

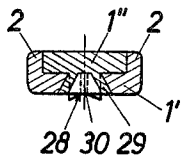
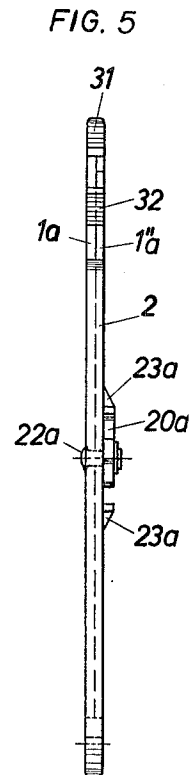
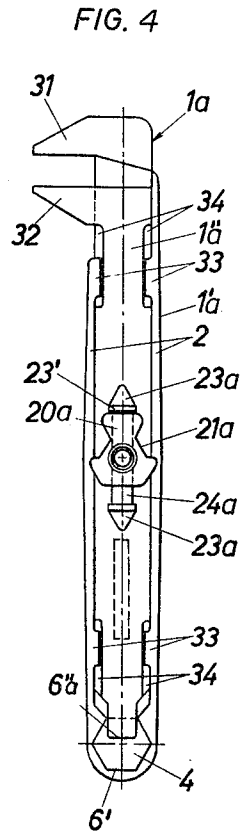
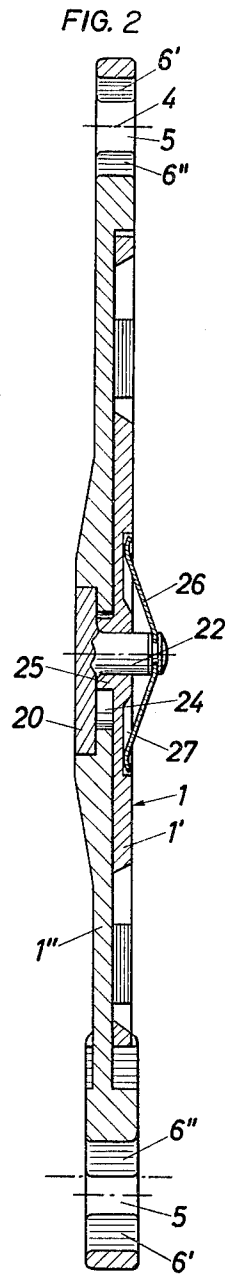
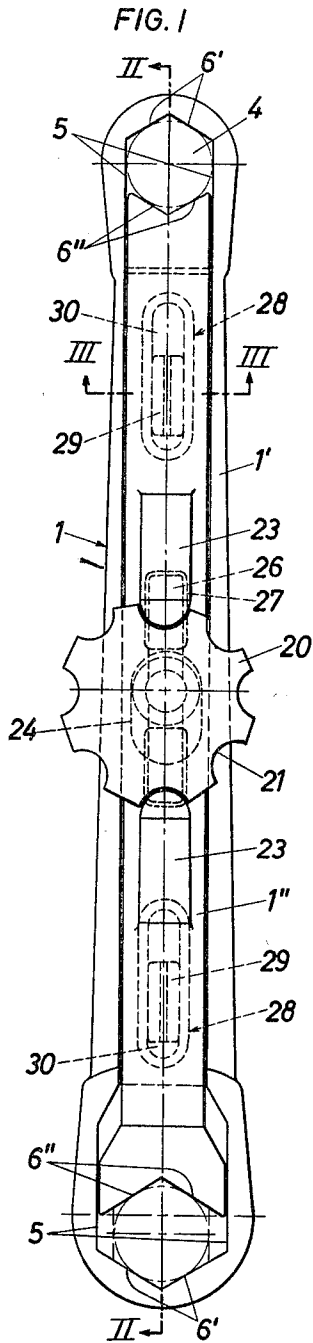
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WRENCH

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6 Claims. (Cl. 81-77)

This invention relates to a wrench, which may consist of a mouth wrench or a ring wrench or a combination of both types of wrenches and has the advantage of being adjustable to various sizes of screw or bolt heads or nuts and of being adapted to be fixed in each adjusted position.

It is a feature of the invention to provide a wrench comprising an elongated handle with a substantially plate-like part having at one end an aperture, which has at its outer end, disposed at the end of the wrench, the configuration of at least two adjacent flanks of the opening of a ring wrench, said platelike part of the handle having guides, in which at least a second, substantially plate-like part is slidably guided, said second part having at least one complementary flank at its end facing said flanks of said first portion, and means being provided for locking said two parts of the handle in their relative position.

It is another feature of the invention that one of the parts of the handle is provided with a polygonal rotary disc, the side faces of which are differently spaced from the axis of rotation and serve for selectively supporting a stop of the adjustable handle part.

Finally it is a feature of the invention that a mouth opening is provided at one end and a ring opening at the other end of the handle.

Two embodiments of the wrench according to the invention are shown on the drawing. FIGS. 1 and 2, respectively, are a top plan view and an axial longitudinal sectional view showing a double-ended ring wrench. FIG. 3 is a sectional view taken on line VII-VII of FIG. 1. FIGS. 4 and 5, respectively, are a top plan view and a side elevation showing a double-ended wrench having a mouth part and a ring part.

The wrench 1 shown in FIGS. 1, 2 and 3 comprises a substantially channel-shaped handle 1', which has adjacent to each of its two ends an elongated aperture 4, which is symmetric to the longitudinal axis. At their ends close to the end face of the wrench, the straight side edges 5 of these apertures merge into the two flanks 6', which have the configuration of two adjacent flanks of a normal ring wrench. The push rod 1'' is slidably mounted between the flanges 2 of the channel-shaped handle 1' and at its two ends facing the flanks 6' has complementary flanks 6'', which are arranged in mirror symmetry to the flanks 6'.

The disc 20 is rotatably mounted by a pin 22 at the center of the length of the handle 1' and has an even number of regularly spaced notches 21, which are spaced by progressively increasing or decreasing distances from the axis of rotation of the disc 20 and serve for supporting the push rod 1''. For this purpose, the push rod has two noses 23, which are diametrically opposed with respect to the disc 20 and conform in shape to the notches 21. The stepping of the notches 21 is selected so that the distance between two diametrically opposed notches is always the same. The push rod 1'' is formed with a longitudinal slot 24, which guides the hub 25 of the handle 1' during the adjustment of the wrench 1. The pin 22 is mounted in the hub 25.

The pin 22 protrudes from the handle 1' and is provided at its free end with a leaf spring 26, which bears on the bottom of a recess 27 in the handle 1'.

To connect the handle 1' to the push rod 1'', each half

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of the wrench is provided with a dovetail guide 28, which has been formed by laterally bending two lugs 29, which are connected to the push rod 1'' and disposed in an outwardly enlarged groove 30. FIG. 3 shows in dotted lines the original position of the lugs after the introduction of the push rod 1'' into the handle 1'.

To adjust the wrench, the disc 20 is lifted against the force of the spring 26 and is then rotated. After a suitable displacement of the rod 1'', the disc is re-inserted between the noses 23. The circular scales provided, but not shown, on the disc indicate the size of one ring opening or the other.

In the present embodiment of the wrench, the contact surfaces between the disc 20 and the noses 23 can be chamfered toward the pin 22 so that the push rod 1'' is automatically re-adjusted by the disc 20 when the latter is being returned from the lifted position.

The wrench 1a shown in FIGS. 4 and 5 has a handle 1a', which is substantially of channel section and has at one end a jaw 31 and at its other end a hexagonal opening. The push bar 1a'' is slidably mounted between the flanges 2 of the handle 1a', and terminates at its end facing the jaw 31 in a complementary jaw 32 and at the other end in a flank 6a'', which faces a flank 6' of the hexagonal opening.

The pin 22a is secured at the center of the length of the handle 1a' and guided in the longitudinal slot 24a of the push bar 1a''. At its end protruding from the push bar, the pin carries the rotary disc 20a, which has a plurality of abutment surfaces 21a, which are differently spaced from the axis of rotation of the disc 20a and arranged in pairs of diametrically opposed surfaces. The push rod 1a'' is provided with the two axially opposed stops 23. The stepping of the abutment surfaces 21a is such that the distance between the opposed faces of each pair is smaller than the distance between the two stop surfaces 23' so that the disc 20a can be rotated to any position without being obstructed by the stops. Besides, the abutment surfaces 21a of the disc 20a are so long that the latter extends beyond the flanges 2 in any adjusted position to hold the push bar 1a'' in the handle 1a'.

To assist the guidance of the push bar 1a'' in the handle 1a', the latter has inwardly protruding lugs 33, which are disposed close to the mouth and ring openings, respectively, and engage corresponding grooves 34 of the push rod 1a''.

The function of the wrench is easily apparent from the drawing. When a certain width of the mouth or ring is desired, the disc 20a is rotated so that the corresponding engaging surface 21a faces that stop 23a which is disposed toward the mouth or ring to be used. The push bar 1a'' is then forced in the direction which will engage the surface 23' of said corresponding stop against the disc. Now the wrench can be used with the mouth or ring at the respective end.

Within the scope of the invention, both ends of the wrench may be provided with a mouth opening or with a ring opening.

What is claimed is:

1. An adjustable double-ended wrench comprising a handle including two elongated members adjustable longitudinally with respect to one another, each member including a jaw at each end thereof, the jaws at adjacent ends of the members cooperating to form nut engaging and clamping surfaces, a rotatable disc on one of said members, and two stops spaced apart longitudinally on the other member, said disc being provided with an even number of indents, the diametrical opposed pairs of which are engageable with said stops to simultaneously set and lock said cooperating jaws to desired nut sizes at both ends of the handle.

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2. A wrench in accordance with claim 1 in which said indents are successively placed at different distances from the turning axis of the said disc, the distance between each pair of opposed indents being constant and corresponding to the distance between said stops.

3. A wrench in accordance with claim 1 in which is provided a spring biasing said disc against the handle to maintain said stops engaged in said notches, said disc being manually liftable axially and away from the handle against the pressure of said spring to release the disc for adjustment by rotation.

4. A wrench according to claim 1 wherein one of said handle members is channel shaped in cross section to movably seat the other member, and interengaging means is provided on said members to prevent their separation.

5. A wrench according to claim 4 wherein said disc forms part of said interengaging means, the disc being of a size to overlappingly engage the side walls of the channel of the handle member in all locking positions of the disc.

6. A wrench comprising an elongated handle including a first substantially platelike part having an aperture at its outer end and disposed at the end of the wrench, said aperture having the configuration of at least two adjacent flanks of the opening of a ring wrench, said plate-

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like part of the handle having guides, a second, substantially platelike part slidable along said handle guided by said guides, said second part having at least one complementary flank at its end facing said flanks of said first portion, and means for locking said two parts of the handle in appropriate relative position for clamping a nut in said aperture, said locking means including a polygonal disc having a pin for a rotary axis journaled in said first platelike part and extending through a longitudinal slot in said second part, said disc having side faces differently spaced from the axis of rotation of the disc, each of said faces having a notch, the radial distance between notches of opposed faces being constant, and a stop fixed to said second slidable part for selectively engaging the notches of said side faces.

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