

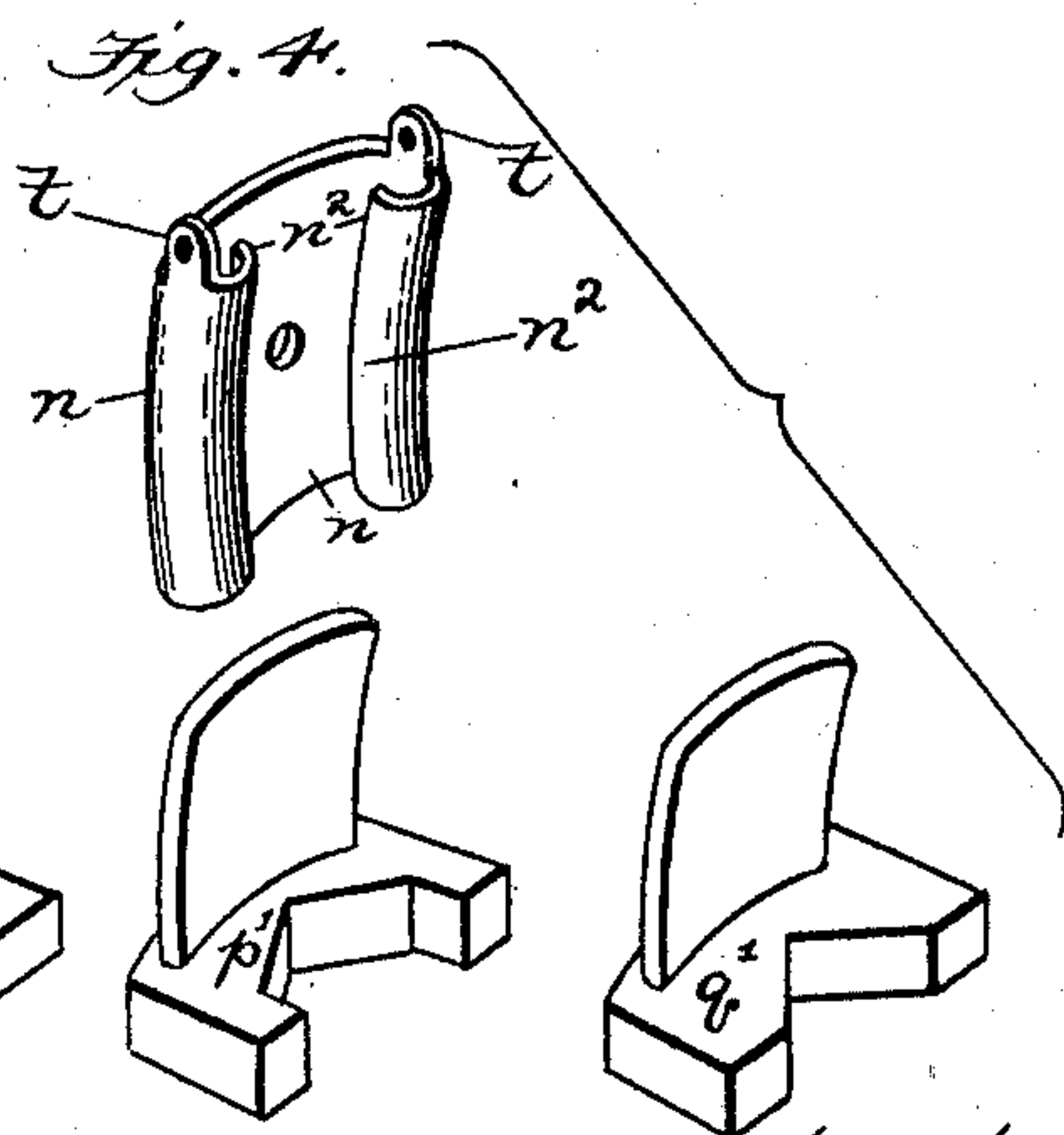
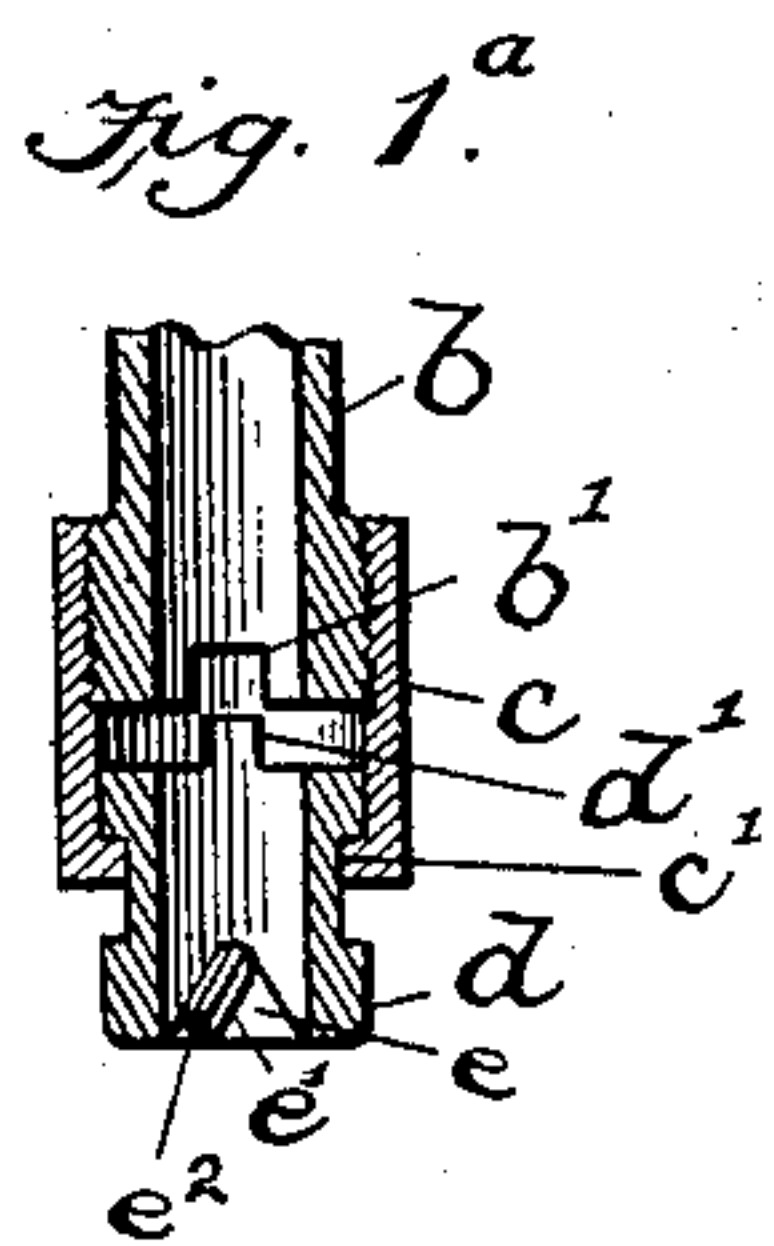
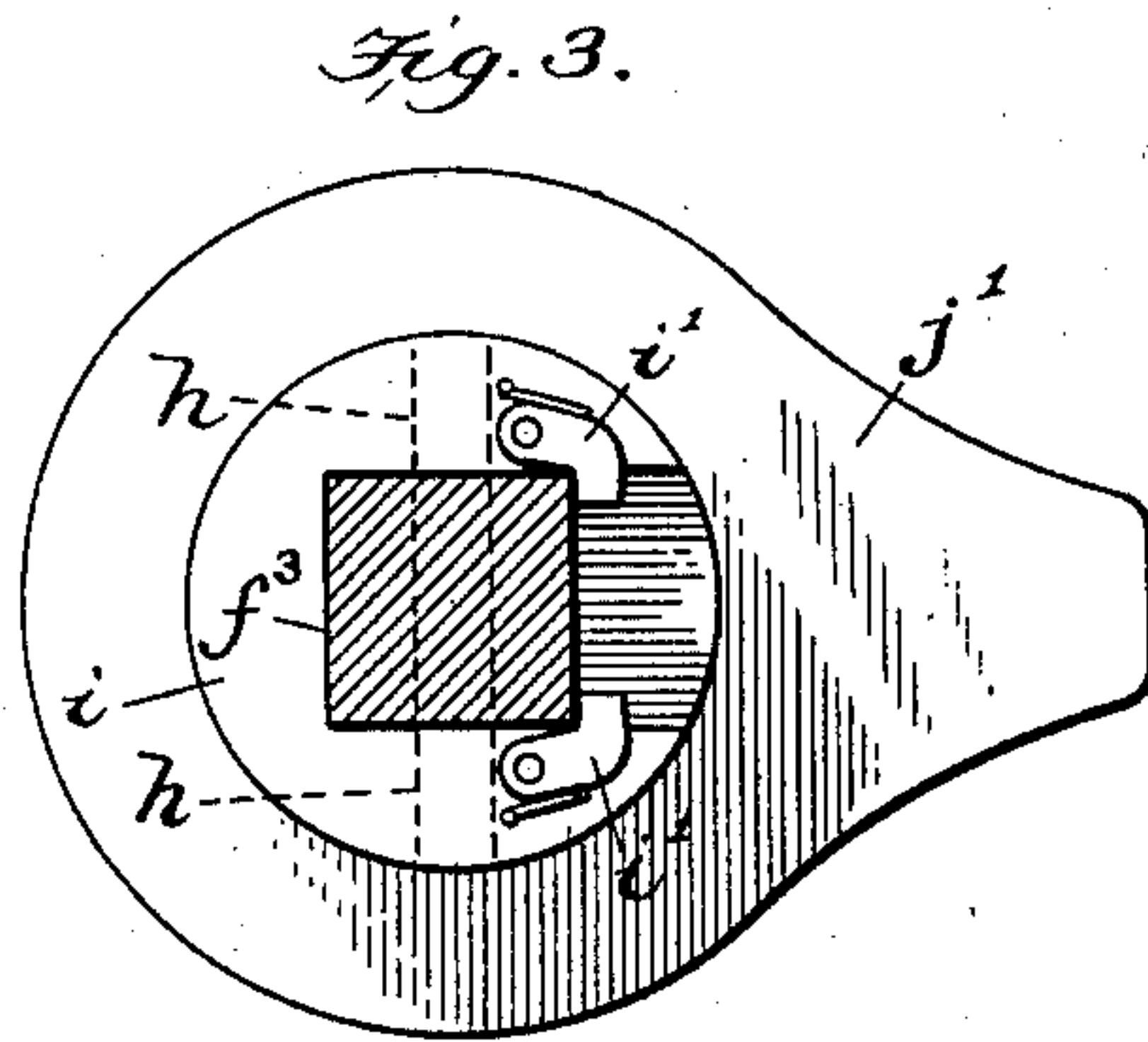
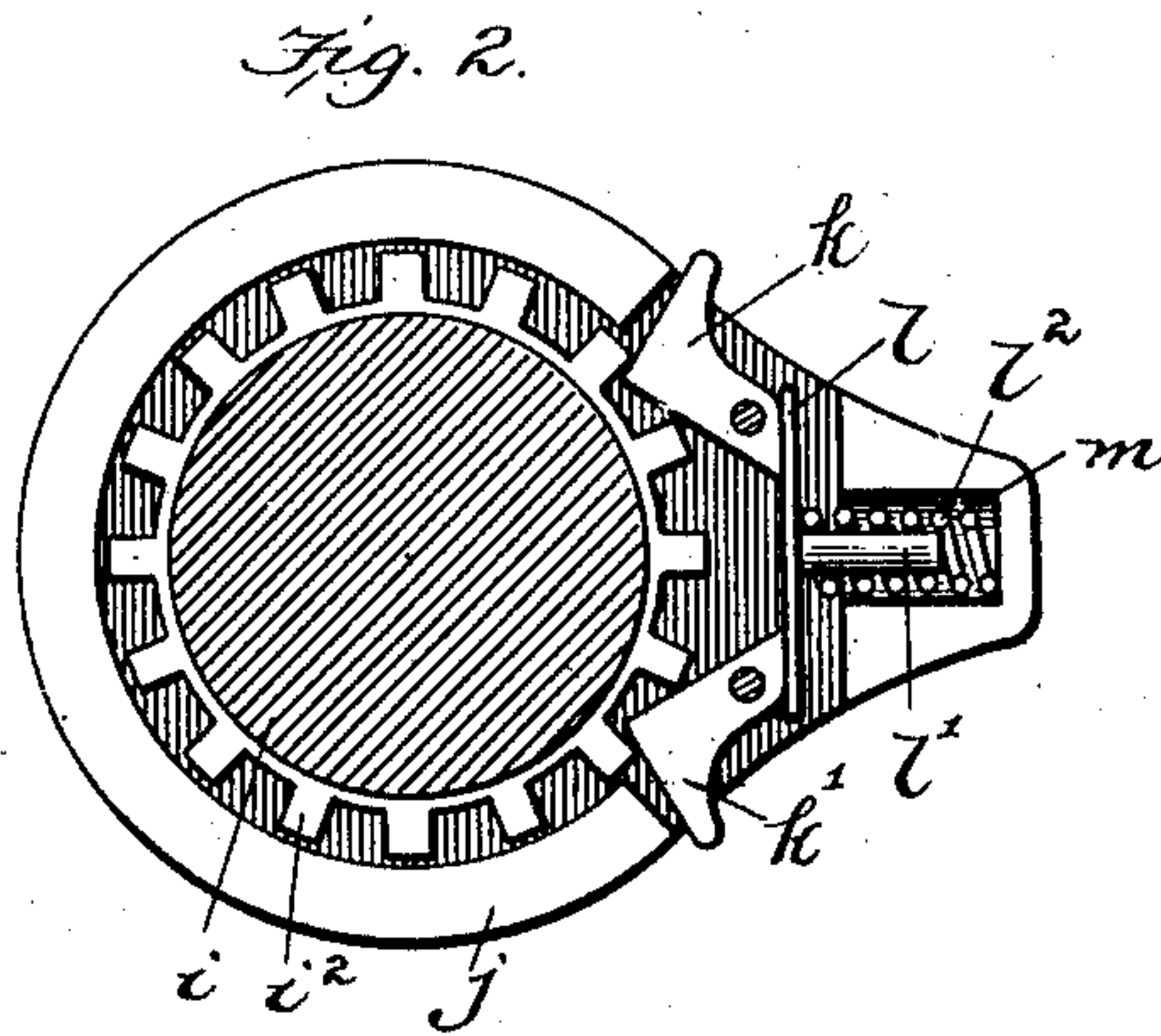
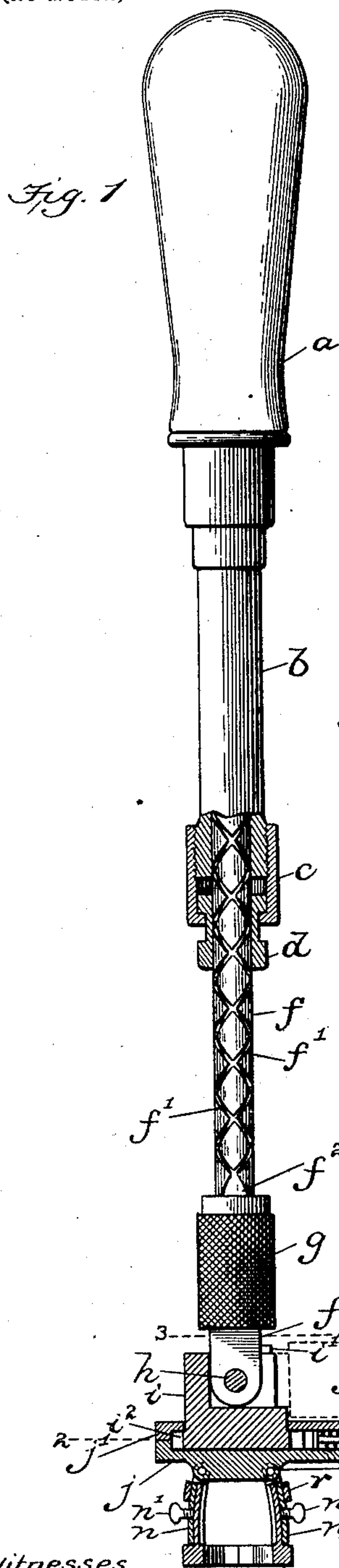
No. 711,233.

Patented Oct. 14, 1902.

M. SCOTT.
WRENCH.

(Application filed Feb. 17, 1902.)

(No Model.)



Witnesses
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MELVILLE SCOTT, OF SIMPSONVILLE, MARYLAND.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 711,233, dated October 14, 1902.

Application filed February 17, 1902. Serial No. 94,409. (No model.)

To all whom it may concern:

Be it known that I, MELVILLE SCOTT, a citizen of the United States, residing at Simpsonville, in the county of Howard and State of Maryland, have invented certain new and useful Improvements in Wrenches, of which the following is a specification.

This invention is an improvement in ratchet-wrenches; and its object is to provide an improved spiral ratchet-wrench with a handle jointed or pivoted and arranged so that it can operate the wrench-jaws with a longitudinal reciprocating movement in alinement with the longitudinal plane of the jaws and also operate the wrench-jaws by a back-and-forth swinging movement when it is held at approximate right angles to the longitudinal plane of the jaws.

The invention consists of certain constructions, arrangements, and combinations of the parts hereinafter fully described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of my improved wrench with parts in section to better illustrate the construction. Fig. 1^a is a detail sectional view illustrating the pawl mechanism of the handle. Fig. 2 is a horizontal sectional view, on an enlarged scale, taken on the line 2 2 of Fig. 1. Fig. 3 is a similar view taken on the line 3 3 of Fig. 1. Fig. 4 embraces four parts and illustrates in detail one of the pivoted jaw-holders of the wrench in juxtaposition to three jaws of different size adapted to be secured therein.

The wrench, as shown in Fig. 1, has a hand-grasp *a*, to which is secured one end of a tubular casing *b*, the other end of said casing being provided with a collar *c*, having an intumed flange *c'*, and a sleeve *d* is mounted with a limited independent movement in said collar, being retained therein by said intumed flange, and is provided at its upper end with a clutch-lug *d'*, adapted to enter a recess *b'* in the adjacent end of the said tubular casing *b*, whereby the said loose sleeve may be coupled rigidly to said casing.

In the lower end of the sleeve *d* is a cavity *e*, and a rocking pawl *e'* is pivoted in said cavity and is adapted to swing from one side to the other in order that its flange *e²* may take in either of the two oppositely-winding

spiral grooves *f'* of a shaft *f*, which is mounted to move in and out of the said tubular casing *b*, and the two opposite spiral grooves *f'* meet at their lower ends in an enlarged recess *f²*. By this arrangement of parts the shaft *f* may be rotated in either direction by pressing down on the hand-grasp *a* to force the shaft into the casing. As the hand-grasp and casing are withdrawn from the shaft *f* preparatory to repeating the operation the projection *d'* on the sleeve is withdrawn from the recess *b'* in the tubular casing, thereby permitting the said sleeve to loosely rotate without affecting the shaft.

To reverse the motion of the shaft, the pivoted pawl *e'* on the sleeve is caused to enter the recess *f²* at the lower ends of said spiral grooves *f'*, whereupon a partial rotation of the casing *b* with respect to the shaft will tilt the pawl to the other side, so that its flange *e²* will be brought against the opposite side of the said recess, which position will enable it to engage the other groove. A finger hold or grasp part *g* is rotatably mounted on the said shaft *f*, and the end of said shaft below said finger-hold is square, as shown at *f³*, and is provided with two opposite-extending pintles *h*, which have bearing in a head *i*, having a circular portion provided with ratchet-teeth *i²*.

The lower surface of the circular head *i* is flat and abuts against the flat surface of a pawl-casing *j*, which latter is rotatably held to the said head by an inwardly-flanged cover-plate *j'*, taking over the said ratchet-teeth *i²*. Two pawls *k k'* are mounted in said pawl-casing *j* and engage the ratchet-teeth *i²* and are pressed upon by a T-shaped follower *l*, whose shank *l'* is encircled by a spiral spring *l²* in a recess *m* in said pawl-casing, whereby said follower may hold either or both pawls into engagement with said ratchet-teeth, according as it is desired to turn the pawl-casing to the left or right, or to hold it locked from movement with respect to the circular head *i*. To the lower face of said pawl-casing *j* two jaw-holders *n* are secured by hinges or ears *t*, each holder being provided at its side edges with inwardly-turned flanges *n²*, adapted to receive the shank of a jaw. In Fig. 1 the two jaws are designated *o o'*. While the jaw-holder *n* may receive only one size jaw-shank, different-sized jaws may be used. This

is illustrated in Fig. 4, where jaws of three different sizes are shown, (designated, respectively, o' , p' , and q' .)

When a jaw-shank has been slipped in the holder n , it is secured to the holder by a set-screw n' . Said two jaws in the holders may be clamped together by a collar r , encircling said hinged jaw-holders, as shown in Fig. 1. The jaws to be used are selected according to the size of the nut to be screwed, and after the jaws have been secured to the holders the jaws may be tightly clamped to the nut by moving the collar r downward on the jaw-holders.

It will be seen that the herein-described wrench is capable of being operated in two different ways—first, if it is desired to reciprocate the wrench by a longitudinal movement of the handle on the spiral grooved shaft f , the last must be held in alinement with the longitudinal plane of the jaws and both of the pawls k k' are thrown into engagement with the ratchet-teeth i^2 ; second, if it desired to operate the wrench by using the handle as a lever—that is, with a swinging back-and-forth movement of the handle—the shaft f must be turned on its pivot so as to assume a position at right angles to the longitudinal plane of the jaws, and either one of the said pawls k k' is held in engagement with the ratchet-teeth i^2 .

In order to lock the shaft f with respect to its pivot or pintle h in either a vertical or horizontal position, I have provided two spring-catches i' , secured on the upper surface of the head i , each adapted to take around one corner of the shaft, as indicated in Figs. 1 and 3.

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

1. A wrench comprising jaws; a head having a rotary ratchet movement with respect to said jaws and capable of being locked rigidly therewith; and a handle jointed to said head so as to take two positions with respect thereto and provided with a spiral ratchet mechanism, as set forth.

2. A wrench comprising jaws; a casing secured to said jaws; a head revoluble in said casing and held by a ratchet mechanism; a spirally-grooved shaft jointed to said head whereby said shaft may assume two positions, that is, in alinement with said jaws or at right angles thereto; and a tubular casing in which said spirally-grooved shaft is received, said tubular casing having a pawl mechanism adapted to engage said shaft, and also having a hand-grasp, as and for the purpose set forth.

3. A wrench comprising jaws; a head having a rotary reversible ratchet movement with respect to said jaws and capable of being locked rigidly therewith; a handle jointed to said head whereby the handle may assume positions in alinement with and at right angles to said jaws and said handle being provided with a spiral ratchet mechanism; and spring-catches adapted to hold said handle in either of said positions, as set forth.

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

MELVILLE SCOTT.

Witnesses:

FREDERICK S. STITT,
CHARLES L. VIETSCH.