No. 751,481. PATENTED FEB. 9, 1904.

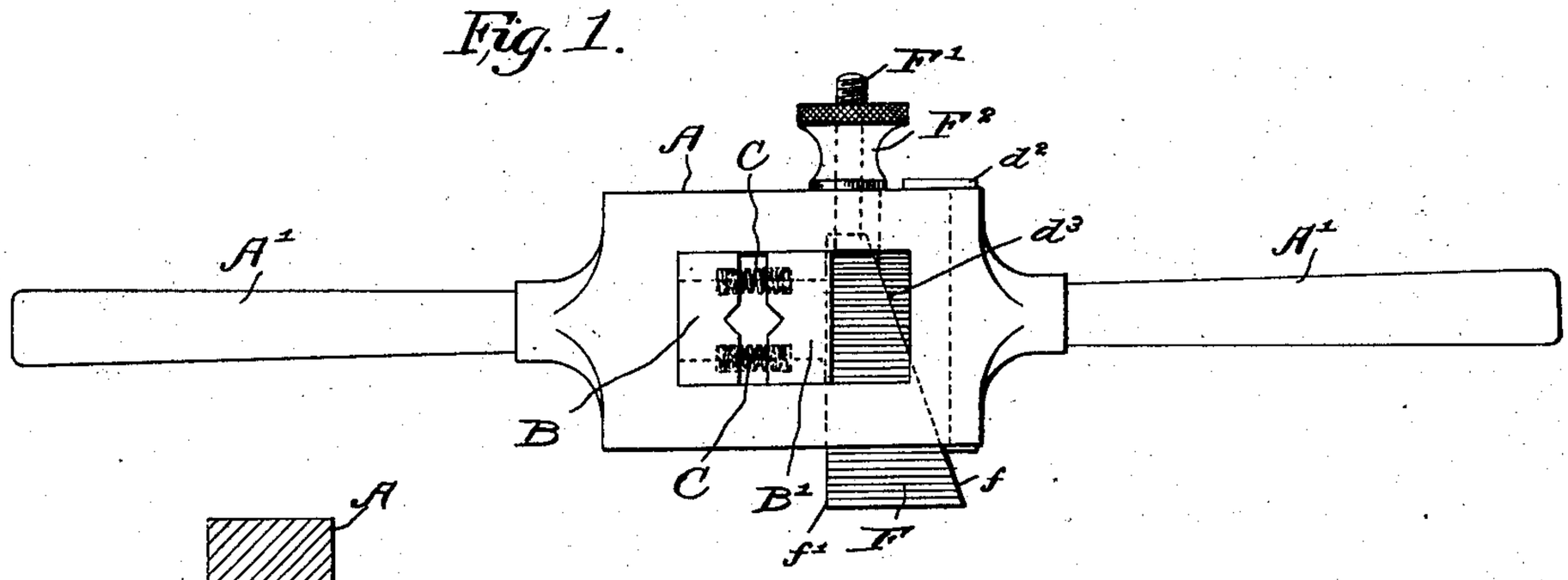
F. A. DRURY.

WRENCH.

APPLICATION FILED JAN. 15, 1903.

NO MODEL.

Fig. 1.



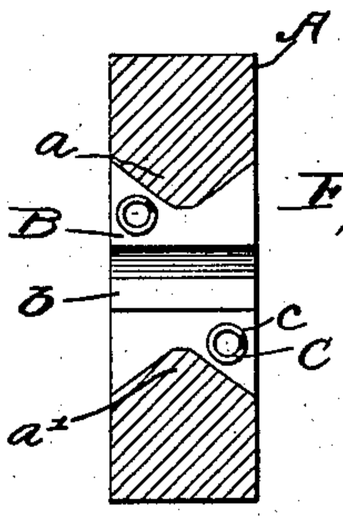


Fig. 4.

Fig. 2.

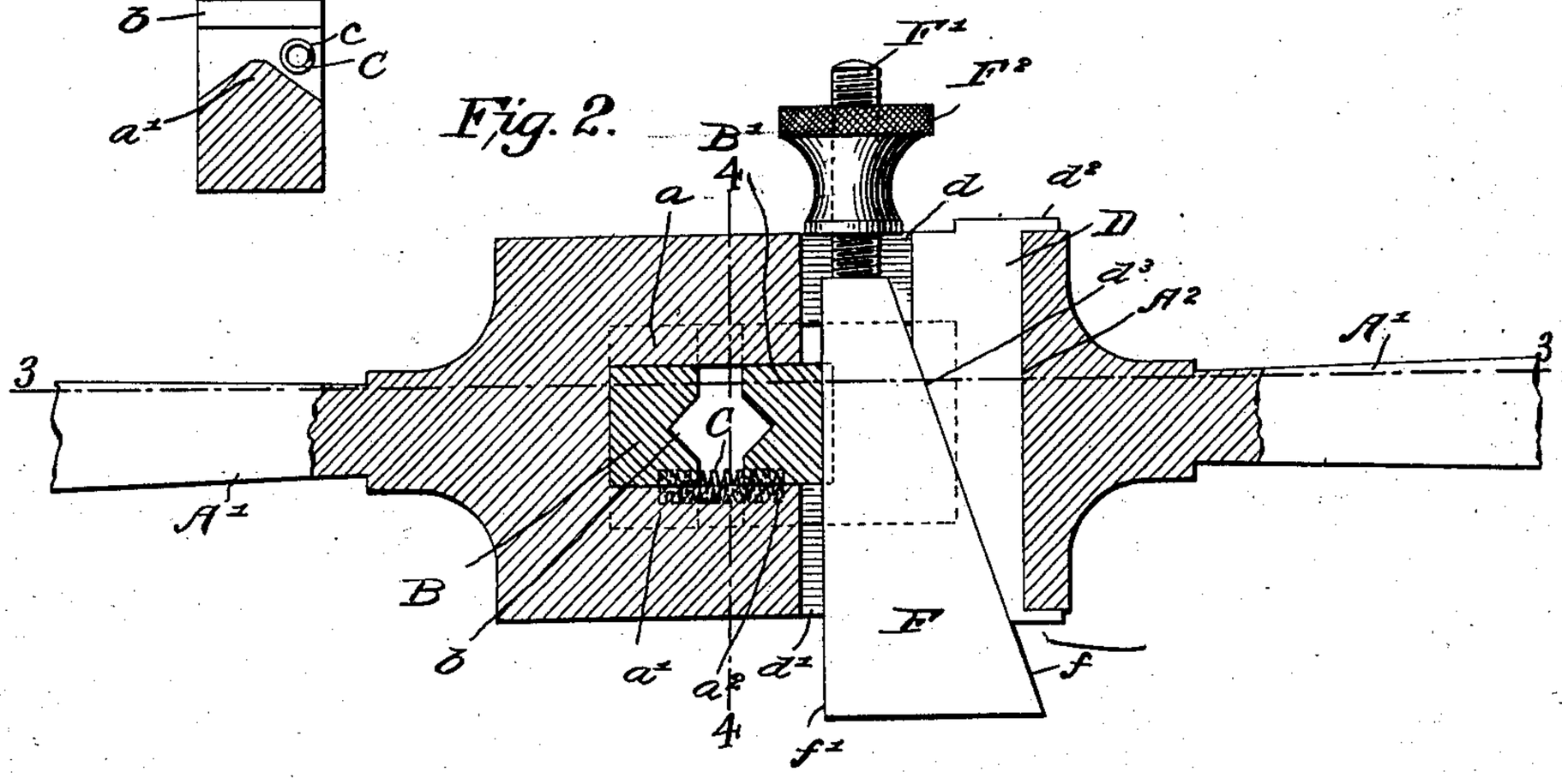
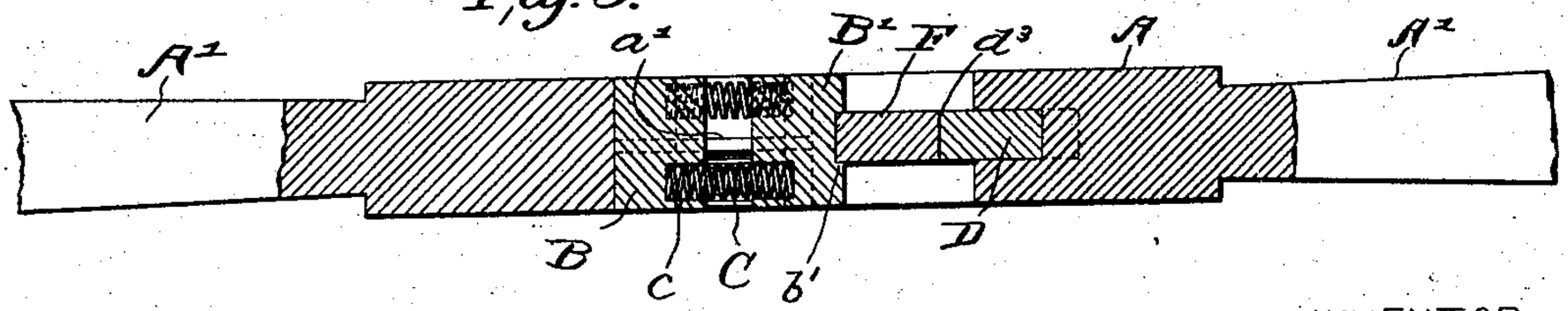


Fig. 3.



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No. 751,481. Patented February 9, 1904

UNITED STATES PATENT OFFICE.

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WRENCH.

SPECIFICATION forming part of Letters Patent No. 751,481, dated February 9, 1904.

Application filed January 15, 1903. Serial No. 139,096. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK A. DRURY, a subject of the King of Great Britain, and a resident of Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Wrenches, of which the following is a specification.

The subject of the present invention is a novel wrench which while disclosed herein as being adapted for service as a tap-wrench embodies an improved construction capable of serving in connection with the tool when used for certain other purposes.

With the above and other purposes in view the tool comprises the improved construction hereinafter explained in the subsequent detailed description and pointed out in the appended claim.

In the accompanying drawings, forming part of this specification, Figure 1 is a plan view of a tool embodying my invention in the form of a tap-wrench. Fig. 2 is an enlarged horizontal longitudinal section through the central portion of said tool. Fig. 3 is a vertical sectional view of Fig. 2, the section being taken in the plane indicated by the broken line 3 3 of said Fig. 2. Fig. 4 is a section on the line 4 4, Fig. 2.

Similar reference characters indicate corresponding parts throughout the several figures of the drawings where they occur.

The stock presents, preferably in a single piece, the rectangular body A and oppositely-extending handles A′. For the purpose of this description the broad flat sides of the head are considered as being the top and bottom, respectively, of the same. Through the body A is a vertical rectangular opening of comparatively ample dimensions. Integrally formed in the head, on the horizontal parallel sides of said opening therein, are horizontally-extending ribs a a', which are triangular in cross-section, the triangularity of both ribs being relatively reversed. These ribs extend to a point somewhat beyond the vertical center of the opening, but not the entire length of the same.

The ribs a a' constitute parallel guides for a pair of jaws B B′, which are of such size that they can be introduced within the head-opening at the locality between the abrupt ends a^2 of the guides and the opposite wall A^2 presented by the head. Side grooves in the jaws are of such contour that they correspond with the cross-sectional shape of the guides. By this arrangement the jaws can be introduced, as stated, and moved along the opening so that their grooves will be engaged by the guides and slidingly retained within the head-opening, as indicated in the drawings. Angular notches b in the inner opposite faces permit said jaws when suitably moved toward each other to conjointly present an opening for the reception of the appropriately-shaped shank of a tap or other tool. In their opposite faces near both sides the jaws are provided with a plurality of alined recesses c, the pairs being in relatively different vertical planes. Seated in each pair of recesses are the ends of a coiled expanding-spring C.

That portion of the head-opening which is between the guide ends a^2 and the wall A^2 is intersected by lateral slots d d', extending through the parallel side portions of the head.

A thin metal section D, having correspondingly-extending end lips d^2 on one edge, is adapted to constitute a gib by being introduced in the slots d d' and the head-opening and moved back so that one edge of said gib will bear against the inner face of the portion A^2 of the head, while the correspondingly-extending end lips d^2 will bear externally at each side of the same, thereby retaining the gib against lateral displacement. The inner inclined face d^3 of the gib is designed to coact with the correspondingly-disposed contiguous edge f on the wedge-shaped key F, the straight transverse edge f' of which at the opposite side being adapted to slidingly engage a transverse horizontal channel b' in the back of the adjacent jaw E′.

A threaded stem F′, rigidly extending from the smaller end of the key F, projects through one of the lateral slots d or d' and is adapted to be engaged by a thumb-nut F^2, the inner portion of which bears against the adjacent side of the head.

From the description thus far the general arrangement and functions of the novel tool

will be readily comprehended. By causing the angular portion of the shank of a tap or other tool to enter the opening presented between the notched jaws B and B′ the thumb-screw F^2 can be rotated to cause the key F to move in the direction of said screw, the co-acting inclined faces of the gib and key causing the latter through its engagement with the groove of the jaw B′ to move the same on the parallel guides in the direction of its companion, thereby resulting in the novel tool firmly clamping the tap or other shank. Manifestly the mutual contraction of the jaws, as above described, results in the compression of the interposed springs C, so that when the nut is rotated in a reverse direction and the key moved opposite to that before explained the spring will operate to automatically separate the jaws and release their clamping action on the tool-shank.

By locating the springs in the sides of the jaws in different vertical planes the desired expanded effect of the said springs is insured without occasioning the weakening of the metal jaws, as might be the case were the spring-bearings located in the same horizontal plane.

It will be obvious that by equipping the sections forming the jaws at their inner opposite faces with cutting edges or ribs said sections will be converted into dies and the novel tool thereby be adapted for use in cutting threads.

The stock of this novel tool, which includes the head and the handles, can be readily and cheaply produced in the form of malleable-steel castings, and the other parts can be conveniently made and adjusted in position.

In practice the back edges of both jaws B and B′ may have transverse horizontal grooves, so that there will be no special necessity for any particular observance of their order of introduction in position.

The novel tool is comparatively simple, extremely durable, and highly serviceable for use in a variety of applications.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The within-described tool comprising a handled head with a rectangular opening, the portions forming the sides whereof extend to both parts forming the end walls of the opening, said sides having ribs within the opening extending from one end wall and abruptly terminating some distance from the other end wall, said sides being slotted between such abrupt ends and contiguous end wall, jaws for lateral introduction between the abrupt ends and proximate end wall, and grooved for longitudinal engagement with the ribs, said jaws having companion pairs of recesses at opposite sides, one pair of recesses being in a different vertical plane than that of the other pair, and longitudinally-disposed expanding-springs interposed between the jaws and having their ends seated in the recesses, a gib having its ends within the slotted sides and bearing against the adjacent wall, the ends of said gib having lips engaging the end surfaces of said wall, and a wedge-shaped key, also having its ends within the slotted sides, said key bearing against the gib and adjacent jaw, a threaded stem integral with the smaller end of the key and projecting through and beyond the contiguous slotted side, and an adjusting-nut engaging said stem and bearing against the outer surface of said side.

Signed at New York, in the county of New York and State of New York, this 26th day of December, A. D. 1902.

F. A. DRURY.

Witnesses:
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