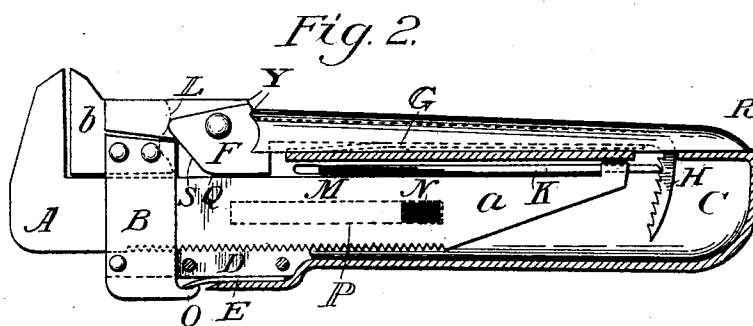
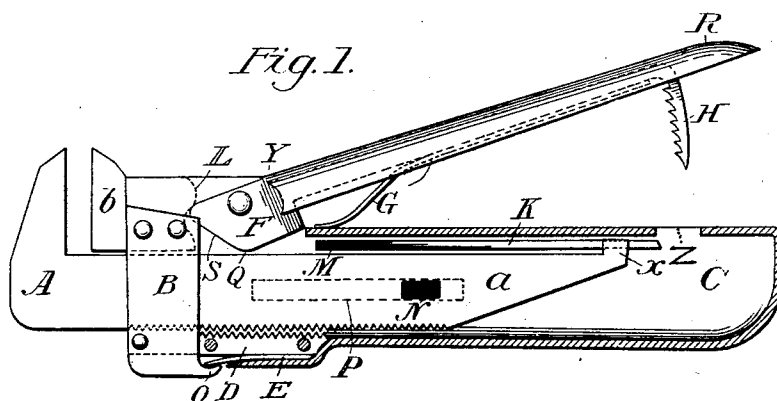


(No Model.)

E. L. KEITH & J. E. COLTON.
LOCK JAW WRENCH.

No. 587,974

Patented Aug. 10, 1897.



Witnesses.
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UNITED STATES PATENT OFFICE.

ELMER L. KEITH AND JAMES EVANS COLTON, OF MOUNT VERNON, IOWA.

LOCK-JAW WRENCH.

SPECIFICATION forming part of Letters Patent No. 587,974, dated August 10, 1897.

Application filed October 31, 1896. Serial No. 610,772. (No model.)

To all whom it may concern:

Be it known that we, ELMER L. KEITH and JAMES EVANS COLTON, residing at Mount Vernon, county of Linn, State of Iowa, have invented new and useful Improvements in Lock-Jaw Wrenches, (for which a patent, No. 567,945, was issued to Elmer L. Keith September 15, 1896,) of which the following is a specification.

Our invention relates to improvements in wrenches in which a sliding toothed bar operates in a hollow handle in conjunction with a swinging rear jaw operated by a cam-lever; and the objects of our invention are, first, to provide easy facilities for operating the sliding bar; second, to provide a perfect adjustment for the lever, so as to hold the lever firmly in place when the rear jaw is adjusted to the nut. We attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation showing the wrench open, and Fig. 2 is a side elevation showing the wrench closed.

Similar letters represent similar parts throughout the views.

Referring to the drawings, the side plates C C form a hollow handle within which the bar *a* slides backward and forward. In the front upper corner is pivoted the cam-lever F, and between the lower edges in the front end of handle is riveted a piece D, having V-shaped notches on its upper edge extending into the handle far enough to securely hold the bar *a*, such piece D extending out far enough to receive, and to which is pivoted, the oscillating jaw B.

To enable the operator to adjust the head A by moving the bar *a*, a horizontal slot P is cut through each plate, beginning near its front end and near the center vertically and extending rearwardly nearly half the length of handle. To enable the hooked end H of the lever F to enter the handle, an opening Z is made in the top edge of the handle near its rear end, and to enable the operator to move the sliding catch K by means of small lugs on sides of catch small slots *m* are cut through near the front upper corner of plates C C.

The lever F is made with its head in the form of a rocking cam, having its center in the center of the pivot through the plates C C,

its point projecting forward to engage with lug L on the back of jaw B, its lower edge being in the form of a part of a circle whose circumference just touches the top of bar *a* when said bar is firmly in engagement with piece D. To release bar *a* from piece D, said circular part of the head of the lever is flattened or beveled at S enough to allow the bar to disengage when the lever is open far enough for point Q to raise to a height equal to the depth of the teeth of the bar *a* as the head of the cam-lever swings backward on its pivot. Said bevel is made parallel with bar *a* when the lever is open.

To force the lever open when it is released from the catch K, a flat spring G is fastened to the lower side of the back of the lever and extends forwardly to the head of the lever, being formed so as to bear down on the top edge of the handle and to close up within the cover of the lever when the lever is closed. To prevent the lever from opening farther than necessary to release bar *a*, a shoulder Y is formed on the upper edge of the plates C C, just behind the pivot through the lever, against which the front end of the cover of lever strikes when the lever is raised to the proper height.

To enable the operator to fasten the lever down when its point is pressing the jaw B against the nut, the back or tail of lever is bent downward, opposite or directly above the opening Z, in the form of a hook H, which is notched on its front edge, so as to engage with the sliding catch K. To give strength to the lever and a neat finish to the entire handle, the lever is covered with a neat metal cover, extending from the head of lever to the rear end of handle. The head A and bar *a*, respectively, form the outer jaw of the wrench and its support, the latter playing loosely through the rear jaw B and within the hollow handle, said bar *a* being provided with V-shaped notches or teeth to engage with the teeth of the piece D. To this bar *a* has been added the push-pin N, which is merely a small piece of steel driven through the bar near its rear end, said pin being checkered on each end and being long enough to project through the slots P of the plates C C just far enough to be caught by the thumb of the operator to enable him to slide the bar *a* by pressing

against the pin N, the pin N preventing the bar *a* from sliding entirely out of the handle by striking against front end of slots P.

To hold the bar *a* in line with handle and prevent it from tilting up against the catch K, a small projection *x* is placed upon one side of the top edge of the rear end of bar *a*, extending upwardly to the lower side of the top edge of the handle.

The swinging jaw B is mortised through to allow bar *a* to pass through into the handle, is pivoted to the front end of piece D, has an elliptically-shaped lug L projecting rearwardly from its top end acting as a wedge to force the jaw forward as the point of lever moves upwardly against it, has a small lug O projecting rearwardly at its lower end to receive spring E, which presses down on said lug and swings the jaw backward or open, and is also provided with a projecting face extending forwardly to meet head or jaw A, said face being reduced to the thickness of bar *a* and head A, so that it may be used in a narrow space.

The sliding catch K is a thin slip of steel playing loosely backward and forward between the top of bar *a* and the lower side of top edge of the handle and is cut out on one side to allow the movement of projection *x* of bar *a*, its rear end being beveled to fit the notches in hook H, the lower edge being straight and the top edge beveled back at an angle of thirty or forty degrees. Its front end has a projection on each side extending at right angles out through the slots M, forming a push-button to enable the operator to move the catch.

The spring E is merely a small flat spring held between the upper side of the lower edge of handle and the lower side of piece D; its front end bearing down on lug O to open or force backwardly the swinging jaw B.

Having thus fully described our invention, which is simply improvements in the lock-jaw wrench for which Patent No. 567,945 was granted to Elmer L. Keith September 15, 1896, what we consider as new, and desire to have secured by Letters Patent, is—

1. In a wrench the combination of the hollow handle C C, having slots P adapted to button N, the slots M adapted to the catch K, the shoulder Y adapted to receive the front end of the cover of lever F, and opening Z adapted to receive hook H of the lever F, with the oscillating jaw B, the head A, and

bar *a* sliding within the hollow handle, the cam-lever F having a spring to raise said lever, spring E, the sliding catch K having lugs projecting through slots M and the push-button N attached to bar *a* and sliding in slots P, substantially as described.

2. In a wrench the combination of the sliding catch K sliding in the upper edge of the handle, having a lug projecting at right angles from each side on its front end through slots M of the plates C C, having one side recessed or cut away to conform to the shape and movements of the projection *x* of bar *a* and having its rear end adapted to catch and hold the hook H with the hollow handle having the slots M through which the catch is operated by its projecting lugs, and opening Z admitting hook H to engage with said catch, the lever F having notched hook H adapted to engage with said catch and the bar *a* having projection *x* adapted to prevent bar *a* from interfering with said catch, substantially as described.

3. In a wrench the combination of the head A and its bar *a* having push-button N, adapted to operate the said bar through slots P, and projection *x* adapted to engage with the top of the handle to hold the bar in line, with the oscillating jaw B having projection *b*, the hollow handle receiving said bar, and the lever F, substantially as described.

4. In a wrench the combination of the lever F having the pointed head flattened at S and adapted to force jaw B forward and bar *a* downward, having the hooked end H adapted to enter the hollow handle and engage with the catch K, having the cover adapted to make a handpiece and give strength to the lever and to strike against the shoulder Y, and having spring G, substantially as described.

5. In a wrench the combination of the hollow handle C C having slots P slots M shoulder Y and opening Z, the oscillating jaw B having projection *b*, the bar *a* having button N and projection *x*, the lever F having the pointed head flattened at S, and having notched hook H and spring G, the sliding catch K having lugs through M and rear end adapted to hook H, with the spring E and piece D, substantially as described.

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JAMES EVANS COLTON.

Witnesses:

J. G. HESS,

DE WITT MCLLLEN.