

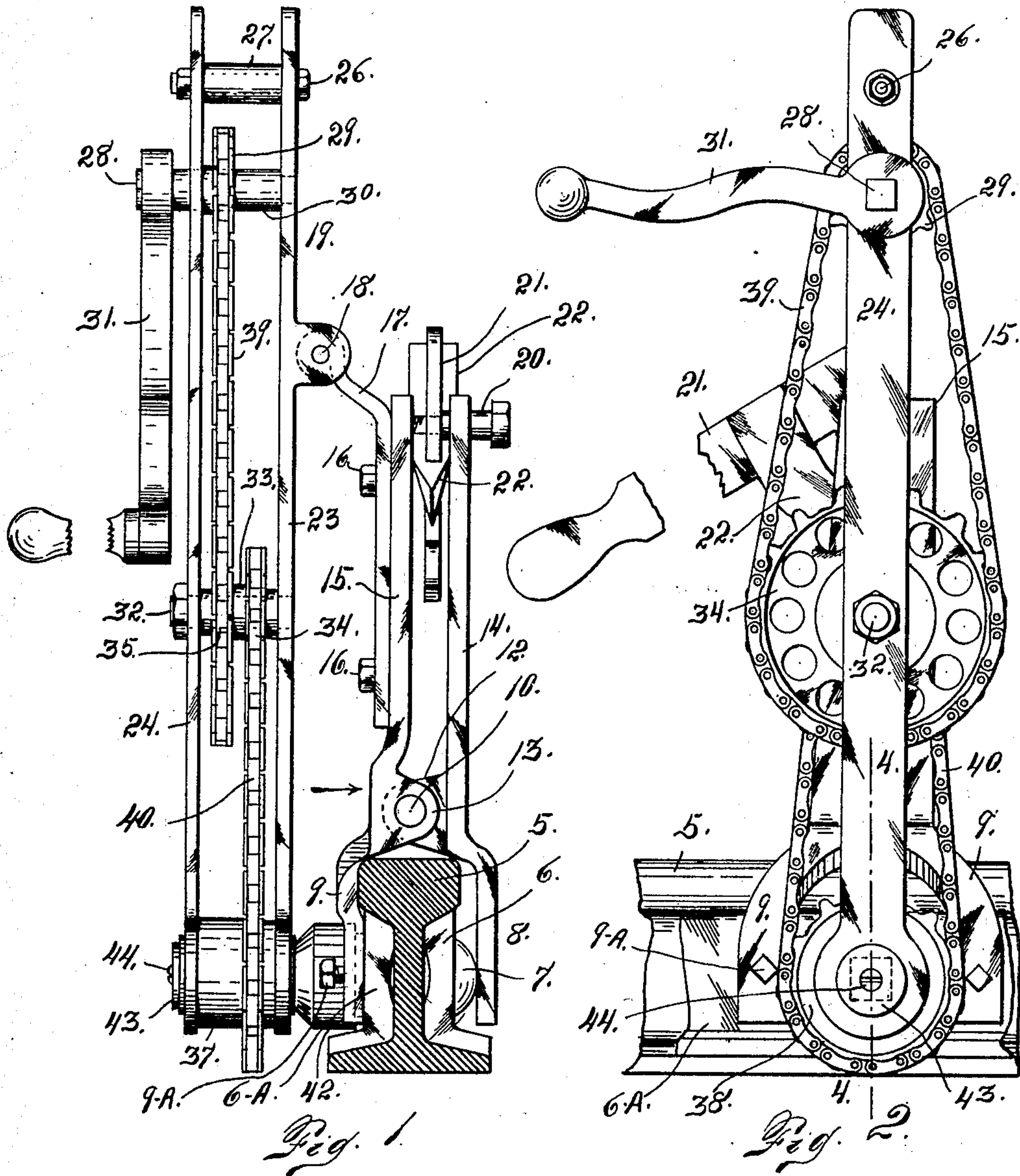
No. 871,482.

PATENTED NOV. 19, 1907.

C. J. COULTER.
COMBINED MACHINE WRENCH AND CLAMP.

APPLICATION FILED MAR. 18, 1907.

2 SHEETS—SHEET 1.



Witnesses
Otto E. Huddick.
Dena Nelson.

Inventor
C. J. Coulter.
By, *[Signature]* Attorney

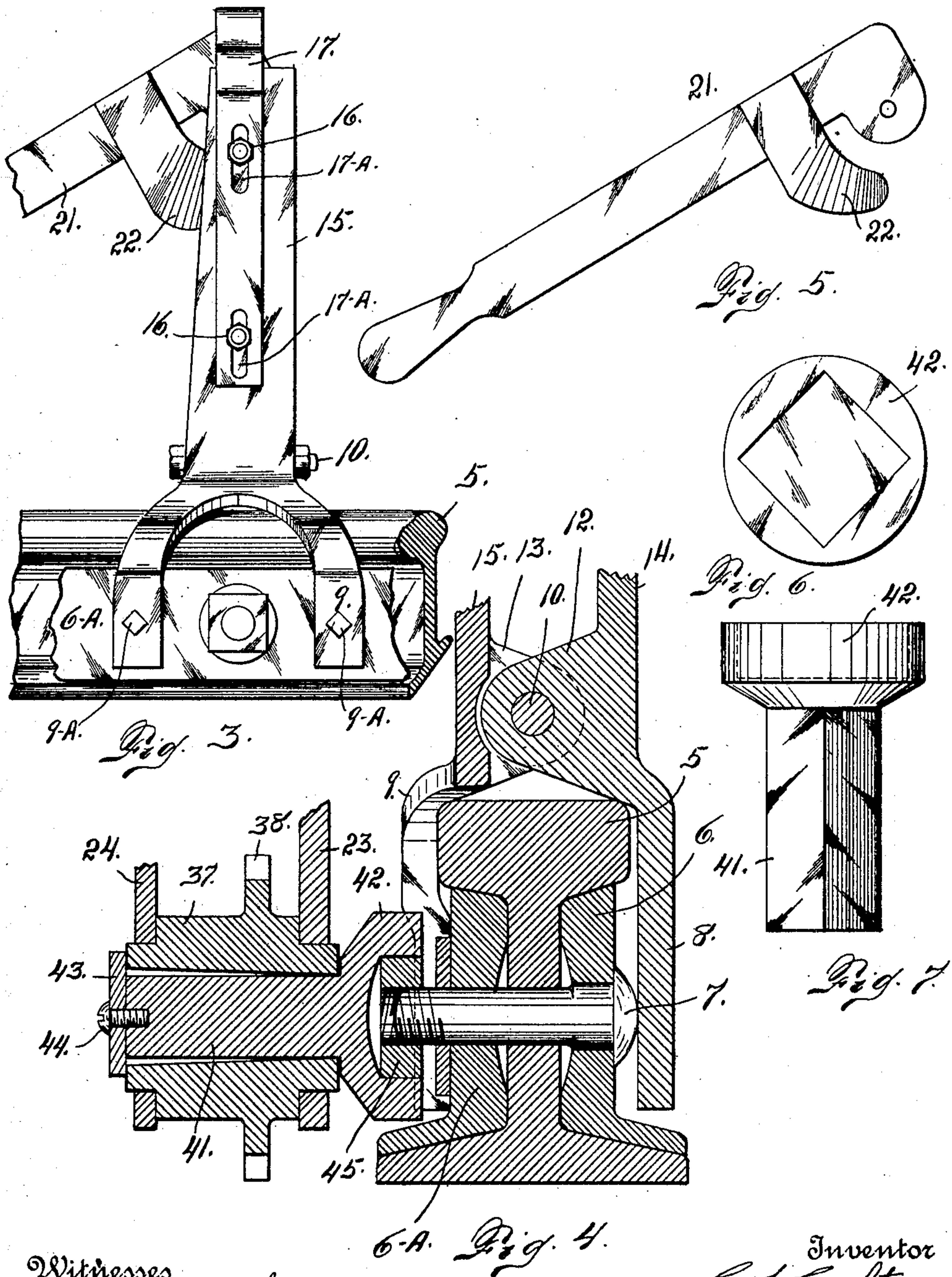
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By, A. J. Smith Attorney

UNITED STATES PATENT OFFICE.

CHARLES J. COULTER, OF LONGMONT, COLORADO.

COMBINED MACHINE-WRENCH AND CLAMP.

No. 871,482.

Specification of Letters Patent.

Patented Nov. 19, 1907.

Application filed March 18, 1907. Serial No. 363,093.

To all whom it may concern:

Be it known that I, CHARLES J. COULTER, a citizen of the United States, residing at Longmont, in the county of Boulder and State of Colorado, have invented certain new and useful Improvements in a Combined Machine-Wrench and Clamp; and I do 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 and figures of reference marked thereon, which form a part of this specification.

My invention relates to a machine wrench provided with a clamping attachment.

The invention is more especially adapted for use in forming railway rail joints, where it is necessary to apply fish plates to the opposite sides of the rail and bolt the same in place.

The clamping member of my improved construction is adapted to straddle the rail and engage the head of the bolt, whereby the latter is forced tightly against the plate on one side, and the threaded extremity of the bolt caused to protrude to its full length from the fish plate on the opposite side whereby the nut may be advantageously applied thereto.

The wrench portion of the mechanism is adapted to apply the nut after the clamping mechanism has been placed in position.

My improved wrench mechanism is provided with a hand crank connected in operative relation with the device for actuating the nut, by means of sprocket wheels and chains, whereby any desired leverage may be obtained.

Having briefly outlined my improved construction, I will proceed to describe the same in detail reference being made to the accompanying drawing in which is illustrated an embodiment thereof.

In this drawing, Figure 1 is an elevation of my improved mechanism showing the rail in cross section and the fish plates in end view. In this view the mechanism is shown in operative relation with the rail and fish plates. Fig. 2 is a side elevation of the same. Fig. 3 is a view of the clamping mechanism looking in the direction of the arrow in Fig. 1. Fig. 4 is a section taken on the line 4-4 Fig. 2. Fig. 5 is a detail view of the lever employed in connection with the clamping mechanism.

Fig. 6 is an end view of the socket head of the wrench spindle. Fig. 7 is a side elevation of the said spindle.

The same reference characters indicate the same parts in all the views.

Let the numeral 5 designate a railroad rail and 6 and 6^A the fish plates applied to the opposite sides of the web of the rail in the usual manner. These fish plates are secured in place by means of a bolt 7 passing through registering openings formed in the plates and the web of the rail. The clamping part of my improved mechanism consists of two jaws 8 and 9 pivotally connected together at 10. This pivot is located just above the jaws proper and it is passed through apertures formed in lugs 12 and 13. The jaw 8 is adapted to extend downwardly and engage the head of the bolt 7, while the jaw 9 is bifurcated, its two arms being adapted to engage the fish plate 6^A on the opposite side of the rail, the respective arms engaging the said plate on opposite sides of the threaded extremity of the nut. The jaws 8 and 9 are provided with arms 14 and 15 respectively extending above the pivot. The arm 15 is secured by cap screws 16 to a depending arm 17 pivotally connected at 18 with the frame 19 of the wrench. The upper extremity of the arm 14 is provided with an opening through which a bolt 20 passes, the said bolt being threaded in the upper part of the arm 15.

The bolt opening in the arm 14 is sufficiently large to allow the arm to swing freely on the bolt. Fulcrumed on this bolt between the two arms, is a lever 21 having a wedge-shaped projection 22 adapted to pass between the upper extremities of the arms 14 and 15, whereby the arm 14 is actuated to cause the jaw 8 to clamp the head of the bolt 7 and force the latter through the fish plates and the web of the rail as heretofore explained.

The frame 19 of the wrench mechanism consists of two upright members 23 and 24 suitably connected and properly spaced. The upper extremities of these two members are connected by a bolt 26 passing through a spacing sleeve 27. Below this bolt is located a crank shaft 28 upon which is mounted a sprocket wheel 29 having a spacing hub 30 interposed between the two frame members. To one extremity of this shaft is applied a hand crank 31. Below the shaft 28 is a second shaft 32 upon which is mounted a hub 33.

carrying sprocket wheels 34 and 35, the wheel 35 being larger than the wheel 29 and also larger than the wheel 34. The lower part of the frame is provided with a hollow shaft 37 carrying a sprocket wheel 38, the said shaft being journaled in the frame. The sprocket wheel 29 is connected with the sprocket 35 by a chain 39; while the wheel 34 is connected with the wheel 38 by a chain 40.

The hollow shaft or hub 37 of the wheel 38, is provided with an angular socket adapted to receive the shank 41 of the socket wrench head 42. The shank or spindle 41 fits the opening of the hub 37 quite closely adjacent the head. The spindle opening, however, of the wheel hub increases in size toward the opposite extremity of the spindle, thus allowing the head of the wrench a considerable degree of oscillating movement, whereby it is capable of automatic adjustment when rotated adjacent the nut 45 to be turned.

In order to prevent the wrench member from slipping out of its socket, a washer 43 is applied to the extremity of the wrench spindle remote from its head, by means of a screw 44. This washer allows the shank of the wrench to oscillate freely within the opening of the hollow shaft or head but at the same time performs its aforesaid function.

The cap screws 16 which connect the arm 17 with the arm 15 of the clamp, pass through slots 17^a formed in the arm 17, whereby the relative vertical position of the clamping device may be changed at will.

From the foregoing description the use and operation of my improved machine wrench and clamp will be readily understood. Assuming that it is desired to connect the fish plates 6 and 6^a with two abutting rail ends 5, the operation is as follows: The fish plates are placed in position on opposite sides of the abutting rail ends, after which the bolt 7 is put in place and the nut 45 started upon the threaded extremity thereof. My improved machine is then put in the relative position indicated in Figs. 1 and 2, that is to say with the jaws 8 and 9 straddling the rails and fish plates, the jaw 8 engaging the head of the nut 7, while the jaw 9 engages the fish plate on the opposite side, its arms occupying positions on opposite sides of the nut. After which the lever 21 is moved downwardly causing its wedge-shaped part 22 to pass between the arms 14 and 15, whereby the jaw 8 is forced against the bolt 7 and the latter driven through the fish plates and rail to its utmost limit of movement. When this is accomplished, the hinge 18, allows the socket head 42 of the wrench member to come in contact with the nut. The hand crank 21 is then turned, whereby the wrench head is rotated and the nut screwed upon the bolt in a manner that will be readily understood.

The opposite arms of the clamping jaw 9 may be provided with bolts 9^a adapted to

pass through the said arms and engage the fish plates. By the adjustment of these bolts the clamp may be advantageously employed in connection with devices of various thicknesses. In other words these bolts may be convenient under circumstances where it might be difficult to bring the jaw 9 in engagement with the parts to be connected. However, by the use of the bolts a practically unlimited range of adjustment may be obtained.

Having thus described my invention, what I claim is:

1. A combined machine wrench and clamp, comprising clamping jaws pivotally connected, one jaw being bifurcated to straddle the bolt while the other jaw is adapted to engage the head thereof, the clamping jaws being provided with arms projecting above the pivot, and a lever having a fulcrum connected with one arm and upon which the other arm moves freely, the said lever having a wedge shaped projection adapted to pass between the arms of the clamping jaws whereby the latter are forced into operative engagement with the adjacent part, and a wrench to whose frame the clamp is hinged, substantially as described.

2. A combined wrench and clamp, the wrench having a frame in which is journaled a socket head, means mounted on the frame for rotating the said head, the clamp mechanism comprising jaws pivotally connected, one jaw being adapted to engage the bolt head and the other jaw being adapted to straddle the threaded extremity of the bolt, one of the clamping jaws being freely movable, and a lever provided with a wedge shaped member suitably fulcrumed and adapted to pass between the arms of the jaws for clamping purposes, the wrench and clamping mechanism being hinged together, substantially as described.

3. In a wrench mechanism, the combination of a frame, a hollow shaft or hub journaled in the frame, a wrench member having a spindle engaging the said shaft, a locking means mounted on the spindle extremity remote from the wrench member and engaging said shaft, the shaft and spindle being arranged to rotate in unison, the opening in the shaft increasing in size from the wrench head outwardly to allow the latter a considerable degree of oscillation for the purpose of adjustment, and suitable means mounted on the frame for rotating the shaft and spindle, substantially as described.

4. The combination of wrench mechanism having a frame, a head journaled therein, and means for rotating the socket head, and clamping mechanism composed of two jaws pivotally connected and provided with arms extending beyond the pivot, the said arms being relatively movable, a wedge shaped member journaled between the upper ex-

5 extremities of the said arms for separating the arms to impart the clamping movement to the jaws, one of the arms being hinged to the frame of the wrench, and a hinge connecting the wrench and clamping mechanism, substantially as described.

10 5. The combination of a clamp having jaws adapted to straddle the parts to be connected by a bolt, a wedge shaped member journaled between the upward extremities of the clamp for separating the arms to impart the clamping movement to the jaws, one of

the jaws being arranged to engage the head of the bolt, and a machine wrench hinged to the clamp whereby the wrench member is allowed to swing toward and away from the nut to be applied to the bolt, substantially as described. 15

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

CHARLES J. COULTER.

Witnesses:

DENA NELSON,
A. J. O'BRIEN.