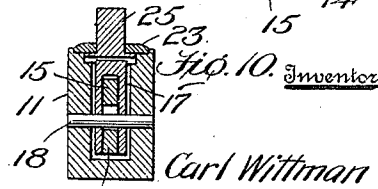
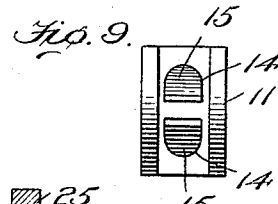
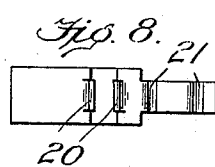
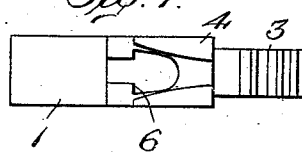
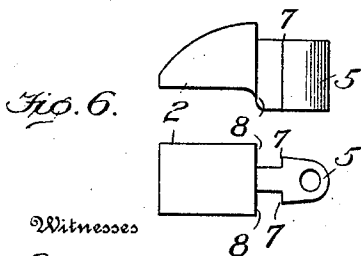
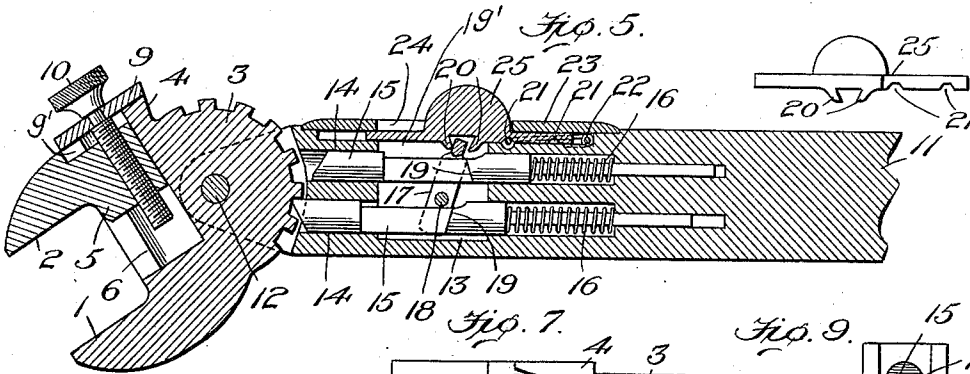
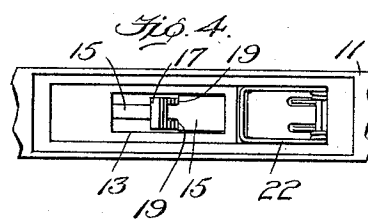
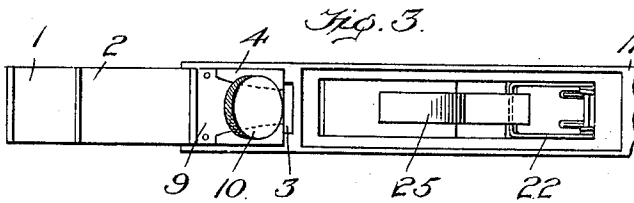
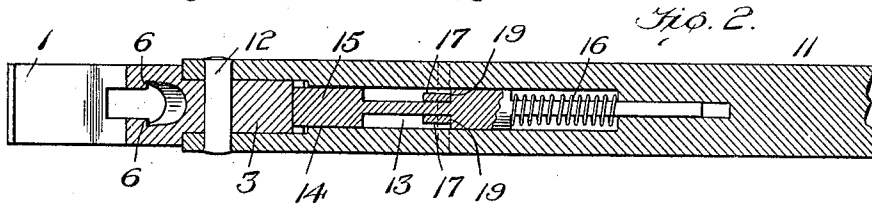
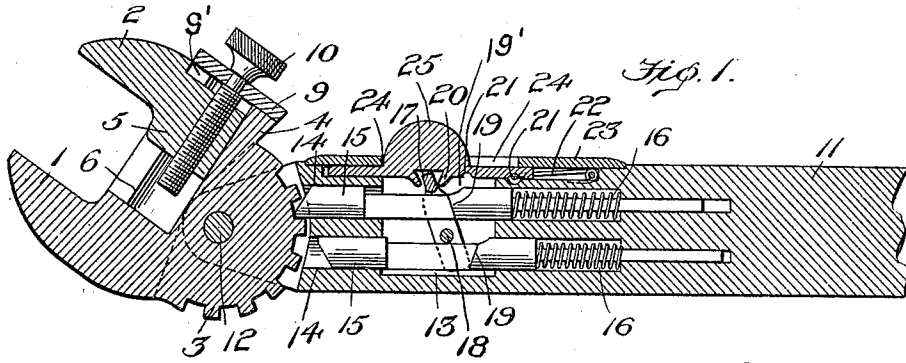


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WRENCH.

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WRENCH.

948,946.

Specification of Letters Patent.

Patented Feb. 8, 1910.

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To all whom it may concern:

Be it known that I, CARL WITTMAN, a citizen of the United States, residing at Emporia, in the county of Lyon and State of Kansas, have invented new and useful Improvements in Wrenches, of which the following is a specification.

My invention relates to wrenches of the clutch-head type and my improvement resides in certain parts and combinations of parts and their novel arrangement and connection whereby the jaw-head may be adjusted to any desired position to the right or to the left for action upon nuts not of convenient access, and, while I have shown the preferred construction of a pair of slidable clutch-rods connected by a swing-yoke which is connected to and actuated by a slidable saddle for effecting and controlling the engagement of the clutch-rods with a cogged member of a pivoted jaw head having a slidable jaw, obviously any suitable construction of jaw-head may be used with the slidable clutch-rods, and means whereby the slidable movement of one of the clutch-rods effects and controls the slidable movement of the other clutch-rod; nor do I wish to confine myself to the particular construction and arrangement shown.

Figure 1 is a longitudinal section of the wrench showing the jaw-head as set and clutched to the right. Fig. 2 is a longitudinal section of the same taken at right angles to Fig. 1. Fig. 3 is an edge view of the same showing the slidable saddle for reversing the clutch-rods which engage the pivoted jaw-head. Fig. 4 shows a portion of Fig. 3 with the slidable saddle removed. Fig. 5 is a view like Fig. 1 showing the jaw-head as set and clutched to the left. Fig. 6 shows the movable jaw in side and end views. Fig. 7 shows an end view of the jaw-head with the cap and the movable jaw removed. Fig. 8 shows the underside of the slidable saddle. Fig. 9 is an end view of the bifurcated handle showing the beveled ends of the clutch-rods. Fig. 10 is a transverse section taken through the handle at the slidable saddle.

The wrench comprises a handle and a jaw-head pivotally mounted thereon so as to be set to any desired angle to the right or to the left of the handle to adapt it to the position for engagement with the nut to be turned and to set the handle for convenient working in places more or less difficult for reaching the nut. The jaw-head has a fixed and a

slidable jaw 1 and 2, and a semi-circular cogged member 3 projecting from the base of the fixed jaw. The movable jaw is slidable upon a right angled extension 4 of the fixed jaw and the latter has a mortise open at the end of the extension. The movable jaw has a shank 5 adapted to fit the mortise within which it is adjustable and to give it a firm hold within the mortise the latter has shoulders 6—6 Fig. 7 on its inner opposite walls and the shank has corresponding shoulders 7—7 on its opposite sides, while a shoulder 8 Fig. 6 at the base of the jaw is slidable against the closed side of the extension within the mortise of which the jaw is firmly supported.

A cap 9 closes the open end of the jaw-extension and is secured thereon in a recess 9', the cap being of T form and slightly tapered to give it a firm seating in said recess. A thumb-screw 10 pierces the cap and engages a screw threaded hole in the shank of the slidable jaw, and the screw being fixed to the cap by a shouldered groove, causes, when screwed in or out the jaw to be set in or out to suit the size of the nut. The movable jaw is thus rendered adjustable within the mortise of the fixed jaw extension the walls of the mortise giving a solid seating for the jaw-shank and relieving the screw-stem of the force and strain put upon the jaw in turning the nut.

The handle 11 contains the slidable clutch-rods and its bifurcated end embraces the jaw cogged member to which it is centrally pivoted and upon this pivot 12 the jaw-head can be turned to the right or to the left and set and held in the desired position by a pair of clutch-rods which I will now describe.

The handle has a mortise 13 which is open at one edge and communicates by two longitudinal bores 14 with the space between the forks of the handle and within this mortise and in each of the bores is fitted a slidable clutch-rod 15, side by side and adapted to engage and lock the toothed member of the jaw-head in the position in which it may be set; and for this purpose each clutch-rod is arranged on each side of a line longitudinally central with the pivot of the jaw-head. The adjacent side of each clutch-rod terminates in an edge adapted to engage the jaw-cogs and is flat on its side so as to prevent it from turning in its seat and thereby keep it in position to engage the

cogs; while at its other or inner end each clutch-rod extends into a hole in the handle and is provided with a coiled spring 16 which constantly tends to press the clutch-
 5 rods forward into engagement with the jaw-head cogs.

The control of the clutch-rods is effected as follows: A yoke 17 Figs. 1 and 10 is fixed by a pivot 18 transversely in the handle mortise so as to straddle the clutch-rods the pivot passing between the clutch-rods, through each leg of the yoke and into the side walls of the handle. Each clutch-rod has a shoulder 19 which abuts against the
 10 legs of the yoke which, thereby serves to cause by its swing movement, the projection of each clutch-rod alternately and to retract each clutch-rod alternately as I will now describe. The upper closed end of the
 15 yoke extends into a recess 19' in the edge of the handle and is engaged by a saddle 25 adapted to slide back and forth in said recess within certain limits. A convenient way of connecting the saddle with the yoke
 20 is by engaging the end of the yoke between ears 20 on the underside of the saddle so that by moving the saddle toward the jaw-head that end of the yoke which is connected to the saddle will be moved with it by the swing
 25 movement or rocking of the yoke upon its pivot and thereby cause the forward projection of one of the clutch-rods into engagement with the jaw-head cogs and simultaneously cause the retraction of the other clutch-rod and the jaw-head can be turned to any
 30 desired angle to the right or to the left to suit the work to be done.

For locking the saddle in either of its extreme movements it is provided with two
 40 transverse notches 21 21 on the underside of its rear end the distance apart being equal to the extent of the movements of the saddle, and for engaging such notches a loop spring 22 is fixed in the recess so that its
 45 loop end stands forward and by its spring function is constantly forced outward into engagement with the notches in the saddle, the movement of which from or toward the jaw-head to project one of the clutch-rods
 50 will cause the spring to be depressed from one notch and enter the notch at the rear end of the saddle and lock it and thereby allow the spring on the clutch-rod to project and hold it in its engagement with the jaw-head cogs. The reverse movement of the
 55 saddle will cause the retraction of the projected clutch-rod and allow the projection of the other clutch-rod into engagement with the jaw-head cogs. In this movement of the saddle it is held upon its seat by a cap plate 23 fastened in the recess and having a slot 24 through which a thumb knob of the saddle 25 projects and forms the handle by which the saddle is moved. As the
 60 clutch ends of the rods are separated only

by a thin partition the force of the jaw-head whether directed toward the right or to the left against the clutch-ends, is resisted by the solid walls of the handle and thus prevent any backward force that would tend
 70 to disturb the locking function of the slidable saddle.

It will be noted that the clutch-ends are separated only by a thin partition, that their flat sides are fitted against this partition, that they are therefore quite close together
 75 and that their ends are beveled so as to form ratchet edges at their flat sides, and that it is this construction which gives the advantage of allowing the beveled ends of
 80 clutches to slip over the cogs by moving the handle to the right or to the left to give the desired angle to the jaw-head.

In the normal position of the saddle when disengaged from its retaining spring the
 85 pivoted yoke will stand at right angles to the handle because the pressure clutch-rod springs against it will be about balanced and the clutch ends will not therefore be projected into engagement with the cogs of the
 90 jaw-head and it can be freely turned to the desired angle before it is applied to the nut.

I claim:

1. In a wrench, a handle, a jaw-head pivotally mounted thereon and having a cogged
 95 member, a pair of slidable clutch-rods side by side within the handle adapted to engage said cogged member, a swing yoke transversely mounted in the handle and adapted to engage the clutch-rods, a slidable saddle
 100 adapted to engage one end of the yoke, and means for controlling the movements of the saddle.

2. In a wrench, a handle, a jaw-head pivotally mounted thereon and having a cogged
 105 member, a pair of slidable clutch-rods side by side within the handle adapted to engage said cogged member, a swing-yoke mounted transversely in the handle and adapted to engage the clutch-rods, and means for vibrating said yoke, whereby the slidable
 110 movement of one clutch-rod is caused to effect and control the slidable movement of the other clutch-rod.

3. In a wrench, a handle having a bifurcated end, a mortise and a longitudinal bore, a jaw-head pivotally mounted in the bifurcated end and having a segmental cogged
 115 member, a pair of clutch-rods side by side in the longitudinal bore adapted for engagement with the cogs of the jaw-head, a yoke pivotally mounted within the mortise in straddling relation to shoulders on the clutch-rods, a coil spring on each rod forcing it into engagement with the cogs of the
 120 jaw-head, and means for causing the yoke to be swung on its pivot to effect the alternate projection and retraction of each clutch-rod for the purpose stated.

4. In a wrench, a handle having a bifur-

cated end, a mortise and a longitudinal bore, a jaw-head pivotally mounted in the bifurcated end and having a segmental cogged member, a pair of clutch-rods side by side in the longitudinal bore adapted for engagement with the cogs of the jaw-head, a yoke in the mortise and mounted to swing on a pivot between the rods, means on the latter adapted to engage the yoke, said engagement being on opposite sides of the yoke-pivot, and means for causing the yoke to swing on its pivot, for the purpose stated.

5. In a wrench, a handle having a bifurcated end, a mortise, and interior bores side by side opening within the bifurcation, a jaw-head pivotally mounted in the bifurcation and having a segmental cogged member, a pair of clutch-rods one in each of the bores and extending into the bifurcation and adapted for engagement with the cogged member of the jaw-head, a yoke straddling the rods in the mortise and pivotally mounted mediatly of its length between the rods, the said rods each having a shoulder abutting against the yoke on opposite sides of the pivot, a coiled spring on each rod forcing it into engagement with the cogs of the jaw head, and means connected with the yoke for causing it to be swung on its pivot to effect the alternate retraction of each clutch-rod for the purpose stated.

6. In a wrench, a handle having a bifurcated end, a mortise, interior bores side by side separated by a partition, a jaw-head pivotally mounted within the bifurcation and having a segmental cogged member, a pair of clutch-rods one in each of the bores adapted for engagement with the cogged member of the jaw-head and each having a flat side seated on opposite sides of the said partition to cause their beveled ends to be held in proper relation to the cogs, a yoke straddling the rods in the mortise and pivotally mounted mediatly of its length between the rods, means on the latter adapted to engage the yoke on opposite sides of the pivot, and means for causing the yoke to be swung on its pivot, and a coil-spring on each rod forcing it into engagement with the cogs of the jaw-head.

7. In a wrench, a handle having a bifur-

cated end, a mortise, and interior bores side by side opening within the bifurcation, a jaw-head pivotally mounted in the bifurcation and having a segmental cogged member, a pair of clutch-rods one in each of the bores and extending into the bifurcation and adapted for engagement with the cogged member of the jaw-head, a yoke in the mortise and mounted to swing on a pivot between the rods, means on the latter adapted to engage the yoke said engagement being on opposite sides of the pivot, a slidable saddle adapted to engage the outer end of the yoke, a spring fixed to the handle and adapted to engage the underside of the saddle and hold it in its extreme inward and outward movements to alternately project and retract the clutch-rods as the yoke may be caused to swing on its pivot by the movements of said saddle, and means for retaining the saddle in place.

8. In a wrench, a handle having a bifurcated end, a mortise, and interior bores side by side opening within the bifurcation, a jaw-head pivotally mounted in the bifurcation and having a segmental cogged member, a pair of clutch-rods side by side one in each bore adapted for engagement with the cogs of the jaw-head, a yoke in the mortise and mounted to swing on a pivot between the rods, a shoulder on each rod for engaging the yoke on each side of its pivot, a slidable saddle having ears on its underside adapted to engage the upper end of the yoke, a spring fixed on the handle adapted to exert a force against the underside of the saddle, and means on the underside of the latter adapted to engage and hold the saddle at its extreme inward or outward movement to alternately project and retract the clutch-rods, for the purpose stated.

In testimony whereof I have hereunto signed my name to this specification in the presence of the subscribing witnesses.

CARL WITTMAN.

Witnesses:

A. R. SPECHT,
N. B. HAYNES,
CHAS. N. RIGGS.