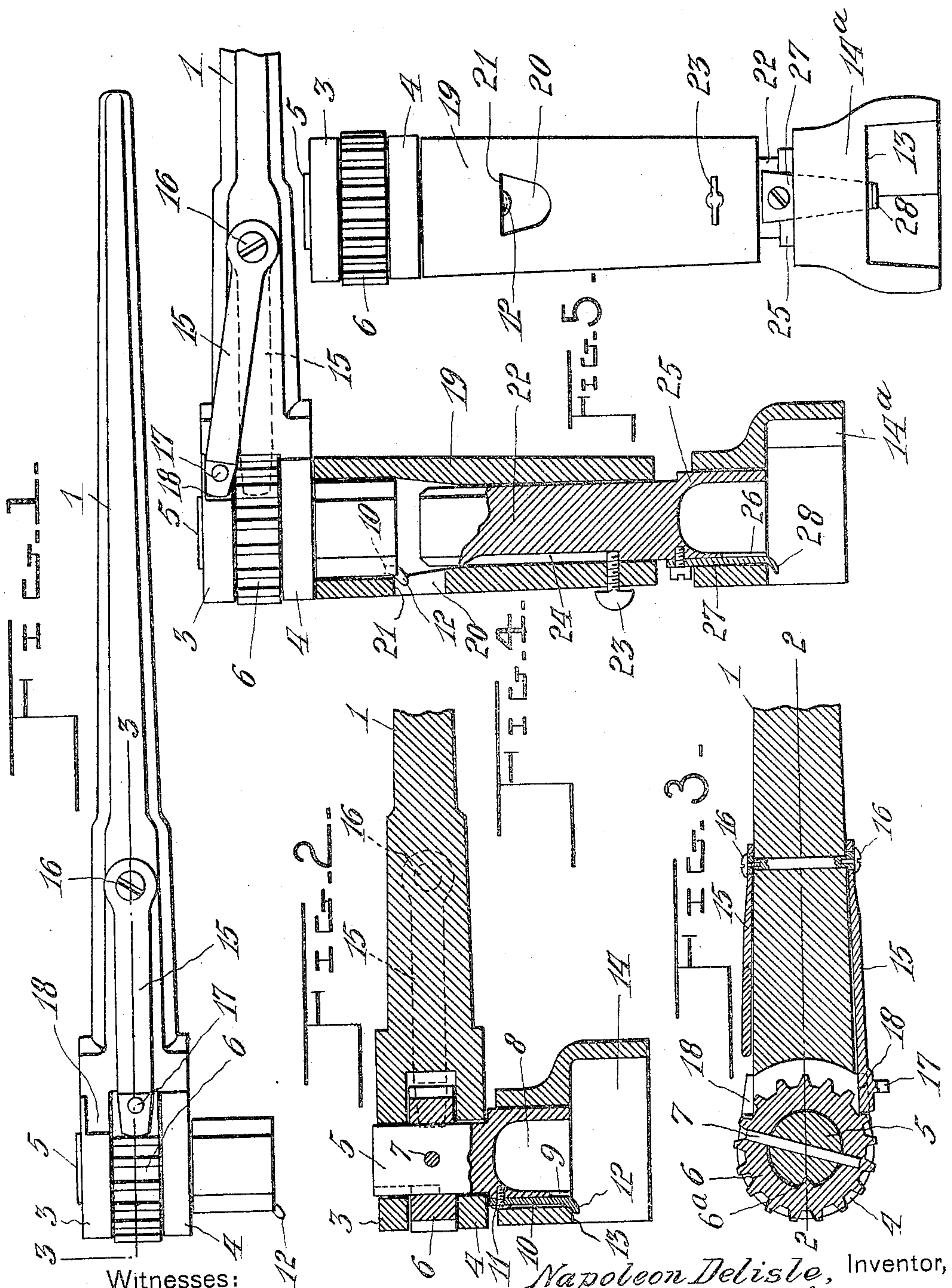


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Witnesses:

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NAPOLEON DELISLE, OF ST. TITE, CANADA.

WRENCH.

No. 812,551.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, NAPOLEON DELISLE, a subject of the King of Great Britain, residing at St. Tite, county of Champlain, in the Province of Quebec, Canada, have invented certain new and useful Improvements in Wrenches; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to new and useful improvements in wrenches; and it consists particularly in certain means, hereinafter pointed out, whereby means are provided for securing to a rotatable shank which is fixed in position different sizes of nut-sockets, and also comprises extension means whereby the device is especially adapted to manipulate nuts or bolts which are below the plane of the handle of the wrench; and it consists in certain features of novelty in the detail construction and arrangement thereof, whereby a simple, convenient, and economical tool is provided for the purpose described.

Referring to the accompanying drawings, in which similar numerals of reference indicate similar parts in all the views, Figure 1 is a side elevational view of the wrench with a nut-socket removed. Fig. 2 is a longitudinal vertical sectional view taken approximately on line 2 2 of Fig. 3. Fig. 3 is a horizontal sectional view taken on line 3 3 of Fig. 2. Fig. 4 is a view showing, partly in vertical section and partly in full lines, the wrench equipped with the extension device hereinafter described; and Fig. 5 is an end view of the wrench with the extension shown in Fig. 4.

Referring to the parts, 1 is a shank which terminates at its forward end in a bifurcated head portion including the bifurcations 3 and 4, these members having coaxial openings through which are projected the relatively circular stem 5, upon which is mounted the ratchet-wheel 6, said ratchet-wheel being secured to the stem 5 by means of the pin 7 passing therethrough. The stem 5 terminates at its lower end in the recess 8, the wall of said recessed portion being cut away at 9, as shown in Fig. 2.

Secured to the recessed portion of the stem 5 in convenient proximity to the opening 9 is a spring 10, which is secured by means of the screw or pin 11, there being an outwardly-curved lip 12 on the lower end of said spring

10, which lip 12 is adapted to engage with the shoulder 13 of the nut-socket 14, which nut-socket is removably held upon the lower end of the stem by means of said spring and may be removed and replaced by a socket of greater or less cross-sectional area, as may be desired, for larger or smaller nuts.

It is understood that the nut-socket 14 has non-circular inner faces, which may be square or hexagonal, as may be desired, to cooperate with nuts of any desired shape.

Coöperating with the ratchet-wheel 6 are pawls 15, which are of spring metal and are secured, by means of the screws or pins 16, to the shank 1, there being laterally-projecting lugs 17 formed on said pawls to serve as thumb-pieces for swinging said pawls upon their pivots either upwardly to the recess 18, relatively above the ratchet-wheel, or into engagement with said ratchet-wheel, as may be desired.

Coöperating with the shank 5 and adapted to be connected therewith in place of the nut-socket 14 is a removable extension-piece 19, which extension-piece has a longitudinal opening therein, which opening is of non-circular form, it being understood that the extending end of the stem 5 is also of non-circular exterior.

An opening 20 is provided in one of the walls of the extension 19, said opening 20 having a straight side 21, which is adapted to cooperate with the lip 12 to secure said extension 19 in position upon the stem 5. A non-circular stem 22 is held in the extension by means of the set-screw 23, which projects through the extension 19 into a channel 24, formed in one face of the stem 22, and it is evident that the stem 22 may project to a greater or less distance beyond the extension 19 within the limits of said channel by loosening the set-screw 23 and may be secured in position when said set-screw is set home to bear against the bottom of said channel 24. The stem 22 is provided with a non-circular end portion 25, having one of its walls cut away at 26, there being a flat spring 27 secured to the outer end of said stem 22 in convenient proximity to the opening provided at 26, and a lip 28 is formed on said spring 27, as on the spring 10, which lip is adapted to cooperate with nut-sockets 14^a, which may be secured to the stem 22 by means of said spring 28, as shown in Figs. 4 and 5. The nut-sockets 14^a, like the nut-sockets 14, may

be of any cross-sectional area or internal shape to adapt them to be applied to nuts of different shapes.

To prevent undue torsional strain upon the 5 pin 7, the stem 5 is recessed longitudinally. Resting in such recess is an inwardly-projecting stud 6^a, formed integral with said ratchet, which stud receives much of the strain incident to the operation of the wrench. The 10 screws 16, which secure the pawls 15 to the shank, are set into correspondingly screw-threaded recesses in the bolt 16^a.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a wrench, a shank terminating in a bifurcated head portion, a rotatable stem mounted in perforations in said head, there being a recess in one end of said stem, a spring- 20 catch secured adjacent said recess, a ratchet-wheel on said stem within said bifurcated head, pawls adapted to engage said ratchet, a removable extension having a non-circular opening longitudinally thereof, a slidable

non-circular stem secured therein, a spring- 25 catch on said non-circular stem, and a nut-socket adapted to interlock with said catch.

2. In a wrench, a shank terminating in a bifurcated head portion, a rotatable stem mounted in perforations in said head, there 30 being a recess in one end of said stem, a spring-catch secured adjacent said recess, a ratchet-wheel on said stem within said bifurcated head, pawls adapted to engage said ratchet, a removable extension having a non- 35 circular opening longitudinally thereof, a slidable non-circular stem secured therein, there being a channel in said stem, a set-screw in said extension adapted to bear in said channel, a spring-catch on said non-cir- 40 cular stem, and a removable nut-socket adapted to interlock with said catch.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

NAPOLEON DELISLE.

Witnesses:

ALOYS DESSUREAULT,
ARSÈNE PLOURDE.