W. G. ROYAL.

WRENCH.

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954,213. Patented Apr. 5, 1910.

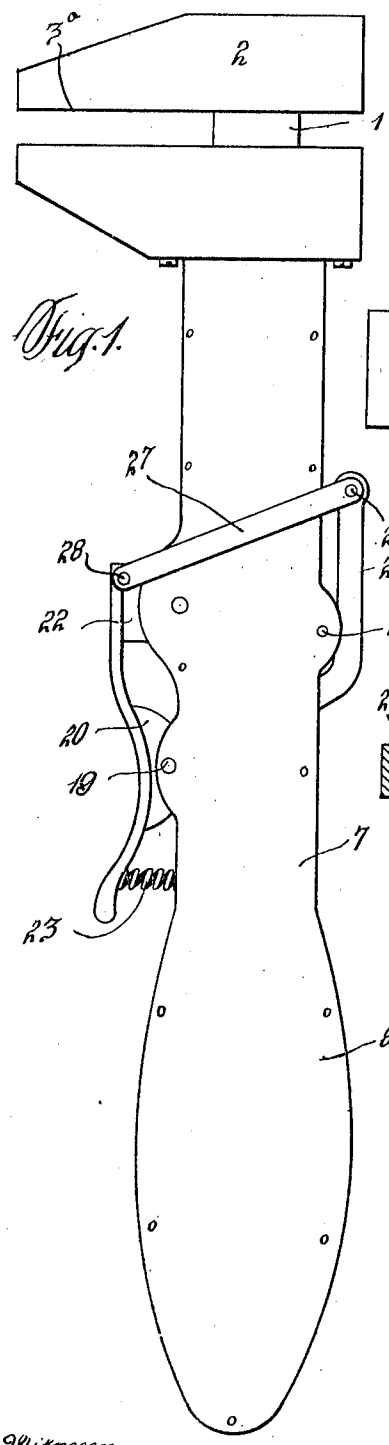

Fig. 1.

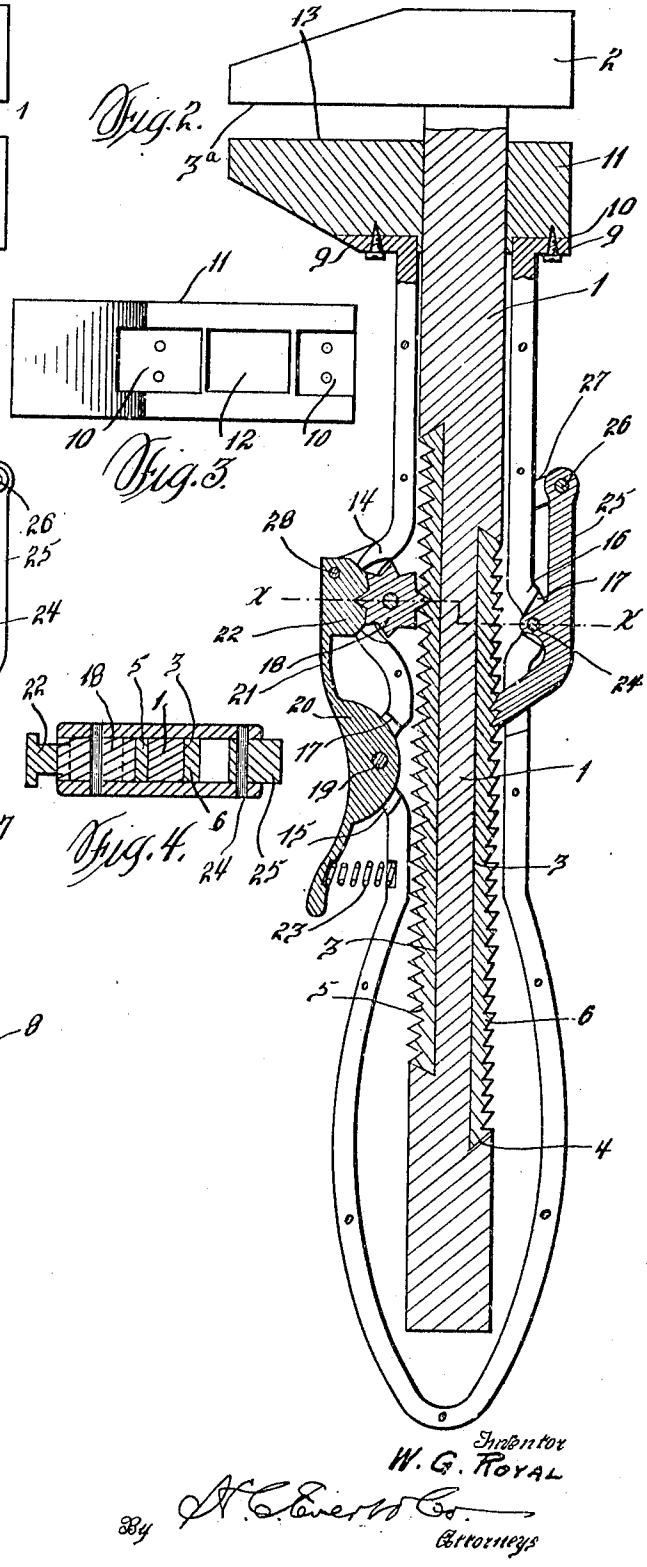

Fig. 2.

Fig. 3.

Fig. 4.

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UNITED STATES PATENT OFFICE.

WILLIAM GABRIEL ROYAL, OF HOBOKEN, PENNSYLVANIA, ASSIGNOR OF NINE ONE-HUNDREDTHS TO ANDREW PAUL, OF HOBOKEN, PENNSYLVANIA, AND ONE-EIGHTH TO ELMER THOMAS WRIGHT, OF PITTSBURG, PENNSYLVANIA.

WRENCH.

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To all whom it may concern:

Be it known that I, WILLIAM GABRIEL ROYAL, a citizen of the United States of America, residing at Hoboken, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Wrenches, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to wrenches and more particularly to that type of wrenches commonly styled "a quick acting" wrench.

The primary object of the invention is to provide a wrench of the above type that can be easily and quickly adjusted and locked in adjusted position.

Another object of the invention is to furnish positive and reliable means for firmly holding the shank of the wrench.

A further object of the invention is to provide a strong and durable wrench that can be advantageously used by machinists and similar artisans.

A still further object of the invention is to accomplish the above results by a wrench that will be positive in its action, inexpensive to manufacture and highly efficient for the purposes for which it is intended.

With the above and other objects in view which will more readily appear as the invention is better understood, the wrench consists in the novel construction, combination and arrangement of parts that will be hereinafter described in detail and then claimed.

Reference will now be had to the drawing forming a part of this specification wherein there is illustrated a preferred embodiment of my invention; but I would have it understood that the structural elements thereof can be varied or changed, as to the size, proportion and manner of assemblage, without departing from the spirit of the invention.

In the drawings:—Figure 1 is a side elevation of a wrench constructed in accordance with my invention. Fig. 2 is a vertical sectional view of the same. Fig. 3 is a bottom plan of a detached jaw adapted to form part of the wrench, and Fig. 4 is a sectional view taken on the line x—x of Fig. 2 of the drawings.

In the drawings reference numeral 1 denotes a shank, rectangular in cross section and having one end thereof provided with a fixed jaw 2 having a gripping surface 3^a. The shank and the jaw constitute the main movable element of the wrench, and the front and rear sides of the shank 1 are provided with grooves 3 of a width corresponding to the front and rear sides, said grooves having dovetailed ends 4 to receive the dovetailed ends of racks 5 and 6 mounted in said grooves. The rack 6 is provided with the ordinary ratchet-teeth, while the rack 5 is provided with V-shaped teeth. The teeth in connection with both racks are arranged transversely thereof and correspond in width to said racks. The rack 5 is mounted in advance of the rack 6, that is, the rack 5 is in closer proximity to the outer end of the shank than the rack 6, whereby proper adjustment of the wrench can be had in connection with a locking mechanism that will be presently described. The shank 1 is inclosed by a handle consisting of two channel shaped sections secured together by a suitable hold fast device in abutting engagement and each of the sections has an enlarged lower end, as at 8 to constitute a grip. The sections 7 are adapted to fit together to inclose the shank 1, and said sections have one end thereof provided with right-angular extensions or flanges 9 adapted to fit in sockets 10 provided therefor in one face of the jaw 11. Suitable hold-fast devices are provided for securing the flanges to the jaw 11, which is formed with an opening 12 through which extends the shank 1, and with a gripping surface 13 adapted to confront and coöperate with the gripping surface 3^a of the jaw 2.

The handle sections 7 at the front side thereof are offset, as at 14 and 15, while said sections at the rear side are offset, as at 16. These offset portions are cut away, as at 17 to provide clearance for a locking mechanism, which is employed for holding the shank 1 in a fixed or adjusted position within the handle sections. The locking mechanism comprises a toothed wheel 18, similar to a star wheel, said wheel being revolubly mounted in the offset portion 14 and adapted to engage the rack 5.

Pivotally mounted in the offset portion 15 by a transverse pin 19 is the enlarged portion 20 of a lever 21, having an enlarged notched head 22 adapted to engage the revo-

luble wheel 18. Interposed between the one end of the lever 21 and the front side of the wrench handle is a coiled compression spring 23, said spring normally holding the head 22 of the lever in engagement with the wheel 18.

Pivotally mounted in the offset portion 16 of the wrench handle by a transverse pin 24 is a pawl 25 having the one end thereof toothed to engage the rack 6. One end of the pawl 25 is connected by a pivoted pin 26 to links 27, said links being located upon the outer sides of the handle sections and pivotally connecting with the upper end of the lever 21 by a pin 28. It is through the medium of the links 27 that the pawl 25 can be simultaneously moved with the lever 21.

One end of the lever 21 serves functionally as a thumb-piece and when pressed inwardly toward the handle of the wrench, the revoluble wheel 18 is released and the pawl 25 moved out of engagement with the rack 6. The shank 1 can be adjusted and a nut or similar object gripped by the confronting and coöperating surfaces 3^a and 13 of the jaws 2 and 11 respectively. When the lever 21 is released the spring 23 immediately returns said lever and the pawl 25 to their normal position, to lock the shank 1 in its adjusted position within the handle sections 7.

The wrench in its entirety is made of strong and durable metal and by making the handle in two sections the various parts can be easily and quickly assembled.

Having now described my invention, what I claim as new is:—

1. In a wrench, the combination with a shank having a fixed jaw, and racks detachably mounted in the front and rear sides of said shank, of handle sections adapted to inclose a part of said shank, a jaw fixed to the one end of said sections, a lever pivotally mounted at the front side of said sections, a toothed wheel revolubly mounted in said sections and adapted to engage one of the racks of said shank and adapted to be engaged by the one end of said lever, a pawl pivotally mounted upon the rear side of said handle sections and adapted to engage the other of said racks, and means connecting the end of said pawl with the end of said lever and adapted to cause a simultaneous operation of said pawl and lever substantially as described.

2. A wrench comprising a toothed shank, a fixed jaw carried by said shank, handle sections adapted to inclose the lower part of said shank, a jaw carried by one end of said sections, a toothed wheel revolubly mounted in said sections and adapted to engage said toothed shank, a pivoted lever carried by one side of said handle sections and adapted to engage said toothed wheel, a pivoted pawl carried by the other side of said handle sections and adapted to engage said toothed shank, and links connecting said pawl and said lever for causing the pawl to simultaneously operate with the lever.

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

WILLIAM GABRIEL ROYAL.

Witnesses:

ROBERT IMMER,

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