(No Model.)

B. R. HAGAR.

WRENCH.

No. 382,975. Patented May 15, 1888.

Fig. 1.

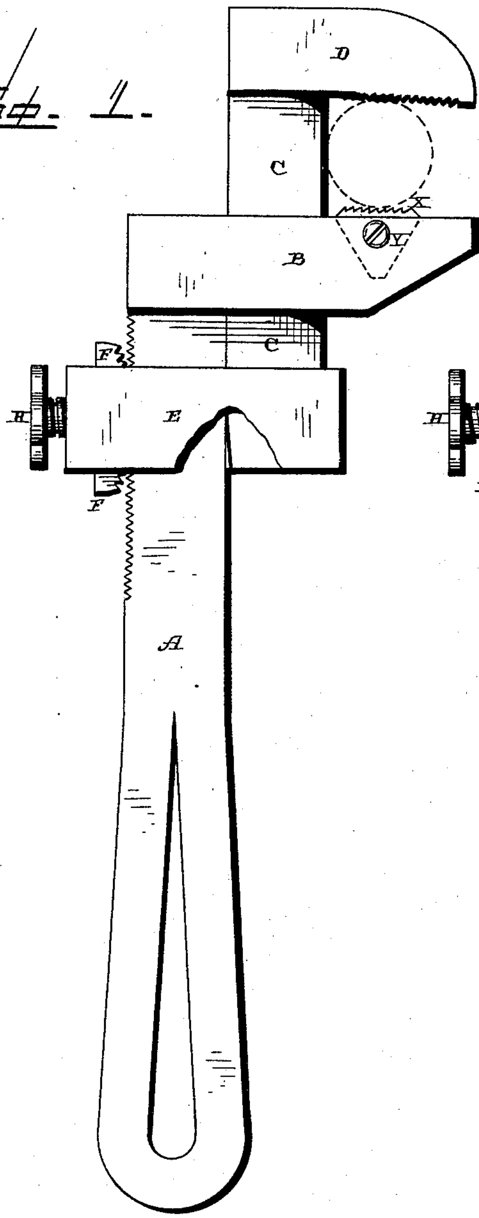


Fig. 2.

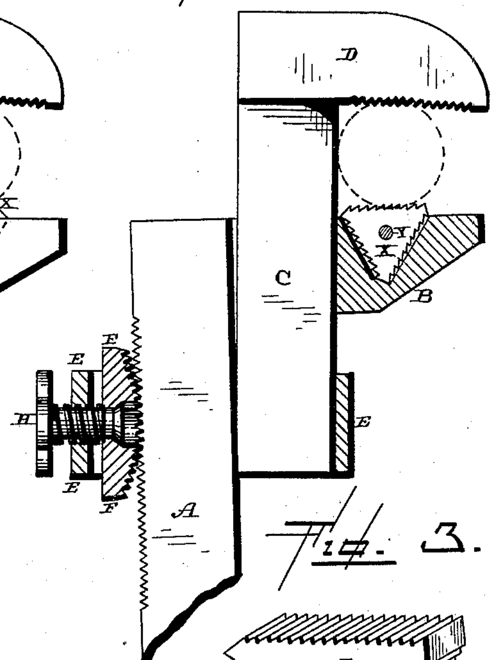
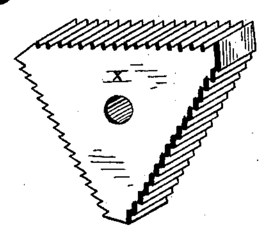


Fig. 3.



WITNESSES:

R. Saulnier.

M. A. Todd.

INVENTOR.

Ben R. Hagar.

F. A. Lehmann,

ATTORNEY.

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

BENJAMIN R. HAGAR, OF BRADFORD, PENNSYLVANIA.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 382,975, dated May 15, 1888.

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To all whom it may concern:

Be it known that I, BENJAMIN R. HAGAR, of Bradford, in the county of McKean and State of Pennsylvania, have invented certain new and useful Improvements in Wrenches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in wrenches; and it consists in, first, the combination of the wrench-bar provided with a fixed jaw at its inner end and serrated upon its outer edge with the endwise-moving lever which passes through the stationary jaw on the wrench-bar and has a head secured to its outer end and a guiding strap or yoke attached to its inner end, the serrated dog, and the set-screw for operating the dog; second, the combination of the dog made rounding upon its inner side, the screw swiveled to the dog, the bar serrated so as to engage the dog and provided with a perforated jaw on its upper end, the lever having a head secured to its outer end, and the strap through which the screw passes, all of which will be more fully described hereinafter.

The objects of my invention are to attach the movable jaw to an endwise-moving lever which is held in close contact with the wrench-bar, which lever and bar when clamped together for use make the wrench more than ordinarily firm, imparts to the lever the rigidity of the bar, and gives additional strength at a point where most wrenches are weakest, and to use in connection with the stationary jaw a reversible serrated block which can be turned so as to present a new side when the teeth become worn.

Figure 1 is a side elevation of a nut-wrench which embodies my invention. Fig. 2 is a side elevation, partly in section, of the same, the upper part of the wrench only being shown. Fig. 3 is a perspective of the reversible serrated triangular block.

A represents the bar of the wrench, and which has the stationary jaw B formed as a part thereof. The inner surface of this jaw may be either smooth or serrated, according, as the wrench is to be used upon nuts or pipes. Through this stationary bar B is made a suitable opening, and through this opening, in direct contact with the inner side of the bar A, is passed the endwise-moving lever C, having the jaw D secured to its outer end. This jaw may be made either double or single, and will be made either smooth or serrated upon its inner side, according to the use to which the wrench is to be applied. This lever C will be made of any desired length and has secured to its inner end the guiding-strap E, which passes around the bar A, and which serves both to assist in guiding the lever C and to hold the serrated dog F in contact with the serrated outer edge of the bar A. Through the outer end of this guiding strap or bar is passed the set-screw H, to the inner end of which the dog F is swiveled, and by means of which the dog is moved in and out of contact with the serrated portion of the bar A. When the lever C and jaw D are to be adjusted, the set-screw H is operated so as move the dog F out of contact with the serrations in the bar, and then the lever can be moved endwise, carrying the strap, dog, set-screw, and jaw D with it. When the dog is locked by means of the screw H in contact with the serrated edge of the bar, the jaw has no movement whatever. Where the wrench is to be used exclusively upon nuts or square rods, the jaw D will be made double, and then the inner end of the bar A will form a portion of one of the stationary jaws.

In order to give the lever a slight lateral movement independently of the bar A, so that the serrated jaws will bite into the sides of the pipe or rod, the upper inner end or corner of the bar A and the inner end of the lever C are slightly beveled away, as shown in Fig. 2, and these beveled surfaces, in connection with the rounding face of the dog, allow a slight lateral play at the outer end of the lever and jaw D, so that the serration of the jaws will be made to bite into the bar A. Without the rounding face upon the dog and the beveled surface on the inner end of the bar and the inner end of the lever the movable serrations of the jaw cannot be made to engage with the

pipe or rod with sufficient force to cause them to bite into its surface.

In the upper side of the lower stationary jaw is made a triangular recess, and in this triangular recess is placed a triangular serrated block, X, which is held rigidly in position by means of a screw, Y, which is passed laterally through both jaw and block. The upper edge of this block projects slightly beyond the edge of the jaw, so as to act in connection with the serrated movable jaw, and thus the pipe is bitten into from opposite sides. When the serrations or teeth on one side of this block become worn, the screw is removed, the block taken out, and a fresh side is presented. When all of the sides have become worn, a new block will be used. When this block is used, the jaw can be made plain instead of being serrated.

By having the lever C fastened in close contact against the inner edge of the bar the lever is given all the rigidity of the bar and lever united and additional strength to the point where most wrenches are weakest.

Having thus described my invention, I claim—

1. The combination of the bar A, having the perforated fixed jaw B, secured to its inner end, the lever C, having a jaw secured to its outer end and made to pass through the perforation in the stationary jaw, and having the strap E secured to its inner end, with the serrated dog and the screw for operating it, the lever being placed in close contact with the inner edge of the bar, substantially as shown.

2. The combination of the dog F, made rounding upon its inner side, the screw H, swiveled to the dog, the bar A, serrated upon its outer side, so as to engage with the dog, and having the perforated jaw B secured to its upper end, the lever C, having a head secured to its outer end, and the strap E, secured to its inner end and through which the screw H passes, the upper inner corner of the bar A being slightly beveled away, so as to allow the lever C a slight backward movement, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

BEN. R. HAGAR.

Witnesses:
T. A. SANGSTER,
J. W. WILLIS.