

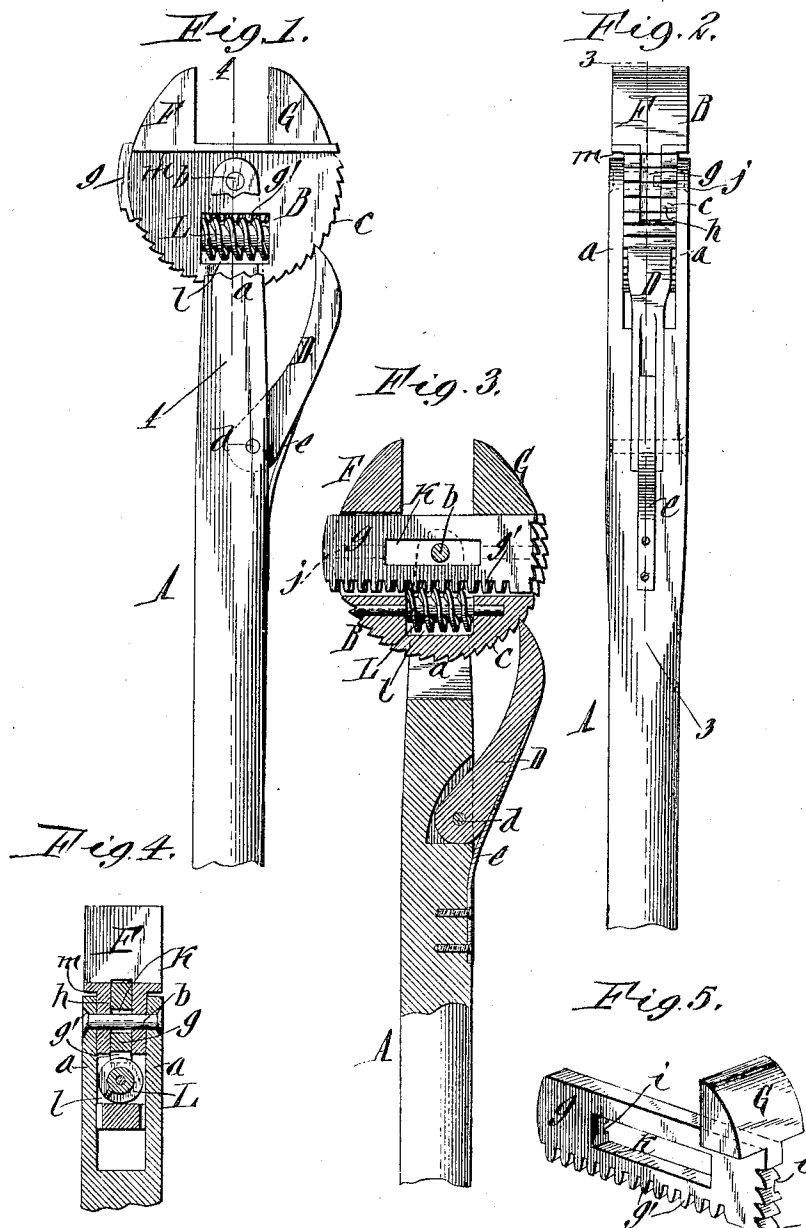
F. X. EBEL & L. H. VOLLRATH.

RATCHET WRENCH.

APPLICATION FILED APR. 20, 1909.

934,962.

Patented Sept. 21, 1909.



Witnesses:
Richard Sommer,
John H. Shoemaker

Inventors.
Francis K. Ebel,
Lawrence H. Vollrath,
by Guyer Popp
Attorneys.

UNITED STATES PATENT OFFICE.

FRANCIS X. EBEL AND LAWRENCE H. VOLLRATH, OF BUFFALO, NEW YORK, ASSIGNORS
OF ONE-THIRD TO GEORGE B. FERRICK, OF BUFFALO, NEW YORK.

RATCHET-WRENCH.

934,962.

Specification of Letters Patent. Patented Sept. 21, 1909.

Application filed April 20, 1909. Serial No. 491,184.

To all whom it may concern:

Be it known that we, FRANCIS X. EBEL and LAWRENCE H. VOLLRATH, citizens of the United States, and residents of Buffalo, in the county of Erie and State of New York, have invented a new and useful Improvement in Ratchet-Wrenches, of which the following is a specification.

This invention relates to wrenches of the ratchet type, and more particularly to wrenches of this kind in which the jaws are carried by a toothed head pivoted to a handle having a feed pawl which engages the teeth of the head, so that the head is intermittently turned on the handle by oscillating the latter.

It is the object of our invention to improve the construction of such wrenches with a view of rendering them more compact, so that they can be conveniently used for turning nuts and similar parts in places where the available space for applying and operating the wrench is limited.

In the accompanying drawings: Figure 1 is a fragmentary side elevation of the improved wrench, a portion of the bifurcated upper end of the handle being broken away to expose the adjusting screw of the movable jaw. Fig. 2 is an edge view thereof. Fig. 3 is a fragmentary longitudinal section of the wrench on line 3—3, Fig. 2. Fig. 4 is a similar view at right angles to Fig. 3, the plane of the section being on line 4—4, Fig. 1. Fig. 5 is a perspective view of the movable jaw of the wrench.

Similar letters of reference indicate corresponding parts throughout the several views.

A indicates the handle of the wrench which is bifurcated at its upper end, and B indicates the head pivoted between the arms *a* of the handle by a transverse pin *b*. This head is of substantially semi-circular form and its curved edge is concentric with the pivot *b* and provided with teeth *c*, preferably of ratchet form, which are engaged by a feed pawl *D* carried by the handle, so that upon oscillating the handle the head is intermittently turned thereon. This pawl may be of any suitable construction, that shown in the drawings being pivoted to the handle at *d* and held in engagement with the toothed head by a spring *e*.

F and G indicate the jaws of the

wrench, which, in the construction shown, project upwardly or forwardly from the head B. One of these jaws, say F, is preferably integral with the head, while the other is adjustable thereon. The movable jaw G is carried by a bar or shank *g* which slides in a transverse groove or mortise *h* formed in the upper portion of the pivoted head, said jaw being mounted at or near the outer end of the shank and at the upper edge thereof. In its preferred construction, the base of the movable jaw extends laterally beyond the sides of the comparatively narrow shank *g* and bears against the flat upper portion of the head. As shown in Fig. 2, the shank may be provided on one side with a longitudinal groove *i* adapted to receive a rib or key *j* projecting from the adjacent wall of the mortise *h* for better guiding the shank in the head. This shank and mortise extend inwardly beyond the pivot *b* of the head, and the shank is provided with a longitudinal slot *k* for the passage of the pivot to permit the shank to slide relatively thereto.

The movable jaw may be adjusted and held in position by any suitable means. The preferred adjusting device shown in the drawings consists of a worm or screw *L* suitably journaled in an opening *l* formed in the head B below the shank *g* and engaging with gear teeth *g*¹ arranged at the lower edge of the shank.

In the use of the wrench, the head is turned to the position shown in the drawings by withdrawing the feed pawl *D* from its teeth, and after engaging the wrench with the nut or other part to be turned, the handle is vibrated on the head, whereby the head and the nut are turned step by step in a manner common to this class of wrenches. After the head has been rotated a quarter-turn, its further movement relative to the handle is limited by the shoulders *m* of the head striking the front edge of the handle, and if the nut has not been sufficiently turned or tightened by the time the head reaches that position, the head is returned to its initial position by withdrawing the feed pawl and the operation above described is repeated.

If desired, the wrench may be used as an ordinary one with a rigid head, by turning its rotary head to the left, at right angles

to the position shown in the drawings, in which position it will be locked by the feed pawl.

By our improved construction, the wrench-
5 head is materially shortened and the wrench
can therefore be operated in a correspond-
ingly smaller and more restricted space.
This increased compactness of the wrench
is due to arranging the rack bar or shank *g*
10 partly on the inner side of the pivot *b* which
latter passes through the longitudinal slot
of the shank.

The construction is moreover strong and
simple, while the arrangement of the adjust-
15 ing screw is such as to permit the ready
adjustment of the wrench.

We claim as our invention:

1. A wrench of the character described,
comprising a handle, a head pivoted thereto
20 by a transverse pin and having a jaw, a
coöperating jaw having a shank guided on
the head, said shank being provided with
a slot through which said pivot-pin passes,
and means for transmitting motion from the
25 handle to the head.

2. A wrench of the character described,

comprising a handle, a head pivoted thereto
by a transverse pin and having a jaw, a
coöperating movable jaw having a slotted
shank guided on the head, said pivot-pin 30
passing through the slot of the shank, ad-
justing means for the movable jaw carried
by the head, and means carried by the handle
for transmitting motion from the same to
the head.

3. A wrench of the character described,
comprising a handle, a head pivoted thereto
by a transverse pin and having a jaw, a
coöperating movable jaw having a slotted
shank guided on the head, said pivot-pin 40
passing through the slot of the shank, an
adjusting device for the movable jaw carried
by the head and arranged on the rear side
of said pivot-pin, and means for transmit-
ting motion from the handle to the head. 45

Witness our hands this 16th day of April,
1909.

FRANCIS X. EBEL.

LAWRENCE H. VOLLRATH.

Witnesses:

GEO. B. FERRICK,

C. F. GEYER.