

No. 664,634.

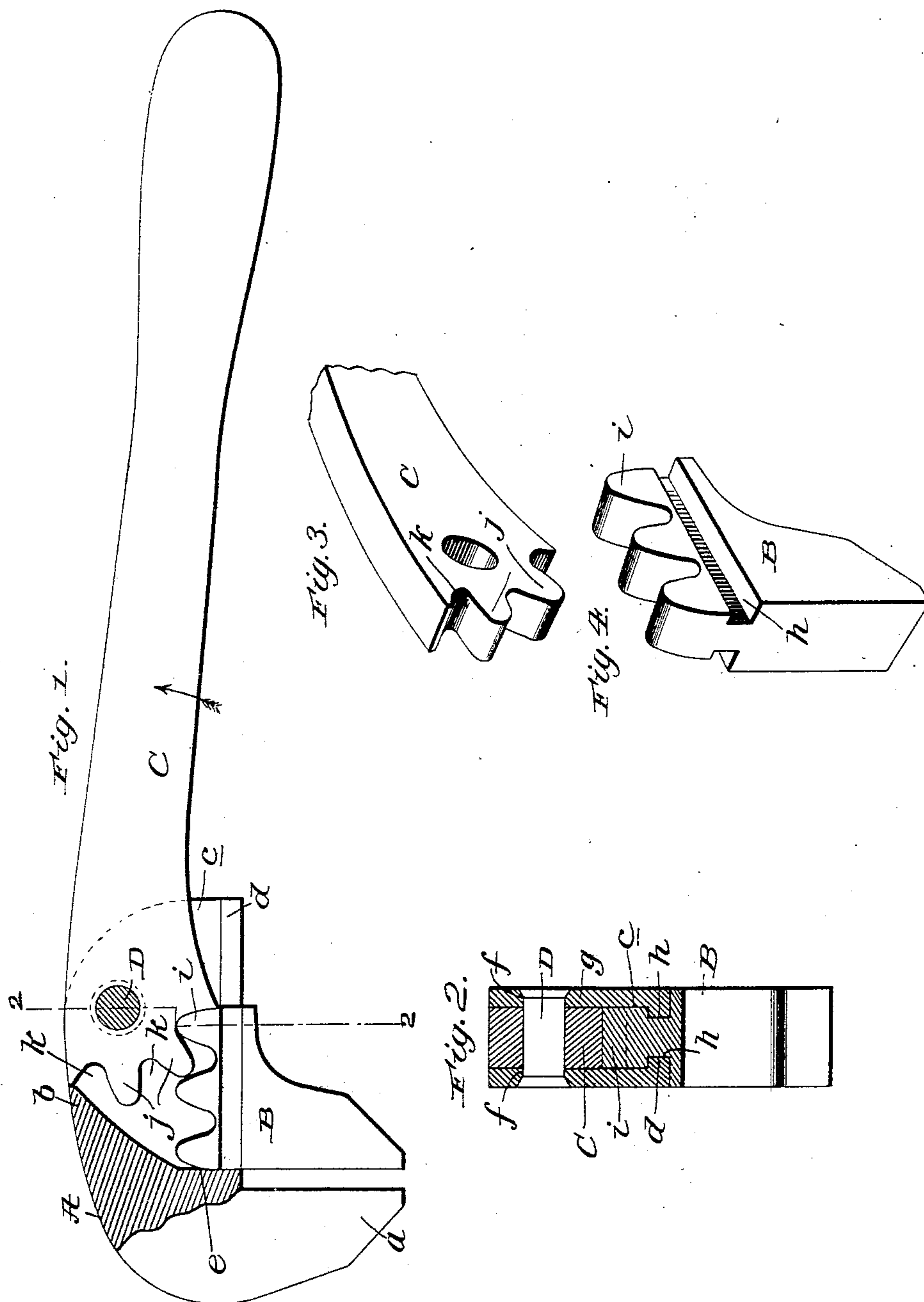
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L. GRANSTROM & R. B. McDONALD.

WRENCH.

(Application filed July 5, 1900.)

(No Model.)



Witnesses:

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UNITED STATES PATENT OFFICE.

LUDVIG GRANSTROM AND ROBERT B. McDONALD, OF McMinnville,
OREGON.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 664,634, dated December 25, 1900.

Application filed July 5, 1900. Serial No. 22,627. (No model.)

To all whom it may concern:

Be it known that we, LUDVIG GRANSTROM and ROBERT B. McDONALD, citizens of the United States, residing at McMinnville, in the county of Yamhill and State of Oregon, have invented new and useful Improvements in Wrenches, of which the following is a specification.

Our invention relates to wrenches, and is designed more particularly as an improvement upon that extant type of wrench which comprises a head having a fixed jaw, a sliding jaw arranged in guides in the head, so as to move toward and from the fixed jaw and having a rack, and a handle fulcrumed in the head and having a segmental rack intermeshed with the rack of the sliding jaw.

It consists in a certain peculiar construction, the novelty, utility, and advantages of which will be fully understood from the following description and claim when taken in conjunction with the annexed drawings, in which—

Figure 1 is a side elevation of our improved wrench with a portion of the head broken away. Fig. 2 is a transverse section taken in the plane indicated by the broken line 2 2 of Fig. 1. Fig. 3 is a detail perspective view of the forward portion of the wrench-handle. Fig. 4 is a detail perspective view of the sliding jaw removed.

In the said drawings similar letters of reference designate corresponding parts in all of the views.

The head A of our improved wrench is made of one piece of steel and is of general right-angle form—that is to say, it comprises a portion *a*, which constitutes a fixed jaw, and a portion *b*, disposed at right angles to the portion *a*, as illustrated. The portion *b* is provided with a bifurcation *c*, which extends from its upper to its lower side and from its rear end forwardly to a plane immediately in rear of the face of jaw *a* and has the upper part of its front wall inclined upwardly and rearwardly and the lower part *e* of said wall square in order to form a stop for the sliding jaw B. Said portion *b* is also provided with inwardly-directed guide-flanges *d*, which are arranged at its lower side and disposed at right angles to the face of jaw *a* and coincident transverse

apertures *f* in the side walls *g* of the bifurcation *c*. The sliding jaw B is also formed of one piece of steel or other suitable metal and is provided with a flat face, which, as will be noticed by reference to Fig. 1, is always parallel to the face of the fixed jaw. It is also provided in its opposite sides with grooves *h* to receive the flanges *d* of the head A and upon its upper edge has a rack made up of three (more or less) transversely-disposed teeth *i*.

C is the handle of our improved wrench. This handle is also formed of one piece of steel or other metal and has its forward portion arranged in the bifurcation *c* of the head A and pivotally connected thereto by a transverse pintle D, suitably secured in the apertures *f* thereof, as shown. It is provided at its forward end with a segmental rack which preferably comprises two teeth *j* and three interdental spaces *k* and is designed to intermesh with the rack on the sliding jaw B after the manner shown. From this it obviously follows that when the handle is rocked in the direction indicated by arrow the jaw B will be moved away from the fixed jaw *a*, while when the handle is rocked in the opposite direction said jaw B will be moved toward the fixed jaw.

The jaws *a* B are always parallel irrespective of the distance of the latter from the former, and hence it will be observed that the wrench may be used on the finest kind of work without danger of it marring the same. It will also be observed that when applied the wrench is capable of adjusting or accommodating itself to any size of nut that it will take and that the greater the pressure or pull applied to the handle C the tighter it will hold.

The specific construction shown and described is advantageous because of its simplicity and compactness, which latter feature permits of it being used to advantage in any place where an ordinary wrench can be used. It is also advantageous because the bifurcation of the head A is almost entirely occupied by the sliding jaw and the forward portion of the handle, which contributes materially to the strength of the wrench, and, further, because of the short distance between the center of movement of the handle and the rack

on the sliding jaw and the employment of the few large teeth on the handle and sliding jaw, which increase the leverage and render the wrench very quick in action.

5 The before-mentioned occupation of the bifurcation *c* of the head by the jaw B and handle C is due in large measure to the fact that the pivot or fulcrum point of the lever is arranged above and in the same vertical plane
10 as the rear end of the jaw B when the latter abuts against the square wall portion *e* of the head. The rearward inclination of the upper portion of the front wall of the bifurcation *c* in the head also contributes materially to the
15 strength of said head.

When the wrench is opened to its full extent, the sliding jaw B bears throughout its length in the head A. This obviously contributes to the strength and durability of the
20 wrench and is desirable for that reason.

When it is desired to adapt our improved wrench to turn-pipes and other articles of circular form in cross-section, the fixed and sliding jaws will be provided with suitably-
25 shaped toothed or serrated faces in lieu of the flat faces shown and described.

Having described our invention, what we claim is—

30 The herein-described wrench, consisting essentially of the head formed of one piece of metal, and having the fixed jaw *a*, and the portion *b* disposed at right angles to the jaw

a and provided with a bifurcation *c*, and also with the inwardly-directed flanges *d* at its lower side and in the said bifurcation; the
35 bifurcation *c* extending from the rear end of the portion *b* forwardly to a point adjacent to the vertical plane of the face of jaw *a*, and having the lower portion of its front wall square, and the upper portion thereof in-
40 clined rearwardly, and the said flanges *d* being disposed at right angles to the jaw *a*, the sliding jaw formed of one piece of metal and having the grooves *h* in its sides, receiving the flanges *d* of the head, and also having the
45 rack-teeth *i* on its upper edge, and the handle formed of one piece of metal and arranged in the bifurcation of and pivotally connected to the head, and having the teeth *j* inter-
50 meshed with the teeth of the sliding jaw; the pivot-point of the handle being arranged above and in the same vertical plane as the rear end of the sliding jaw when the latter abuts against the lower portion of the front wall of the bifurcation in the head, substan-
55 tially as and for the purpose set forth.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

LUDVIG GRANSTROM.
ROBERT B. McDONALD.

Witnesses:

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