

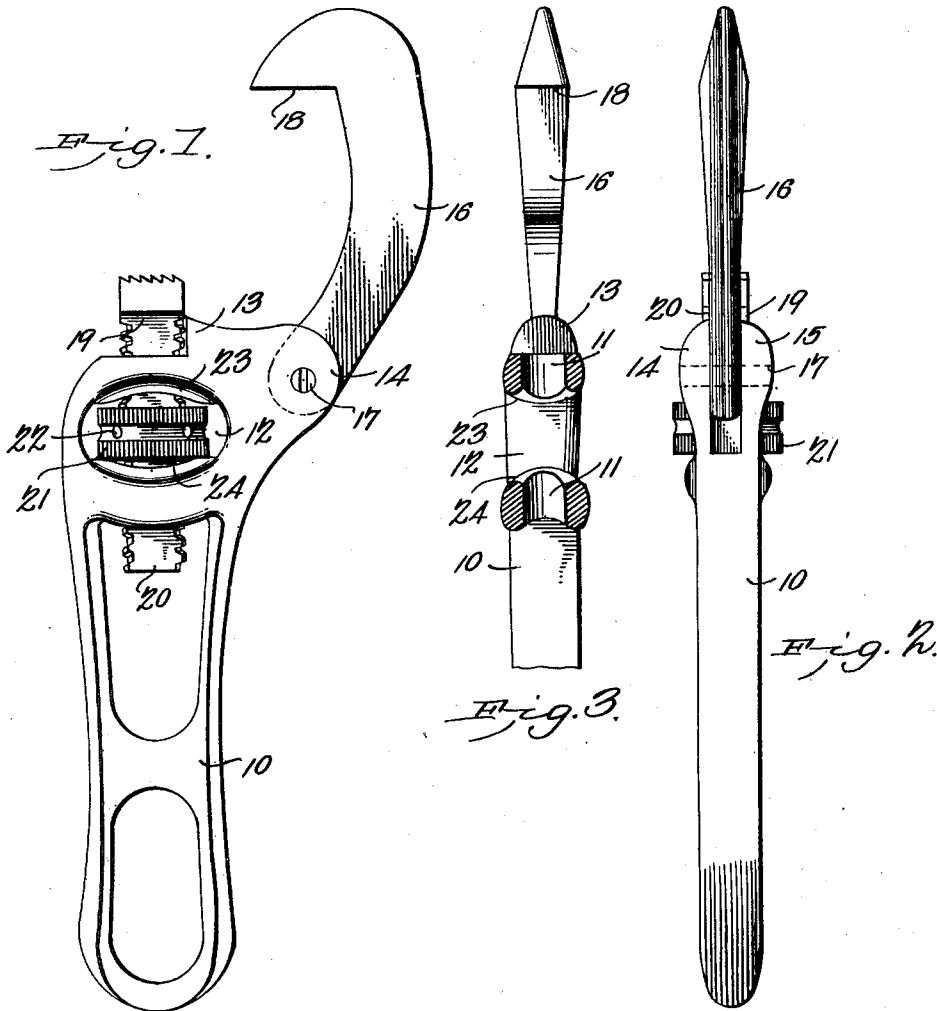
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G. W. JOHNSON.  
PIPE WRENCH.

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NO MODEL.



Witnesses  
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## UNITED STATES PATENT OFFICE.

GEORGE WALKER JOHNSON, OF ERIE, PENNSYLVANIA.

## PIPE-WRENCH.

SPECIFICATION forming part of Letters Patent No. 737,847, dated September 1, 1903.

Application filed April 11, 1903. Serial No. 152,183. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE WALKER JOHNSON, a citizen of the United States, residing at Erie, in the county of Erie and State of Pennsylvania, have invented a new and useful Pipe-Wrench, of which the following is a specification.

This improvement relates to pipe-wrenches, and has for its object to improve and simplify devices of this character and increase their efficiency without increase of cost; and the invention consists in certain novel features of the construction as hereinafter shown and described, and specified in the claims.

In the drawings illustrative of the invention, in which corresponding parts are denoted by like designating characters, Figure 1 is a side elevation of the device. Fig. 2 is a rear elevation. Fig. 3 is a front elevation, partially in section.

One of the ends sought to be attained in the improved device herein disclosed is to maintain the line of resistance constantly through the center of the handle or stock, and thus not only increase the effective leverage, but also obviate side strains, so that a comparatively light construction may be employed in an implement capable of performing comparatively heavy work, which is of very great importance in implements of this class, which require to be carried about by the workman and otherwise transported. To this end the stock or handle member (represented at 10) is formed with a longitudinal cavity 11 in one end and with a transverse aperture 12 intersecting the longitudinal cavity. The stock is likewise formed with a shoulder or stop 13, extending at the rear of the cavity 11, and with spaced lugs 14 15, projecting rearwardly of the stock and forming supports for the swinging jaw 16, pivoted between them by a transverse rivet 17, as shown. By this means the swinging jaw is firmly held and supported laterally and all side movement efficiently resisted. The jaw member 16 terminates at its free end with a grip-hook 18 of the usual form and when in action will assume a position in alinement with the longitudinal axis of the stock, as shown. The movable jaw member is represented at 19 and is provided with a serrated

outer end and with a flattened extension 20 with threaded edges, the threads being preferably of the "square" form, as shown. The extension 20 is formed to closely engage the cavity 11 and be guided thereby, the flat sides and square threads providing for this guidance without detriment to the threads. The rear side of the jaw 19 and extension 20 are supported by the stop or shoulder 13 and the action thereby very materially improved, as hereinafter more fully explained. Within the aperture 12 the operating-nut 21 is supported and operatively engages the threaded extension 20, the nut being preferably provided with a "milled" or otherwise roughened periphery and also with spaced cavities 22 for a pin-wrench, if required. The opposite sides 23 24 of the aperture 12 will be convex transversely, as shown in Fig. 3, against which the faces of the nut operate to reduce the friction and prevent "binding" in the aperture. This is an important feature of the invention and very materially increases its effectiveness and lessens the friction between the parts by very materially reducing the wearing-surfaces. The jaw members 18 19 will preferably be extended laterally relative to the parts 16 and 20 to correspondingly increase the holding-surfaces. By this simple arrangement it will be noted that the strains are maintained constantly in a line centrally through the handle member, thereby entirely obviating all side strains and enabling material reduction in the weight of material employed without reducing the strength or lessening the efficiency. The leverage is also largely increased without producing side strains, as the force is applied radially and not tangentially, as in wrenches heretofore constructed. The stop 13 also materially increases the efficiency of the action by increasing the area of the bearing-surface upon the movable jaw and lessens the tendency of the stock to fracture under heavy strains. The spaced ears or lugs 14 15 are also an important feature, as the swinging jaw is thereby greatly strengthened and supported from lateral movement or "play." The jaws are thus maintained in their true position and prevented from lateral displacement.

The handle member will preferably be "cut" out, as shown, to decrease the weight without reduction of strength.

5 The implement may be made of any size to fit different sizes of pipes manufactured in graded sizes and of any suitable material.

By this simple arrangement of parts a wrench is produced which will not "stick" to the pipe after use no matter how hard the  
10 "pull" may be, as the peculiar arrangement of the jaw members causes an immediate release of the wrench when the pressure is removed. Another great advantage of this arrangement is that the wrench will grip the  
15 pipe with equal force no matter how large the pipe may be. Hence any pipe within the range of the jaws may be operated upon with equal power, whereas with wrenches of this character as ordinarily constructed the grip upon  
20 the larger pipes is weaker. Hence larger wrenches have to be provided for the larger pipes. With my arrangement, on the contrary, the wrench may be employed to the full capacity of the jaw distention.

25 Having thus described the invention, what I claim is—

1. In a pipe-wrench, a stock or handle member having a longitudinal cavity in one end and with a transverse aperture intersecting  
30 said cavity and with a longitudinally-extended shoulder at the rear of said cavity, a serrated jaw member having a flattened extension

formed with threaded edges and movably disposed in said cavity and supported by said shoulder, a nut operating within said  
35 aperture upon said threaded jaw extension and an opposing jaw member movably connected by one end to said stock and terminating in a hook at the other end and adapted to swing with said hooked end into alignment  
40 with said serrated jaw member and stock member, substantially as specified.

2. In a pipe-wrench, a skeleton stock formed of spaced side members connected at their ends and at points intermediate of their  
45 ends, one end member and the connecting cross-bar adjacent thereto having apertures formed longitudinally therethrough, a serrated jaw member having a flattened extension movably disposed in said apertures and  
50 provided with threaded edges, a nut mounted on said extension between the end member and said adjacent cross-bar, and an opposing jaw member pivotally mounted on said stock adjacent to said serrated jaw member and  
55 provided at its free end with a terminal hook.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

GEORGE WALKER JOHNSON.

Witnesses:

R. A. JOHNSON,  
C. H. JORDAN.