No. 670,890. Patented Mar. 26, 1901.

J. C. BURGESS.

ADJUSTABLE WRENCH.

(No Model.) (Application filed Dec. 29, 1900.)

Fig. 1.

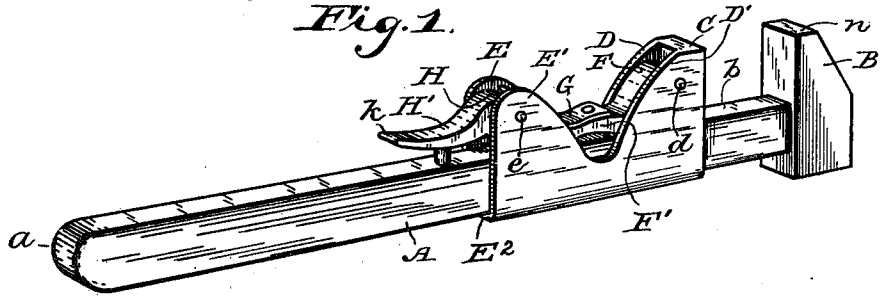


Fig. 2.

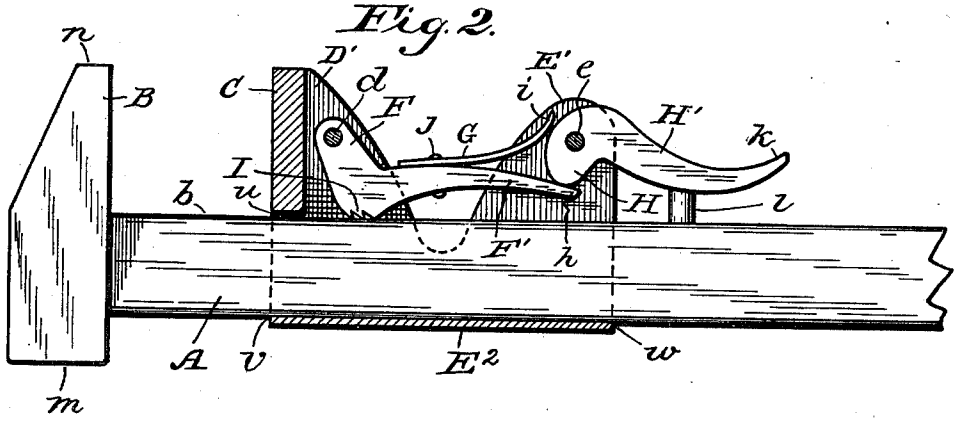
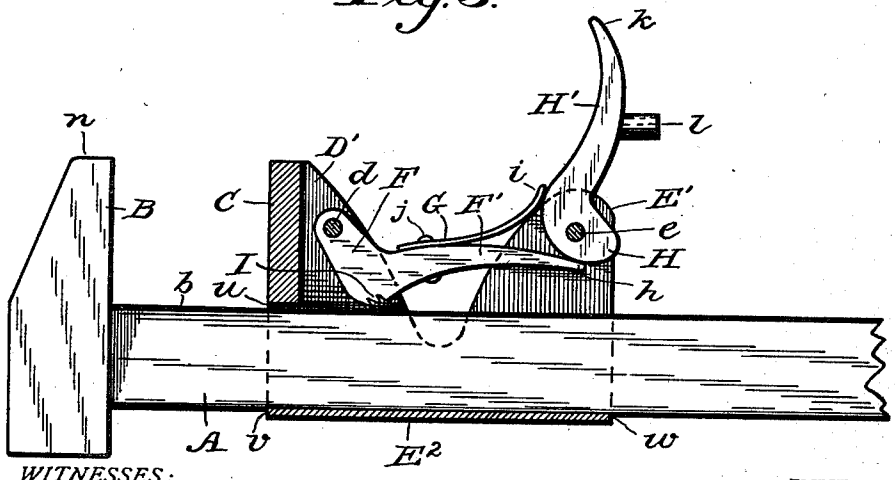


Fig. 3.



WITNESSES:

Wm. H. Payne.

Sara Alexander.

INVENTOR:

James C. Burgess.

BY E. T. Silvius.

ATTORNEY.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JAMES C. BURGESS, OF COLUMBUS, INDIANA, ASSIGNOR TO SENECA S. DRYBREAD, OF TAYLORSVILLE, INDIANA.

ADJUSTABLE WRENCH.

SPECIFICATION forming part of Letters Patent No. 670,890, dated March 26, 1901.

Application filed December 29, 1900. Serial No. 41,457. (No model.)

To all whom it may concern:

Be it known that I, JAMES C. BURGESS, a citizen of the United States, residing at Columbus, in the county of Bartholomew and State of Indiana, have invented certain new and useful Improvements in Adjustable Wrenches; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to the class of wrenches that are designed to be adjusted to and used in connection with screw-nuts and whereby the same may be manipulated, one object being to provide an improved wrench of this character which may be capable of close adjustment and remain adjusted while being used or handled and at the same time be free from loose rattling parts; and a further object is to provide a wrench which may be instantly converted into a hammer with an unobstructed handle, thereby combining a hammer and a wrench in one tool which may be cheap in construction and durable and economical in use.

The invention consists in a substantially smooth lever-handle having a hammer and wrench-jaw combined at one end thereof, a movable jaw slidingly fitted on the lever and having a cam-controlled dog adapted to bite into the lever; and the invention consists also in the novel parts and in the combination and arrangement of parts, as hereinafter particularly described and claimed.

Referring to the drawings, in which similar letters of reference in the several figures indicate like parts, Figure 1 represents, perspectively, my invention complete, showing the movable jaw in a locked position; Fig. 2, a side elevation in which the movable jaw is shown in section, exposing the parts contained therein, the movable jaw being in a locked position; and Fig. 3, a view similar to Fig. 2, but with the movable jaw unlocked. The two latter views show the lever-handles curtailed at their handle-end extremities.

In practically carrying out my invention I form a lever-handle A and a combined hammer and wrench-jaw head B in one piece, which, though preferable, need not be machine-finished, except that portions may be made reasonably smooth to fit the end *a* for use as a handle, the working face of the head B made true and flat, as usual, and the edge *b* of the lever should at least be ground moderately true and smooth. Otherwise the parts may be left as when well forged or cast, the lever A being of soft iron or steel, while the head B may be hardened. The lever-handle A is rectangular in cross-section, the sides being straight and parallel, as well as the edges, throughout. The faces *m* and *n* of the head B may be made similar to those of other well-known wrenches or may be modified to suit requirements.

The movable jaw C has a working face parallel to the working face of the jaw-head B, as is usual, and at its base *u* rides on the edge *b* of the lever A, or when inverted is suspended to the lever by a strap extending around the lever. This strap may be termed a "housing," since it extends somewhat back of the jaw and carries the locking devices. The housing comprises two parallel plates D D′, extending from the sides of the jaw along the sides of the lever A, and a plate E^2, extending along the edge of the lever opposite the working edge *b*. At the farther or rear end of the plates described are a pair of projecting ears E E′, these, with the plates and jaw, being all integral and practically parts of the jaw.

At the rear of the jaw C, near the extremity thereof, is a pivot-pin *d*, extending between the plates D and D′ and on which is pivoted a a dog F, at one end thereof, having one or more sharp hard teeth I at its opposite end adapted to bite into the surface of the edge *b* of the lever. The dog has a lever F′ integral therewith extending rearwardly between the ears E and E′. A leaf-spring G is attached by a rivet *j* to the lever F′ and has its free end *i* bent in a curve away from the end *h* of the lever, the end *h* being also slightly bent away from the end of the spring. The spring is relatively stiff, so as to be capable of lifting the dog from engagement with the lever-handle.

A cam H is mounted revolubly on a pivot-pin

e between the ears E and E′ and in the opening between the lever end *h* and the spring end *i*, and has a lever H′ projecting from the housing the end *k* of which is bent outwardly or away from the lever A. The lever H′ has a stud *l* at its convex inner side, or other suitable stop adapted to bear against the edge *b*.

In practical use the lever H′ being placed as shown in Fig. 3 the jaw C and its connected parts may be moved freely along the lever A and stopped at any desired exact point, after which the lever H′ may be pressed toward the lever-handle A, as shown in Figs. 1 and 2, which will cause the teeth I to press slightly against the edge *b* of the lever-handle A and retain all the movable parts against further movement. The wrench may then be used in the usual manner, and when force is applied the teeth I will be forced into the metal of the lever sufficiently to prevent slipping of the jaw, and the greater the force the deeper will be the bite and the greater the resistance, the frictional contact from the end *v* along the plate E^2 assisting in the effectual locking of the jaw. Under extraordinary strain against the extremity of the jaw C the end *w* may tend to sever its contact, with the result that an increased pressure would be put upon the end *h* and assist in causing a deeper bite of the dog-teeth. As will be seen by reference to Fig. 2, when the jaw C is locked the lever H′ is held in a tight position by reason of the pivot *e* being between the point of contact of the cam H with the end *h* and the stop *l*. In Fig. 3 it will be observed that the end *i* of the spring G, bearing elastically against the cam H forward of the full side opposite the pin *e* from the end *h*, which also bears against the cam forward of a full side, tends to hold the cam steady and in the desired position, so that the dog F may not interfere in sliding the movable jaw, either when adjusting it or when removing it from the lever-handle, for converting the tool into a plain hammer.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A combined hammer and adjustable wrench including a lever and handle combined having smooth parallel sides and smooth parallel edges and having a jaw-head at one end thereof, a movable jaw slidingly mounted on the lever and handle combined, a housing attached to the movable jaw, a dog having a lever pivoted in the housing and provided with hard teeth adapted to bite into the smooth surface of one of said parallel edges, a spring attached to the lever of the dog, and a cam having a lever and pivoted in the housing and working between the end of said dog-lever and the end of said spring.

2. In an adjustable wrench, the combination with the head B, of the lever-handle A having the smooth edge *b*, the jaw C having the connected housing at the rear thereof, the dog having the biting-teeth and pivoted to said jaw and having the projecting lever provided with the spring bent away from the end thereof, the pivoted cam working between the bent spring and the end of the dog-lever and having the lever attached thereto, and the ears supporting said cam.

3. In an adjustable wrench, the combination of the combined wrench-lever and hammer-handle having straight smooth parallel sides and edges, the movable jaw having the housing attached thereto, the dog having the biting-teeth and the integral lever and pivoted in said housing at the rear of said jaw, the ears forming part of said housing, the spring attached to the lever of said dog, the cam pivoted between said ears and working between the free end of said dog-lever and the free end of said spring, and the lever attached to said cam whereby said dog may be controlled, substantially as set forth.

4. In an adjustable wrench, the combination with the head B, of the straight lever and handle combined having the smooth parallel sides and smooth parallel edges and attached to said head, the jaw C having the connected housing at the rear thereof, the dog having the hard biting-teeth and pivoted to said jaw and having the lever projecting from the end having the biting-teeth, the pivoted cam engaging the extremity of said lever attached to said dog, the ears supporting said cam, and the spring whereby the dog may be raised from contact with said lever and handle combined.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES C. BURGESS.

Witnesses:
E. B. NEWBY,
L. B. NEWBY.