J. STOMBERG.

WRENCH.

APPLICATION FILED JULY 8, 1912.

**1,114,549.** Patented Oct. 20, 1914.

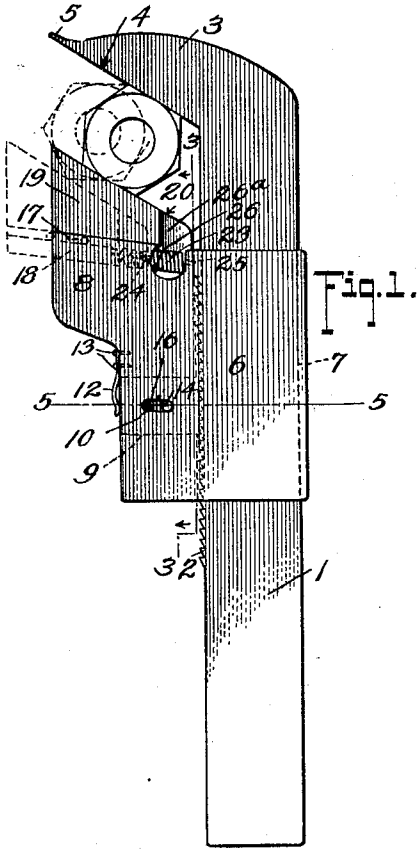

Fig. 1.

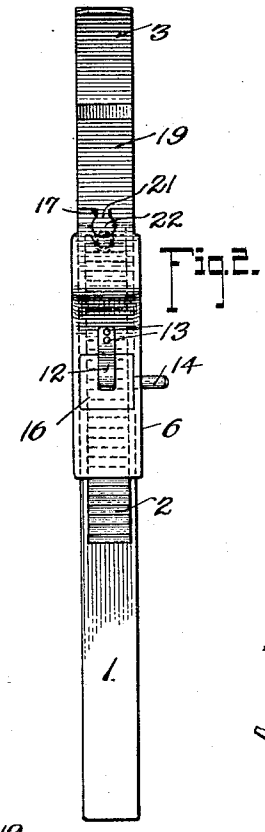

Fig. 2.

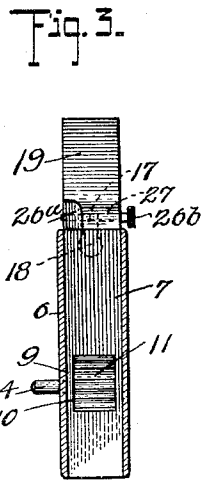

Fig. 3.

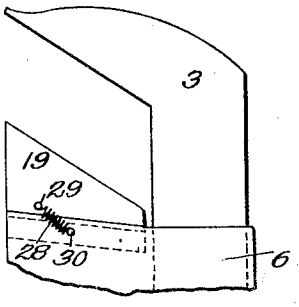

Fig. 4.

Fig. 6.

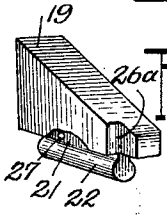

Fig. 7.

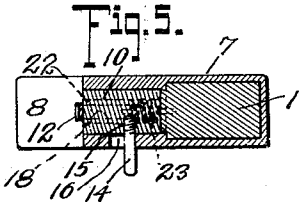

Fig. 5.

Witnesses

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# UNITED STATES PATENT OFFICE.

JOHN STOMBERG, OF ROCKFORD, ILLINOIS.

## WRENCH.

1,114,549. Specification of Letters Patent. Patented Oct. 20, 1914.

Application filed July 8, 1912. Serial No. 708,317.

*To all whom it may concern:*

Be it known that I, JOHN STOMBERG, a subject of the King of Sweden, residing at Rockford, in the county of Winnebago and State of Illinois, have invented certain new and useful Improvements in Wrenches, of which the following is a specification.

This invention relates to new and useful improvements in wrenches, and consists particularly of a construction of the same embodying fixed and movable jaws which may be quickly and easily adjusted so as to engage a nut or the like, and which, by virtue of the construction employed, will be held in unyielding engagement with the nut as long as desired.

The object of the invention is to provide a construction of wrenches, by the use of which a maximum adjustment may be quickly obtained by the movement of a block which carries a movable jaw, and whereby a minimum or finer adjustment may be quickly obtained by the adjustment of the said movable jaw, the entire construction being extremely simple, and not containing any parts which are liable to easily get out of order.

For a full understanding of the present invention, reference is to be had to the following description and to the accompanying drawings, in which:

Figure 1 is a side view of the improved wrench. Fig. 2 is an end view of the same. Fig. 3 is a section on the line 3—3 of Fig. 1 looking toward the left and showing the movable jaw. Fig. 4 is a detail view of a modified form of construction hereinafter referred to. Fig. 5 is a transverse section taken on the line 5—5 of Fig. 1. Fig. 6 is a detail perspective view of the detent hereinafter referred to; and Fig. 7 is a detail perspective view of the movable jaw hereinafter referred to.

Referring particularly to the drawings, the numeral 1 indicates a stem or handle, which is shown as formed straight throughout its length, said stem being provided throughout a portion of its length, at an intermediate position thereof, with a plurality of teeth 2 formed on the front edge of the stem.

Formed integrally with the stem 1, at the outer end of the same, is a fixed jaw 3, which forms the outer jaw of the wrench, the face 4 of said jaw being adapted to engage a nut, pipe, or the like, and making an angle of about sixty degrees with the inner edge of the stem 1. The forward extremity of the jaw 3 is drawn outwardly somewhat, and is made narrow in the main body portion of the jaw, so as form a screw driver 5.

The numeral 6 indicates a block, provided with a longitudinal bore 7 adapted to receive the stem or handle 1, said bore having a diameter slightly larger than the diameter of the stem 1 from the front edge of one of the teeth thereon to the opposite edge of the stem, so that the block 6 is freely movable on said stem. The block 6 is provided at the outer extremity thereof, and in front of the inner edge of the stem 1, as shown in Fig. 1, with an enlargement or head 8 and which is adapted to receive the movable jaw of the wrench in a manner hereinafter described. The block 6 is formed, preferably near its inner end, with a transverse slot 9, extending from the front edge of the block, as seen in Fig. 1, to and communicating with the bore 7, said slot being adapted to receive a detent 10, which is capable of sliding movement in the slot, and is formed at its inner side with a plurality of teeth 11. The teeth 11 on the said detent engage the spaces between the teeth 2 formed on the stem 1, and by the provision of the spring 12, which is secured at one end thereof to the block 6 by means of the screws 13, or other suitable fastening means, and has its opposite end connected to or bearing on the front side of the detent 10, the latter will be normally forced rearwardly, so that by the engagement of the teeth 11 of the detent with the teeth 2 on the stem 1, the block 6 may be held in a fixed adjusted position with reference to the stem. As will be noted from the drawings, the shape of the detent 10 is substantially rectangular, and it is provided at about a central point thereof with a laterally extending pin 14 which is screw-threaded at one end and is adapted to be inserted in the screw-threaded recess 15, correspondingly formed in the detent. The pin 14 projects through a slot 16 which is formed in one side of the block 6, the arrangement of parts being such that when the teeth on the detent engage those on the stem to hold the block in fixed position with relation to the stem, the pin 14 will occupy a position at the rear end of the slot 16, as seen in Fig. 1. By engaging the pin 14 with the fingers and moving the same toward the front, as seen in Fig. 1, the detent 10 will be moved out of

engagement with the stem 1 against the action of the spring 12, so as to permit of the longitudinal movement of the block 6 with reference to the said stem 1. The outer edge of the block 6 is, as shown, substantially straight throughout its length, and makes an angle of substantially eighty degrees with the front edge of the stem 1. The said outer edge of the block 6 is provided throughout its length with an undercut slot 17, which is arranged midway between the two edges of the said forward end, said slot having throughout the length of its base a substantially cylindrical tubular bore 18, formed in the block 6 and extending parallel to the outer edge of the said block.

I provide a movable jaw 19, formed of the shape substantially as shown in Fig. 1, and having an edge 20, adapted to engage a nut or other device to be turned, formed at an angle of substantially sixty degrees with reference to the front edge of the stem or handle 1 when the said movable jaw is mounted on the block 6 in its operative position. The movable jaw is formed along its inner edge with a longitudinally disposed, dovetail key or feather formed of a web portion 21, terminating in a bead 22 along its inner edge, said feather being adapted to be received by and slide in the undercut slot or groove 17, the tubular bore 18 snugly receiving the bead 22. The jaw 19 is thus slidable bodily to the front and rear, as seen in Fig. 1, with reference to the block 6, in a path parallel to the outer edge of the said block.

A spiral spring 23 is disposed in the tubular bore 18, said spring being connected by means of a screw 24 with the rear end of the bead 22 of the movable jaw. The opposite end of the spring 23 is connected by means of a screw 25 or other suitable fastening, to the block 6, and in order to enable the parts to be assembled, the block 6 is formed with a recess 26, and the jaw 19 with a recess $26^a$ adapted to register with the block recess 26 upon inward movement of the jaw 19 with respect to the block 6. Thus, after securing one end of the spring by the screw 24, the screw 25 may be manipulated by inserting the fingers in the recesses aforesaid so as to secure the other end of the spring in place. It will be seen in the construction provided, that the spring 23 will tend to maintain the jaw 19 in its extreme rear position, as seen in Fig. 1, and any movement of the jaw to the front will be against the action of the said spring.

If for any reason it is desired to maintain the jaw 19 in rigid engagement with the block 6, I provide a pin $26^b$ which passes through an aperture 27 formed in the outer bifurcated end of the block 6, the said pin also passing through the web portion 21 of the jaw 19. By this construction, it will be impossible for the jaw 19 to move with respect to the block 6.

In the modified form of construction shown in Fig. 4, instead of providing the spiral spring 23, located in the tubular bore 18, I maintain the movable jaw 19 in the desired position with reference to the block 6 by the provision of a spring 28, which is located on the outer sides of the said members and is connected to jaw 19 at point 29 by a suitable fastening, and to the forward bent portion of the block 6 at point 30 by a suitable fastening.

In the operation of the device, the block 6 is moved upwardly toward the nut, pipe or the like, which is to be turned, said upward movement being permitted by moving the detent 10 to the front, so that the same is out of engagement with the teeth of the stem 1, thus permitting the sliding movement of the block. By moving the block 6 into more or less close contact with the nut, a maximum adjustment may be obtained, but meanwhile the movable jaw 19 has been moved against the tension of the spring 23, to the front, the position of the parts being shown in dotted lines in Fig. 1, and held in such position until it is desired to accomplish the minimum adjustment, at which time the hold on the movable jaw is released, allowing the same to be turned to its foremost position. In this position the outer end of the movable jaw and the side 4 of the outer jaw closely engage the nut to be turned, and said parts will be held in secure engagement with the nut during the turning thereof. It will be understood that by virtue of the fact that the movable jaw has its outer end set at an angle of about sixty degrees to the sides of the stem, and also by the fact that its inner edge makes an angle of about eight degrees to the stem, the fact that the jaw will slide at said inner edge on the block 6, the distance between the forward end of the jaw and the side 4 of the outer jaw will increase as said movable jaw is moved toward the front. This fact permits a fine minimum adjustment to be obtained when the jaw is allowed to be slid to its foremost position.

Having thus described the invention, what is claimed as new is:

1. In a wrench, the combination with a handle having a jaw, of a block adjustable longitudinally of the handle and having a shoulder, a jaw slidingly engaging the shoulder in position for coöperating with the first mentioned jaw and adapted to be moved to a position in contact with the handle and outwardly therefrom, the block being formed with a bore, and a spring mounted in the bore and engaging the movable jaw and exerting tension thereon tending to move the jaw into contact with the handle, recesses being formed in the movable

jaw and block in position for registering when the movable jaw is in contact with the handle for enabling access to the spring.

2. In a wrench, the combination with a handle having a jaw, of a block adjustable longitudinally of the handle and having a shoulder, a jaw slidingly engaging the shoulder in position for coöperating with the first mentioned jaw and adapted to be moved to a position in contact with the handle and outwardly therefrom, the block being formed with a bore, and a spring mounted in the bore and engaging the movable jaw and exerting tension thereon tending to move the jaw into contact with the handle, a recess being formed in the block and opening from the bore along the handle toward the jaw, the jaw being formed with a coöperating recess at its innermost portion adapted to register with the first-mentioned recess when the jaw is in contact with the handle for enabling access to the spring.

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

JOHN STOMBERG.

Witnesses:
G. E. JOHNSON,
AUGUST LUNDAHL.

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