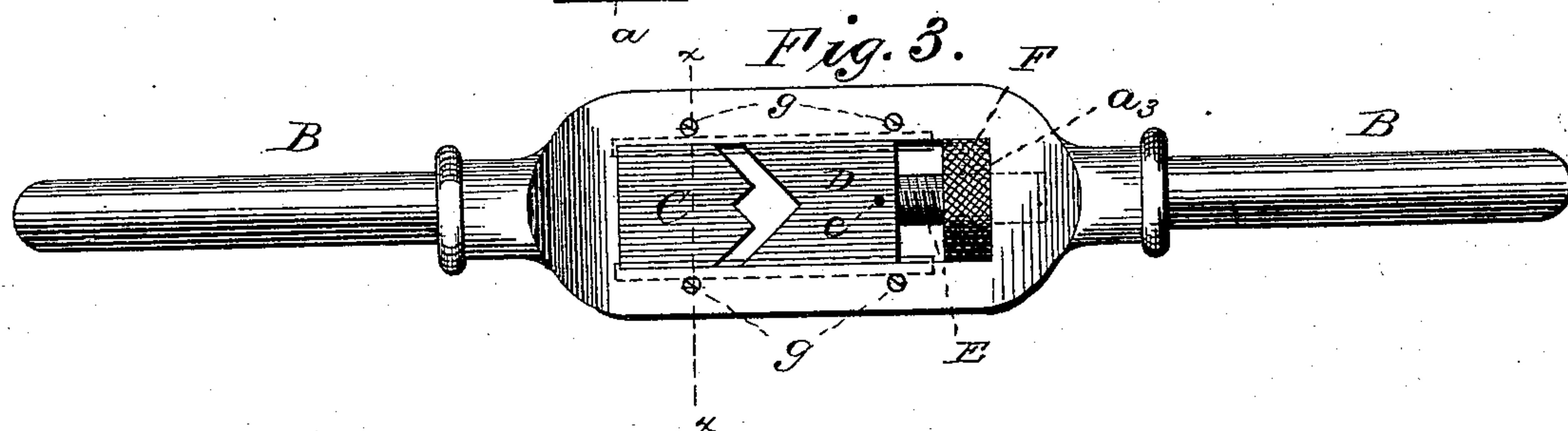
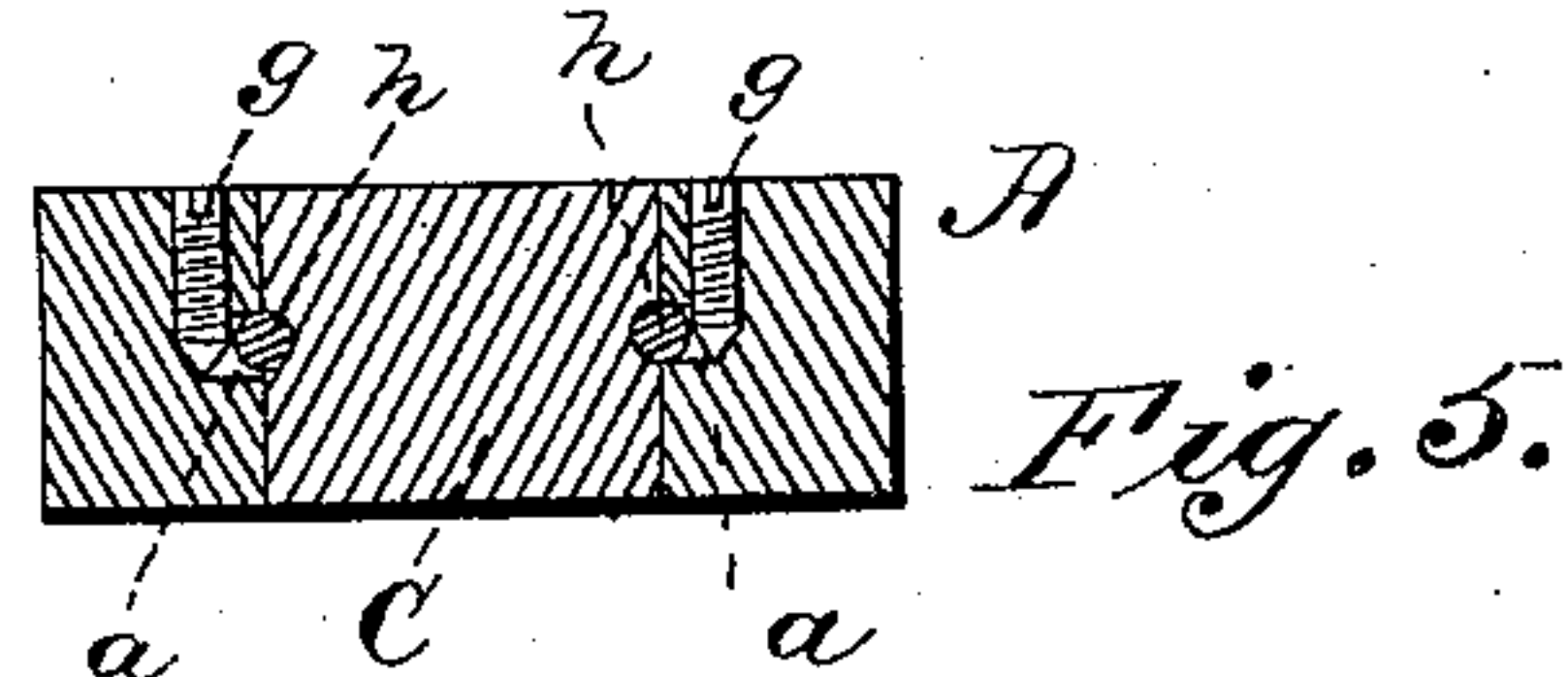
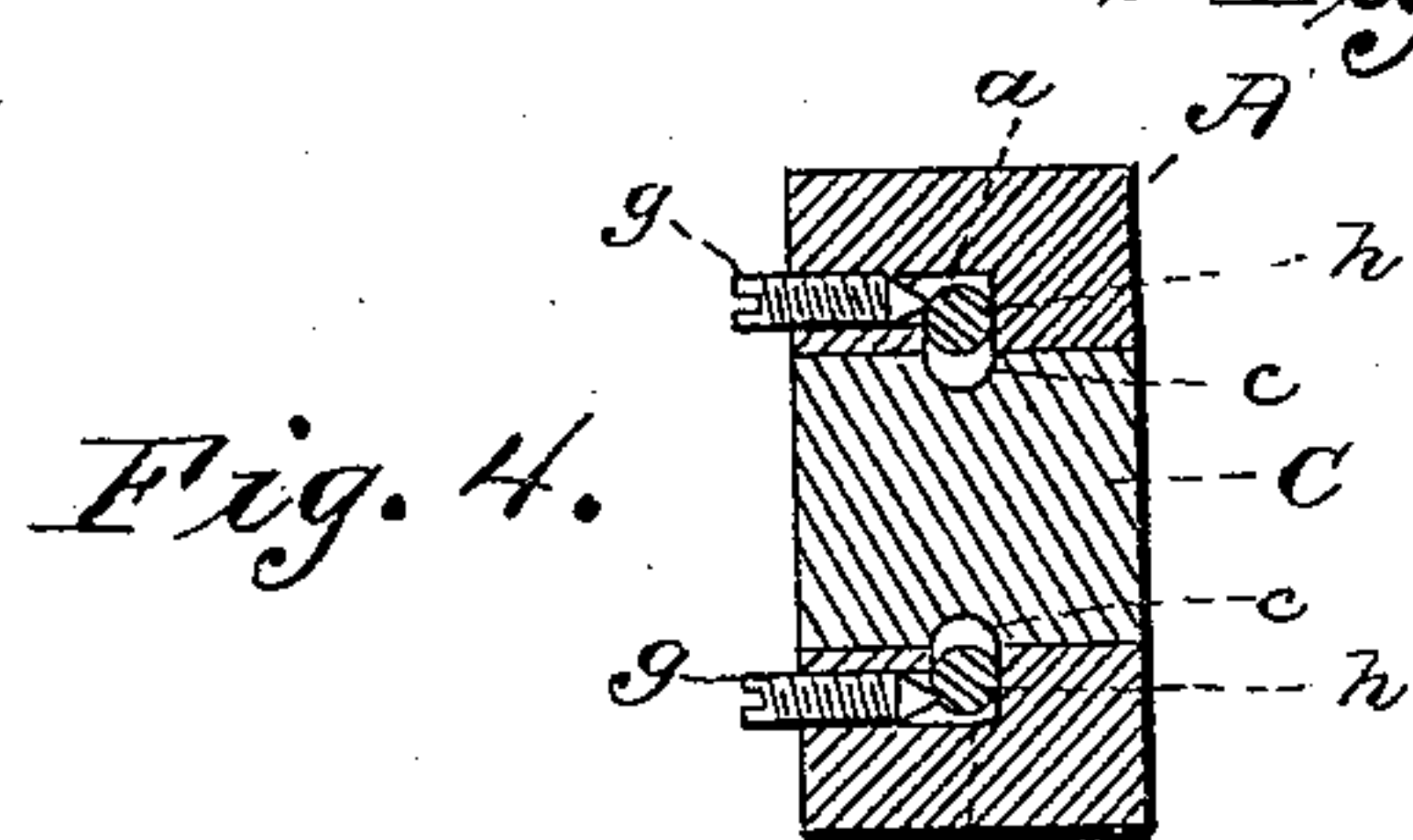
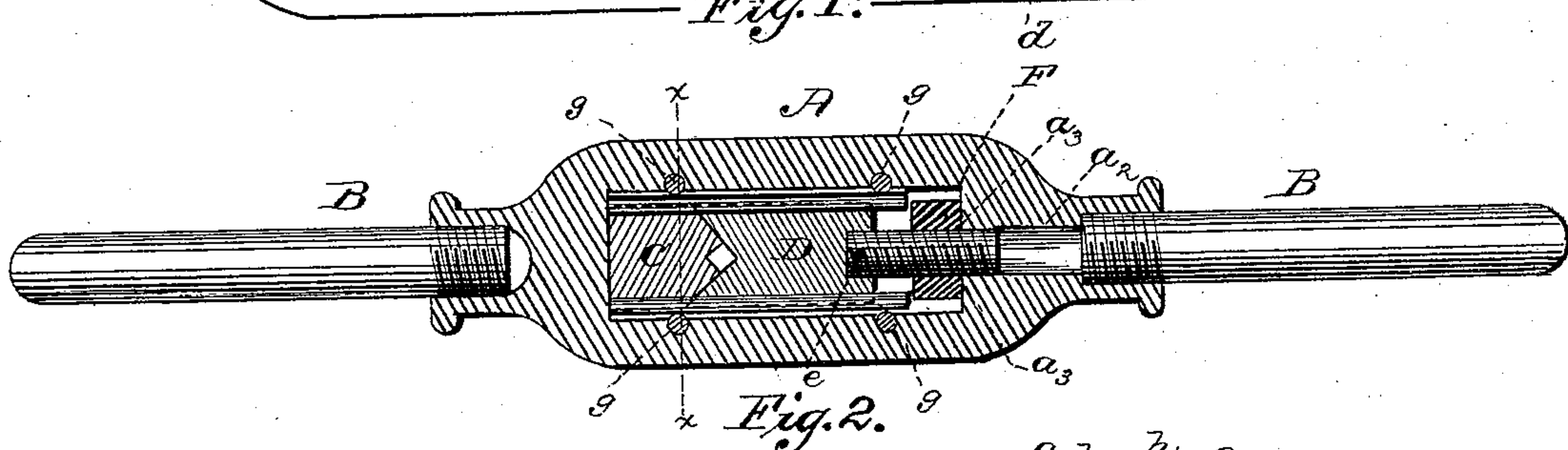
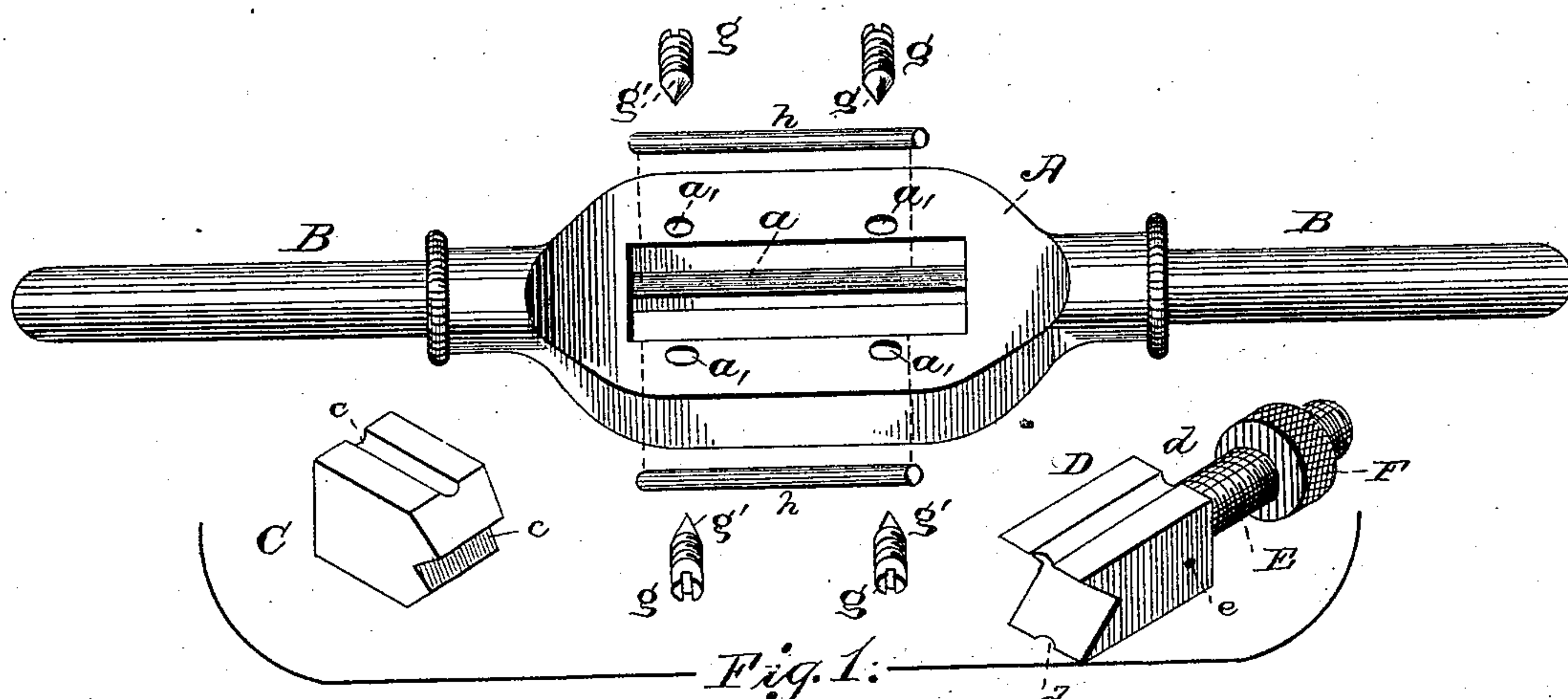


(No Model.)

A. J. SMART.
TAP WRENCH.

No. 455,859.

Patented July 14, 1891.



Witnesses
M. B. Harris
J. C. Wilson

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UNITED STATES PATENT OFFICE.

ALBERT J. SMART, OF GREENFIELD, MASSACHUSETTS, ASSIGNOR TO THE
WILEY & RUSSELL MANUFACTURING COMPANY, OF SAME PLACE.

TAP-WRENCH.

SPECIFICATION forming part of Letters Patent No. 455,859, dated July 14, 1891.

Application filed March 7, 1891. Serial No. 384,128. (No model.)

To all whom it may concern:

Be it known that I, ALBERT J. SMART, a citizen of the United States, residing at Greenfield, in the county of Franklin and State of Massachusetts, have invented certain new and useful Improvements in Tap-Wrenches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to adjustable wrenches; and it has for its object the providing of strong and enduring tap-wrenches which may be readily adjusted.

The advantages of my improved wrench will be understood by reference to the accompanying drawings, wherein the same parts are indicated by the same letters.

Figure 1 represents a perspective view of the wrench-stock with parts ready for assembling. Fig. 2 represents a longitudinal section of the same. Fig. 3 represents the tool with the parts in place and ready for use. Figs. 4 and 5 represent sections along the line $x x$ of Figs. 2 and 3 and showing my method of adjusting the spline-rods.

A represents the wrench-stock, having a rectangular recess in the center bounded by vertical walls. In the side walls grooves a are provided, said grooves having a depth somewhat greater than the diameter of the spline-rods h . On one side of the stock and above the said scores I have screw-threaded holes a' , two or more on each side. One end of the stock has a chamber a^2 , greater in width and depth than the diameter and length of the screw E. This chamber has a shoulder or bearing-surface a^3 around its mouth. The handles B are screwed in or otherwise secured to the stock A.

C and D are two blocks forming the jaws of the wrench. Both of the said blocks fit snugly in the rectangular recess in the stock. Both may be moved longitudinally in the said recess; but when in use one C bears against the vertical wall at one end of the said rectangular recess, while the other D is moved backward or forward, and is adjusted at the proper distance from C by the nut F on the screw E. This screw E is firmly attached to

the base of the block D, as by the pin e , and enters freely the cavity a^2 . It will be seen that the walls of the stock support all the various wrenching strains on the blocks C and D; but in order to keep the said blocks from dropping out of the said recess and at the same time to allow them free motion longitudinally, as well as to retain the nut F in place, I have provided spline-rods h , which are adjusted as follows: These spline-rods, being in less diameter than the depth of the grooves a , are placed in the said grooves before the blocks C and D are placed in the stock, away from the end having the chamber a^2 , and the said blocks can then be easily inserted. After the spline-rods and blocks are in the screws g , with conical points g' , are screwed into the holes a' . The points g' , entering the cavities a^2 behind the centers of the spline-rods, wedge the said rods outward until they partly or wholly occupy the grooves c and d in the blocks C and D, respectively. In this way the spline-rods furnish longitudinal guides for the said blocks and prevent their up-and-down motion. By having the spline-rods shorter than the groove a by the length of the nut F and placing them away from the end of the stock having the cavity a^2 when the said spline-rods are forced out by the screws g their ends will engage the face of the said nut, and, keeping it between the said ends and the interior face of the stock, will hold it against longitudinal motion, at the same time leaving it free to revolve, thus keeping the said nut in place and rendering it possible to adjust the distance between the blocks C and D by simply turning the nut F. When the ends of the spline-rods are badly worn, the rods may readily be removed and new ones may be inserted. The ends of the grooves a in the wake of the nut should be rounded somewhat to give free motion to the nut. While I have shown the said blocks C and D as adapted for square nuts or bolt-heads, it will readily be seen that with slight modifications they may be used for hexagonal or other shapes. It will also be seen that while the chamber a^2 should be slightly larger in diameter than the screw E the exact shape of said chamber is immaterial.

Having thus described my invention, what

I claim, and desire to secure by Letters Patent of the United States, is—

1. In a tap-wrench, the combination, with a stock having a rectangular recess with four vertical walls, parallel scores in the two parallel side walls, greater in diameter and depth than the spline-rods, and bolt-holes over the said scores, of two adjustable jaw-blocks fitting in the said rectangular recess, said blocks having side scores registering with the scores in said stock, spline-rods fitting partly within the said scores in the jaw-blocks and partly with said scores in the stock, and screws or bolts having conical points entering the said scores in the stock behind the said spline-rods, substantially as described.

2. In a tap-wrench, the combination, with the stock A, having a rectangular recess therein with four vertical walls, and scores a and a^2 and holes a' , of the jaw-blocks C and D, having side scores c and d , the spline-rods h , and the screws g , having conical points g' , substantially as described.

3. In a tap-wrench, the combination, with a stock having an interior recess with parallel side walls, a chamber at one end of the said recess, and a shoulder surrounding the mouth of the said chamber, of a jaw-block moving longitudinally between the said parallel side walls, a screw attached to the base of said block, smaller in diameter than the said chamber in the stock, and a nut on the said screw adapted to bear against the shoulder surrounding the mouth of said chamber, substantially as described.

4. In a tap-wrench, the combination, with the stock A, having a rectangular recess therein, and a chamber a^2 , with shoulder a^3 at one end of said recess, of the jaw-block D, sliding in said recess and held therein by suitable guides, the screw E, attached to the said jaw-block and freely entering the said chamber a^2 , and the nut F, engaging said screw

and bearing against the shoulder a^3 , substantially as described.

5. In a tap-wrench, the combination, with a stock having a recess therein, with parallel side walls, parallel grooves in the said side walls, screw-holes penetrating into the said grooves, and a chamber at one end of the stock between the said grooves, with a shoulder surrounding the entrance thereto, of a jaw-block inserted in the said recess, having grooves registering with the grooves in said side walls, screws fitting in said screw-holes in the stock, spline-rods held by said screws partly within said grooves in the stock and partly within said grooves in the block, a screw attached to said jaw-block and entering freely said chamber in the stock, and a nut on said screw held against longitudinal motion between the ends of said spline-rods and the shoulder surrounding the entrance to said chamber, substantially as described.

6. In a tap-wrench, the combination, with the stock A, having a rectangular recess therein and vertical side walls, with horizontal grooves a in said walls, the screw-holes a' , penetrating said grooves, and the chamber a^2 and shoulder a^3 at one end of said recess, of the jaw-blocks C and D, having grooves c and d , registering with the grooves a , the spline-rods h , shorter and less in diameter than said grooves, the screws g , entering said grooves behind said spline-rods, the screw E, attached to the jaw-block D and entering freely into the chamber a^2 , and the nut F, turning on the said screw E and held against longitudinal motion between the shoulder a^3 and the ends of the spline-rods, substantially as described.

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

ALBERT J. SMART.

Witnesses:

GEORGE A. PAULL,
WILLIAM S. ALLEN.