

(No Model.)

F. G. & F. H. BATES.
RATCHET TOOL.

No. 453,537.

Patented June 2, 1891.

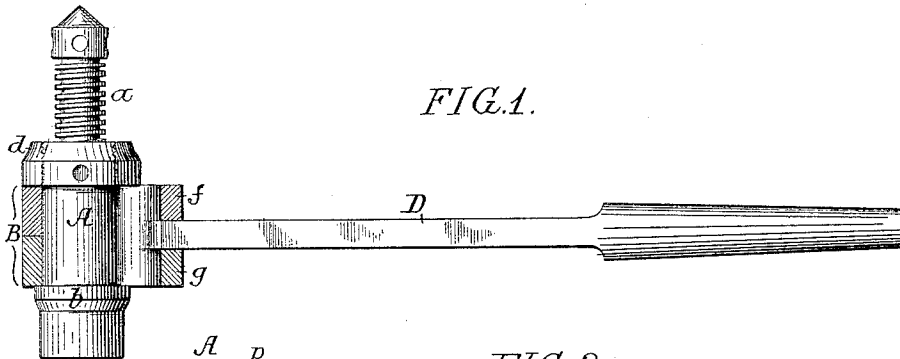


FIG. 1.

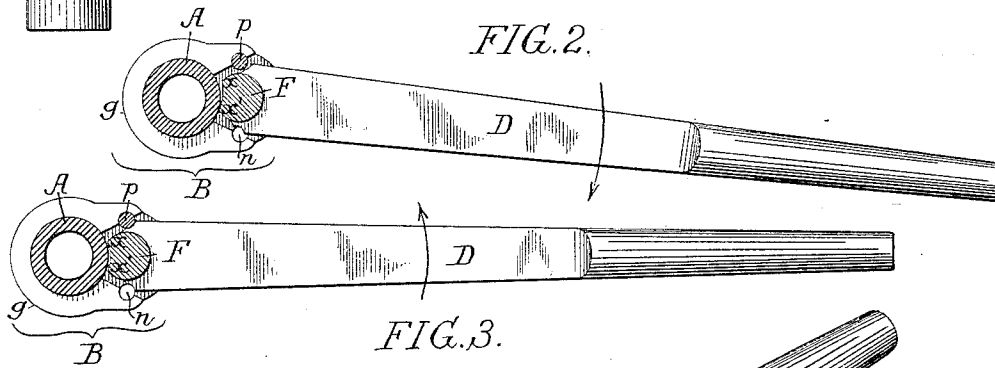


FIG. 2.

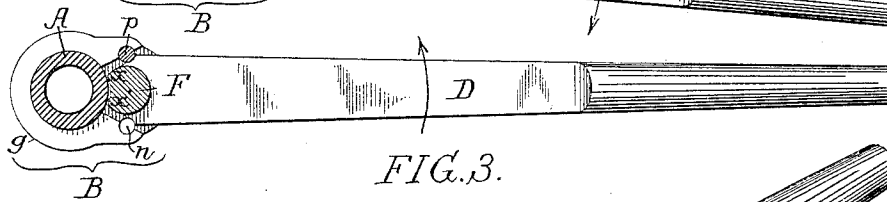


FIG. 3.

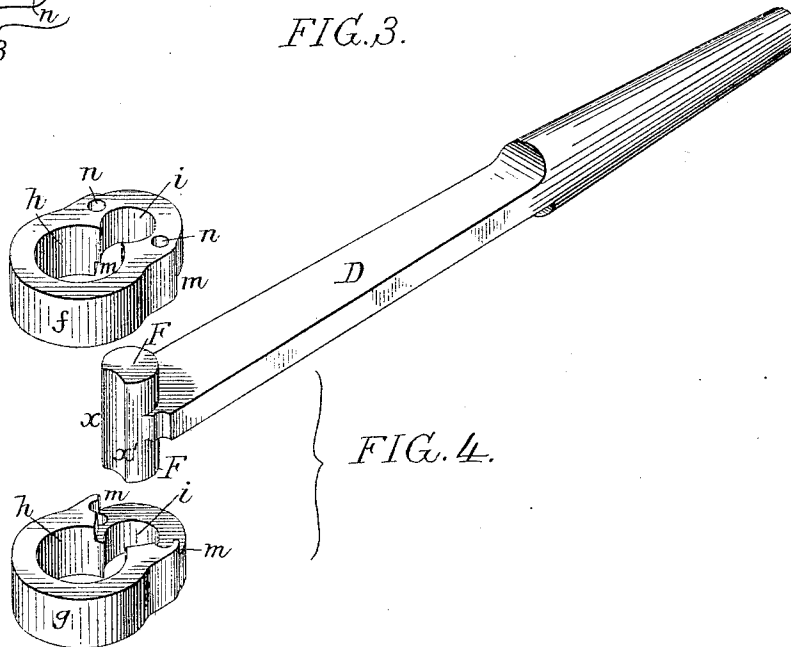


FIG. 4.

Witnesses:

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UNITED STATES PATENT OFFICE.

FRANCIS G. BATES AND FRANK H. BATES, OF PHILADELPHIA, PENNSYLVANIA; SAID FRANK H. BATES ASSIGNOR TO SAID FRANCIS G. BATES.

RATCHET-TOOL.

SPECIFICATION forming part of Letters Patent No. 453,537, dated June 2, 1891.

Application filed September 29, 1890. Serial No. 366,540. (No model.)

To all whom it may concern:

Be it known that we, FRANCIS G. BATES and FRANK H. BATES, citizens of the United States, and residents of Philadelphia, Pennsylvania, have invented certain Improvements in Ratchet-Tools, of which the following is a specification.

The object of our invention is to construct a ratchet-tool which will be noiseless in operation, but which will provide for a powerful grip upon the stem of the tool and which can be readily changed from a right-handed tool to a left-handed tool. This object we attain in the manner hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1 is a view, partly in section and partly in side elevation, of our improved ratchet-tool. Figs. 2 and 3 are plan views, partly in section, showing the operating-lever and its pawl in different positions; and Fig. 4 is a perspective view showing parts of the tool detached from each other.

In Fig. 1, A represents the stem of the tool, which may be a ratchet-drill, wrench, or other form of ratchet-tool, that represented in the drawings being a ratchet-drill, the stem A being intended to receive the boring drill or bit at one end and having at the other end the usual feed-screw *a*. Between a collar *b* on the stem A and a nut *d*, screwed onto the threaded upper end of the stem, is interposed a carrier B for the operating-lever D of the tool. This carrier B is in the present instance composed of two portions *f* and *g*, one above the other, each portion of the carrier having an opening *h* for the reception of the stem A of the tool, and a smaller opening *i*, communicating with the opening *h* and adapted for the reception of one portion of the pawl F, which is secured to or forms part of the operating-lever D and projects both above and below the same, so as to be free to swing to the limited extent described hereinafter in the openings *i* of the two parts of the carrier. Each part of the carrier is also recessed, as at *m*, for the reception of the lever D, and in each portion of the carrier on opposite sides of the opening *i* are openings *n*, to either of which may be adapted a pin *p*, serving as a stop to limit the move-

ment of the lever D in one direction in the carrier.

The pawl F has two gripping points or teeth *x x'*, formed by recessing that face of the pawl which is adjacent to the stem A of the tool, and either of these gripping-points may be made the active one, depending upon whether the tool is to be right-handed or left-handed, and this in turn is dependent upon the location of the stop-pin *p*. For instance, when this pin is adjusted as in Figs. 2 and 3 the tool is right-handed, a forward pull upon the lever D in the direction of the arrow, Fig. 2, serving to first bring the gripping-point *x'* into contact with the stem A, so that further movement of the lever in this direction is transmitted to the stem A and turns the same, backward movement in the direction of the arrow, Fig. 3, being stopped by the pin *p* before the gripping-point *x* comes into contact with the stem A, so that in this direction the lever and its carrier B simply swing around on the stem A without imparting any movement thereto. It will be evident, therefore, that if the pin *p* is shifted to the opposite opening *n* the operation will be reversed, the pawl acting upon the stem when the lever is moved in the direction of the arrow, Fig. 3, and failing to act when the lever is moved in the direction of the arrow, Fig. 2. It will be evident, moreover, that the tool is perfectly noiseless in its action and that a powerful hold upon the stem A is insured by reason of the fact that the pawl grips said stem throughout the entire length between the collar *b* and nut *d*.

The projection of the pawl F both above and below the lever D is not absolutely necessary in all cases, however, although this construction is preferred for the reason given.

Having thus described our invention, we claim and desire to secure by Letters Patent—

1. The combination, in a ratchet-tool, of the stem having a nut and collar, a carrier free to swing on said stem but confined longitudinally between said nut and collar, a lever mounted in said carrier and having a pawl which engages with the stem when the lever is moved in one direction, and a stop for limiting back movement of the lever in the car-

rier and preventing the pawl from engaging with the stem on such back movement, substantially as specified.

2. The combination of the stem of the tool, the carrier mounted so as to be free to swing thereon, the operating-lever having a pawl projecting both above and below the same and mounted so as to swing in said carrier, and a stop for limiting back movement of the lever in the carrier, substantially as specified.

3. The combination of the stem of the tool, the carrier mounted so as to be free to swing thereon, the lever mounted in the carrier and having a double pawl adapted to act upon the stem upon movement of the lever in either direction, and an adjustable stop, whereby movement of the lever in one direction or the

other in the carrier may be restricted and the pawl thereby rendered operative during movement of the lever in one direction and inoperative during movement of the lever in the opposite direction, substantially as specified.

4. The combination of the stem of the tool, the operating-lever and its pawl, and the pawl-carrier made in two parts for adaptation to the lever and pawl, substantially as specified.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

FRANCIS G. BATES.

FRANK H. BATES.

Witnesses:

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HARRY SMITH.