Nov. 14, 1939. W. E. McLAUGHLIN 2,179,558

WRENCH

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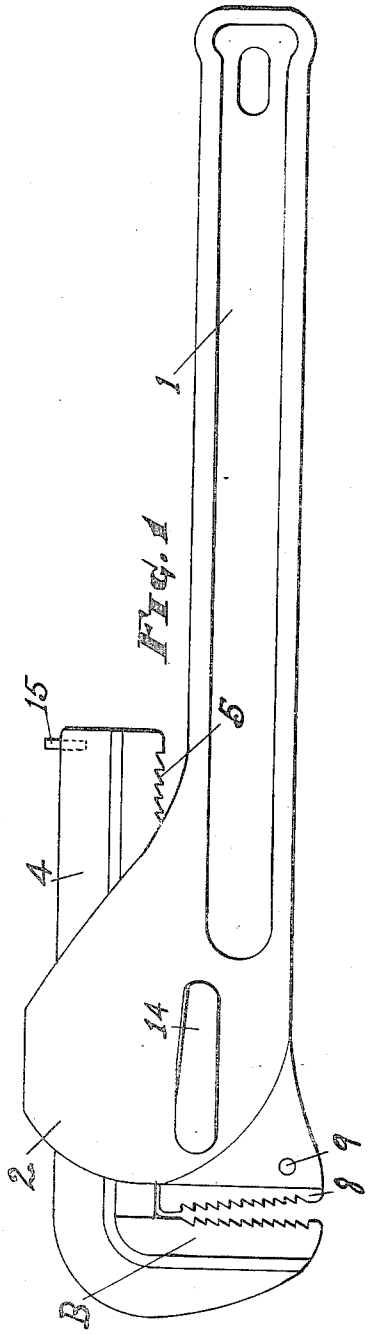


Fig. 1

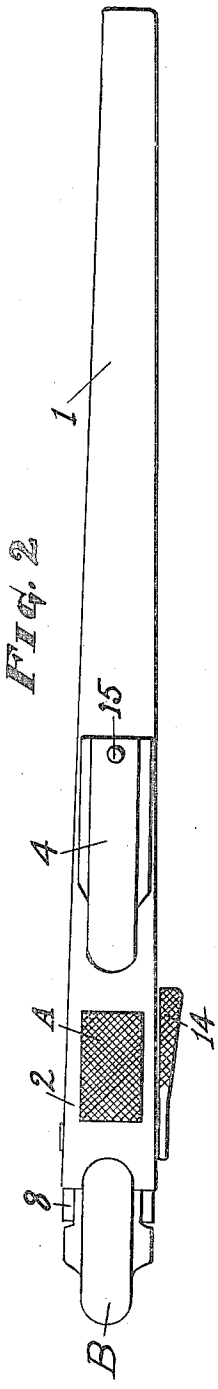


Fig. 2

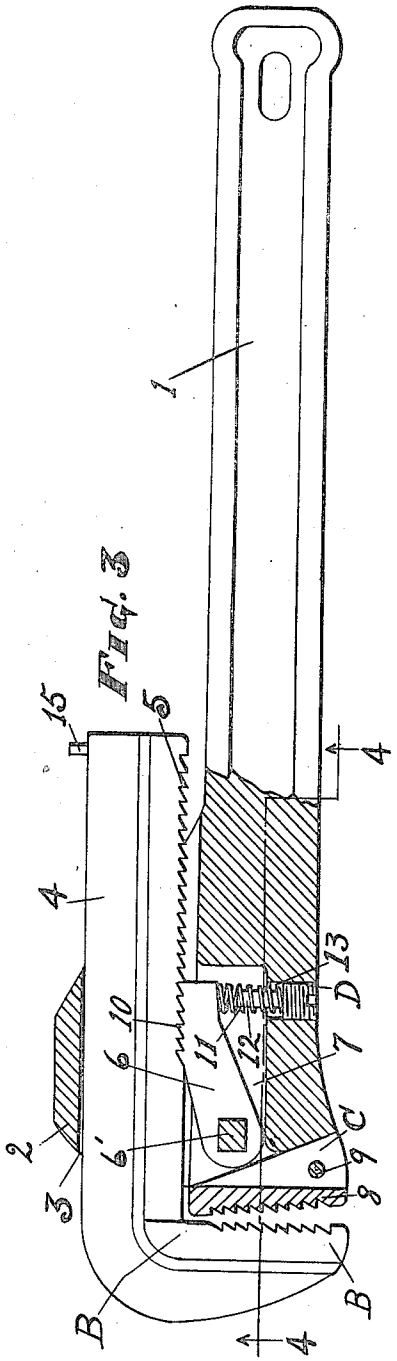


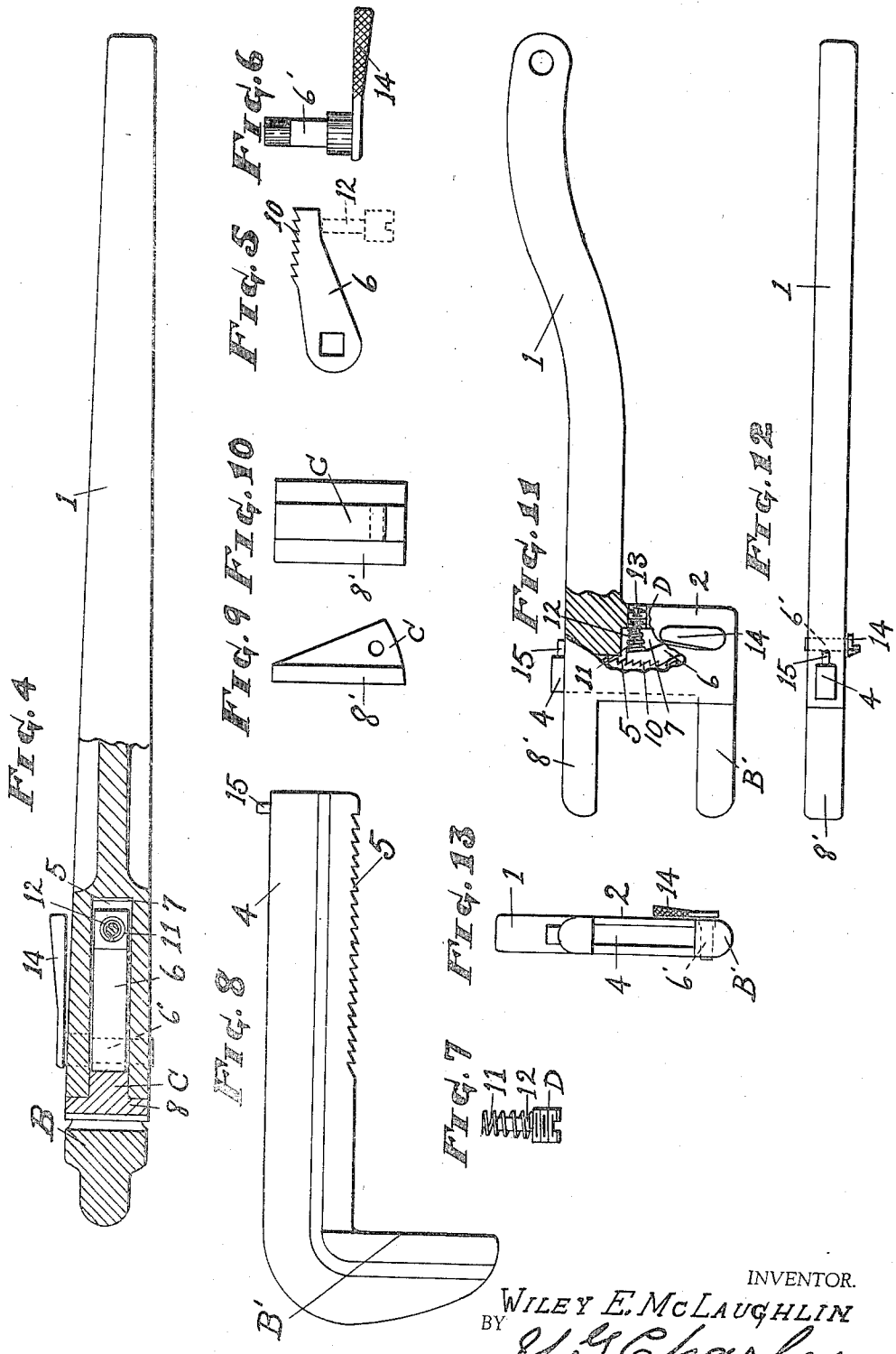
Fig. 3

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Patented Nov. 14, 1939

2,179,558

UNITED STATES PATENT OFFICE

2,179,558

WRENCH

Wiley E. McLaughlin, Tulsa, Okla.

Application October 15, 1938, Serial No. 235,175

2 Claims. (Cl. 81—135)

My invention relates to improvements in a wrench and has for its principal object a wrench applicable as a pipe wrench, and means to convert the same as turning means for bolt nuts or the like.

A further object of my invention is to provide means to stationarily retain the jaws when set, conforming to the size of a nut or pipe to which it may be applied.

A still further object of my invention is to provide a wrench of the class herein set forth, having interchangeable jaws, that is to say jaws toothed or of smooth engaging surfaces as the case may require.

A still further object of my invention is to provide an efficient wrench, inexpensive to manufacture, quickly to adjust, positive in its function, and having means to permanently retain the jaws in a set position while operating the wrench.

These and other objects will hereinafter be more fully explained, reference being had to the accompanying drawings forming a part of this specification, and in which like characters will apply to like parts in the different views.

Referring to the drawings:

Fig. 1 is a side elevation of the wrench.

Fig. 2 is a plan or edge view of the wrench.

Fig. 3 is a side view partly in section for convenience of illustration.

Fig. 4 is a sectional view taken on line 4—4 in Fig. 3, looking in the direction of the arrows.

Fig. 5 is a side view of the pawl and locking means therefor to a closed position, the means shown by dotted lines.

Fig. 6 is a plan view of the pawl, carrying and disengaging means, the pawl being omitted.

Fig. 7 is a side view of the stud and spring as controlling means for the pawl.

Fig. 8 is a side view of a jaw and shank to engage the sides of a nut.

Fig. 9 is a smooth faced jaw to coact with the jaw of Fig. 8.

Fig. 10 is an inside view of Fig. 9.

Fig. 11 is a side view of the wrench partly in section, illustrating the toothed shank of its respective jaw positioned at right angles to that shown in Figs. 1, 2, and 3.

Fig. 12 is an upper edge view of Fig. 11.

Fig. 13 is an end view of Fig. 11, looking into the jaws.

My invention herein disclosed consists of an elongated handle 1, having an outward hollow extension 2 from one edge thereof, the hollow functioning as an eye 3, the axis of which is in parallelism with the handle, and the outer extremity of said extension being knurled as at A, functioning as the pole of a hammer or the like to avoid a glancing stroke. The said eye 3 is adapted to receive the shank 4 of a jaw B, slideable therein, said shank having on the inner edge thereof a series of ratchet teeth 5, to be engaged by a pawl 6, pivotally carried as at 6', within a groove 7 in the edge of the handle confronting the said teeth of the shank, the groove extending across the end of said handle, the latter named portion of said groove to receive the tongue C of a jaw 8 secured therein by a pin 9 for interchangeable purpose later described. The outer edge of said pawl has a series of ratchet teeth 10 approximately in parallelism with the teeth of the shank when engaged therewith as tensioned by a spring 11 beneath the free end of said pawl, at which point the spring is retained by a shouldered pin 12, the shouldered portion D of which threadedly engages in a threaded aperture 13, by which arrangement, when the pin is screwed inward sufficient to impinge the under side of the pawl when the teeth of the shank and pawl are snugly engaged, is means to secure said jaws in spaced relation to receive a nut or pipe to be turned by the wrench.

The said spring being seated on the shoulder of the pin will remain in tension with the pawl when said pin is screwed outward sufficient to release the engagement of the teeth, at which time the shank and its respective jaw is free to be moved outward to a selected position and returned against outward movement by the ratchet engagement of said teeth.

As a means to disengage the pawl, there is positioned on the outer end of the said pawl pin a lever 14, as rocking means for the pawl from engagement, and when so positioned the shanked jaw is free to be moved outward to its extremity, and being stopped against removal from the said eye by a pin 15, outwardly extending and secured to the outer edge of said shank.

In Figs. 11, 12, and 13, I have illustrated a modification in which case the shank of the movable jaw transversely engages through the handle adjacent its respective jaw where it joins the handle, and the said shank has similar ratchet teeth and pawl to engage therewith, the pawl being tensioned by a similar spring and pin previously described, also a lever to disengage the pawl. This style of wrench is preferably arranged as turning means for bolt heads or nuts threadedly engaging on bolts, while the wrench as disclosed in Figs. 1 to 4 inclusive may be convertible to a pipe or nut wrench, the views of

which, however, disclose a pipe wrench but interchangeable to a nut wrench by removing the toothed jaw 8 and substantially therefor a smooth faced jaw 8' as shown in Figs. 9 and 10, while shank 4 and its respective jaw B is substituted by a similar shank having a smooth jaw B', and such other modifications may be employed as lie within the scope of the appended claims.

Having fully described my invention what I claim as new and desire to secure by Letters Patent is:

1. In a wrench of the class described, the wrench having a jaw and a shank integrally joined, the jaw extending at a right angle from one edge of the shank and the shank having a series of ratchet teeth on its edge corresponding to the jaw extension, said wrench having a handle with an eye and a jaw at one end thereof, the eye to slidably receive the shank therein, there being a pawl with a series of ratchet teeth to engage with the ratchet teeth of the shank, the pawl being pivotally carried at the end of the handle adjacent the eye and adapted to rock so that its teeth will detachably engage with the teeth of the shank, a lever to rock the pawl secured to the pivot element on which the pawl is nonrotatably secured, the lever being outward of its respective end of the handle and extending therealong a short distance, a pin having a threaded head to engage in a threaded aperture in the handle adjacent the free end of the pawl, the inner portion of the head functioning as a shoulder, and a spring carried by the pin as resilient tensioning means for ratchet engagement of the pawl when the end of the pin is spaced from the pawl and the pin when moved to engagement with the pawl securing fixed engagement of the pawl and shank teeth.

2. In a wrench, the wrench having a jaw and a ratchet tooth shank integrally joined and a jaw carried by a grooved handle, the groove adjacent the jaw and extending into the handle longitudinally thereof and the said handle having an eye adjacent its jaw to communicate with the groove, said eye adapted to receive the shank of said first named jaw longitudinally of the shank and the groove having a ratchet toothed pawl rockable therein, the teeth being along one end portion of the pawl and the said pawl being pivotally carried at the other end and having a lever connected at the pivoted end to rock the pawl disengaging its teeth from the teeth of the shank, a pin having a threaded head greater in diameter than the pin to form a shoulder at the head and the handle having a threaded bore communicating with the groove and in which the head will threadedly engage to move the free end of the pin toward and from the toothed end of the pawl to engage therewith opposite its teeth to selectively lock the teeth of the pawl and the shank together, a coil spring through which the pin extends, one end of the spring seating on the shoulder of the head, the other end extending outward passing the pin to engagement on the free end of the pawl as a flexing tensioning means for ratchet engagement of the pawl and shank teeth and the spring to recede on the pin at the time of its contact for rigid engagement with the pawl.

WILEY E. McLAUGHLIN.