

A. KLEIN.
PIPE WRENCH.
APPLICATION FILED JUNE 11, 1913.

1,115,439.

Patented Oct. 27, 1914.

FIG. 1.

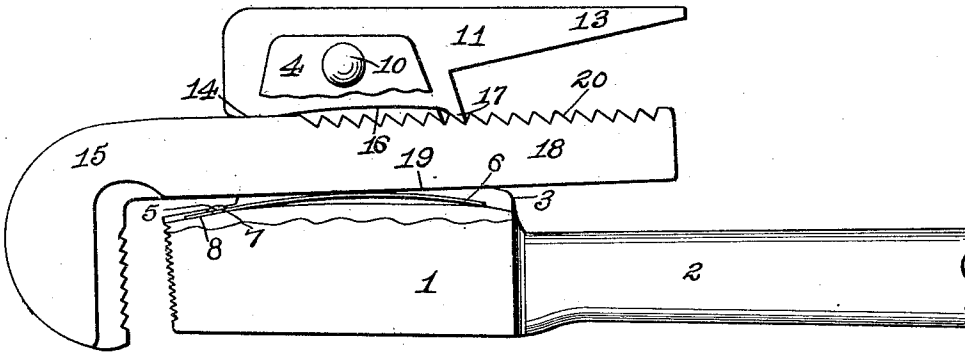


FIG. 2.



FIG. 3.

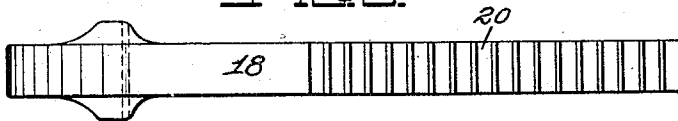


FIG. 4.

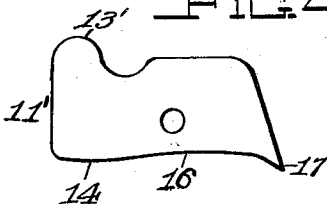


FIG. 5.



Witnesses:

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UNITED STATES PATENT OFFICE.

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PIPE-WRENCH.

1,115,439.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ALBERT KLEIN, a citizen of the United States, and a resident of Emsworth, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Pipe-Wrenches; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to wrenches and has special reference to such a class as is known as pipe wrenches for gripping and turning round surfaces such as pipe and ferrules.

The object of my invention is to provide a cheap, simple and efficient form of pipe wrench which can be made of a very small number of parts and one which will be capable of being adjusted very quickly and which when so adjusted will be firm and secure so that there can be no slipping or other disengagement of the working parts.

Another object of my invention is to provide a pipe wrench wherein all the working parts can be made from drop forgings so as to materially decrease the cost by eliminating machine work for finishing the same.

My invention consists, generally stated, in the novel arrangement, construction and combination of parts as hereinafter more specifically set forth and described and particularly pointed out in the claims.

To enable others skilled in the art to which my invention appertains to construct and use my improved pipe wrench I will describe the same more fully referring to the accompanying drawing, in which:—

Figure 1 is a side view of my improved pipe wrench, showing a portion broken away to show the operating parts. Fig. 2 is a top plan view of the wrench having the pawl and the movable jaw removed. Fig. 3 is a top plan view of the movable jaw showing the rack for adjusting the same. Fig. 4 is a side elevation of a pawl. Fig. 5 is a plan view of the spring used for holding the teeth of the rack in engagement with the tooth of the pawl.

Like symbols of reference herein indicate like parts in each of the figures of the drawing.

As illustrated in the drawing my improved pipe wrench has a main member 1 which consists of a handle 2 having a fixed jaw 3 at its inner end and a pair of integrally formed walls or ears 4 which taper in length toward their outer ends. This main member 1 may be made from drop

forging and of any size desired while a pin 5 extends upward from the inner end of the same and slightly to the rear of the fixed jaw 3 for the purpose of receiving a flat spring 6 which fits over said pin by a hole 7 in the same. This pin 5 can then be secured to the main member 1 by a blow from a hammer in order to thus rivet the spring 6 in place so that it will extend across the shank portion 8 of the main member 1 and between the walls 4. The spring 6 is curved as shown in Fig. 1 in order to allow the center portion of the same to extend a sufficient distance above that part of the shank portion included between the walls 4 as later explained.

The integrally formed walls or ears 4 are provided with a hole 9 at a point near the top of the same for receiving a bolt or rivet 10 which extends through said walls and through a pawl 11 in order to secure said member in said walls and at the same time provide a pivotal connection for the same. This pawl 11 consists of a body portion 12 and a reduced operating portion 13, and said body portion has a bearing face 14 on the under face of the same for bearing against the upper face of the movable jaw 15 as later explained. Beyond the bearing face 14 is a curved portion 16 which terminates in a tooth 17 and such tooth may be raised by raising the reduced operating portion 13. The movable jaw 15 is provided with a slide bar 18 which has a smooth bottom face 19 for resting on the spring 6 while the upper face of said bar is provided with a toothed rack 20 for engaging with the tooth 17 on the pawl 11.

The use and operation of my improved wrench is as follows:—The handle 2 is grasped by the operator as with the usual pipe wrench and the operating portion 13 is raised and the movable bar 18 is pressed down at its rear end so that the spring 6 will be depressed by reason of the bearing face 14 engaging and forming a lever action with the upper face of the slide bar 18 of the sliding jaw 15. The tooth 17 is also thus disengaged from the toothed rack 20 so that the movable jaw 15 can be moved to any desired position in order to regulate the distance between the same and the fixed jaw 3 at the inner end of the main member 1. The sliding jaw 15 can be rocked slightly in order to allow the same to engage with a pipe or other round object to

be turned and this is accomplished by reason of its engagement with the pawl 11 which is pivotally connected to the walls 4 of the main member 1, so that as the tooth 17 of said pawl is engaged with the rack 20 and as said rack is held in close engagement with the said tooth by the spring 6 the said jaw can be slightly rocked as the said pawl moves by its pivotal connection with the bolt or rivet 10.

Fig. 1 shows a pawl 11' in dotted lines which has no operating member at its rear end, but is provided with an operating member 13' at its front end which when pressed downward will bear by the face 14 against the movable jaw 15 and thus rotate on the rivet 10 so as to depress the spring 6 and release the tooth 17 from the rack 20 in order to allow the said movable jaw to be moved to any desired position for adjustment.

When the jaws are first engaged with any object for turning the same the tooth 17 on the pawl 11 will be in engagement with the rack 20 and the bearing face 14 will rest on the upper face of the movable member 18 while such member will rest on the upper point of the curved spring 6 which is on a line with the rivet 10 at right angles to the main member 1, as shown in Fig. 1. When the teeth on the jaws grip the article and pressure is exerted on the handle 2 the pawl 11 will be slightly rocked so that the spring will be depressed and the bearing point of the movable member 18 will move toward the pin 5 while the bearing face 14 of the pawl 11 will be raised from said member and the tooth 17 will press the member downward at its rear end so as to lock the same by depressing the spring 6.

It will be understood that with both styles of pawl 11 and 11' the jaws can be brought closer together by simply pushing the sliding jaw 15 by reason of the shape of the teeth of the rack 20.

The entire wrench can be made from drop forgings and the machine work necessary to put the same in marketable condition will be almost negligible so that the cost will thereby be greatly reduced while the wrench itself will present all the good features of the ordinary pipe wrenches now used and in addition will be of the quick acting type calculated to save much time and annoyance.

Various modifications and changes in the design and construction of my improved wrench may be resorted to without departing from the spirit of the invention, or sacrificing any of its advantages.

What I claim as my invention and desire to secure by Letters Patent is:—

1. A wrench comprising a main member having a stationary jaw and ears, a pawl pivoted to said ears and having an integral bearing on the surface thereof, a curved sur-

face on said main member opposite said pawl, a movable jaw member having a rack on the same, and means located over said curved surface on said main member for engaging with said movable member to hold its rack in engagement with said pawl.

2. A wrench comprising a main member having a stationary jaw and ears, a pawl pivoted to said ears and having an integral bearing on the surface thereof, a curved surface on said main member opposite said pawl, a movable jaw member having a rack on the same, and a flat spring extending over said curved surface on said main member for engaging with said movable member to hold its rack in engagement with said pawl.

3. A wrench comprising a main member having a stationary jaw and ears, a pawl pivoted to said ears and having an integral bearing on the surface thereof, a curved surface on said main member opposite said pawl, a movable jaw member having a rack on the same adapted to engage with a tooth on said pawl, and means on said main member for engaging with said movable member to hold its rack in engagement with said pawl.

4. A wrench comprising a main member having a stationary jaw and ears, a pawl pivoted to said ears and having an integral bearing on the surface thereof, a curved surface on said main member opposite said pawl, a movable jaw member having a rack on the same adapted to engage with a tooth on said pawl, and means located over said curved surface on said main member for engaging with said movable member to hold its rack in engagement with said pawl.

5. A wrench comprising a main member having a stationary jaw and ears, a pawl pivoted to said ears and having an integral bearing on the surface thereof, a curved surface on said main member opposite said pawl, a movable jaw member having a rack on the same adapted to engage with a tooth on said pawl, and a flat spring extending over said curved surface on said main member for engaging with said movable member to hold its rack in engagement with said pawl.

6. A wrench comprising a main member having a stationary jaw and ears, a pawl pivoted to said ears and having an integral bearing on the surface thereof, a movable jaw member having a rack on the same, and a spring on said main member for engaging with said movable member to hold its rack in engagement with said pawl and permit said movable member to engage said bearing surface and to change its point of contact on said spring and raise said fixed bearing surface as the jaws are engaged in gripping.

7. A wrench comprising a main member having a stationary jaw and ears, a pawl

pivoted to said ears and having an integral bearing on the surface thereof, a movable jaw member having a rack on the same, and means on said main member extending over a curved surface opposite said pawl for engaging with said movable member to hold its rack in engagement with said pawl and permit said movable member to engage said bearing surface and to change its point of contact on said means and raise said fixed bearing surface as the jaws are engaged in gripping. 20 25

In testimony whereof, I the said ALBERT KLEIN, have hereunto set my hand.

ALBERT KLEIN.

Witnesses:

T. B. HUMPHRIES,
J. N. COOKE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."