No. 835,034. PATENTED NOV. 6, 1906.

A. RIDDLE.

WRENCH.

APPLICATION FILED DEC. 11, 1905.

Fig. 1.

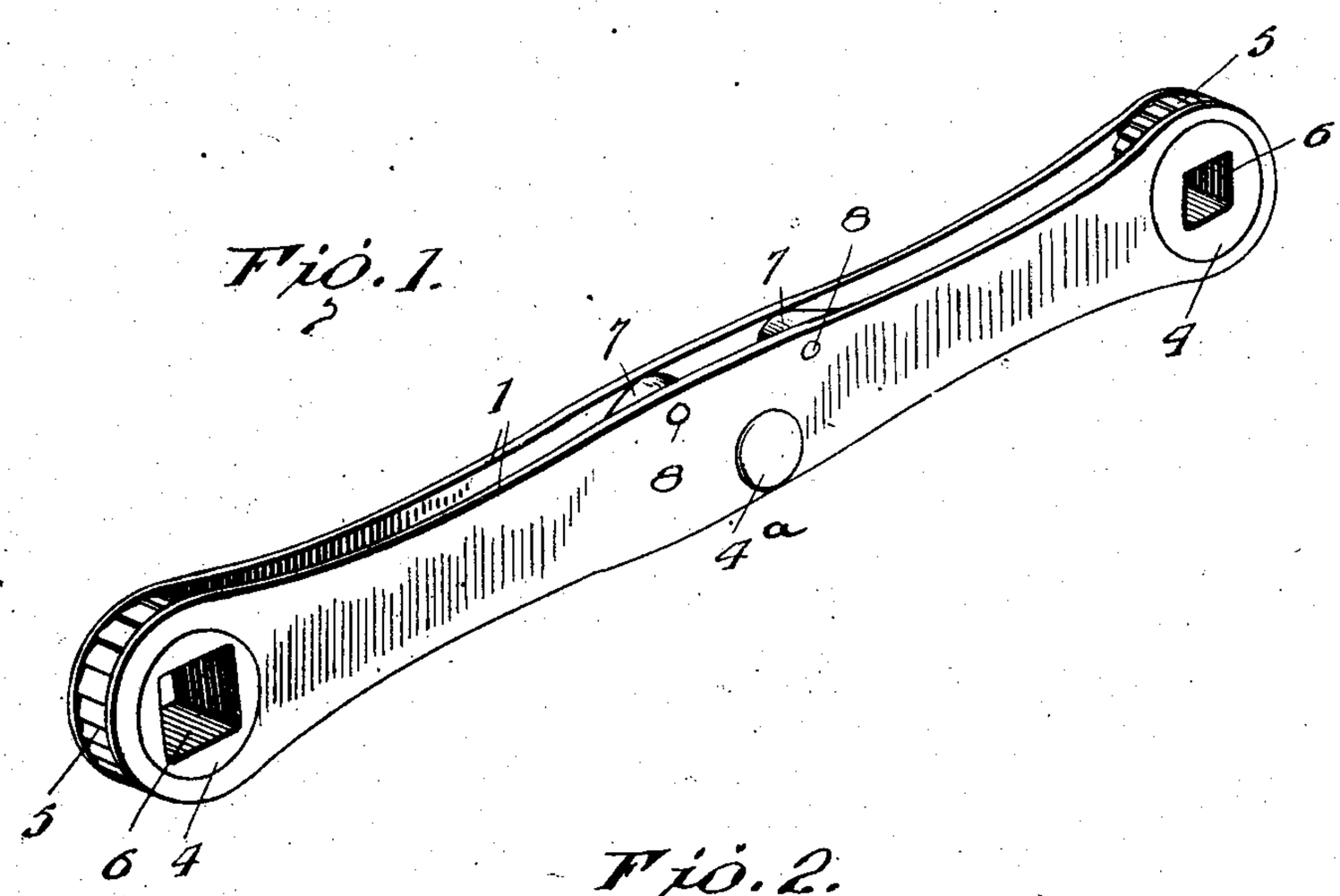


Fig. 2.

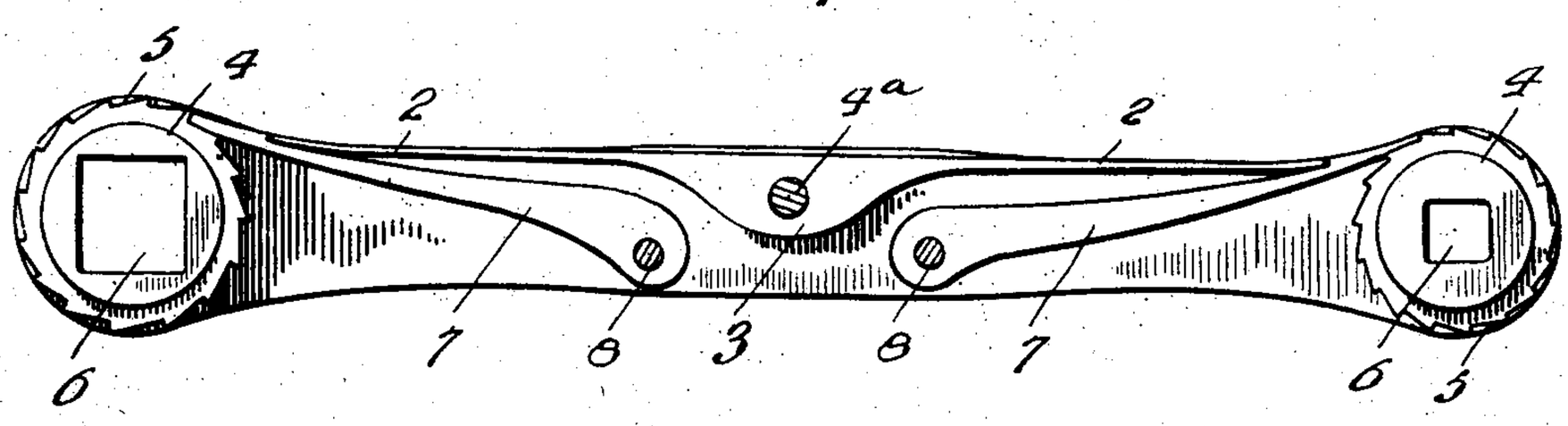


Fig. 3.

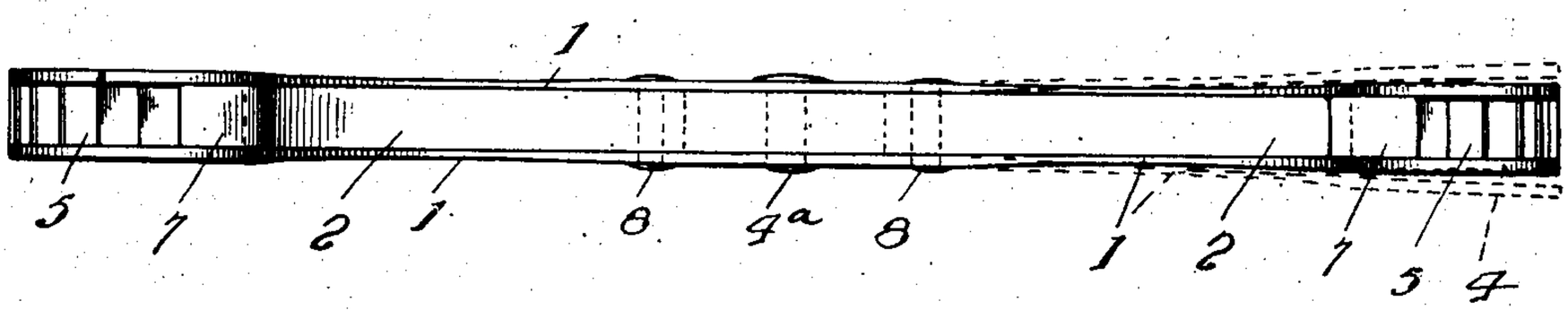
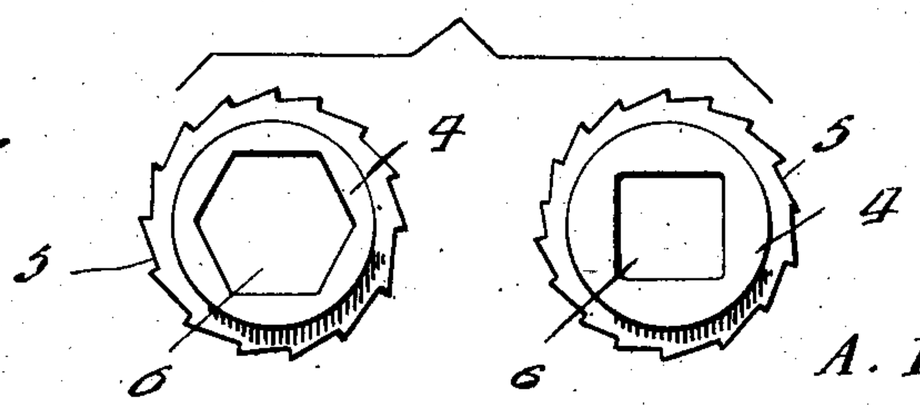


Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

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WRENCH.

No. 835,034. Specification of Letters Patent. Patented Nov. 6, 1906.

Application filed December 11, 1905. Serial No. 291,321.

To all whom it may concern:

Be it known that I, ALLEN RIDDLE, a citizen of the United States, residing at Sidney, in the county of Shelby and State of Ohio, have invented certain new and useful Improvements in Wrenches, of which the following is a specification.

This invention relates to a wrench for taps, nuts, and the like, the purpose being to provide a tool of this character embodying work-holders which are readily removable from the handle to admit of their replacement by others of different size and shape, as occasion may demand.

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 perspective view of a wrench embodying the invention. Fig. 2 is a side view of the wrench, the plate on the near side being removed. Fig. 3 is an edge view of the wrench, the dotted lines showing the side plates moved outward, so as to clear the work-holder to admit of removal of said work-holder and the substitution of another therefor. Fig. 4 is a detail view of other forms of work-holders.

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 wrench comprises a handle and ratchet work-holders at the ends thereof. The work-holders at opposite ends of the handle are preferably of different sizes and are readily removable to admit of other work-holders of different size or form being placed in position according to the nature of the work or object to be turned.

The handle consists, essentially, of two plates 1, spaced apart and having an approximately parallel relation. Each of the plates is provided in its end with a circular opening, the openings being in transverse alinement when the plates are properly assembled and connected. The plates are sufficiently thin to admit of their end portions being spread or moved outward, as indicated by the dotted lines in Fig. 3, whereby provision is had for removal of the work-holders and replacement of other work-holders. A spring 2 is arranged between the plates 1 and is thickened at a central point, as shown at 3, and transversely pierced for reception of the rivet or fastening 4^a, by means of which the plates and spring are connected at a central point. The spring 2 is preferably arranged at one side of the handle, so as to close the space formed between the plates 1.

The work-holders 4 are circular and their end portions obtain a bearing in the circular openings formed in corresponding ends of the plates 1. Ratchet-teeth 5 are provided around each work-holder and are centrally disposed and occupy the space formed between the plates and engage with the inner sides of the latter, so as to prevent displacement of the work-holders when in position. The work-holders are of similar formation and have sockets or openings 6 formed therein to receive the shank of the taps, the nuts, or other work to be rotated and may be of any size and form, dependent upon the nature of the work. In the event of it becoming necessary to replace either one of the work-holders by another it is only necessary to spread or move corresponding end portions of the plates 1 outward, as shown by the dotted lines in Fig. 3, when the work-holder in position will be liberated and another adapted to be placed in position. When released from the force tending to spread the plates, the latter return to normal position, as indicated by the full lines in Fig. 3, and retain the work-holder in place. The end portions of the plates 1 are thickened and widened, so as to provide sufficient metal to resist wear and sustain strain. The part of the plates intermediate of the fastening 4^a and work-holders is made sufficiently thin to admit of moving the plates outward, said plates being resilient, so as to spring inward when released.

A dog 7 coöperates with each work-holder and is located between the plates 1 and is pivoted thereto at one end by means of a rivet or other suitable fastening 8, the same serving, in conjunction with the fastening 4^a, to hold the plates 1 together. The dogs 7 incline with reference to the handle, and their free ends are arranged to engage with the

teeth 5 of the work-holders. The extremities of the spring 2 engage with the dogs 7 and hold the latter in engagement with the teeth of the work-holders.

From the foregoing it will be understood that the wrench may be readily adapted to usual work by reason of the removability of the work-holders and the adaptability of substituting others therefor of different size and form. Moreover, the work-holders may be quickly removed and others placed in position without necessitating the employment of any tool or necessitating the loosening of any fastening or the manipulation of a catch or analogous device. The handle being hollow and composed of spaced plates is exceedingly light and strong, since the plates are in the plane of the application of force when the wrench is in operation, hence are adapted to sustain the stress that may be imposed thereon.

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

A new article of manufacture, the same consisting of a wrench comprising like side plates spaced apart and provided in opposite ends with transversely-alined openings, work-holders mounted in the openings of the plates and provided intermediate of their ends with ratchet-teeth, dogs arranged between the plates and having their outer ends in engagement with the ratchet-teeth of the respective work-holders, pivot-fastenings for the inner ends of the dogs and serving to connect the said plates, a spring closing the space formed between the plates at one edge and having its middle portion widened to come between the inner ends of said dogs, the ends of the springs being free and exerting a pressure upon the respective dogs, and a fastening connecting the plates and securing the spring thereto at a middle point, the end portions of the plates being disconnected and adapted to be spread apart to admit of removing and replacing the work-holders.

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

ALLEN RIDDLE. [L. S.]

Witnesses:
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