

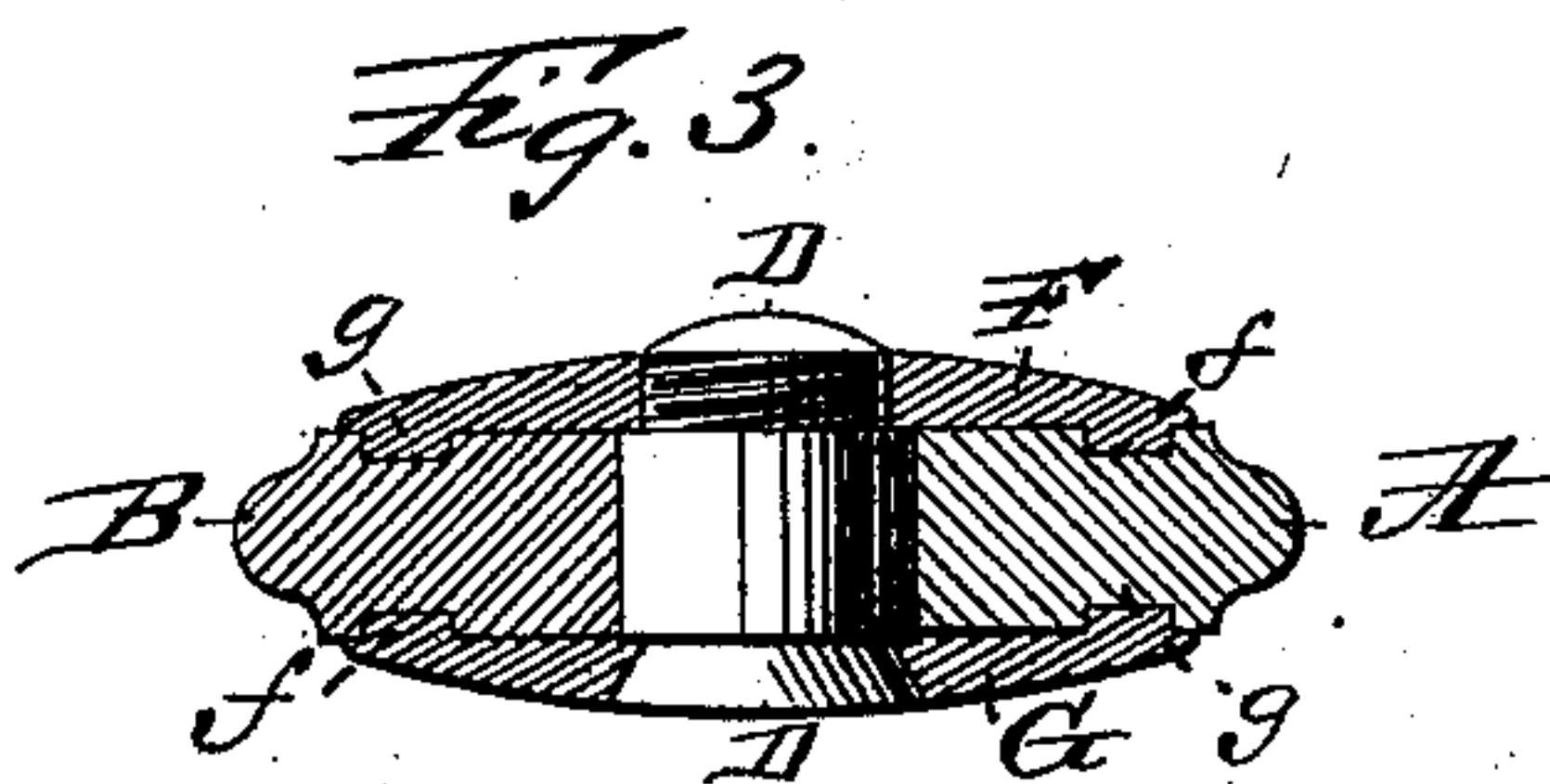
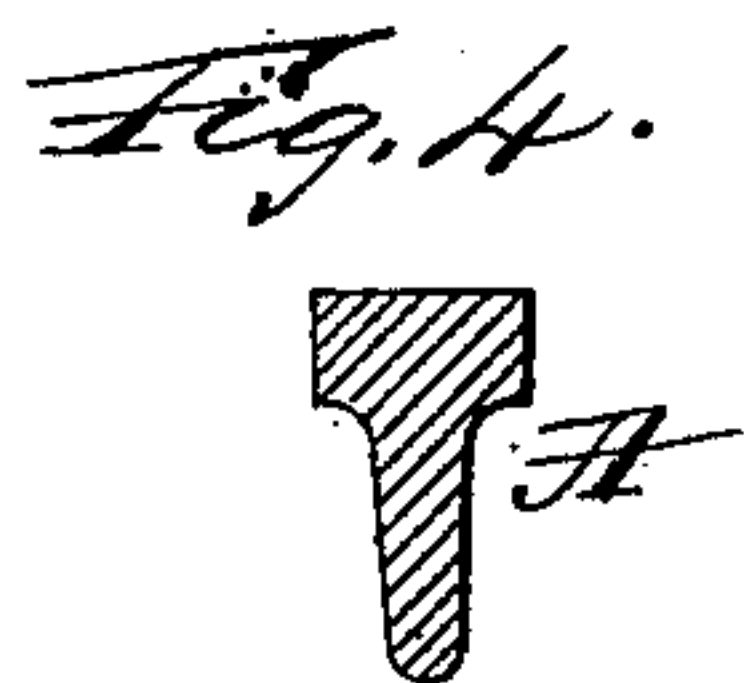
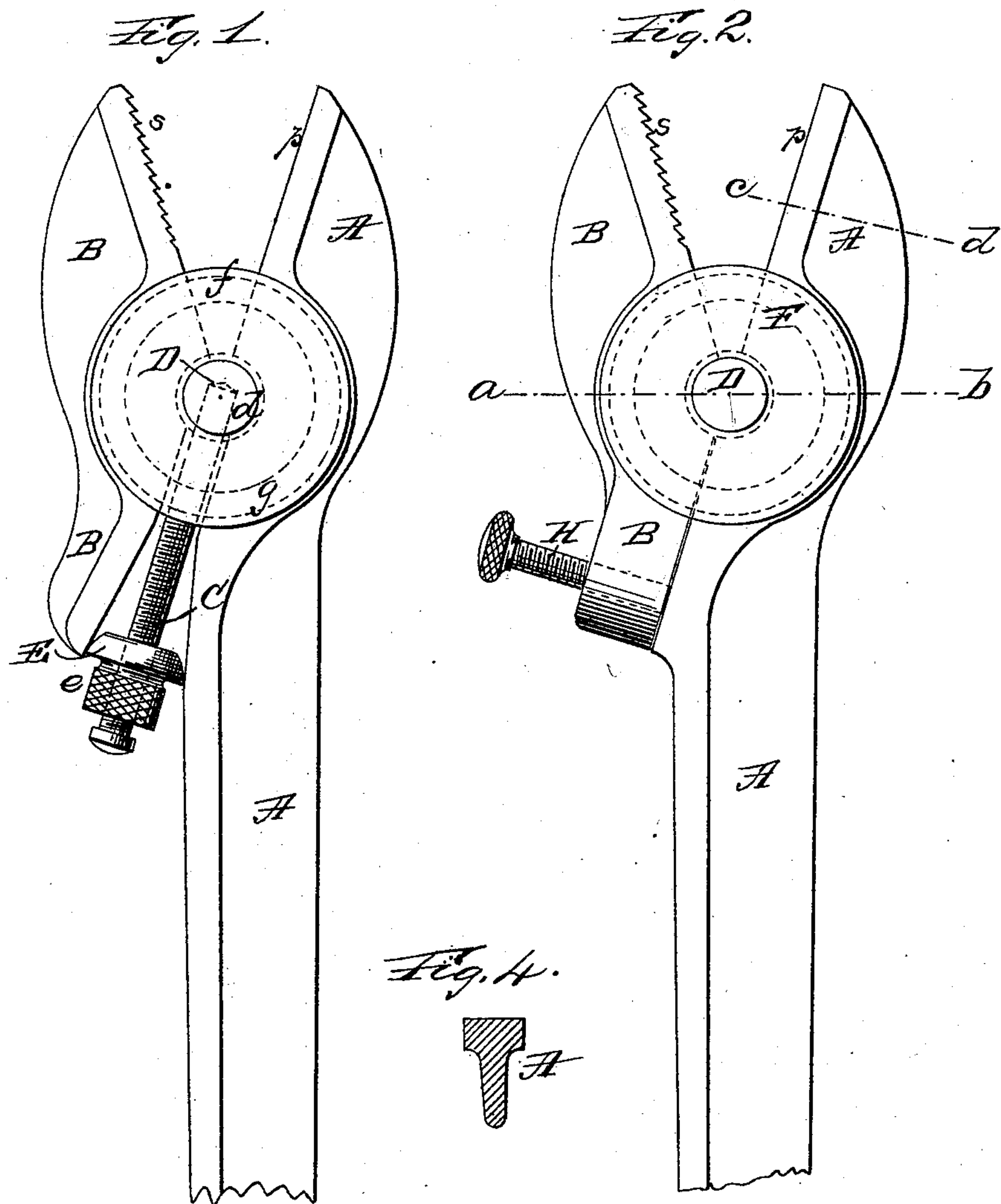
(No Model.)

2 Sheets—Sheet 1.

E. S. BOYNTON.
ADJUSTABLE WRENCH.

No. 364,749.

Patented June 14, 1887.



Witnesses.
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Francis Reilly.

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(No Model.)

2 Sheets—Sheet 2.

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Fig. 5.

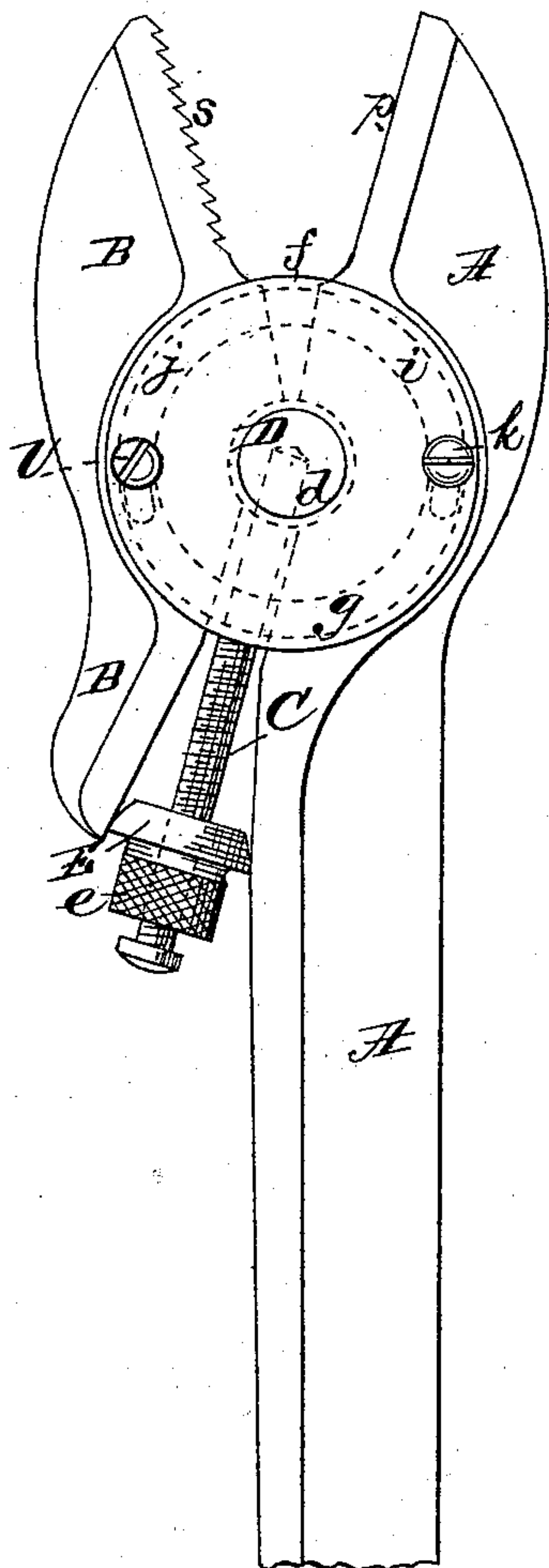
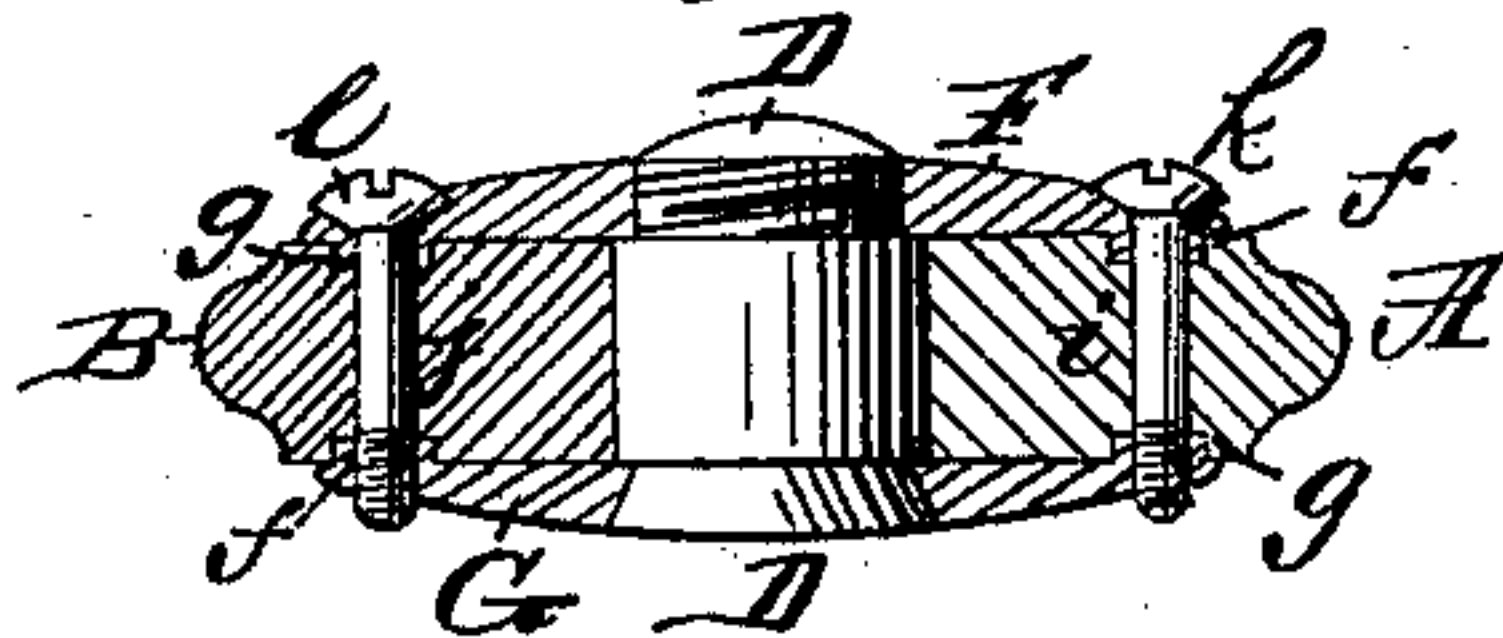


Fig. 6.



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UNITED STATES PATENT OFFICE.

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ADJUSTABLE WRENCH.

SPECIFICATION forming part of Letters Patent No. 364,749, dated June 14, 1887.

Application filed October 1, 1886. Serial No. 215,062. (No model.)

To all whom it may concern:

Be it known that I, EDWARD S. BOYNTON, of the city of New York, in the county and State of New York, have invented a new and useful Improvement in Adjustable Wrenches of the type known as "alligator-wrenches," which invention is fully set forth and illustrated in the following specification and accompanying drawings.

10 The object of this invention is to provide an adjustable wrench of cheap construction for holding or rotating pipes, bolts, rods, or similar cylindrical-shaped objects which are generally provided with or united by screw-threads, which wrench shall be of great strength and durability, while of but little thickness, if desired, and which shall have a readily removable and renewable jaw, if, from any cause, the same shall have become injured or broken.

20 The invention consists of an adjustable wrench having one fixed and one movable jaw, united and operated as hereinafter particularly described.

In the accompanying drawings, Figure 1 illustrates a side view of my improved wrench. Fig. 2 illustrates a side view of the same, showing a modification of the means adopted in Fig. 1 for adjusting the spread of the jaws, in Fig. 2 a simple thumb-screw being employed and in Fig. 1 a rotary progressive nut or wedge. Fig. 3 illustrates a cross-section of the wrench, taken at the line *a b*, Fig. 2. Fig. 4 illustrates a section through the fixed jaw, taken at the line *c d*, Fig. 2. Figs. 5 and 6 illustrate the wrench in side view and cross-section, respectively, showing a modification of the method of uniting the jaws.

In said figures the several parts are indicated by letters, as hereinafter described.

40 A is the fixed jaw, prolonged into a handle; B, the movable jaw; C, a radial screw-threaded bolt tapped into or otherwise secured in the rivet D, as indicated by the dotted lines at *d*; E, a circular or conical wedge-nut tapped out and entered on the bolt C, and adjustable thereon like a thumb-screw by its milled head *e*; F G, disks or washers provided with annular ribs or rings *f*, which match and fit into corresponding annular grooves, *g*, said rings and grooves being accurately fitted together as true circles, somewhat less than one-half of

their circumferences always being in each respective jaw, as more clearly shown by the dotted dividing-lines of the jaws in Figs. 1 and 5, the ribs and grooves *f g* being also shown in dotted circles in said figures as in plan. In Fig. 3 said grooves and ribs are clearly shown in cross-section through their diameters, the rivet D being uncut and provided with screw-threads on one end, on which the disk F is screwed instead of riveted, as is the other disk, G, though either disk may be either riveted by or screwed on the pin D. Said pin makes an easy fit in each of the two jaws, which, when put together, present a hole or eye for the insertion of the pin, one half the eye being cut or bored out of one jaw and its other half out of the other jaw.

In the modification shown in Figs. 5 and 6 the jaws A and B are slotted through the grooves *g g*, as indicated by the curved dotted lines *i j*, the washers F G being united by the screws *k l*, as clearly shown in Fig. 6, said screws passing through said slots. The rivet D is shown riveted to the lower washer, G, but the upper washer, F, is shown screwed to said rivet. It is evident, however, that if the modification shown in Figs. 5 and 6 be used the screws *k l* will be alone sufficient to hold the washers F G in place, and the rivet D may then be entirely omitted, if preferred, and the jaws adjusted by any suitable means. It can now be readily perceived that, so long as the disks F G are retained in their places, the movable jaw can be rotated upon the fixed jaws the desired spread or distance, its guides or "center" proper being the annular ribs and grooves *f g* in the respective jaws A B and disks F G, which said ribs and grooves must receive all the strain of the jaws when the wrench is in use and prevent any of such strain from coming upon either the central pin, D, or the screws *k l*, should the latter be used.

To provide for the adjustment of the jaws to objects of different diameters, the rear projection of the movable jaw B, Fig. 1, is inwardly beveled opposite the fixed jaw A, inwardly beveled also, sufficient space being allowed between said bevels, as shown in Fig. 1, to admit of the insertion of the adjusting-nut E and its radial bolt C, secured in the center pin, D, as hereinbefore described. It is

quite evident, therefore, that by rotating the milled head *e* of the nut *E* said nut will be advanced or withdrawn along the bolt *C*, and thus close or permit the opening of the jaws *A B*.

In Fig. 2, in which a thumb-screw, *H*, provided with a milled head is shown, the lines of the jaws in rear of their pivotal center are parallel and touch when the jaws are widest open, instead of being beveled, as shown in Fig. 1, just described.

I do not confine myself to the special modes of adjustment shown, as it is evident that the movable jaw *B* may be adjusted in many ways—as, among others, for instance, the thumb-screw *H* may be placed in and work through the fixed jaw or handle *A*, instead of in the movable jaw *B*, as shown in Fig. 2. Instead, also, of the rotary and progressive nut or cone-wedge *E*, (shown in Fig. 1,) a simple sliding wedge or inclined plane may be substituted for adjusting the jaws.

It is evident, also, that the disks *F G* may be matched to the jaws *A B* by two or more concentric rings or annular ribs and grooves, instead of by only one ring and groove in each, if preferred, and said rings or grooves may be male and female on either jaws or disks, as may be preferred.

The advantages of this improved instrument or tool may be recapitulated as follows: In all wrenches of this type heretofore constructed the strain upon the jaws when in use is brought upon the rivet uniting the jaws and in or against the eyes in which the rivet is inserted, in consequence of which the rivets are frequently sheared off or broken. In my improved wrench so much greater area of metal is brought into use to take all strain from any and all rivets or screws that shearing or break-

age of such parts is rendered impossible. The serrations *s* are put in the movable jaw, because should they in time wear or said jaw become broken it can be readily and cheaply replaced by a new one, all the other parts of the wrench being practically indestructible by any proper use of the instrument. The movable jaw *B* is also of small mass, and can be made of metal superior in quality to that composing the handle of the wrench and its smooth jaw *p*, thus reducing the total first cost of the wrench and any subsequent expense for repairs to the narrowest minimum possible.

Having thus fully described my said improved wrench as of my invention, I claim—

1. An adjustable wrench consisting of one fixed and one movable jaw united by disks or washers, said parts being ribbed and grooved to interfit and secured together, substantially as described, whereby the strain upon said jaws when in use is borne by said disks or washers, substantially as and for the purposes set forth.

2. An adjustable wrench consisting of grooved jaws, one fixed and one movable, united by ribbed disks or washers, and a central pin, substantially as and for the purposes set forth.

3. An adjustable wrench consisting of the following-named elements in combination: one fixed and one movable jaw, pivotal washers united to said jaws by interfitting ribs and grooves, a central pin, and an adjusting screw or wedge operated to open or close said jaws, substantially as and for the purposes set forth.

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