(No Model.)

C. E. BILLINGS.

WRENCH.

No. 599,379. Patented Feb. 22, 1898.

Fig. 1.

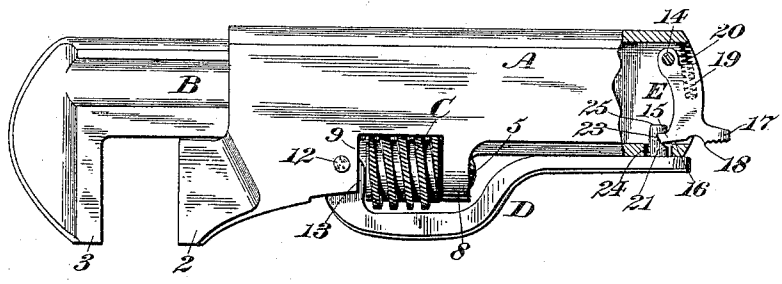


Fig. 2.

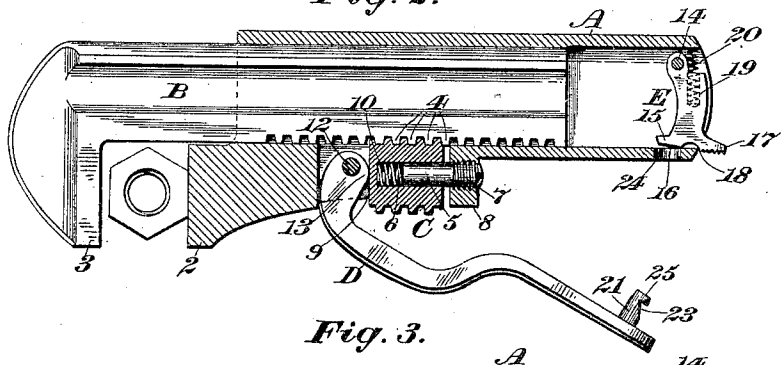
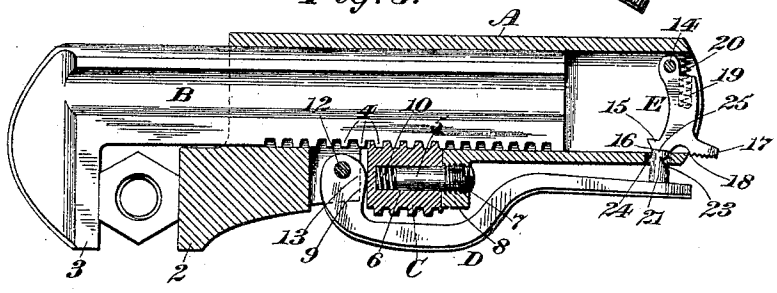


Fig. 3.



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UNITED STATES PATENT OFFICE.

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WRENCH.

SPECIFICATION forming part of Letters Patent No. 599,379, dated February 22, 1898.

Application filed October 25, 1897. Serial No. 656,250. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. BILLINGS, a citizen of the United States, residing in Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Wrenches, of which the following is a specification.

This invention relates to wrenches, the object being to provide a simple and effective device of this character having, in addition to the usual adjusting-screw, independent means for regulating the grip of the jaws upon an object.

My improved wrench includes, in combination with a stock and a shank slidable therein, each having a jaw, an adjusting worm or screw on the stock adapted to engage and operate the shank, a guiding-pin on the stock loosely fitting in a pocket or bore in the worm, a spring adapted to act against the worm, and a lever mounted on the stock and provided with a cam bearing against one end of said worm. In the present case the spring which acts against the worm is fitted in the pocket or bore therein, said spring also engaging with the guide-pin.

In the drawings accompanying and forming part of this specification, Figure 1 is a plan view of my improved wrench, showing the cam-lever in its retracted or locked position. Fig. 2 is a longitudinal central section of the wrench, showing the lever in its shifted position; and Fig. 3 is a similar view showing the lever in nearly its locked position.

Similar characters designate like parts in all the figures of the drawings.

My improved wrench in the construction shown includes a stock, such as A, and a shank, such as B, each being furnished with a rigid jaw, as usual, the respective jaws being designated by 2 and 3, the jaw 3 on the shank or stem B being adjustable toward and from the companion jaw. This operation of the movable jaw 3 is obtained in the present case by the worm or feed screw C, which meshes with the threads 4, formed on the adjacent face of the longitudinal shank B, and when the stock is held it will be apparent that by turning said worm or screw the shank B can be moved into or out of the stock in accordance with the direction of rotation of said worm or screw.

The adjusting worm or screw is supported for sliding movement upon the guide-pin 5, which is carried upon the stock, which guide-pin loosely fits in the pocket or bore 6, centrally formed in and extending nearly the entire length of said worm.

The guide-pin 5 may be mounted either in the worm or in the stock in any suitable manner. It is represented having at one end the external threads 7, engaging corresponding internal threads on the offset or shoulder 8 of the wrench-stock A.

The adjusting-worm C is reciprocative between the shoulder or offset 8 and the abutment 9 on the wrench-stock. The pocket 6, in addition to receiving the fixed or stationary guide-pin 5, also receives the coiled spring 10, which engages the feed-screw and the head or inner end of the guide-pin, for a purpose which will hereinafter appear. As is obvious, this arrangement may be reversed, the pin being then carried by the screw and the spring in a bore of the stock. The screw C serves to adjust the jaw 3 in a manner common to ordinary wrenches, and the grip upon the object may be tightened or increased by independent means, involving a cam-lever, as D, pivoted, as at 12, in the stock and having a cam 13 near its inner end which is contiguous to or bears against the adjacent end of the worm or screw C.

In Fig. 3 the cam-lever D, which operates the screw, is shown as nearly in its retracted or locked position, at which time the cam-face 13 by acting against the adjacent end of the screw serves to hold the latter against the offset or shoulder 8 on the stock A and the spring 10 under compression, and this being the case it will be evident that by manipulating the adjusting-screw the movable jaw 3 can be operated in a familiar manner. As soon as the cam-lever D is released its free end will be caused to fly outward by the action of the coiled spring 10, which bears against the fixed guide-pin 5 and also against the screw C, the latter being forced away from the offset or projection 8 as soon as the cam-lever D is released until it strikes the abutment 9.

In Fig. 2 the cam-lever D is shown in its shifted or outer position, where it is held by the coiled spring 10, the latter being of such

strength as to maintain the adjusting worm or screw in its extreme position and substantially in contact with the abutment 9, whereby on rotating said screw the movable jaw 3 can be moved toward the fixed jaw 2 as desired. When the jaw 3 has been set by the operation of the screw in the manner just set forth, the free end of the cam-lever may be grasped and forced toward the stock A, the result being that the cam 13 by acting against the inner end of the adjusting-screw C will force the latter toward the offset 8, and said screw being in mesh with the threads 4 on the stock B the result will be to carry the movable jaw toward the fixed jaw 2, thereby permitting the pressure upon the object to be regulated as desired.

For the purpose of holding the cam-lever D in its retracted position against the wrench-stock when the wrench is to be used in the ordinary manner I provide a trigger or catch, as E, pivoted, as at 14, in the stock and having at its free end the lever-engaging hook 15, the upper face 16 of which is beveled for a purpose that will hereinafter appear. The trigger or detent E is also furnished with a milled finger-piece 17, by which it can be pressed outward to release the lever, said piece having on its inner side the shoulder 18, adapted to abut against the wrench-stock and prevent its entering too far into said stock. The trigger or detent E has near its pivot the recess 19, in which the coiled spring 20 is seated, said spring fitting against the stock and serving to hold the trigger in its effective position, with the stop or abutment 18 against the wrench-stock. The free end of the cam-lever is provided with the inwardly-extending stud 21, having the notch 23, adapted to receive the hook 15, said stud being adapted to pass through the slot 24 near the inner end of the wrench-stock when the lever is in its retracted position. The inner face 25 of the stud 22 is beveled, so that when the lever is pressed against the handle or returned to its normal position the bevel-face 25 will engage the coacting bevel-face 16 on the trigger E, whereby said trigger will be pressed outward to permit the stud 22 to pass by the same until the notch 23 on said stud is in line with the hook 15 on the trigger, at which time said hook is caused by the action of the spring 20 to enter the notch 23 to lock the lever in its normal position against the stock.

Having described my invention, I claim—

1. The combination, with a stock and a shank slidable therein, each embodying a jaw, of an adjusting-screw on the stock, one of said parts having a bore; a pin loosely fitting in said bore; a spring in said bore; and a lever mounted on said stock and provided with a cam for effecting an independent adjustment of the wrench against the stress of the spring.

2. The combination, with a stock and a shank slidable therein, each embodying a jaw, of an adjusting-screw on the stock, having a bore; a pin fixed to the stock and loosely fitting in said bore; a spring seated in the bore and adapted to act against the adjusting-screw and pin, respectively, and a lever mounted on the stock and provided with a cam bearing against one end of the adjusting-screw.

3. The combination, with a stock and a shank slidable therein, each embodying a jaw, the shank having an abutment and also having an offset; an adjusting-screw reciprocative between the abutment and offset and having a bore; a guide-pin in threaded engagement with the offset and loosely fitting in the bore; a coiled spring seated in the bore and adapted to act against the screw and pin, respectively; and a lever pivoted on the stock and provided with a cam bearing against one end of the screw.

4. The combination, with a stock and a shank slidable therein having a jaw, of an adjusting-screw on the stock, having a bore; a pin on the stock, loosely fitting in the bore; a lever mounted on the stock and provided with a cam bearing against one end of the screw; a spring in position to act against the screw, and thereby against the cam-lever, to swing the latter away from the stock; and a trigger pivoted in the stock and serving to hold the cam-lever in its retracted position against the stock.

5. The combination, with a stock and a shank slidable therein, each having a jaw, of an adjusting-screw on the stock, having a bore; a pin on the stock, loosely fitting said bore; a lever mounted on the stock and equipped with a cam bearing against one end of the screw, said lever being provided near its free end with a stud having a notch; a spring in position to act against the screw thereby to swing the lever away from the stock; and a spring-actuated trigger on the stock, having a hook adapted to enter the notch in the stud when the cam-lever is retracted.

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