(No Model.)

C. D. CUTTS & E. E. SCATES.

WRENCH.

No. 355,641. Patented Jan. 4, 1887.

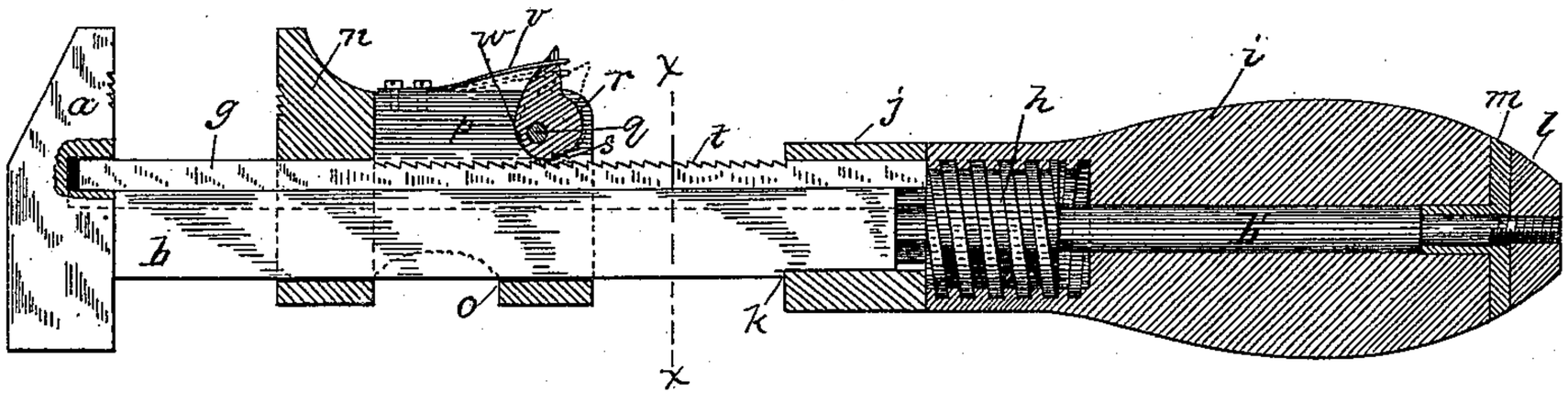

Fig. 1.

Fig. 2.

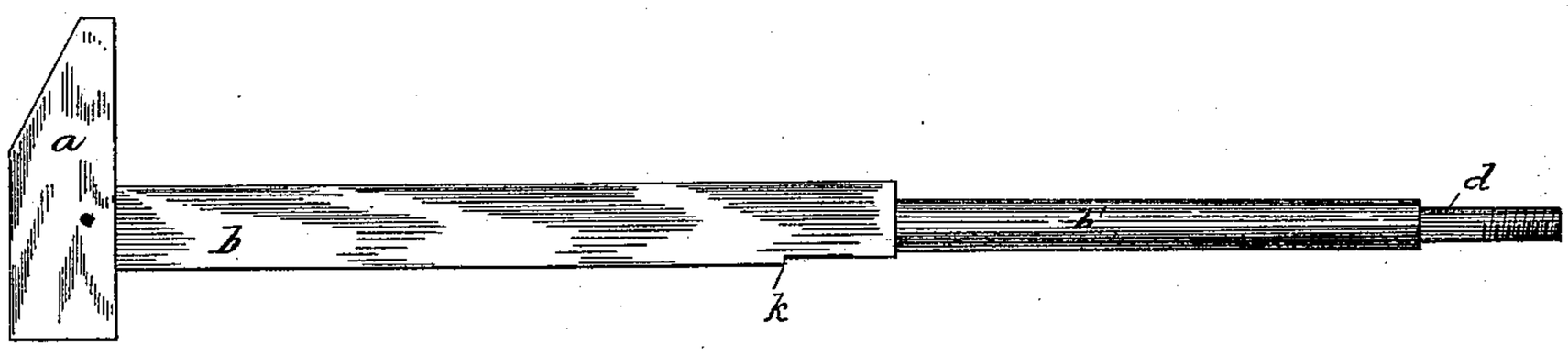

Fig. 3.

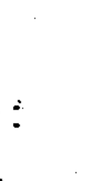

Fig. 5.

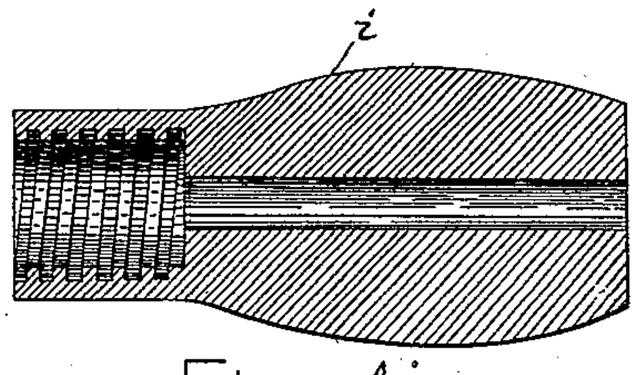

Fig. 4.

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UNITED STATES PATENT OFFICE.

CHARLES D. CUTTS AND E. EVANS SCATES, OF FORT FAIRFIELD, MAINE.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 355,641, dated January 4, 1887.

Application filed April 29, 1886. Serial No. 200,501. (No model.)

To all whom it may concern:

Be it known that we, CHARLES D. CUTTS and EBEN EVANS SCATES, of Fort Fairfield, in the county of Aroostook and State of Maine, have invented certain new and useful Improvements in Wrenches, of which the following is a specification.

Our invention relates to wrenches, and particularly to that type known as "monkey-wrenches."

It is the object of our invention to improve the means in tools of the character mentioned, whereby the sliding jaw is tightened upon the object to which the wrench is applied after the jaws of the wrench have been set against such object, and to so modify the construction of other parts of the wrench as to secure greater strength, certainty, and convenience in the operation of the same.

To the foregoing ends our invention consists in the improvements which we will now proceed to fully describe and claim.

Of the accompanying drawings hereto annexed, and forming a part of this specification, Figure 1 represents a longitudinal section of our improved wrench. Fig. 2 represents a detail view, in side elevation, of the movable rack-bar. Fig. 3 represents a like view of the main or body bar, having the head rigidly secured thereto, or forming an integral part thereof. Fig. 4 represents a longitudinal section of the handle. Fig. 5 represents a cross-section on the line *x x* of Fig. 1.

Similar letters of reference indicate similar parts in all of the figures.

In the drawings, *a* represents the head or fixed jaw of the wrench, rigidly secured to the forward end of the main or body bar *b*, the latter being turned down, as at *b'*, where it passes through the body of the handle, and still farther turned down and screw-threaded, as at *d*, where it passes through the rear end of the handle.

Bar *b* is provided with a V-shaped groove in its upper side, into which projects a correspondingly-shaped rib formed on the lower side of rack-bar *g*, extending at its forward end into a hole formed in the head *a*. Rack-bar *g* is provided at its rear end with an externally-screw-threaded sleeve, *h*, adapted to be slipped upon the rear end, *b' d*, of bar *b*, and receive thereover the internally-screw-threaded handle, *i*, as clearly shown in Fig. 1.

A ferrule or collar, *j*, surrounds bars *b* and *g*, with its rear face resting against the forward end of handle *i*, and its front face bearing against a shoulder, *k*, formed on the lower side of body-bar *b*. A nut, *l*, is screwed upon the screw-threaded end of bar *b*, and a washer, *m*, is preferably interposed between said nut and the rear end of the handle.

By the construction and arrangement of parts thus far described it will be seen that by turning handle *i* on bar *b b' c* rack-bar *g* will, by reason of its screw-threaded connection with said handle, be moved longitudinally on said first-mentioned bar, the extent of such movement being limited by the depth of the hole in the head or fixed jaw *a*, into which the forward end of rack-bar *g* fits, and the space between the rear end of the screw-threaded sleeve *h* and the part of the handle against which it abuts.

The movable jaw *n* is of a form similar to that of monkey-wrenches as commonly constructed, being adapted to slide on the bars *b g*, with its face parallel with the face of the fixed jaw *a*. Said movable jaw *n* is provided on its rear side with a guiding-yoke, *o*, in a slot, *p*, formed in which is pivoted on a stud, *q*, a cam-shaped dog or block, *r*, having notches or teeth formed on its cam-face *s*, corresponding in size and form with the teeth *t*, formed in the upper face of rack-bar *g*. Extending upward from block *r* is a lug, *u*, into a notch formed in which the free end of a spring, *v*, extends, the forward end of said spring being secured to sliding jaw in any suitable way, so that the free end will bear upon block *r*, serving by frictional contact therewith to hold said block in any position to which it may be turned.

The operation of our wrench may now be described as follows: Handle *i* is turned so as to draw rack-bar *g* rearwardly as far as it will be permitted to go, and block *r* will be turned on its pivot by mere pressure of the thumb of the operator, so as to bring the smooth concentric face *w* opposite the teeth of the rack-bar *g*, when said block will be held in the position to which it may be moved by the action-spring *v*, and jaw *n* may be moved to any po-

sition on bar *b g*—say so as to bring its face against one side of the nut or other device to be operated upon, the face of fixed jaw *a* resting against the other side. Block *r* is now rocked upon its pivot, so as to engage its toothed cam-face *s* with the toothed face *t* of rack-bar *g*, by which operation movable jaw *n* will be clamped upon bars *b g* in a way that will be readily understood. Now, by turning handle *i* so as to carry rack-bar *g* forward, or toward the head or fixed jaw *a*, the two jaws will be caused to grasp the article therebetween with a powerful vise-like grip, and so as to hold it from turning therein.

We are aware of the patent issued to S. Merrick, April 18, 1834, our invention being an improvement on the wrench shown and described in said patent, the advantages secured by our improvement being in the increased power with which the movable jaw can be forced against the fixed jaw by reason of the screw-threaded connection of the rack-bar with the handle proper, and the convenience or readiness with which this operation may be effected, and the strength of the parts.

Another point in our invention contributing to the firmness and strength of parts, as well also as to the truth of their position and movements, is the grooved connection of the rack-bar with the body-bar and the extension of the former bar into the head or fixed jaw and for the whole length of the shank of the latter bar.

Having thus described our invention, what we claim is—

1. A wrench comprising a body-bar provided with a fixed jaw, a handle, *i*, adapted to turn on said bar, a movable rack-bar guided on said body-bar and having a screw-threaded connection with said handle, a movable jaw adapted to slide on said bars, and mechanism, substantially as described, for locking said movable jaw to said rack-bar, whereby, after the jaws of the wrench have been set against the object to be operated upon and the movable jaw locked to the rack-bar, by turning the handle the jaws may be clamped upon said object with a vise-like grip, as set forth.

2. A wrench comprising a body-bar provided with a fixed jaw at its forward end, an interiorly-screw-threaded handle, *i*, adapted to turn on said bar at its rearward end, a movable rack-bar guided on said body-bar and provided at its rear end with an externally-screw-threaded sleeve adapted to be engaged by the internal screw-thread of the handle, a movable jaw adapted to slide on said bars, and mechanism, substantially as described, for locking said movable jaw to said rack-bar, as set forth.

3. The combination, with the body-bar provided with a fixed jaw, said bar having a V-shaped groove in its upper side or face, a rack-bar extending the entire length of the shank of said body-bar and into a hole formed in said fixed jaw, and provided with a rib on its lower side or face corresponding in form to the V-shaped groove formed in the upper face of the body-bar, of a movable jaw adapted to slide on said bars, and mechanism, substantially as described, for locking said movable jaw to said rack-bar and for moving the latter longitudinally on the body-bar, as set forth.

4. The combination, with the body-bar provided with a fixed jaw, of the internally-screw-threaded handle *i*, movable rack-bar *g*, provided with the externally-screw-threaded sleeve *h*, nut *d*, collar *j*, movable jaw *n*, notched or toothed cam-dog *r*, and spring *v*, as set forth.

In testimony whereof we have signed our names to this specification, in the presence of two subscribing witnesses, this 23d day of April, 1886.

CHARLES D. CUTTS.
E. EVANS SCATES.

Witnesses:
W. P. PRATT,
C. A. ALLEN.