

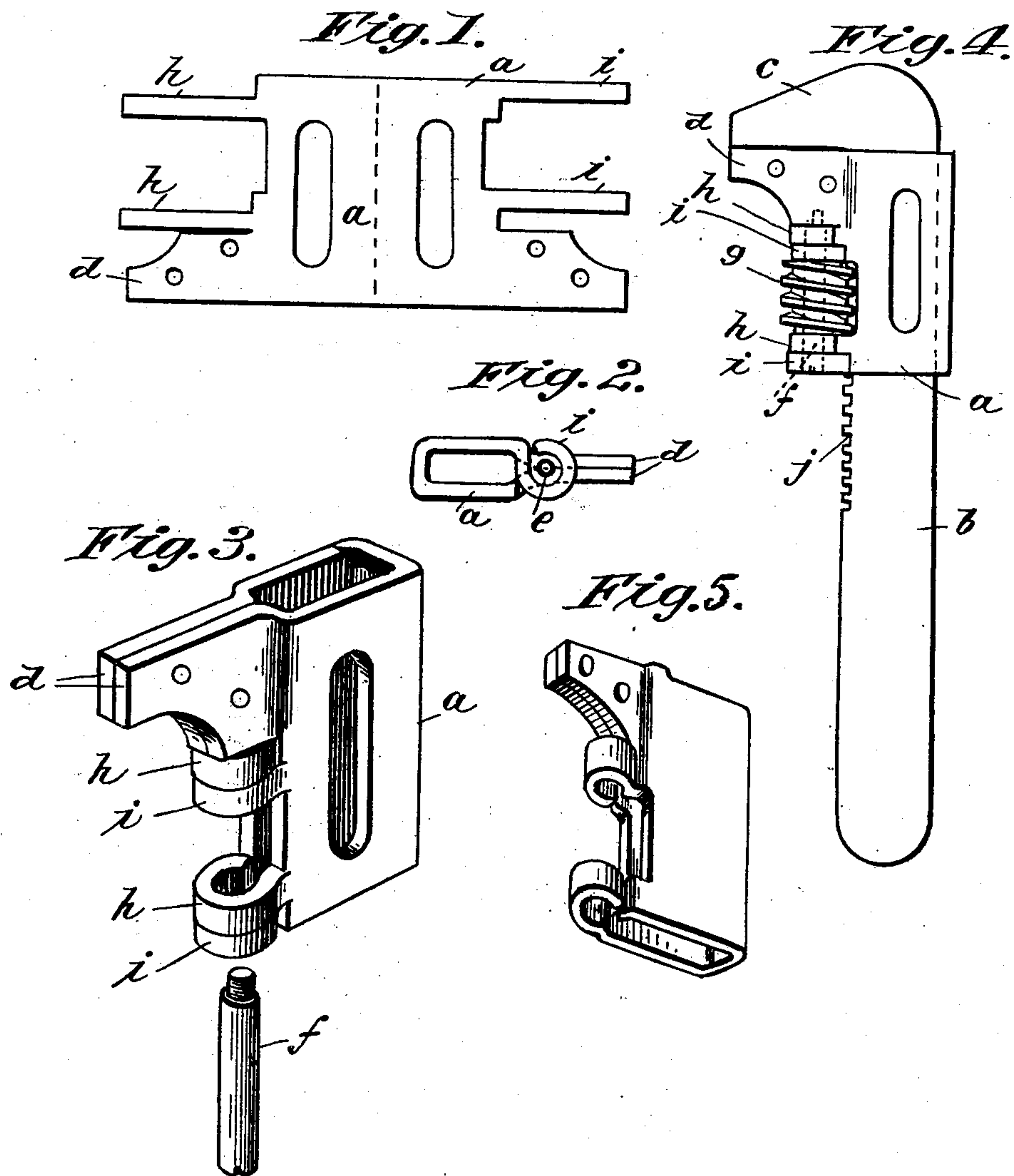
No. 701,584.

D. B. LEE.
WRENCH.

Patented June 3, 1902.

(Application filed Mar. 17, 1902.)

(No Model.)



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UNITED STATES PATENT OFFICE.

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WRENCH.

SPECIFICATION forming part of Letters Patent No. 701,584, dated June 3, 1902.

Application filed March 17, 1902. Serial No. 98,607. (No model.)

To all whom it may concern:

Be it known that I, DWIGHT B. LEE, a citizen of the United States of America, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Wrenches, of which the following is a specification.

This invention relates to the manufacture of wrenches of that type having a sliding jaw, and has particular reference to the manufacture of small wrenches known in the trade as "bicycle-wrenches;" and the object of this invention is to produce a wrench of this type which shall be of low cost of manufacture and which may be practically machine-made; and the invention consists in forming the sliding jaw of the wrench out of one piece of metal and in the provision of means for constructing the bearing for each end of the knurl from bent-up portions of the same blank.

It may be said that the invention is in the nature of an improvement on that class of wrenches which is perhaps best illustrated by the wrench shown in the patent to Mossberg, dated November 13, 1900, numbered 661,810, in which wrench, however, certain parts of the blank have to be bent on a very short turn substantially at right angles to other parts, whereby, unless a good quality of stock is used, certain parts of the jaw will be weakened. The main objection, however, to this type of construction lies in the fact that in bending such small parts abruptly at right angles one to the other it is not possible to make good joints. By means of the construction shown in my invention not only are these abrupt bends avoided, but all of the bends are formed in substantially parallel planes, thereby much simplifying the process of manufacturing the parts by machinery.

In the drawings forming part of this application, Figure 1 is a plan view of a blank from which a sliding jaw of the wrench is formed. Fig. 2 is a plan view of the wrench-jaw after it has been bent up to its finished condition. Fig. 3 is a perspective view of the wrench-jaw in its finished condition on a somewhat larger scale and showing separated therefrom the pin which constitutes the axis of the knurl. Fig. 4 is a side elevation of a

completed wrench. Fig. 5 is a perspective view of a jaw embodying a slightly-modified construction.

In carrying out my invention the blanks for the movable jaw of the wrench are punched out of suitable sheet-metal strips in the form shown in Fig. 1, in which *a* constitutes the body portion of the jaw, which is bent into rectangular form in cross-section, as shown in Fig. 2, to receive the shank *b* of the wrench, one end of which is provided with the usual fixed jaw *c*. On opposite sides and at one end of said blank there are formed jaw projections *d*, which when the blank is folded together, as shown in Fig. 2, constitute the sliding jaw proper, which is adapted to cooperate with the fixed jaw *c*, all as well understood. The thickness of the metal from which the blank shown in Fig. 1 is made is such that when these jaw projections *d* are bent up side by side and have been riveted together there will be thereby constituted a jaw of sufficient rigidity for any purpose to which wrenches of this type may be applied. A hole *e* (shown in Fig. 2) is bored in the under side of these jaw projections *d* after they have been put together, which is screw-threaded to receive the threaded end of a pin *f*, which serves as the axis for the knurl *g*. To form a suitable support for this pin, the strips *h* and *i* are provided on the blank, projecting therefrom from each side thereof, those on one side being indicated by *h* and on the other side by *i*, the upper edges of the strips *h* lying in the same plane as the lower edges of the strips *i*. Between these strips *h* and *i* the body portion *a* is narrowed down to such degree that when the blank is bent up to embrace the shank of the wrench these vertical edges of the blank will not quite cover the edge of the shank *b*, but will leave the rack *j*, with which the knurl *g* engages, exposed, as shown in Fig. 2, whereby a better grip on the knurl is provided; as these edges do not interfere with the fingers in operating the knurl. When the blank is bent up in the form shown in Fig. 2, the two strips *i* are bent directly across from one side of the blank to the other, so as to pass behind the pin *f* when it is in place, and the strips *h* are bent around in the opposite direction,

thereby forming a bearing for each end of the pin f equal to the width of h and i together, and these strips passing circumferentially around the pin in opposite directions constitute for the latter a true cylindrical bearing, and said pin when it is in position constitutes, by reason of the formation of these bearings, a locking element between the two sides of the blank. After the blank has been bent up in the form shown in Figs. 2 and 3 it is slipped onto the shank b of the wrench and moved up until it covers part of the rack j , when the knurl is placed in position in engagement with said rack and the pin f passed up through its bearings and screwed into the hole e , prepared for it in the under side of the jaw in the projections d . The fact that the two strips h and i , constituting the end bearing for the pin f and the support of the knurl, are each bent to a cylindrical form and in parallel planes renders it possible to bend them up and set them together by pressure so closely that no room is left at their meeting lines for the entrance of dirt, &c., and it is therefore possible after they are plated to give them a neatness of finish which would be otherwise not obtainable.

The wrench constructed as hereinbefore described is not only cheap, easily made, and susceptible of being finished in the manner to make it attractive, but the two sides of the sliding-jaw blank are so locked together by the riveting of the jaws and the encircling of the pin f from opposite directions by the strips h and i that it is capable of sustaining severe side strains, thus making it for its weight and cost a very serviceable tool.

In Figure 5 a slight modification of the previously-described construction is shown, which consists in making a blank with only one laterally-projecting strip on each edge thereof, from which the annular bearings for

the ends of the knurl are formed, and in making each of these strips substantially as wide as the two strips combined, which are shown in Fig. 1. This construction will answer for certain classes of work quite as well as that form shown in Figs. 1 to 4.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. A blank for the sliding jaw of a wrench comprising a body portion adapted to be folded on itself to embrace the shank of the wrench, laterally-extending strips on said blank integral therewith, adapted to be bent into an annular shape to form bearings in which the knurl is supported, two jaw projections on said blank, and means for securing the latter together, side by side.

2. A blank for the sliding jaw of a wrench comprising a body portion adapted to be folded on itself to embrace the shank of the wrench, a laterally-extending strip on each side of the blank, that on one side thereof being bent in an opposite direction to that on the other to form an annular bearing for the knurl; projections on each side of the blank which, together, constitute the jaw proper, and means for securing these projections together.

3. A blank for the sliding jaw of a wrench comprising a body portion adapted to be folded on itself to embrace the shank of the wrench, two laterally-extending strips on opposite sides of said blank, the lower edge of one and the upper edge of the other lying in the same plane, said strips, when bent to annular form, constituting a bearing for the ends of a knurl.

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