

No. 827,846.

PATENTED AUG. 7, 1906.

J. E. BOWSER & J. H. FRANCIS.
RATCHET WRENCH.

APPLICATION FILED NOV. 29, 1905.

Fig. 1.

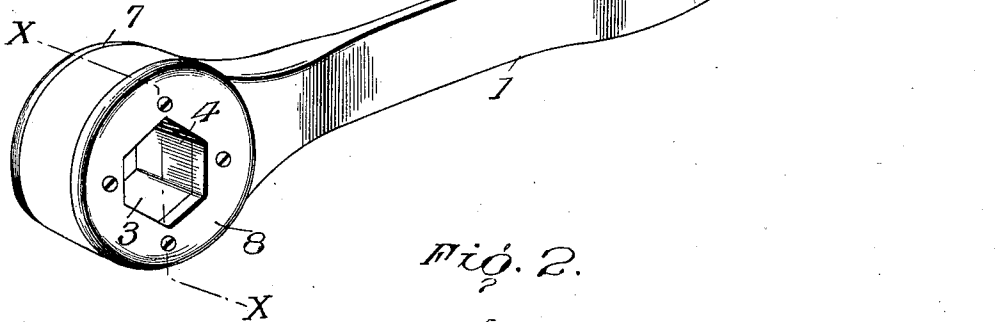


Fig. 2.

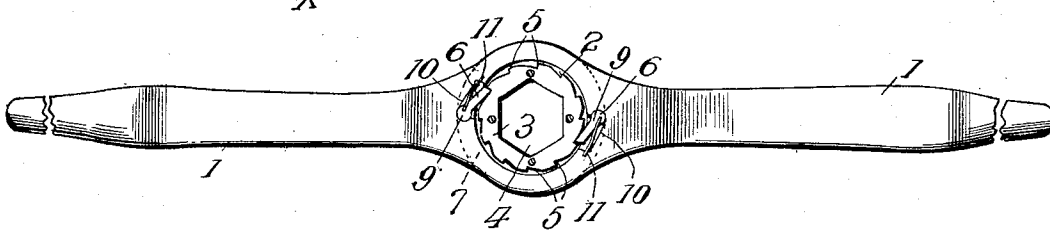


Fig. 3.

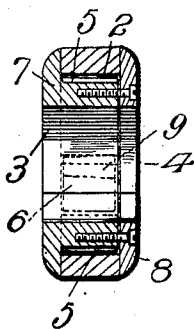


Fig. 4.

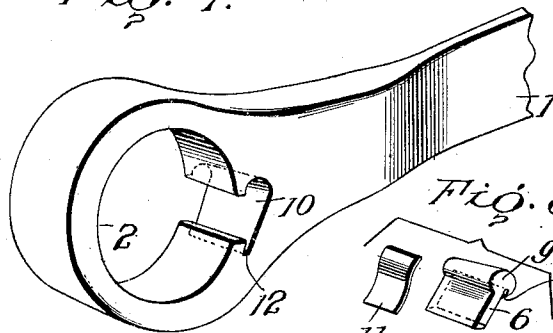
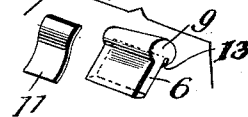


Fig. 5.



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UNITED STATES PATENT OFFICE.

JAMES E. BOWSER AND JAMES H. FRANCIS, OF NEWPORT NEWS,
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RATCHET-WRENCH.

No. 827,846.

Specification of Letters Patent.

Patented Aug. 7, 1906.

Application filed November 29, 1905. Serial No. 289,683.

To all whom it may concern:

Be it known that we, JAMES E. BOWSER and JAMES H. FRANCIS, citizens of the United States, residing at Newport News, in the county of Warwick and State of Virginia, have invented certain new and useful Improvements in Ratchet-Wrenches, of which the following is a specification.

This invention relates to tools of the type operated by a ratchet action to turn the work transversely in one direction.

The purpose of the invention is to devise a wrench of the ratchet variety involving a novel construction which will admit of the parts being cheaply manufactured, economically assembled, and easily separable for cleaning, repairing, or other purposes.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result reference is to be had to the following description and accompanying drawings.

While the invention may be adapted to different forms and conditions by changes in the structure and minor details without departing from the spirit or essential features thereof, still the preferred embodiment is shown in the accompanying drawings, in which—

Figure 1 is a detail view of a ratchet-wrench embodying the invention. Fig. 2 is a plan view of a modification, the plate applied to the near side of the socket or work-holder being omitted. Fig. 3 is a transverse section of the wrench on the line X X of Fig. 1. Fig. 4 is a detail perspective view of a part of the handle bordering upon the opening in which it is fitted to the socket or work-holder, so as to show more clearly the depressions for receiving the dog and its actuating-spring; and Fig. 5 is a detail perspective view of the dog.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The tool comprises an operating-handle 1, which may be single, as shown in Fig. 1, or double, as illustrated in Fig. 2. The operating-handle is provided with an opening 2 to receive the socket or work-holder 3, which may be of any type of construction, depending upon the special use and design of the

tool. As shown, the opening 2 is of circular formation and the socket or work-holder 3 is of corresponding outline to fit therein, so as to turn freely.

The socket or work-holder 3 has a centrally-disposed opening 4 of a shape corresponding to the work or object to be turned. The opening 4 is preferably of polygonal formation to receive a nut or other work having a plurality of faces or sides. A series of teeth 5 are provided around the circumference of the socket or work-holder for co-operation with a dog 6, whereby the said socket is held in fixed position with reference to the operating-handle when applying force thereto for turning the work to which the tool may be fitted. The socket or work-holder is of a thickness approximating the thickness of the part of the operating-handle provided with the opening 2, and said socket has an outer flange 7 at one end to limit the movement of the socket in one direction when fitted in the opening 2. A plate 8 is secured to the opposite side of the socket or work-holder and acts jointly with the flange 7 to retain the work-holder in position. The plate 8 may be secured to the socket 3 either by means of machine-screws or other suitable fastening devices to admit of the removal of said plate when it is required to disengage the work-holder from the operating-handle for any purpose.

The dog 6 is of flattened form and is provided at one end with a rounded head 9, constituting a knuckle, by means of which said dog is pivotally connected to the operating-handle. The latter is formed at a point in the circumference of the opening 2 with a recess 10 of rounded form to receive the knuckle or head 9 of the dog 6, whereby provision is had for pivotal movement of the dog in the ratchet action of the tool. The rounded head 9 is slightly tapered in length, and the recess 10 is of corresponding form in its length, thereby admitting of the handle drawing when formed by casting. A flat spring 11 coöperates with the dog 6 to press its free end into engagement with the teeth 5. A recess 12 is formed in the wall of the opening 2 to receive the spring 11 and is in communication at one end with the recess 10. The spring 11 is held in place by having one or both of its ends let into a kerf 13, formed in the rounded portion 9 of the dog,

and in the shoulder at the outer end of the recess 12. The spring 11 also serves to hold the dog 6 in place and preferably has its end portions let into the kerfs 13 and 12, 5 so as to engage frictionally with the dog and handle, and thereby prevent casual displacement of the dog when the socket or work-holder is removed from the operating-handle for any purpose. The dog is of a 10 width corresponding to the thickness of the part of the operating-handle having the opening 2 and is retained in place by means of the flange 7 and the plate 8, both recesses 10 and 12 being covered and concealed by 15 said parts 7 and 8, which prevent dust or other foreign matter gaining access to the recesses and impairing the operativeness of the tool.

From the foregoing it will be understood 20 that a tool constructed in accordance with this invention may be cheaply manufactured and is capable of having the operating parts quickly assembled and likewise provides for ready access to the parts for cleaning, oiling, 25 or any purpose that may arise necessitating separation of the elements to admit of inspection or access thereto.

Having thus described the invention, what is claimed as new is—

30 A ratchet-tool of the character specified, the same comprising an operating-handle

having a circular opening formed therein and having a recess at one side of the opening and in communication therewith, said recess hav- 35 ing a kerf 12 at one end and an undercut rounded portion at the opposite end, a dog fitted within the said recess and having a rounded knuckle at one end to fit within the rounded end of the recess and having a kerf 13 40 formed in the knuckle adjacent to the dog, a flat spring having its end portions fitted in, respectively, the kerfs 13 and 12 of the dog and operating-handle and serving to retain said dog in place and to press its free end 45 outward into the circular opening, a socket or work-holder fitted in the opening of the operating-handle and provided with ratchet-teeth around its circumference and having an outer flange upon one side, and a plate se- 50 cured to the opposite side of said socket and acting jointly with the flange to retain the work-holder in place and also to cover opposite open sides of the aforesaid recess to prevent lateral displacement of the dog and spring and to protect and conceal the same. 55

In testimony whereof we affix our signatures in presence of two witnesses.

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Witnesses:

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