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G. M. KIFER & W. F. SHRADER.

ADJUSTABLE WRENCH.

APPLICATION FILED SEPT. 22, 1902.

NO MODEL.

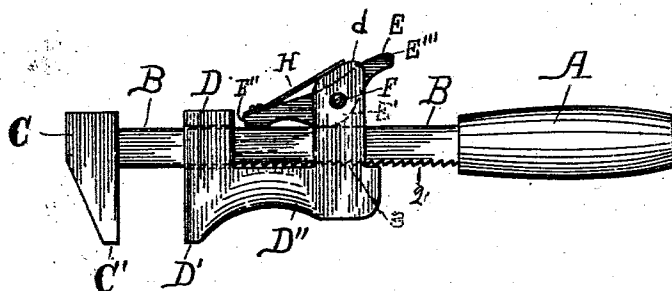


Fig. 1.

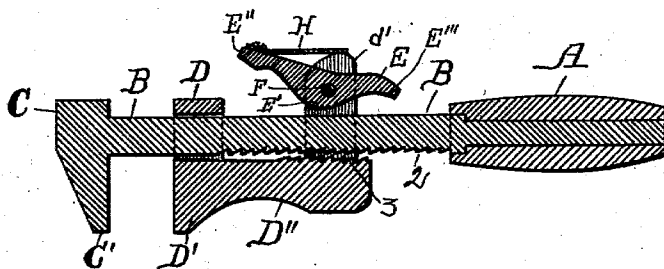


Fig. 2.

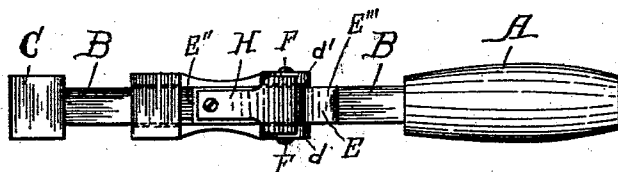


Fig. 3.

Witnesses:

J. C. Duwall.
R. E. Randall.

Inventors:

G. M. KIFER,
AND
W. F. SHRADER;
by their attorney,
Robert W. Randall.

UNITED STATES PATENT OFFICE.

GEORGE M. KIFER AND WILLIAM F. SHRADER, OF PENNS STATION,
PENNSYLVANIA.

ADJUSTABLE WRENCH.

SPECIFICATION forming part of Letters Patent No. 720,933, dated February 17, 1903.

Application filed September 22, 1902. Serial No. 124,298. (No model.)

To all whom it may concern:

Be it known that we, GEORGE M. KIFER and WILLIAM F. SHRADER, citizens of the United States, residing at Penns Station, in the county of Westmoreland and State of Pennsylvania, have invented new and useful Improvements in Adjustable Wrenches, of which the following is a specification, which is sufficiently clear and concise as to enable others skilled in the art to which it appertains to make and use the same; and our invention consists in the parts, arrangement, improvements, shape, and combinations thereof, substantially as hereinafter shown and described, and specifically set forth in the appended claims terminating this specification.

The objects of our invention are to provide an adjustable wrench adapted to be easily and quickly fitted to various sizes of nuts to be turned thereby; to provide a wrench composed of a minimum of mechanical parts, that will be neat and attractive in appearance, capable of a wide scope of usefulness and efficiency; to provide a wrench which can be adjusted and secured at any desired span of the jaws with a single hand of the operator, and also to provide an adjustable wrench which can be manufactured and sold at a comparatively low price.

Other objects and advantages of our invention will appear from the following specification and from the drawings forming a part thereof.

In order to more fully understand our invention, reference is had to the accompanying drawings, in which—

Figure 1 is a side elevation of the entire invention. Fig. 2 is a longitudinal central section of same, and Fig. 3 is a top plan of same.

Similar indices refer to and denote similar parts throughout the several views.

A designates the handle or handhold of any well-known form and construction.

B is a substantially square shank extending out from the handle, with a fixed head C on its outer end.

C' represents the fixed jaw integral of the head C, its inner face being at right angles to the shank B.

D is a movable head with an opening there-

through only slightly larger than the shank B, which is adapted to operate therein, and with a movable jaw D' integral of the head D, extending down therefrom, with a face opposite to the face of the jaw C', parallel therewith and against which it is adapted to contact. Extending toward the handle from the jaw D', integral of the jaw D' and the head D and of same width, is the arm D'', with fingers *d* and *d'* extending up therefrom on either side and above the shank B. The upper ends of the fingers *d* and *d'* are beveled down toward the center part of the wrench, as shown, for the purpose hereinafter appearing. It will now be seen that the head D incloses a portion of the shank B and is adapted to slide back and forth along its length.

The under side of the shank B is provided with serrations 2, forming a rack, and on the upper surface of the arm D'' between the fingers *d* and *d'* are oppositely-disposed serrations 3, forming a rack adapted to engage the rack 2.

E represents a dog or lock of same width as the shank B, pivotally mounted between the fingers *d* and *d'* by the pivot F, forming a cam E'. Immediately below its pivotal connection is a point E'', adapted to slide on the upper surface of the shank B, and a thumb-piece E''' extends upward and toward the handle A. The cam E' is so arranged that when the point E'' is in contact with the shank B, as shown in Fig. 1, the rack 3 will be pressed into engagement with the rack 2, and consequently the jaw D' cannot be moved, and should the thumb-piece E''' be pressed down and the point E'' be thereby raised, as shown in Fig. 2, the cam E' will be withdrawn from engagement with the shank B, and consequently the racks 2 and 3 will be released from engagement with each other and the jaw D' can then be moved along the shank B to the point desired.

Secured to the upper side of the point E'', extending therefrom over the top of the dog E, is a flat spring H, its free end being expanded to a width to extend over the tops of the fingers *d* and *d'* and contacting therewith, the object of said spring H being to hold the dog E at either of the two points above stated. It can now be seen that if, for instance, the

handle A be taken in the right hand and that by pressing on the point E''' the wrench will be unlocked and that the jaw D' can be slid along the shank B to the point desired, by 5 then pressing on the point E the wrench will be locked at that point and will be ready for operation.

Our invention herein shown and described is perfectly adapted to accomplish the results 10 for which it is intended, and it is evident that changes in and modifications of the specific construction shown and described may be made and that analogous parts may be used to accomplish the same results without de- 15 parting from the spirit of our invention or sacrificing any of its many advantages.

Having now fully shown and described our invention and the best mode for its construction to us known at this time, what we claim 20 as new, and desire to secure by Letters Patent of the United States, is—

1. An adjustable wrench having in combination, a handle A; a square shank B extending out from the handle; a fixed head C, 25 integral of the outer end of said shank, forming a fixed jaw C'; a movable head D, carried on said shank, with a jaw D' integral thereof; an arm D'', integral of the head D, extending toward the handle and parallel 30 with the shank B; a pair of fingers d and d' extending up from said arm on each side of and beyond the shank B; a dog E pivotally

mounted over the shank B between the fingers d and d'; a spring H secured on top of the dog; a rack 2 on the under side of the 35 shank B and an oppositely-disposed rack 3 on the upper side of the arm D''; and means whereby the racks 2 and 3 may be contacted or released from engagement with each other by the action of the dog, all substantially as 40 shown and described and for the purposes set forth.

2. An adjustable wrench having in combination, a handle and a square shank, a fixed head secured to the shank opposite to the han- 45 dle, a movable head having an arm extending toward the handle and fingers extending up from said arm, a dog pivotally mounted between said fingers and above the shank, oppositely-disposed racks on the under side 50 of the shank and on the upper side of the arm, means whereby the dog may be operated to contact or release said racks from engagement with each other, and a spring for retaining the dog in either of two positions, sub- 55 stantially as shown and described.

In testimony whereof we have hereunto signed our names in the presence of two subscribing witnesses.

GEORGE M. KIFER.

WILLIAM F. SHRADER.

Witnesses:

W. E. MILLER,

W. A. WALTER.