M. G. DOBBINS.

WRENCH.

APPLICATION FILED MAR. 11, 1920.

1,362,481. Patented Dec. 14, 1920.

Fig. 1.

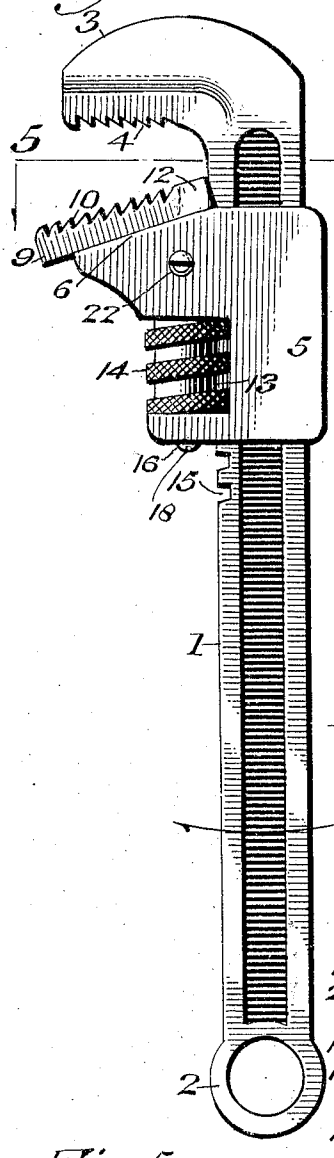


Fig. 2.

ON FIG 2-2 FIG. 3.

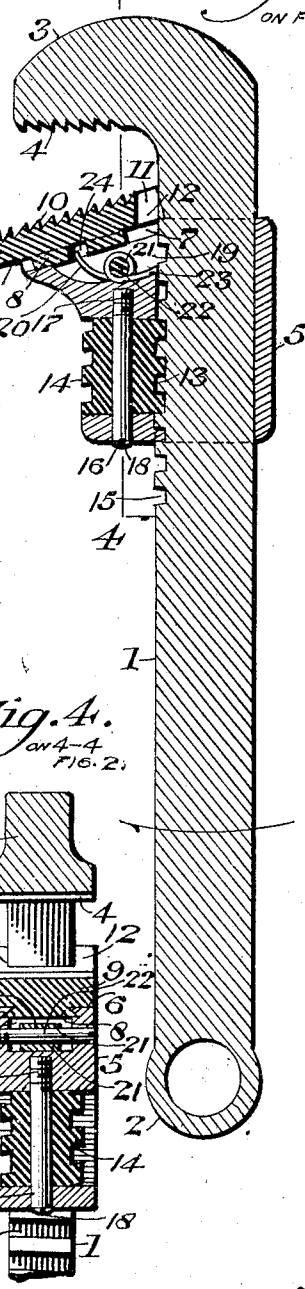


Fig. 3.

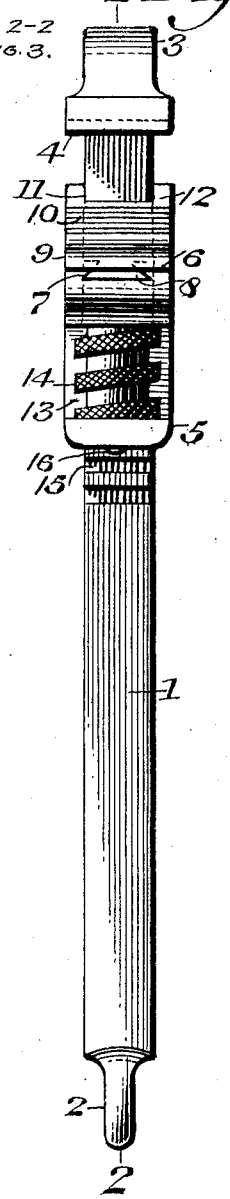
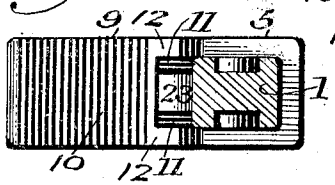


Fig. 4.

ON 4-4 FIG. 2.

Fig. 5.

ON 5-5. FIG. 1.



INVENTOR:

Michael G. Dobbins.

BY Wiederheim & Fairbanks

ATTORNEYS.

UNITED STATES PATENT OFFICE.

MICHAEL G. DOBBINS, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO FREDERICK H. SHAW, OF NORRISTOWN, PENNSYLVANIA.

WRENCH.

1,362,481. Specification of Letters Patent. Patented Dec. 14, 1920.

Application filed March 11, 1920. Serial No. 364,911.

To all whom it may concern:

Be it known that I, MICHAEL G. DOBBINS, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Wrench, of which the following is a specification.

My invention relates to the general class of wrenches which embody both a fixed or lever-actuated jaw and an adjusting jaw, and also means for occasioning the approach and separation of said jaws,—and its principal object is to combine with the adjusting jaw and with means to control its movement toward and from the fixed or lever-actuated jaw, a sliding jaw which is so formed and so specially applied to the adjusting jaw that when leverage is exerted upon the handle of the wrench, the sliding jaw will be caused to have such in and out movement at a desired inclination to the the fixed jaw as will insure a firm grip upon the work in the operating action of the wrench upon the work, and which when the work has been done will automatically occasion the outward movement of the sliding jaw under the control of a deflecting spring.

With the foregoing principal object in view, my invention comprehends a wrench in the operation of which time will be saved and the best and quickest grip upon the surface of the work to be done will be assured.

To such end my invention comprises the combination in peculiar and novel relationship of a right angularly disposed lever jaw on the end of a lever or wrench handle,—an adjusting jaw adapted to travel lengthwise upon the lever handle,—the upper surface of which jaw inclines downwardly and outwardly from said handle, an adjusting screw within and carried by the adjusting jaw for effecting the lengthwise movement of said adjusting jaw upon the lever handle,—a sliding jaw mounted upon the upper surface of the adjusting jaw and slidable thereupon in correspondence with the inclination of said jaw, inward and outward from the lever handle and relatively to the fixed jaw,—and a coiled spring carried by said adjusting jaw and operative within a notch on said sliding jaw, which is adapted to throw said sliding jaw outwardly from the lever handle and with reference to the fixed or lever jaw, and which is mounted within a suitable spring recess formed within the adjusting jaw.

My invention further comprehends details of construction to which I find it convenient to resort in the assembling or mounting of the foregoing elements relatively to each other.

For the purpose of illustrating my invention, I have shown in the accompanying drawings an embodiment of it which is at present preferred by me because in practice it has given satisfactory and reliable results.

It is to be understood, however, that the component elements in which my invention is shown as typically embodied can be dimensionally or proportionately varied, and that the precise embodiment of these elements is, therefore, susceptible of modification in various particulars without departing from the spirit or scope of the invention or sacrificing any of its advantages.

Referring to the drawings:—

Figure 1 represents a side elevation of a wrench embodying my invention.

Fig. 2 represents a central, sectional, side elevation of the wrench shown in Fig. 1, the section being assumed to be taken on the dotted line 2—2 of Fig. 3.

Fig. 3 represents a front elevation of the wrench illustrated in Fig. 1.

Fig. 4 represents a fragmentary, sectional front elevation on the dotted line 4—4 of Fig. 2; and

Fig. 5 represents a fragmentary plan through the wrench, taken on the dotted line 5—5 of Fig. 1.

Similar numerals of reference indicate corresponding parts:—

Referring to the drawings.

1 designates the lever handle of the wrench, conveniently formed with the usual eye 2 to hang the wrench upon.

3 designates the fixed or lever jaw formed with the usual teeth 4 and extending from the handle at an approximate right angle.

5 designates the adjusting jaw which in the usual manner encompasses the lever handle by being internally conformed to the external configuration of said handle.

This adjusting jaw is formed with an externally extending and downwardly inclined carrying surface 6, out of parallelism with the flange of the teeth of the lever jaw,

which is formed upon its upper surface preferably with a dovetailed groove 7, within which is adapted to be fitted and to travel a corresponding tongue 8 of a sliding jaw 9 the upper surface of which, in the mounting of the parts, is formed with teeth 10 which lie beneath the teeth 4 of the lever jaw but out of parallelism with them.

The length of the sliding jaw is preferably in excess of the length of the carrying surface 6 upon which it is mounted, so that through said tongue-and-groove connection said sliding jaw can have an in-and-out movement relatively to the lever handle and lever jaw which as to the inner movement is conveniently determined by forming the sliding jaw with an inner end slot 11 between side plates 12 which overlap or straddle the sides of the lever handle, as seen in Fig. 3.

The limit of outward movement of the sliding jaw 9 is deferred by a spring as later on explained.

The adjusting jaw is also formed with a recess external of the handle, which I term a screw recess 13, within which is placed an adjusting screw 14, which, in the mounting of the parts, as to its inner threads is always in engagement with the teeth of a rack 15 formed in the front face of the lever handle. This construction protects the adjusting screw while rendering it easily accessible.

The threads of the adjusting screw 14 being preferably externally knurled, make it possible manually to turn said adjusting screw upon a screw shaft or stud 16 mounted vertically within the screw recess 13 of the adjusting jaw, at its inner end conveniently threaded as at 17 to thread into a socket below the carrying surface 6 of the adjusting jaw 5, and at its outer end extending below the bottom of the screw-recess 13, and kerfed as at 18 to take in the blade of a screw driver to set the shaft in place.

19 designates an outwardly extending open-topped spring recess as I term it, formed in the upper part of the adjusting jaw and below its carrying surface 6, and adapted to receive within it a spring 20 preferably in the form of a coiled or flat upturned plate spring, convoluted midway of its length so as to form a spring eye 21 which enwraps a spring-retaining screw 22 which passes transversely through said spring recess 19 in the adjusting jaw 5, as best illustrated in Fig. 4, and which while retaining the spring in position permits of extension of the inner end of said spring designated 23, to bear, if desired, against the lever handle. The outer end of the spring to which the numeral 20 is applied is upturned, its free end fitting within what I call a spring-receiving notch 24, formed in the tongue 8 and, if desired, extending into the under surface of the sliding jaw 9.

From the foregoing construction it will be obvious that, in the operation of the wrench, when the adjusting screw 14 has been turned to raise the adjusting jaw 5 to the proper distance from the lever jaw 3 to take in the work, the throw of the handle in the direction of the arrow on Figs. 1 and 2, will, in the action of the gripping, occasion the sliding movement of the sliding jaw 9 inward, and, by reason of its tongue-and-groove connection with the adjusting jaw 5, toward the handle, in so doing compressing or moving inward the free end of the spring 20,—with the result that a very efficient grip upon the work will be assured.

It will be further obvious that upon the return swing of the lever handle to permit of the slipping of the teeth of the jaws upon the tube, rod, nut, or other work to be acted on by the wrench, the relaxing of the gripping action will permit the returning or reverse movement of the spring so as to throw the sliding jaw downwardly and outwardly upon its carrying surface on the adjusting jaw 5 to such an extent or distance as will upon the next operating throw of the handle cause the further gripping of the sliding jaw upon the work and a repetition of its inward sliding movement, to give effect to the gripping action of the two sets of teeth against the stress of the spring.

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

1. A wrench which comprises in combination the following elements: a lever handle embodying an externally projecting laterally disposed rack,—a toothed lever jaw extending right angularly from said handle,—an adjusting jaw encompassing the handle and movable lengthwise thereon said adjusting jaw being provided with a carrying surface extending outwardly and inclinedly downward and away from the lever handle and lever jaw and being also provided with a screw recess external of the handle, with a spring recess below its carrying surface, and with a groove upon the upper face of said carrying surface,—a tooth provided sliding jaw formed with a downwardly extending tongue adapted to fit within the groove upon the adjusting jaw, and the tongue being formed with a spring notch,—a flat convoluted spring formed with a spring eye pivotedly mounted upon a spring-retaining screw extending across the spring recess, within the spring recess, the outer end of which spring enters within the spring notch in the tongue of the sliding jaw, and the inner end of which spring rests fixedly within the spring recess, and an adjusting screw located and rotatable externally of the lever handle in

the screw recess of the adjusting jaw, the threads of which are engaged with the rack of the lever handle.

2. A wrench which comprises in combination the following elements:—a lever handle embodying an externally projecting laterally disposed rack,—a toothed lever jaw extending right angularly from said handle,—an adjusting jaw encompassing the handle and movable lengthwise thereon, said adjusting jaw being provided with a carrying surface extending outwardly and inclinedly downward and away from the lever handle and lever jaw, and being also provided with a screw recess external of the handle, with a spring recess below its carrying surface, and with a groove upon the upper face of said carrying surface,—a tooth provided sliding jaw formed with a downwardly extending tongue adapted to fit within the groove upon the adjusting jaw, and with a slot on its inner end encompassed by side plates which straddle the handle, and the tongue being formed with a spring notch,—a convoluted spring formed with a spring eye pivotedly mounted upon a spring-retaining screw extending across the spring recess, within the spring recess, the outer end of which spring enters within the spring notch in the tongue of the sliding jaw, and the inner end of which spring rests fixedly within the spring recess,—and an adjusting screw located and rotatable externally of the lever handle in the screw recess of the adjusting jaw, the threads of which are engaged with the rack of the lever handle.

MICHAEL G. DOBBINS.

Witnesses:
E. HAYWARD FAIRBANKS,
C. D. MCVAY.