(No Model.)

E. A. COCHRAN.

WRENCH.

No. 481,389. Patented Aug. 23, 1892.

Fig. 2.

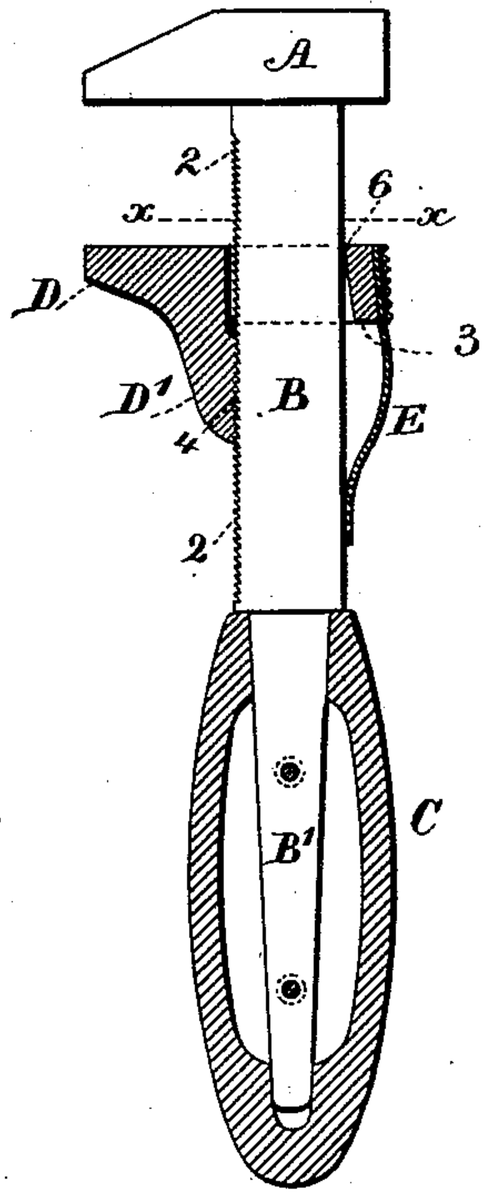


Fig. 1.

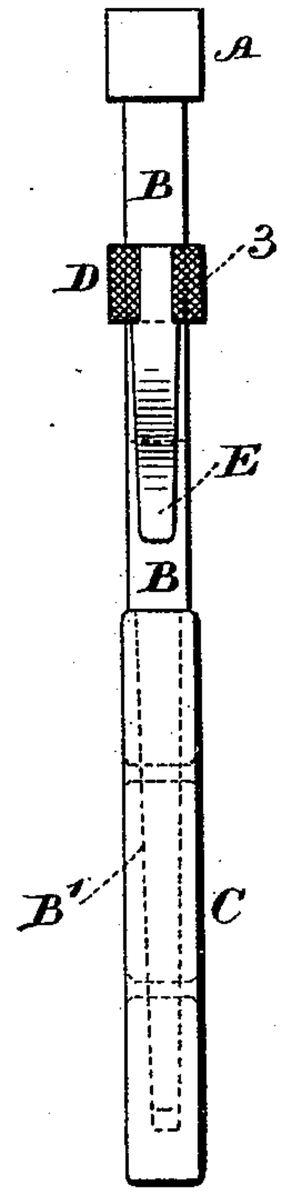
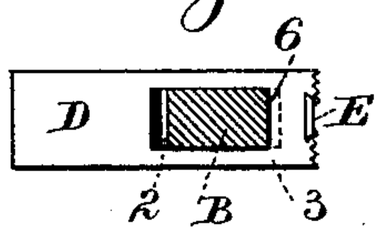


Fig. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

EDWARD A. COCHRAN, OF OAK PARK, ILLINOIS.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 481,389, dated August 23, 1892.

Application filed November 3, 1891. Serial No. 410,709. (No model.)

To all whom it may concern:

Be it known that I, EDWARD A. COCHRAN, a citizen of the United States, formerly of Pasadena, California, now of Oak Park, in the county of Cook and State of Illinois, have invented an Improvement in Wrenches, of which the following is a specification.

In Letters Patent No. 461,402, granted to me October 13, 1891, a combination-tool is represented containing a wrench provided with a fixed jaw at one end of a rack-bar, the moving jaw having teeth that fit the teeth of the rack-bar and such moving jaw being provided with a strap passing around the rack-bar. In this tool I have found difficulty in obtaining the proper strength of the respective parts, and if the rack-teeth of the moving jaw extend up to the surface of such jaw the strap cannot bear continuously upon the back of the rack-bar, but there has to be sufficient looseness to allow the jaw and its teeth to be pressed forward to separate them from the rack-teeth.

My present invention is made for rectifying the difficulties before mentioned and for providing a wrench that is simple to construct, easy of use, durable, and specially adapted to use on bicycles, tricycles, &c., because of its lightness and the facility of adjustment; and it relates to the construction and combination of devices hereinafter set forth and claimed.

In the drawings, Figure 1 is an elevation of the wrench complete. Fig. 2 is an elevation at right angles to Fig. 1, partly in section; and Fig. 3 is a transverse section at the line X X.

The head or fixed jaw A and the bar B are made together, as usual in wrenches, and at one edge of the bar B there are rack-teeth 2, and the bar B is reduced to form a tang B′ within the handle C. This handle may be of any desired character, and it is preferably flat and the same or nearly the same thickness as the bar B, so that the handle may be secured to the tang by transverse rivets, as shown, or any other suitable devices. The handle may be of metal, hard rubber, or other suitable composition, and it may fit the tang B′ closely, or such handle may be more or less hollow. The jaw D is made with a strap portion 3, that passes around the bar B, and such jaw D also has a downward projection D′, having teeth 4, which engage the rack-teeth 2, and there is a spring E connected to the strap 3 and acting against the back edge of the bar B to throw the teeth 4 of the jaw D into contact with the teeth 2 upon the bar B. The mortise through the jaw D at its upper end corresponds, or nearly so, to the section of the bar B; but such mortise is longer at the other side of the strap portion 3, in order that the jaw may have a constant bearing 6 upon the back of the bar B, and such jaw D may be rocked upon this bearing 6 by pressure applied upon the spring E, and in so doing the teeth 4 are pressed away from the rack-teeth 2 and the jaw D is free to be moved endwise of the bar B to bring such jaw D nearer to or farther from the fixed jaw A at the end of the bar B. The spring E may be introduced in any desired manner and fastened to the strap portion 3 of the jaw D, and its lower or free end constantly presses upon the edge of the bar B, and by making the handle C rather larger than the bar B an offset is formed against which the end of the spring E stops when the jaw D has been moved its full extent in opening the wrench. To close the wrench, it is only necessary to slide the jaw D along to the desired place, the teeth 4 sliding over the teeth 2 and holding the jaw D at any place to which it may be moved.

It will be observed that pressure upon the face of the sliding jaw D forces the teeth 4 into more intimate contact with the teeth 2 upon the rack-bar B; but the proper position of the face of the jaw D at right angles to the bar B is maintained when in use because the bearing 6 against the back of the bar B remains in a fixed position relative to the face of the jaw D, the projection D′, and the teeth 4, that engage the teeth 2 of the bar B, and when the pressure by the jaws of the wrench upon the article that is being moved is released the jaw D can be sprung into a slightly-inclined position upon the bar B, the bearing 6 acting as a pivot and the teeth 4 separating from the teeth 2.

In consequence of the spring E extending beyond the lower end of the jaw where the teeth are provided the thumb may be pressed upon the spring opposite to the teeth on the jaw, so as to press said teeth out of contact with the rack-bar as the parts swing on the bearing 6, and the end of the spring stopping

against the end of the handle as the jaw is slid along before the teeth on the jaw reach the corresponding position on the rack side of the bar there is nothing to interfere with the proper movement of the jaw or the engaging of the teeth.

I claim as my invention—

The combination, in a wrench, of a fixed jaw, a rack-bar permanently fastened to the fixed jaw and a handle at the end thereof, a moving jaw sliding upon the rack-bar and having teeth that engage the teeth of the rack-bar and a strap 3 passing around the rack-bar, and a spring fastened at one end to the strap and pressing at the other end against the back edge of the rack-bar, the strap having a bearing at 6 against the back of the rack-bar and in line, or nearly so, with the face of the moving jaw and the mortise of the strap diverging from the bearing to allow the jaw to be rocked on the bearing 6 to disconnect the teeth, substantially as set forth.

Signed by me this 31st day of October, 1891.

E. A. COCHRAN.

Witnesses:
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