

W. DUCHARME.

WRENCH.

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959,322.

Patented May 24, 1910.

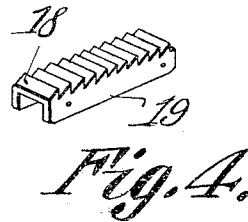
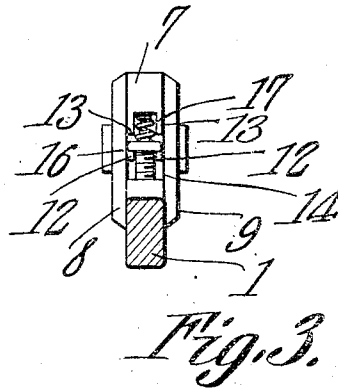
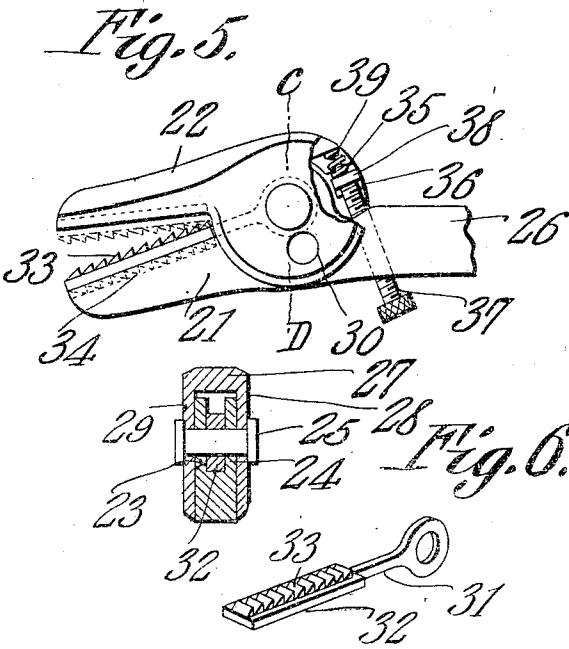
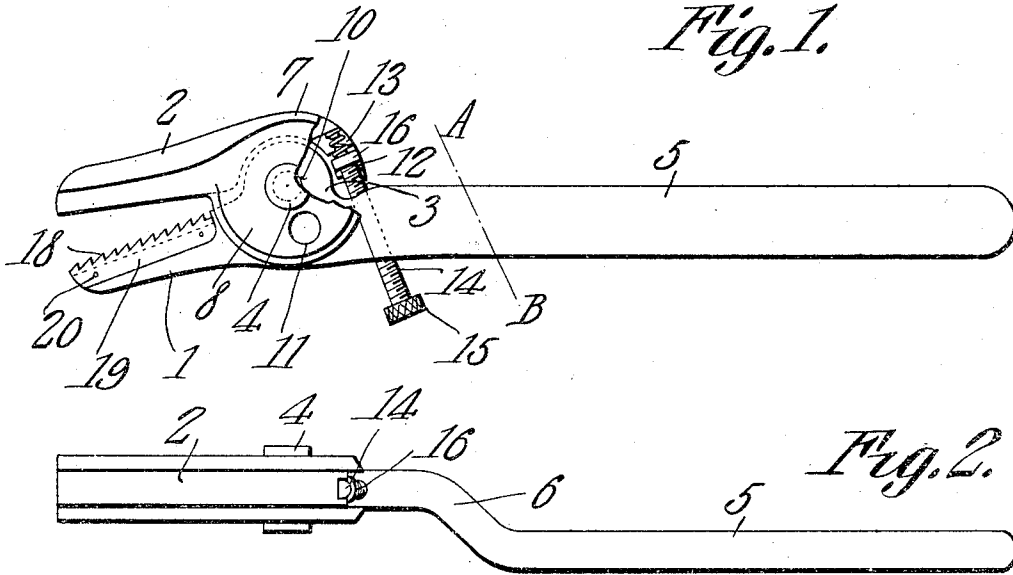


Fig. 7. William Ducharme.

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Witnesses

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WRENCH.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM DUCHARME, a citizen of the United States, residing at Johnstown, in the county of Cambria and State of Pennsylvania, have invented a new and useful Wrench, of which the following is a specification.

This invention relates to tools, especially to pipe wrenches and has for an object to provide a device of this character having an adjustable jaw which enables the tool to fit the various sizes of pipe used in plumbing, steam and gas heating.

A further object is to provide a pipe wrench having detachable teeth which may readily be renewed when worn out.

A still further object is to provide a pipe wrench having an off-set handle to facilitate the manipulation of the tool on fittings positioned close to side walls.

To attain the above ends my invention consists of certain novel details of construction and combination of parts which will be hereinafter more fully described and claimed, it being understood that various changes may be made in the minor details of construction within the scope of the appended claims.

In the accompanying drawing forming part of this specification, Figure 1 is a side elevation of my pipe wrench with parts broken away. Fig. 2 is a top plan view of the pipe wrench. Fig. 3 is a transverse sectional view taken on the line A—B of Fig. 1 looking in the direction of the arrow head. Fig. 4 is a perspective view of the toothed member. Fig. 5 is a side elevation of a modification of the pipe wrench with parts broken away. Fig. 6 is a transverse sectional view through the line C—D of Fig. 5. Fig. 7 is a perspective view of a reversible toothed member.

Like characters of reference designate similar parts in the views shown.

Referring to the parts by their reference characters, 1 designates the fixed jaw and 2 the movable jaw of the tool. The fixed jaw is formed with an apertured bearing lug 3 to receive the pivot pin 4 and terminates in a handle lever 5 which is off-set, as shown at 6. The working end of the jaw 1 is preferably formed rectangular in contour and cross section to receive the removable teeth which will presently be described.

The movable jaw 2 is provided at one end

with a head 7 having a pair of disk-like wings 8 and 9 which are adapted to slidingly fit the lateral sides of the fixed jaw and are provided centrally with suitable bearings 10 to receive the pivot pin 4. A second pair of aligned bearings 11 are arranged in the wings which are also adapted to receive the pivot pin 4 so that a greater opening between the working faces of the jaws may be obtained when such is desirable.

Formed on each wing is a pair of spaced shoulders 12 and 13 by means of which the movable jaw is rocked upon its pivot. The shoulders are inclined in the direction of the pivot pin 4 and are disposed in rear of said pivot pin and remote from the working end of the movable jaw, as shown.

Threading through the handle 5 is a screw 14 having at one end a suitable head 15 for its proper manipulation and at the other end a flange or head 16 which projects between the spaced shoulders of each wing. As the screw is advanced the screw head 16 will engage the shoulder 13 of each wing and rotate the movable jaw head 7 so as to narrow the distance between the working faces of the jaws, and as the screw is retracted the screw head 16 will engage the shoulder 12 of each wing and rotate the movable jaw head 7 in a counter direction so that the distance between the working faces of the jaws will be widened. By this movement of the screw 14 the jaws may be adjusted to fit any ordinary pipe used in plumbing or for similar purposes. To normally hold the jaws in open position a spiral spring 17 is seated upon the screw head 16 and exerts an upward pressure upon the movable jaw head 7. The shoulders 12 of the wings are thus rocked into engagement with the screw head 16, as best shown in Fig. 3, and held in this position by the pressure of the spring 17 upon the jaw head 7. The advantage resulting from the screw head being held normally in engagement with the shoulder 12 of each wing is that the screw will commence to open the jaws at the beginning of its retracting movement regardless of whether the movable jaw 2 or fixed jaw 1 is placed underneath the pipe.

Mounted upon the working face of the fixed jaw 1 is an U-shaped toothed member 18, the lateral flanges 19 of which snugly fit the sides of the jaw and are detachably connected thereto by screws or similar con-

nectors 20. The toothed member may be readily removed and replaced with a new one from time to time so that the high efficiency of the tool may be maintained at all times.

In Fig. 5 is shown a modification of the pipe wrench in which 21 designates the fixed jaw and 22 the movable jaw. The fixed jaw is provided with a pair of apertured bearing-lugs 23 and 24 which receive the pivot pin 25 and terminates in a handle 26 which is preferably formed off-set, as above described. The movable jaw 22 terminates at one end in a head 27 having spaced disk-like wings 28 and 29 which slidably fit the outer walls of the bearing lugs 23 and 24 and are provided centrally with suitable bearings to receive the pivot pin 25. A second pair of bearings 30 is formed in each of the wings to receive the pivot pin whereby to vary the normal opening between the jaw.

For the proper manipulation of the tool when working in corners it is often necessary to have a pair of pipe wrenches, one of which is equipped with teeth on its movable jaw and the other with teeth on its fixed jaw. To combine both of these tools in one I provide a reversible toothed member comprising an arm 31 adapted to be journaled upon the pivot pin of the tool and a substantially rectangular extension 32, the top and bottom surfaces of which are each provided with a series of teeth 33 and 34. The extension 32 is slightly less in width than the width of the jaws 21 and 22, which latter are centrally provided with longitudinal recesses to snugly receive the toothed extension 32. When seated in the recess of either jaw one of the toothed surfaces of the reversible toothed member is in engagement with the bottom wall of the said recess and forms a substantial foundation for the toothed member. When using this tool it is simply necessary to remove the jaws from the pipe and rock the reversible toothed member into engagement with either of the jaws 21 and 22, as desired.

Each of the wings 28 and 29 is provided with spaced shoulders 35 and 36, as above described. A screw 37 is threaded through the fixed jaw 21 and is provided with a head 38 which engages the shoulder 35 to close the jaws and the shoulder 36 to open the jaws, as above described. A spiral spring 39 seated upon the screw head 38 exerts an upward pressure upon the head 27 of the movable jaw and holds the screw head 38 normally in engagement with the shoulder 36 whereby to hold the jaws in open position, as above described.

It is to be understood that the head 16 has a slight movement between the shoulders 12 and 13, whereby the jaws 1 and 2 will be separated slightly on the reverse motion of the tool, to permit the jaws to slide over the

work; and the same observation is true with respect to the head 38 and the shoulders 35 and 36.

What is claimed is:

1. In a tool, a fixed jaw, a movable jaw having a terminal disk-like wing pivotally connected to said fixed jaw, a pair of shoulders formed on said wing adjacent to its pivot, and a screw carried by said fixed jaw having a head projecting between said shoulders and adapted to engage one of said shoulders as the screw is advanced and the other of said shoulders as the screw is retracted whereby to adjust said jaws relatively to each other.

2. In a tool, a fixed jaw, a movable jaw having a lateral wing pivotally connected to said fixed jaw, a pair of spaced shoulders disposed upon said wing substantially opposite the working end of said jaw, a screw carried by said fixed jaw having a head projecting between said shoulders and adapted to engage one of said shoulders as the screw is advanced and the other of said shoulders as the screw is retracted whereby to vary the size of the opening between said jaws.

3. In a tool, a fixed jaw, a movable jaw having lateral wings pivotally connected to said fixed jaw, each of said wings having a pair of spaced shoulders disposed in rear of its pivot and remote from the forward or working end of the jaw, a screw carried by said fixed jaw having a head projecting between the spaced jaws of each wing and adapted to engage one of said jaws when the screw is advanced whereby to narrow the space between the working faces of said jaws and to engage the other of said shoulders when the screw is retracted whereby to widen the space between the working faces of said jaws.

4. In a tool, a fixed jaw, a movable jaw terminating in a head having lateral wings to slidably fit said fixed jaw, a pivot pin carried by said fixed jaw and having its terminals journaled in said wings, each of said wings being provided with a series of bearings adapted to receive the pivot pin whereby to vary the normal opening between said jaws, a pair of spaced shoulders formed on each of said wings, and a screw carried by said fixed jaw having a head projecting between the spaced shoulders of each wing and adapted to engage one of said shoulders as the screw is advanced and the other of said shoulders as the screw is retracted whereby to close and open said jaws.

5. In a tool, a fixed jaw, a movable jaw terminating in a head provided with a pair of spaced wings adapted to slidably fit said fixed jaw, a pivot pin carried by the fixed jaw having its ends journaled in said wings, each of said wings being provided with a pair of spaced shoulders inclined toward its

pivotal connection, a screw carried by said fixed jaw having its head projecting between the spaced shoulders of said wing and adapted to engage one of said shoulders as the screw is advanced and the other of said shoulders as the screw is retracted whereby to open and close said jaws, and a spring seated on said screw head and exerting a pressure on said movable jaw head whereby to normally hold said movable jaw in open position.

6. In a tool, a fixed jaw having a channeled working face, a movable jaw pivoted on said fixed jaw and having a channeled

working face, an arm journaled on the pivot of said movable jaw having an expanded extension adapted to be seated in the channel of either jaw, said extension being provided with oppositely disposed roughened working surfaces.

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

WILLIAM DUCHARME.

Witnesses:

H. C. VURHOFF,
EPH. WIRICK.