March 8, 1927. 1,620,170

T. E. STEPHENSON

PIPE WRENCH

Filed Dec. 23, 1925

Fig. 1.

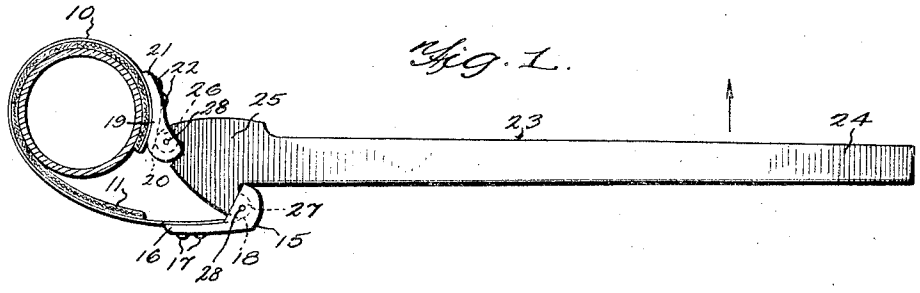


Fig. 2.

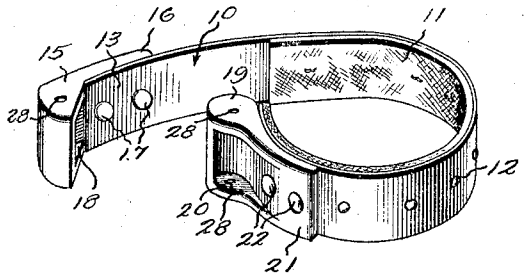


Fig. 3.

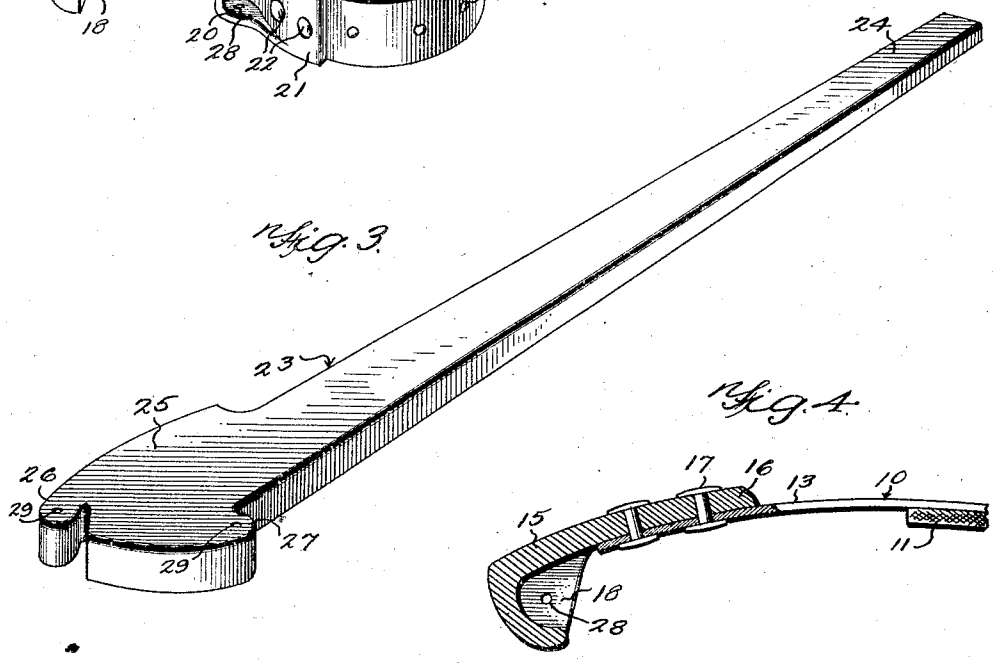


Fig. 4.

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UNITED STATES PATENT OFFICE.

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PIPE WRENCH.

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This invention relates to pipe wrenches and more particularly to wrenches of the flexible band type.

An important object of the invention is to provide a flexible band adapted to surround a pipe and to be clamped thereagainst by operation of a suitable handle engaging the opposite ends of the band.

A further object is to provide a wrench of the above mentioned type wherein the flexible band is provided with a liner of fabric or other suitable material whereby the device may be used on nickel plated and similar pipes without marring the surface thereof.

A still further object is to provide a wrench of the above mentioned character wherein the flexible band is provided at opposite ends with lugs having sockets therein adapted to receive projections formed integral with a suitable operating handle.

Other objects and advantages of the invention will become apparent during the course of the following description.

In the drawings I have shown one embodiment of the invention. In this showing,

Figure 1 is a plan view of the device in operation,

Figure 2 is a detail perspective view of the clamping band,

Figure 3 is a similar view of the operating handle, and,

Figure 4 is a plan view of one end of the clamping band, parts being shown in section.

Referring to the drawings the numeral 10 designates a suitable metallic clamping band preferably formed of resilient steel or the like. The band is provided throughout a portion of its length with a fabric or similar liner 11 riveted thereto as at 12, the inner ends of the rivets being hammered down below the surface of the liner whereby they will not mar or scratch the surface of the pipe when the device is in operation. A portion of the band is bent into substantially circular form to correspond generally to the shape and size of the pipe upon which it is to be used, one end 13 of the band being extended away from the circular portion, as shown in Figures 1 and 2. The opposite end 14 of the band is adapted to be arranged in proximity to the pipe or other article to be turned, as will be understood.

A socket 15 is secured to the end 13 of the clamping band, as shown. This socket is provided with an extension 16 which lies flat against the outer face of the end portion of the band and is riveted thereto as at 17. The socket is provided with a recess 18 for a purpose to be described.

The opposite end 14 of the clamping band is provided with a socket 19 having a recess 20 therein. The socket 19 is provided with an extension 21 which also lies flat against the band and is riveted thereto as at 22. It will be apparent that the openings of the recesses 18 and 20 extend substantially at right angles to each other.

Referring to Figures 1 and 3, the numeral 23 designates an operating handle as a whole, preferably formed integral. The handle 23 is relatively long as shown, and the outer end 24 thereof is adapted to be grasped in the hand of the operator whereby the handle may be turned when the device is in operation. The inner end of the handle is provided with an enlarged head 25, the extremity of one edge of which is provided with an integral lug 26. The opposite edge of the head 25 is similarly provided with an integral lug 27 which extends substantially at right angles to the lug 26.

The sockets 15 and 19 may be provided in their upper and lower walls with openings 28, while the lugs 26 and 27 may be provided with corresponding openings 29, for a purpose to be described.

When it is desired to turn a pipe or similar round object the clamping band is placed in position on the pipe with the liner 11 contacting with the surface thereof. The handle 23 is then placed in position, the lug 26 being inserted in the recess 20 while the lug 27 is inserted in the recess 18, as indicated in Figure 1. The handle then may be swung in the direction of the arrow shown in Figure 1 to turn the pipe or other object in a counter-clockwise direction. The swinging of the handle obviously swings the lug 26 downwardly and the lug 27 upwardly and outwardly as viewed in Figure 1, whereby the liner will be tightly clamped

about the pipe by the contraction of the clamping band 10. If it is desired to rotate the pipe in a clockwise direction, it will be obvious that the band 10 may be reversed to permit this action to take place. While a portion of the band is curved to generally conform in shape and size to the pipe upon which the device is to be used, it will be obvious that the flexibility of the clamping band permits the use of the device on pipes of varying sizes within reasonable limits. Additional clamping bands and their associated elements may be employed for much larger or much smaller pipes, but the sockets at the ends thereof may be made identical so that only a single operating handle is necessary. The device is extremely simple in construction and may be readily applied to the work either by placing it in position from the end of the pipe or from the side thereof by spreading the clamping band. The clamping action has been found to be very efficient and great force may be applied to the pipe in either direction to effect rotation thereof. The angular relationship between the recesses 18 and 20 permits the handle to be easily placed in position and facilitates the operation of the device. It is merely necessary to first insert the lug 27 in the socket 18, whereupon the handle may be swung in the direction indicated by the arrow in Figure 1 to insert the lug 26 in the recess 20.

In some cases, when the device is being used in inaccessible places, it is often difficult to continuously rotate the wrench, and under such circumstances it is necessary to operate the device by oscillating the handle 23 in which case the band will alternately grip and release the pipe. In order to facilitate this operation the openings 28 and 29 are provided. When the device is assembled these openings are adapted to be so arranged that ordinary nails or similar pins may be inserted through the openings 28 and the corresponding openings 29 to retain the handle in position with respect to the clamping band. The oscillation of the handle then may be freely carried out without danger of the lugs 26 and 27 becoming displaced from their recesses. In this connection it will be noted that the recess 20 extends into the socket substantially tangential with respect to the circular portion of the band, while the recess 18 extends inwardly substantially radially with respect to the circular portion of the band. Thus it will be obvious that when the lugs of the handle are inserted into the recesses, a turning movement of the handle in the direction of the arrow in Figure 1 not only causes the band to clamp about the pipe or other object but serves to more firmly seat the lugs of the handle in the recesses, thus effectively preventing displacement of the lugs. It will be obviously therefore that a workman may apply any desired force against the handle without fear of the latter becoming displaced from the sockets of the clamping band.

It is to be understood that the form of the invention herewith shown and described is to be taken as a preferred example of the same and that various changes in the shape, size and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

I claim:

1. A device of the character described comprising a resilient clamping band having an inner end portion formed substantially circular and an outer end portion extending outwardly a substantial distance from the main body of the band, a socket secured to each end of said band, and an integral handle having a transversely enlarged head provided at opposite edges with outwardly extending integral lugs corresponding generally in arrangement to and adapted to be received in said sockets.

2. A device of the character described comprising a resilient metallic clamping band having an inner end portion formed substantially circular and an outer end portion extending outwardly a substantial distance from the main body of the band, a socket secured to the inner end of said band and provided with a recess extending thereinto substantially tangential to the circular portion of the band, a socket secured to the outer end of said band and provided with a recess opening inwardly substantially radially with respect to the circular portion of the band, and an integral handle having a transversely enlarged head provided at opposite edges with integral lugs corresponding generally in arrangement to and adapted to be received in said sockets.

3. A device of the character described comprising a resilient metallic clamping band having an inner end portion formed substantially circular and an outer end portion extending outwardly a substantial distance from the main body of the band, a rigid socket having an extension corresponding in shape to and secured to the inner end of said band and provided with a recess extending thereinto substantially tangential to the circular portion of the band, a rigid socket provided with an extension arranged against and secured to the outer end of said band and provided with a recess opening inwardly substantially radially with respect to the circular portion of the band, and an integral elongated handle having a head at one end, said head being provided at one edge of the handle with a lug extending outwardly of the head substantially longitudinally of the handle and being further pro-

vided at the opposite edge of the head with a second lug extending outwardly of the head transversely with respect to the handle, said lugs corresponding generally in arrangement to and adapted to be received in said sockets.

4. A device constructed in accordance with claim 3 wherein each of said sockets is provided in opposite walls with alined pin receiving openings communicating with the recess therein, each of the lugs of said handle being provided with pin receiving openings adapted to be arranged in alinement with the openings of the sockets when said lugs are arranged in said recesses.

In testimony whereof I affix my signature.

THOMAS E. STEPHENSON.