

UNITED STATES PATENT OFFICE.

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OHIO.

WRENCH.

999,868.

Specification of Letters Patent.

Patented Aug. 8, 1911.

Application filed November 16, 1910. Serial No. 592,679.

To all whom it may concern:

Be it known that we, WILLIAM F. PROBST, CHARLES E. ELSASS, and JOHN LOUIS ELSASS, citizens of the United States, residing at 5 Chillicothe, in the county of Ross and State of Ohio, have invented certain new and useful Improvements in Wrenches, of which the following is a specification.

This invention relates to wrenches and it is particularly designed to construct a wrench adaptable for attaching fish plates adjacent to rail joints, said wrench having an attachment whereby the bolt may be retained within said fish plates and rail, while 15 being operated upon by the wrench.

A further object of this invention is the provision of means whereby the attachment heretofore referred to, may be retained away from the bolt during the placement of the 20 wrench upon the nut.

It also contemplates the provision of a means which will be simple and rotatably operable whereby the wrench may be operated in either of two directions, or whereby 25 the handle of the wrench may be made inoperative with respect to the nut engaging portion thereof.

With the above and other objects in view, this invention consists in the construction, 30 combination and arrangement of parts, all as hereinafter more fully described, claimed and illustrated in the accompanying drawings, wherein:

Figure 1 is a central vertical section of a 35 wrench constructed in accordance with the present invention, parts thereof being in section, the dotted lines illustrating the position of the bolt retaining attachment when the same is retained in an elevated position, 40 Fig. 2 is a section taken on the line 2—2 of Fig. 1, Fig. 3 is a section taken on the line 3—3 of Fig. 2, Fig. 4 is a perspective view of a keeper adapted to lock said bolt engaging attachment, and, Fig. 5 is an outside 45 elevation of the nut engaging member.

The wrench forming the subject matter of the present invention, comprises a handle having a bearing at its lower terminal, said bearing having rotatably mounted therein a 50 tubular nut engaging sleeve or member, said member having a series of ratchet teeth formed in the outer surface thereof. A socket is formed adjacent to the lower terminal of the handle and upon one side 55 thereof, said socket having reciprocatingly

and rotatably mounted therein a spring actuated plunger or pawl, said plunger or pawl having its lower terminal beveled and adapted to engage the teeth formed on the nut engaging sleeve. Means is provided at 60 the upper terminal of the socket whereby the pawl may take any one of three positions, thereby permitting the wrench to operate in either of two directions, or permit the handle to rotate about said sleeve with- 65 out imparting a motion thereto. An L-lever or bell crank is pivoted in the handle and extends transversely therefrom, said L-lever carrying at the outer terminal of its horizontal arm a vertical rod, which has at its 70 lower terminal a swiveled bearing which engages the head of the bolt being operated upon. A keeper is reciprocatingly mounted upon the handle and engages the other terminal of the bell crank or L-lever for retain- 75 ing said swivel bearing in its operative position.

Reference being had more particularly to the drawings, 10 indicates a rail of the usual and standard construction having the fish 80 plates 11 disposed on each side thereof, said fish plates and rail being pierced by the bolt or bolts 12. A tubular nut engaging sleeve 13 is adapted to engage the nut 14 operating on the outer terminal of the bolt 85 12 and is of any suitable construction, said sleeve being provided with a series of substantially centrally arranged ratchet teeth 15. A bearing 16 is rotatably mounted on the 90 outer terminal of the sleeve 13 and is retained thereon through the instrumentality of a screw 17 piercing said bearing and engaging a circular groove 18 formed in the outer terminal of the nut engaging sleeve 13. A 95 normally vertical handle 19 is formed on the bearing 16 and is adapted to operate the nut engaging sleeve 13 in either of two directions. In order to provide a means whereby this motion may take effect, a 100 socket 20 is formed on the handle 19 adjacent to the lower terminal thereof and is disposed directly above the teeth 15. The upper terminal of the socket 20 is reduced and is adapted to receive the shank 21 of the plunger 22 which operates in the en- 105 larged portion of said socket. A spring 23 is interposed between the shoulder of the socket and the shoulder formed between the shank 21 and the plunger 22 and is adapted to normally project the plunger into engage- 110

ment with the teeth. One side of said plunger is beveled in order to permit the ready passage thereof over the teeth upon the recovery. The upper end of the socket
 5 20 is provided with the oppositely disposed depressions or recesses 24 and the outwardly extending depression 25. When the arm 26 carried by the shank 21 of the plunger is retained in the depression 25, the lower end
 10 of the plunger is retained from engagement with the teeth 15, but when the arm 26 is located in either of the openings 24, the plunger engages the teeth 15 for the operation of the sleeve 13 in either of two direc-
 15 tions.

An opening 27 pierces the handle 19 directly above the socket 20 and has disposed on each side thereof the bracket 28. An L-lever or bell crank 29 is pivotally mounted
 20 between the arms of the bracket 28 and the horizontal arm of which projects over the rail, while the vertical arm normally extends parallel to the handle. A sleeve 30 is reciprocatingly mounted on the horizontal arm
 25 of the bell crank 29 and carries a dependent arm or rod 31 which is provided at its lower terminal with the bearing 32. A spindle 33 is rotatably mounted in the bearing 32 and carries at its inner terminal the
 30 curved bearing 34 which engages the head of the bolt 12 and retains the same in its inoperative position. The sleeve 30 is retained in its various positions upon the horizontal arm of the bell crank or L-lever 29
 35 through the instrumentality of a screw 35 piercing said sleeve and bearing against said arm.

A keeper 36 is reciprocatingly mounted on the handle 19 and is provided with an
 40 auxiliary keeper 37 which engages the vertical arm of the bell crank or L-lever 29 and retains the same flush against the handle. A stop 38 is provided adjacent the upper terminal of the handle 19, to retain the
 45 sleeve thereof, while a similar stop 39 is formed on the bell crank or L-lever 29 to prevent the keeper from descending below a desired point. In order to retain the L-lever in an elevated position, while the nut
 50 engaging sleeve is being placed upon the nut 14, a lip 40 is formed on the auxiliary keeper 37 and engages the semi-circular recess 41 formed on the inner edge of the bell crank. From this construction, it will readily be
 55 seen that the keeper 36 may be raised, allowing the vertical arm of the bell crank 29 to swing away from the handle 19, after which the keeper may be dropped upon said handle, the lip 40 engaging the semi-circular
 60 recess 41 and wedging said bell crank away from the handle and retaining the same in this position.

In the usual construction of railroads, the
 65 fish plates which are adjacent the heads of the bolts, are provided with elliptical en-

largements about the openings in which said bolts are placed, while the bolts are provided with a similarly formed enlargement 42 adjacent the head thereof, which is received within the elliptical openings in the
 70 fish plates. This construction is to prevent the bolts from being turned, while the nuts are being removed. It has been found, however, in actual practice, that after removing the bolts, with the ordinary wrench that
 75 has been heretofore used, the wrench, after the nut has been loosened to a certain extent, will push the projection 42 from engagement with the elliptical opening in the fish plate. It is therefore understood that
 80 by using a wrench with the attachment illustrated herewith, the bearing 34 in conjunction with the arm 31 prevents the projection or enlargement 42 from being pushed by the wrench from engagement with the elliptical
 85 opening formed in the fish plate.

We do not intend to limit this wrench to use on railroads and the like, as the same is adaptable to bridge construction and all structural steel work. Furthermore, the details of construction may readily be changed without interfering with the spirit or use of our invention.

What we claim, is—

1. In a device of the class described, the
 95 combination with a wrench including a lever handle portion, of means carried by said handle portion for pivotally clamping the wrench to the head of a bolt when a nut is being applied or removed from said bolt. 100

2. In a device of the class described, the combination with a wrench including a handle portion therefor, of a member pivoted to the handle portion, and means adjustably supported on said member for pivotally
 105 clamping the wrench to the head of a bolt when the nut is being applied or removed from the bolt.

3. In a device of the class described, the combination with a wrench including a handle
 110 portion therefor, of an angular member carried by the handle portion, and an adjustable arm extending from one portion of the angular member and adapted to pivotally clamp the wrench to the head of a bolt
 115 when a nut is being applied to or removed from the bolt.

4. In a device of the class described, the combination with a wrench including a handle
 120 portion therefor, a bell crank lever carried by the wrench, and an arm adjustably mounted upon one member of the bell crank lever, and a pivot bearing carried by the lower terminal of said arm and adapted to clamp the bolt between the wrench and the
 125 arm.

5. In a device of the class described, the combination with a wrench, of a bell crank
 130 carried thereby, means whereby said bell crank may clamp a bolt while being oper-

ated upon by said wrench, and means whereby one arm of said bell crank may be locked against the handle of the wrench.

6. In a device of the class described, the combination with a wrench, of a bell crank carried thereby, means whereby said bell crank may clamp a bolt while being operated upon by said wrench, means whereby one arm of said bell crank may be locked against the handle of the wrench, and means carried by said last named means whereby the bell crank may be locked away from engagement with the handle of the wrench.

7. In a device of the class described, the combination with a wrench, of a bell crank pivotally carried thereby, a keeper reciprocatingly mounted on the handle of said wrench and adapted to engage one arm of said bell crank, an arm adjustably mounted on the remaining arm of said bell crank, and a bearing located at the lower terminal of said arm adapted to engage the head of a bolt being operated upon by said wrench.

In testimony whereof we affix our signatures in presence of two witnesses.

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Witnesses:

CHARLES S. WILSON,
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."