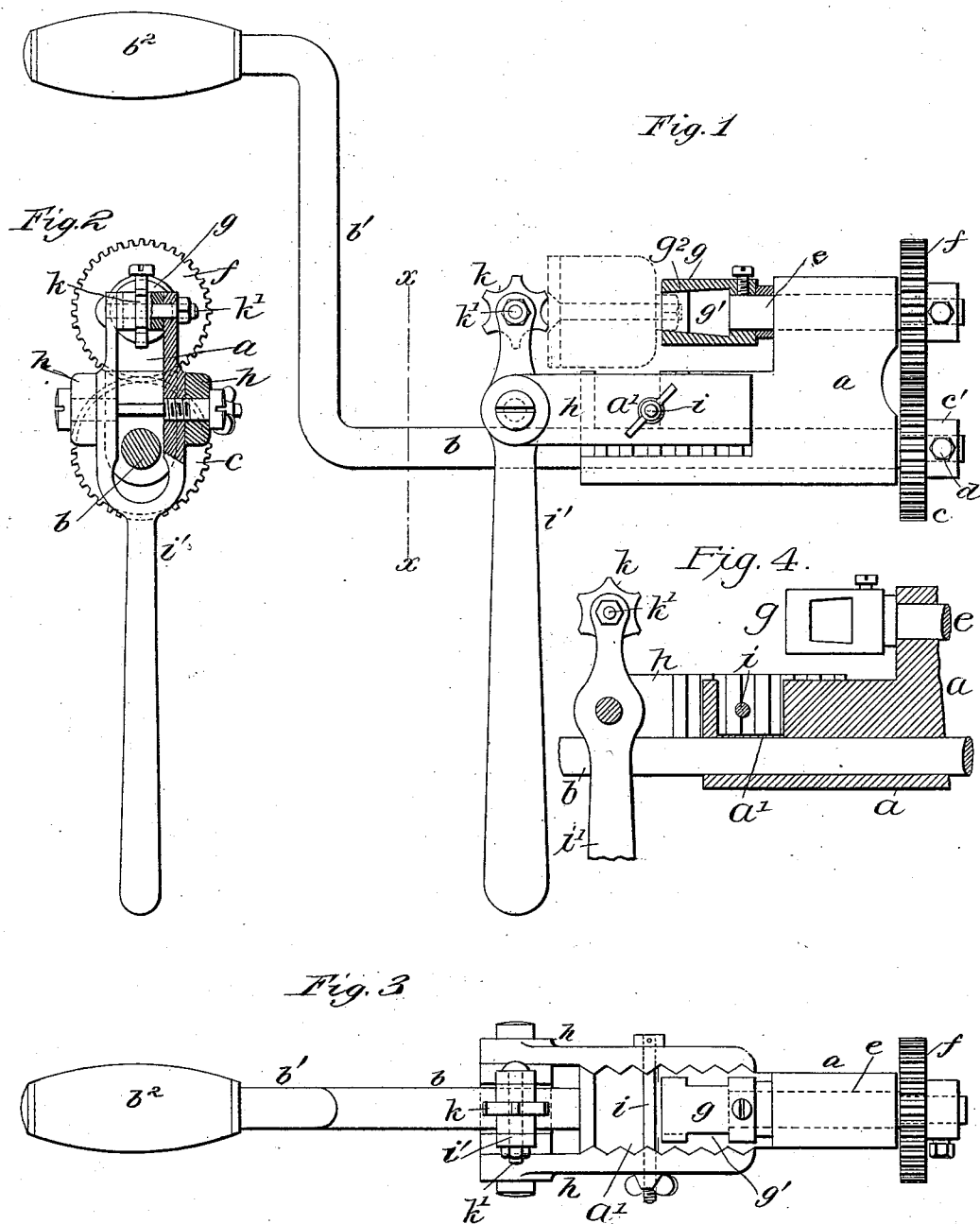


(No Model.)

C. B. LOOMIS.
RIM WRENCH.

No. 546,490.

Patented Sept. 17, 1895.



Witnesses:

J. F. Coleman
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UNITED STATES PATENT OFFICE.

CHARLES B. LOOMIS, OF ANDOVER, CONNECTICUT.

RIM-WRENCH.

SPECIFICATION forming part of Letters Patent No. 546,490, dated September 17, 1895.

Application filed May 10, 1895. Serial No. 548,798. (No model.)

To all whom it may concern:

Be it known that I, CHARLES B. LOOMIS, a citizen of the United States, and a resident of Andover, in the county of Tolland and State of Connecticut, have invented certain new and useful Improvements in Rim-Wrenches, of which the following is a full, clear, and exact description, whereby any one skilled in the art can make and use the same.

The object of my invention is to provide a convenient portable form of wrench that shall be particularly adapted for removing nuts from the ends of bolts such as are used for securing the tire to the rim of a wheel, this form of wrench being particularly adapted for the use of wagon makers and repairers.

To this end my invention consists in the details of the several parts making up the wrench as a whole and in the combination of the parts, as more particularly hereinafter described, and pointed out in the claims.

Referring to the drawings, Figure 1 is a view in side elevation of the wrench, illustrating the manner of its use, parts being broken away to show construction. Fig. 2 is a detail view in cross-section through the shank and looking toward the body part of the tool, taken on the plane denoted by line *xx* of Fig. 1 of the drawings. Fig. 3 is a detail top view showing the method of uniting the parts of the wrench. Fig. 4 is a detail side view, in vertical section, of a portion of the frame, showing the socket or opening therein and illustrating the adjustment of the bracket.

In the accompanying drawings the letter *a* denotes the frame or body part of the tool, through which extends a crank-shaft *b*, the crank *b'* on this shaft being provided with a handle *b²*, by means of which the shaft may be rotated. The shaft extends through the frame, and on the rear end is secured, preferably by a clamping-bolt, so as to make the part removable, a cog-wheel *c*, the clamp-screw *d* extending through the hub *c'* of the cog-wheel and serving as the means of securing the wheel in place. In the frame and parallel to the crank-shaft is supported in bearings the wrench-shaft *e*. To the rear end of this shaft there is also secured a cog-wheel *f*, fastened to the shaft by means of a clamp-screw, in like manner as in the case of the cog-wheel *c*. On the front end of the wrench-shaft *e* is

secured a hollow wrench *g*, the walls of the socket *g²* in which are adapted to fit over a nut and hold it firmly enough to rotate it with the shaft when the latter is turned. A transverse opening *g'* is formed through the body of the wrench *g*, and the walls of the rectangular socket *g²* in the end of the wrench preferably flare, so that when the nut moves back into the body of the wrench it will be loosely held, so as to drop through out of the grasp of the wrench and through the opening *g'*. The form of wrench shown is removably secured to the end of the wrench-shaft by means of a clamping-screw; but the form of the wrench and the manner of its attachment may be varied without departing from the invention. A lever-bracket *h* is adjustably secured to the frame, preferably by means of interengaging parts which are irregular in outline, as shown in Fig. 3 of the drawings. The bracket is secured in place by a clamping-bolt *i*, which extends completely across the frame and passes through the sides of the bracket and through a socket or opening *a'* in the frame, as shown in Fig. 4 of the drawings and in dotted outline in Fig. 1. On the outer ends of the bracket there is pivoted a lever *i'*, the inner end of which is adapted to be pressed against the head of the bolt, the other end of which bolt bears the nut which it is desired to unscrew or to tighten.

On the inner end of the lever *i'*, as shown, a contact-piece *k* is borne in such position as to enable it to be held forcibly in contact with the head of a bolt in opposition to the wrench, which engages the nut on the other end of the same bolt. This contact-piece is preferably mounted on a pivot *k'*, so that different points in its periphery may be used at will by simply rotating the contact-piece.

The lever-bracket can be adjusted in a direction lengthwise of the crank-shaft and crosswise thereof in a vertical plane, the location of the bolt *i* in the socket *a'* permitting such adjustment, and this enables the parts of the tool to be readily arranged so as to enable the tool as a whole to be used on rims of wheels of varying thickness.

In the operation of my device the lever is held in one hand, the end of the wrench fitted over the nut on a wheel-rim, the inner end of the lever pressed against the outer surface of

the wheel, and while the parts are thus held the crank is turned, a rotary movement imparted to the crank-shaft and to the wrench-shaft, and the nut run back off from the end of the bolt. The tool can then be readily applied to another nut and that removed in the same manner. The tool constructed as described has special features and advantages owing to the adjustability of the frame and lever-bracket with relation to each other and to the construction of the wrench with means which permits the release of a nut from its grasp as soon as the nut is disengaged from the bolt.

It is obvious that other means of adjustably securing the lever-bracket to the frame may be used without departing from my invention, and I do not limit myself to the particular form of the interengaging parts or means of securing them to each other.

The frame and the lever-bracket are not necessarily formed in separate parts, nor is the precise location of the cog-wheels on the outer ends of the several shafts important, as these features may be varied at will within the skill of the artisan.

I claim as my invention—

1. In a rim wrench in combination with a frame, a crank shaft supported in bearings in the frame, a wrench shaft also supported in the frame, interengaging cog wheels secured

to the respective shafts, a wrench borne on the inner end of the wrench shaft, and a lever bracket supporting a pivoted lever and adjustably secured to the frame, all substantially as described.

2. In a rim wrench in combination with a frame, a crank shaft supported in bearings in the frame, a wrench shaft also supported in the frame, interengaging cog wheels secured to the respective shafts, a wrench borne on the inner end of the wrench shaft and having a socket with flaring walls with a transverse opening therethrough, and a pivoted lever mounted on the frame, all substantially as described.

3. In a rim wrench in combination with the frame, a crank shaft supported in bearings in the frame, a crank secured to the shaft, a wrench shaft also supported in the frame, interengaging cog wheels adjustably secured to the respective shafts, a wrench borne on the inner end of the wrench shaft, a lever bracket adjustably secured to the frame, a pivoted lever mounted on the bracket and a contact piece borne on the inner end of the lever in opposition to the wrench, all substantially as described.

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Witnesses:

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