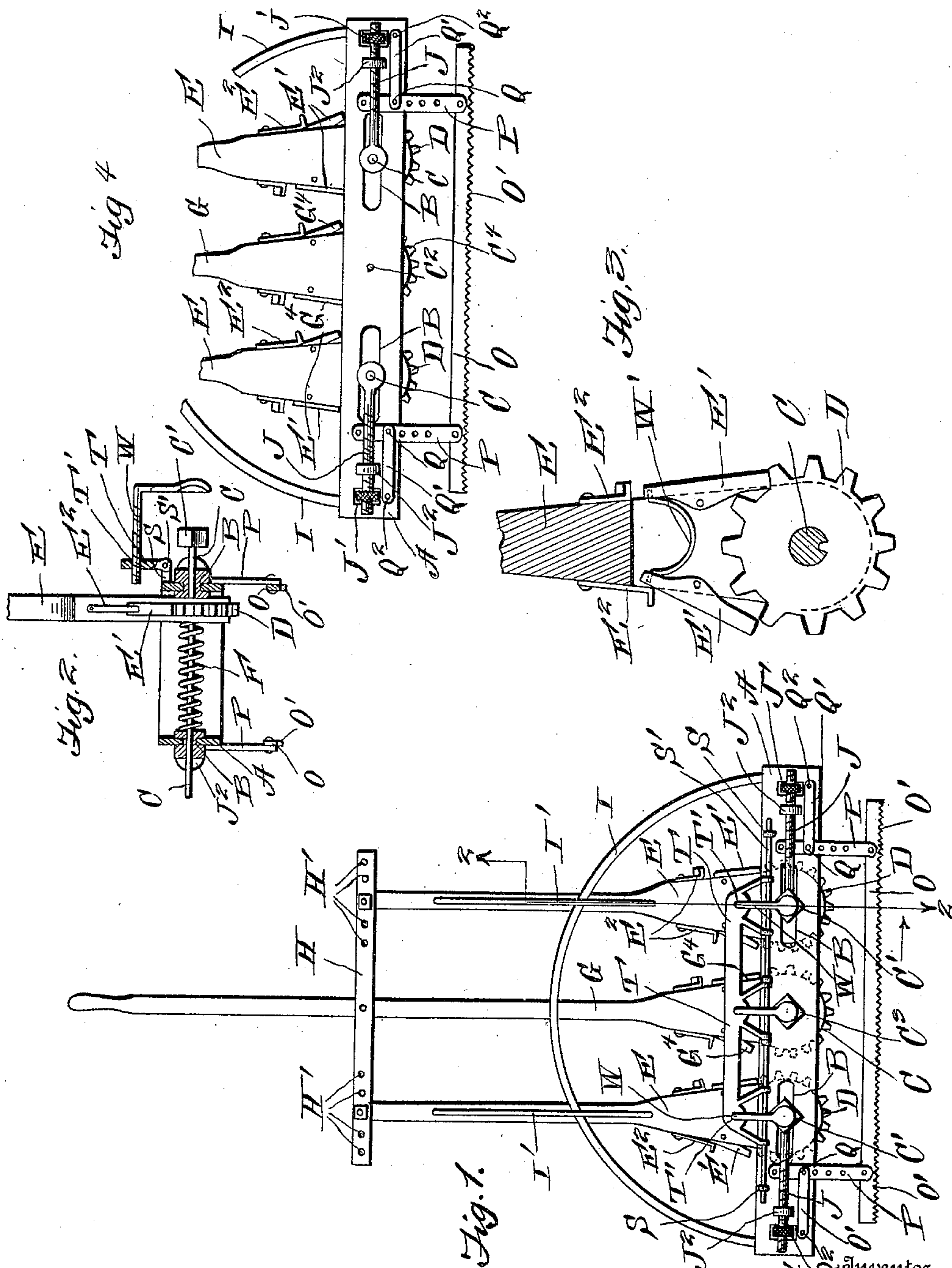
No. 819,398.

PATENTED MAY 1, 1906.

W. E. N. BALSLEY.

MACHINE FOR PLACING AND REMOVING NUTS UPON RAIL SECURING BOLTS.

APPLICATION FILED JAN. 16, 1906.



Witnesses

P. A. Broughton
Ada R. Fowler

Wm. E. N. Balsley
By *Franklin H. Hough*
Attorney

UNITED STATES PATENT OFFICE.

WILLIAM E. N. BALSLEY, OF SHERANDO, VIRGINIA.

MACHINE FOR PLACING AND REMOVING NUTS UPON RAIL-SECURING BOLTS.

No. 819,398.

Specification of Letters Patent.

Patented May 1, 1906.

Application filed January 16, 1906. Serial No. 296,337.

To all whom it may concern:

Be it known that I, WILLIAM E. N. BALSLEY, a citizen of the United States, residing at Sherando, in the county of Augusta and State of Virginia, have invented certain new and useful Improvements in Machines for Placing and Removing Nuts upon Rail-Connecting Bolts; 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 apparatus for tightening or loosening nuts upon railways, &c.; and the object of the invention is to produce a simple and efficient apparatus of this character whereby a plurality of nuts may be tightened or loosened simultaneously.

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.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of my apparatus for tightening and loosening nuts. Fig. 2 is a cross-sectional view through the device, showing parts in elevation. Fig. 3 is a detail view, and Fig. 4 is a side elevation opposite the one shown in Fig. 1.

Reference now being had to the details of the drawings by letter, A designates a rectangular outlined frame, preferably of metal, and elongated slots B are formed in the opposite longitudinal walls of said casing, and C C designate two shafts passing through oppositely-disposed elongated slots B and each designed to have a yielding longitudinal movement. A corresponding end of each of the shafts C has a socket member C', designed to fit over a nut, and keyed to each shaft C is a ratchet-wheel D. A spring F is mounted upon each shaft C and interposed between the wheel D and the inner surface of the opposite longitudinal wall of the casing, the purpose of said springs being to hold the shafts yieldingly in such positions that said ratchet-wheels will be adjacent to the inner face of the side of the casing nearest said socket members. C² designates a third shaft, which

is similar to the shafts C and is mounted in registering apertures in the opposite longitudinal wall of the casing and is provided with a socket member C³ similar to the socket members C' described, and a ratchet-wheel C⁴ is fixed to said shaft C², and a spring (not shown) is interposed between the ratchet-wheel C⁴ and the opposite longitudinal side of the casing.

E E designate levers which are pivoted at their lower ends to the shafts C, and each of said levers carries pawls E', pivotally mounted within the lever, and latches E² are fastened to each lever and their free ends are adapted to bear against said pawls—that is, when it is desired to move the lever in one direction or the other one of the pawls is thrown out of engagement with the wheel D by moving the latch E² and throwing the pawl against the tension of the spring W', which is interposed between said pawls, as shown clearly in Fig. 3 of the drawings. A third lever G is pivotally mounted upon the shaft C² and has similarly-mounted latches thereon adapted to engage the pawls G⁴ against the tension of the springs W'. A cross-piece H pivotally connects the three levers and holds them spaced apart, and the lever G is extended above the cross-piece, providing a handle, whereby the three levers may be operated in unison. In order to guide the levers as they are swung back and forth, I provide the curved rod I, the ends of which are fastened to the ends of the frame, and suitable guide-springs I' are secured to the outside levers, whereby the latter may be held adjacent to said guide-rod I as the latter is swung backward and forward.

Referring to the side elevation of the drawings, there will be seen the adjusting-screws J, having eyes therein in which the ends of said shafts C are journaled, and an adjusting-nut J' is mounted upon the threaded portion of each of said screws, which latter are mounted horizontally and held by the eyes J² upon the frame, whereby the shafts C may be adjusted within the frame. To allow for this adjustment, it will be observed that the cross-piece H is provided with apertures H', whereby the pivotal pin connecting the levers with said cross-piece may be also adjusted.

Mounted upon the opposite longitudinal sides of the frame are the two bars O, having serrations O' upon their lower edges, and pivotal strips P are connected to said bars and

are perforated. Q Q designate pins which are mounted upon springs Q', and each spring Q' is fixed at Q² to the casing, and each of said pins is designed to engage registering apertures in said strips and casing in order to hold the bars in adjusted positions. Said bars are adapted to rest upon ties and to hold the apparatus securely from slipping by the teeth thereof biting into the ties of a railway.

10 Mounted in the ears S, projecting from one face of the casing, is a bar S', and T designates angled bars having eyes which are pivotally mounted in said rod and also provided with a threaded aperture T', in which an angled screw W is adapted to be adjusted. Said angled screws are provided for the purpose of engaging over a rail and holding the casing adjacent to the nuts while they are being tightened or loosened, and the angled ends of
20 said screws are provided with recessed or concaved portions adapted to receive the ends of bolts passing through the rail. By this construction it will be noted that said angled plate may be swung backward to allow the device to be adjusted to a rail and the screws may be adjusted to adapt the apparatus to be held in proper position with reference to a rail.

If desired, the socket members may be
30 utilized as chucks for the reception of drills and the resilient force of the springs utilized to feed the drill while being operated by the swinging movements of the levers.

The operation of my invention will be readily understood when taken in connection with the foregoing and the drawings forming a part of this application and is as follows: The serrated bars being adjusted to the height of a rail, the adjustable screws with
40 eyes formed therein and to which said shafts C are journaled along the opposite longitudinal walls of the frame are then adjusted so that the three socket members for engagement with the nuts will come opposite the
45 nuts to be tightened or loosened, after which the angled screws are swung over the rail and the concaved portions at the angled ends of said screws are made to engage over the ends of the bolts passing through the rail. The
50 springs mounted upon the shaft will serve to hold the socket members yieldingly against the nuts, and the operator swinging the levers back and forth may cause the nuts to be turned in one direction or the other by the
55 adjustment of the dogs in the manner shown.

From the foregoing it will be noted that by the provision of the apparatus shown and described a simple and efficient means is afforded whereby a plurality of nuts may be tightened or loosened by the simple manipulation
60 of the swinging movement of the lever, the dogs being operated to regulate the rotary movements of the shafts.

What I claim is—

65 1. A device for tightening and loosening

screws from bolts comprising a frame, a series of longitudinally-movable shafts mounted therein, socket members upon said shafts adapted to engage nuts, ratchet-wheels rotating with said shafts, a series of swinging
70 levers journaled upon said shafts, pawls carried by the levers and engaging the ratchet-wheels, one of said shafts being mounted in fixed bearings and the others in adjustable bearings, a rod mounted in suitable bearings
75 upon the side of the frame, a bar pivotally mounted upon said rod, and adjustable angle-screws mounted upon said bar adapted to engage the ends of bolts upon which nuts engaged by the socket members are mounted,
80 as set forth.

2. A device for tightening and loosening screws from bolts comprising a frame, a series of longitudinally-movable shafts mounted therein, socket members upon said shafts
85 adapted to engage nuts, ratchet-wheels rotating with said shafts, a series of swinging levers journaled upon said shafts, the middle of said shafts mounted in fixed bearings, eye-bolts mounted in threaded bearings upon the
90 frame and in the eyes of which bolts, the shafts on either side of the central shaft are journaled, adjusting-nuts mounted upon said eyebolts, whereby the latter may be moved longitudinally, and means carried by the
95 frame for engaging a bolt upon which a nut to be loosened or tightened by said socket members is mounted, as set forth.

3. A device for tightening and loosening screws from bolts comprising a frame, a series of longitudinally-movable shafts mounted therein, socket members upon said shafts adapted to engage nuts, ratchet-wheels rotating with said shafts, a series of swinging
100 levers journaled upon said shafts, the middle of said shafts mounted in fixed bearings, eye-bolts mounted in threaded bearings upon the frame and in the eyes of which bolts, the shafts on either side of the central shaft are
105 journaled, adjusting-nuts mounted upon said eyebolts, whereby the latter may be moved longitudinally, a rod journaled in suitable bearings in the frame of the apparatus, a bar mounted upon said rod, and angle-screws carried by said bar and adapted to en-
115 gage the ends of bolts upon which nuts to be loosened by said socket members are mounted, as set forth.

4. A device for tightening and loosening screws from bolts comprising a frame, a series of longitudinally-movable shafts mounted therein, socket members upon said shafts adapted to engage nuts, ratchet-wheels rotating with said shafts, a series of swinging
120 levers journaled upon said shafts, the middle of said shafts mounted in fixed bearings, eye-bolts mounted in threaded bearings upon the frame and in the eyes of which bolts, the shafts on either side of the central shaft are
125 journaled, adjusting-nuts mounted upon said

eyebolts, whereby the latter may be moved longitudinally, and means carried by the frame for engaging a bolt upon which a nut to be loosened or tightened by said socket members is mounted, perforated bars, a serrated strip connected to said bars, leaf-springs fixed to said frame, and pins carried by said springs and adapted to engage registering

apertures in said perforated bars and frame, as set forth.

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

WILLIAM E. N. BALSLEY.

Witnesses:

A. L. HOUGH,

G. F. COINER.