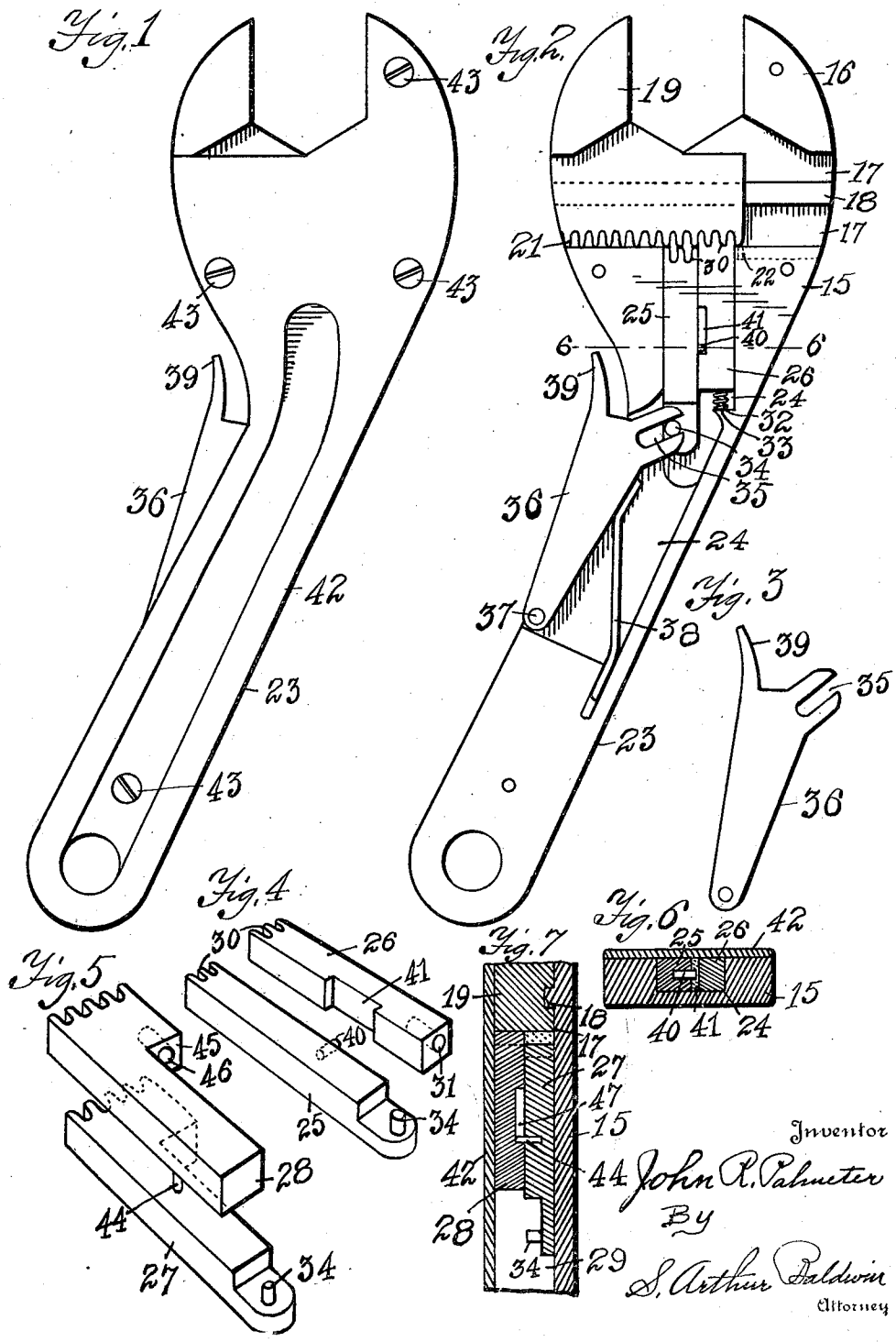
Oct. 23, 1923. 1,471,413

J. R. PALMETER

WRENCH

Filed Feb. 21, 1922 2 Sheets-Sheet 1



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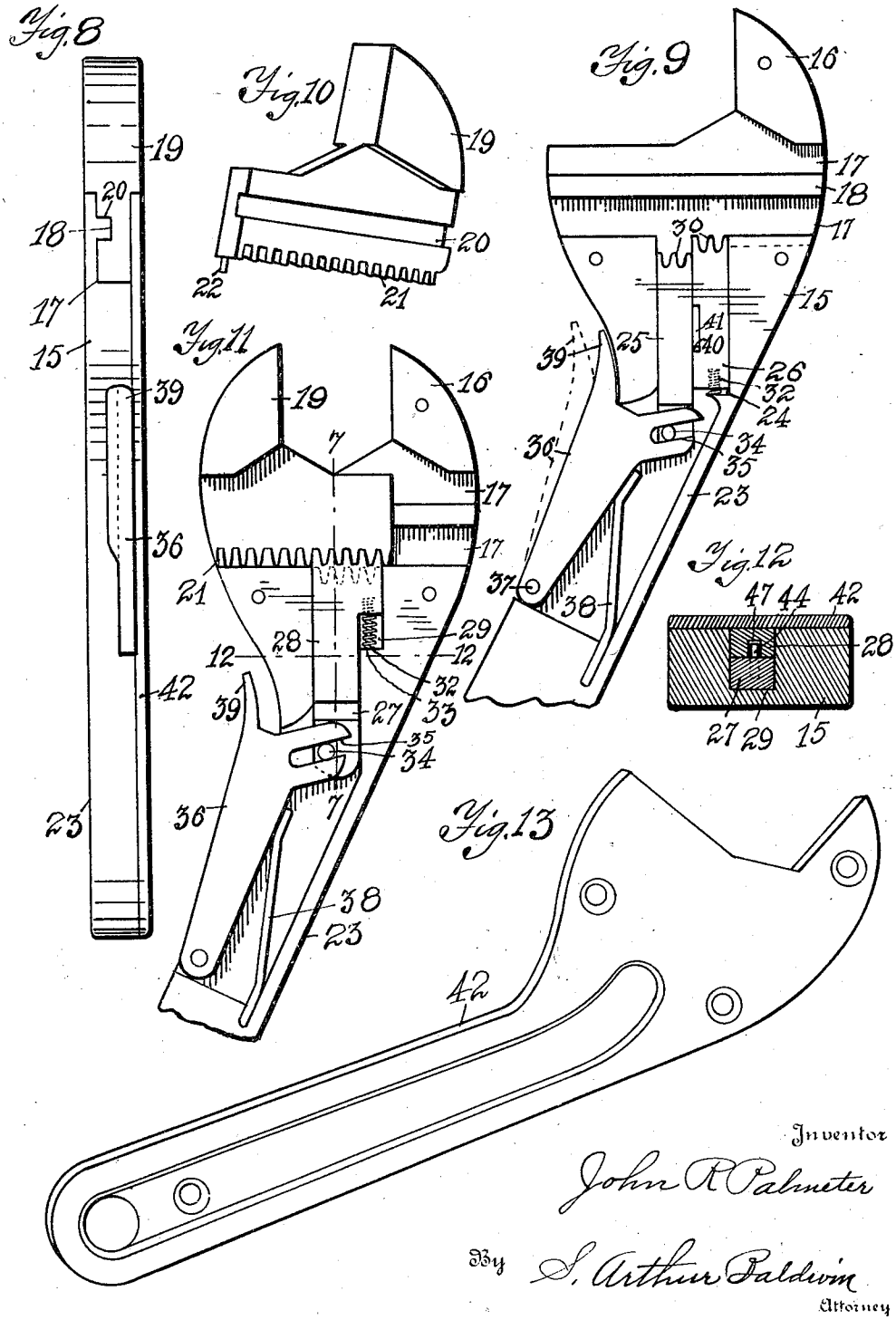

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UNITED STATES PATENT OFFICE.

JOHN R. PALMETER, OF JAMESTOWN, NEW YORK.

WRENCH.

Application filed February 21, 1922. Serial No. 538,199.

To all whom it may concern:

Be it known that I, JOHN R. PALMETER, a citizen of the United States, residing at the city of Jamestown, in the county of Chautauqua and State of New York, have invented certain new and useful Improvements in Wrenches, of which the following, taken in connection with the accompanying drawings, is a specification.

The invention relates to adjustable jaw wrenches; and the object of the improvement is to provide a wrench in which the movable jaw is slidably mounted crosswise of the wrench head to freely move to and from a fixed jaw and be held in spaced relation thereto by means of inter-meshing toothed slides, one of which slides is spring actuated and the other slide is controlled by a manually compressible spring lever which also engages said spring controlled slide to withdraw both slides out of the path of said movable jaw in order to adjust the same, said spring lever being automatically returned to its normal position by the spring control of the same; and the invention consists in the novel features and combinations hereinafter set forth and claimed.

In the drawings, Figure 1 is a side elevation of the wrench with the parts in the normal position, the jaws being separated from each other. Fig. 2 is a side elevation of the wrench with the side plates removed, showing the construction and arrangement of the wrench parts and the manner of adjusting and holding the movable jaw. Fig. 3 is a detail plan view of the preferred form of the operating lever. Fig. 4 is a perspective view of the two jaw holding slides separated from each other and the wrench, to show the construction of the same in a wrench in which said slides are placed edge to edge so as to make as thin a wrench as possible; and Fig. 5 is a perspective view of a modified form of the jaw holding slides in wrenches in which great strength is desired, and said slides are placed side to side instead of edge to edge as in the thinner wrench, the modification being used preferably for large wrenches. Fig. 6 is a crosswise sectional view at line 6—6 in Fig. 2 showing the construction and arrangement of the slides and the pin and groove connection. Fig. 7 is a sectional view of the modified form of the slides at line 7—7 in Fig. 10 in which they are placed side to side and the pin and groove connection. Fig. 8 is in an edgewise elevation of the wrench showing the compressible lever and side closure plate and the preferred arrangement for the movable jaw with the rib extending into the same to hold the same in line; and Fig. 9 is a side elevation of the head of the wrench with the side plate and movable jaw removed showing said crosswise rib, the holding or controlling slides being shown in the withdrawn position, that is, with the controlling lever pressed inward, the extended position for said lever being shown in dotted outline; and Fig. 10 is a perspective view of the movable jaw removed from the wrench head and showing the groove therein for said crosswise rib; and Fig. 11 is a side elevation of the modified form of the wrench head showing one of the toothed slides in the holding position, the other being shown in the withdrawn position in dotted outline. Fig. 12 is a crosswise sectional view at line 12—12 in Fig. 11 showing the arrangement of the slides and the pin and groove connection in the modified form. Fig. 13 is a perspective view of the side plate for the wrench detached from the remaining portion of the wrench.

Like characters of reference refer to corresponding parts in the several views.

The numeral 15 designates the main portion of the wrench which has the fixed jaw 16 extending up at one side of the wrench head, a crosswise groove 17 being provided immediately beneath said fixed jaw 16, which groove has the crosswise rib 18 therein. The rib 18 divides the groove 17 about midway and extends into the movable jaw 19, preferably in about the proportion shown in Fig. 8, though these proportions may be changed, for example, for lightness or for greater strength, without departing from my invention.

The movable jaw 19 fits within the groove

17 and has the groove 20 therein to slidably receive the rib 18 to hold said movable jaw 19 in line. The movable jaw 19 also has the teeth 21 crosswise of the lower edge of the same; and the stop 22 at one end thereof to limit the extension of said movable jaw 19 as it slidably works in the groove 17 in said wrench head.

The main portion 15 of the wrench is extended angularly in a handle 23 and has the groove or sidewise opening 24 therein connecting to groove 17 at one end to receive the jaw controlling slides 25 and 26 in the small or thinner wrenches, and 27 and 28 in the larger or thicker wrenches, said slides being similarly actuated and performing the same office in substantially the same manner, with the exception of the size of the wrench as to thickness, and the strength of the same, the slides 27 and 28 having a slightly different shaped opening 29 as compared with opening 24. The edge to edge or more delicate slides 25 and 26 are toothed on their ends as shown at 30 to enter into holding mesh in the teeth 21 in the movable jaw 19.

The slide 26 has the hole 31 in the inner end of the same to receive the coil spring 32, which coil spring seats on a shoulder 33 in the inner end of the groove 24. The slide 25 slidably fits alongside the slide 26 in the groove 24 and has the sidewise extending pin 34 on the inner end of the same which is engaged in the inclined open-ended slot 35 in the pivotally mounted lever 36. The lever 36 is pivoted on a pin 37 at its lower end and has the leaf spring 38 bearing against the inner side of the same, preferably having the tongue 39 on its upper end which strikes against the side of the wrench part 15, and thereby acts as a stop for the inward movement of said lever 36, said inward movement being just sufficient to withdraw the slides 25 and 26 entirely out of mesh with the teeth 21 of the movable jaw 19, thereby permitting said movable jaw 19 to be adjusted against the nut to be turned, after which pressure on the lever 36 may be removed, thereby permitting the slides 25 and 26 to be automatically moved into mesh with the teeth 21 to hold said movable jaw 19 in the adjusted position.

In order to withdraw the slide 26 from intermeshing engagement with the teeth 21, a pin 40 is provided in the side of the slide 25 adjacent the slide 26 in a lost motion notch 41 so that the inward movement under manual pressure of the lever 36 draws downward on the pin 34 of the slide 25 the length of the teeth 21, thereby withdrawing said slide from mesh with the teeth 21, and the pin 40 then engages the end wall of the notch or groove 41 and continued pressure withdraws said slide 26 from engagement in the teeth 21, thereby entirely freeing the movable jaw 19 so it can be moved backward or forward as desired in order to adjust the same.

A cover or side plate 42 is provided on the side of the main wrench portion 15, being preferably attached thereto by means of suitable screws 43 as shown in Fig. 1, though suitable rivets may be used in place of the screws without departing from my invention. The cover plate 42 holds all the parts in position and permits the drop forging of the wrench parts and greatly economizing in the cost of manufacture.

The modified slides 27 and 28 have the pin 44 in the side of the slide 27 and the lost motion groove 47, and the action is exactly the same as with the slides 25 and 26, the slides 28 being automatically actuated by a spring 32 on the shoulder 33 as for slide 26.

The slide 28, however, has the shoulder 33 nearer the teeth 21 in order to provide for the increased width of the toothed end of the slide 28, which has the shoulder 45 with the hole 46 therein to receive the spring 29, as shown in Figs. 5 and 11. The pin 44 in the slide 27 working in the groove 47 as shown in Fig. 12 actuates the slide 28 in precisely the same manner as the slide 25 actuates the slide 26. However, the placing of the slides 27 and 28 alongside one another permits five teeth in each slide 27 and 28 instead of three teeth as in slides 25 and 26, thereby giving a much stronger holding power for the jaw 19. The slides 27 and 28 may work alternately the same as the slides 25 and 26. The number of teeth in said slide may be changed without departing from my invention.

It is apparent that all of the parts of the wrench may be quickly and economically made by drop forging and other machine methods, also that the wrench can be quickly and easily assembled, thereby permitting the manufacture of the wrench and assemblage of the same at a low cost, at the same time making an exceedingly strong and convenient wrench which can be held and adjusted by one hand.

In operating the wrench, all that is necessary is to give manual pressure to the lever 36 with its stop projection 39 which presses downward on the pin 34, thereby withdrawing the two slides 25 and 26 or 27 and 28 from their meshing engagement with the movable jaw 19, permitting said jaw 19 to be adjusted as desired, at which point the instantaneous release of the manual pressure automatically causes the slides to engage in the teeth 21, firmly holding the jaw 19 in the adjusted position.

An alternating movement may be given to each of the pairs of slides 25 and 26 or 27 and 28 if the teeth on said slides are ar-

ranged in staggered relation as to intermeshing with the teeth on the movable jaw at say one-half the thickness of said teeth on the movable jaw, that is, one slide of said pair of slides may be positioned so as to inter-mesh with the teeth 21 on the movable jaw and by withdrawing the same, and moving said movable jaw one-half the thickness of one of the teeth 21, the other slide would be permitted to enter. This arrangement gives a sufficiently close adjustment, since the sizes of bolt nuts usually run in one-eighth inch series. It is obvious that any form of spaced projections and similarly spaced openings in either the slides or the movable jaw would attain the purpose. The intermeshing teeth are preferred because they can be struck up at small cost and provide an exceedingly strong and durable construction.

What is claimed as new is:

1. A wrench comprising a wrench head having a slidably mounted jaw therein, teeth crosswise of the edge of said jaw, a pair of toothed slides to hold said jaw in an adjusted position, and single manual control for said slides to retract the same seriatim from engagement with the teeth of said slidably mounted jaw.

2. A wrench comprising a struck-up main portion having a crosswise groove in the head portion and a lengthwise groove opening out of said crosswise groove into the handle portion of said wrench, a movable jaw slidably mounted in said crosswise groove, slides in said lengthwise portion of said groove having their ends adjacent the edge of said movable jaw, and releasable inter-engaging spaced projections and openings in the adjacent portions of said slides and said jaw whereby one of said slides will hold said jaw in a fixed position, a manually controlled lever for retracting one of said slides and lost motion means between said slides transmitting the retracting movement of the first named slide to the other slide and insuring the release of movable jaw.

3. A wrench comprising a struck-up main portion having a crosswise groove in the head portion and a lengthwise groove opening out of said crosswise groove into the handle portion of said wrench, a movable jaw slidably mounted in said crosswise groove, slides in said lengthwise portion of said groove having their ends adjacent the edge of said movable jaw, inter-engaging spaced projections and openings in the adjacent portions of said slide ends and said jaw whereby one of said slides will hold said jaw in a fixed position, and means to manually retract said slides seriatim and release the holding slide from engagement with said movable jaw to adjust the same.

4. A wrench comprising a main struck-up wrench portion having a crosswise groove therein and a lengthwise groove opening out of said crosswise groove, a fixed jaw on said wrench portion, a movable jaw mounted in said crosswise groove, a pair of slides mounted in said lengthwise groove adjacent said movable jaw, inter-engaging means between said slides and movable jaw whereby one of said slides will hold the same, a manually compressible spring lever to withdraw the holding slide from engagement with said jaw, and a side plate for said wrench to close said grooves and hold the parts in working position.

5. A wrench comprising a main struck-up wrench portion having crosswise and lengthwise grooves opening into one another, a fixed jaw on said main portion, a movable jaw slidably fitting in said crosswise groove to move to and from said fixed jaw, a pair of jaw holding slides mounted in said lengthwise groove, a spring for actuating one of said slides toward said movable jaw, a spring controlled lever for the other of said slides, lost motion connection between said slides, and toothed inter-meshing connection between the ends of said slides and the side of said movable jaw.

6. A wrench comprising a main struck-up wrench portion having crosswise and lengthwise grooves opening into one another, a fixed jaw on said main portion, a movable jaw slidably fitting in said crosswise groove to move to and from said fixed jaw, a pair of slides mounted in said lengthwise groove with freedom of endwise movement, a spring for actuating one of said slides into holding engagement with said movable jaw, a spring controlled lever for the other of said slides, lost motion connection between said slides, toothed connection between the ends of said slides and the side of said movable jaw, said teeth in said slides arranged in staggered relation to one another as to said teeth in said movable jaw to alternately enter said toothed slides into inter-meshing engagement with said movable jaw.

7. A wrench comprising a main struck-up wrench portion having crosswise and lengthwise grooves therein, a fixed jaw on the head of said main portion, a rib centrally lengthwise of said crosswise groove, a movable jaw fitting in said crosswise groove and having a groove therein to receive said rib to hold said jaw in alinement, teeth crosswise of the lower edge of said movable jaw, similarily toothed jaw holding slides mounted in the lengthwise portion of said groove adjacent said teeth on said movable jaw to inter-mesh therewith, a coil spring to give automatic engage-

ment for said inter-meshing teeth on one of said slides, a pin on the other of said slides, a spring lever having open-ended slot engagement with said pin on said slide and extending out from the handle of said wrench to be manually compressible to move said slides lengthwise out of engagement with said movable jaw, pin and lost motion connection between said slides, and a side cover plate shaped to fit said main portion of said wrench and hold and enclose said parts.

In testimony whereof I have affixed my signature in the presence of two witnesses.

JOHN R. PALMETER.

Witnesses:

CORINNE V. SWANSON,

E. T. BALDWIN.