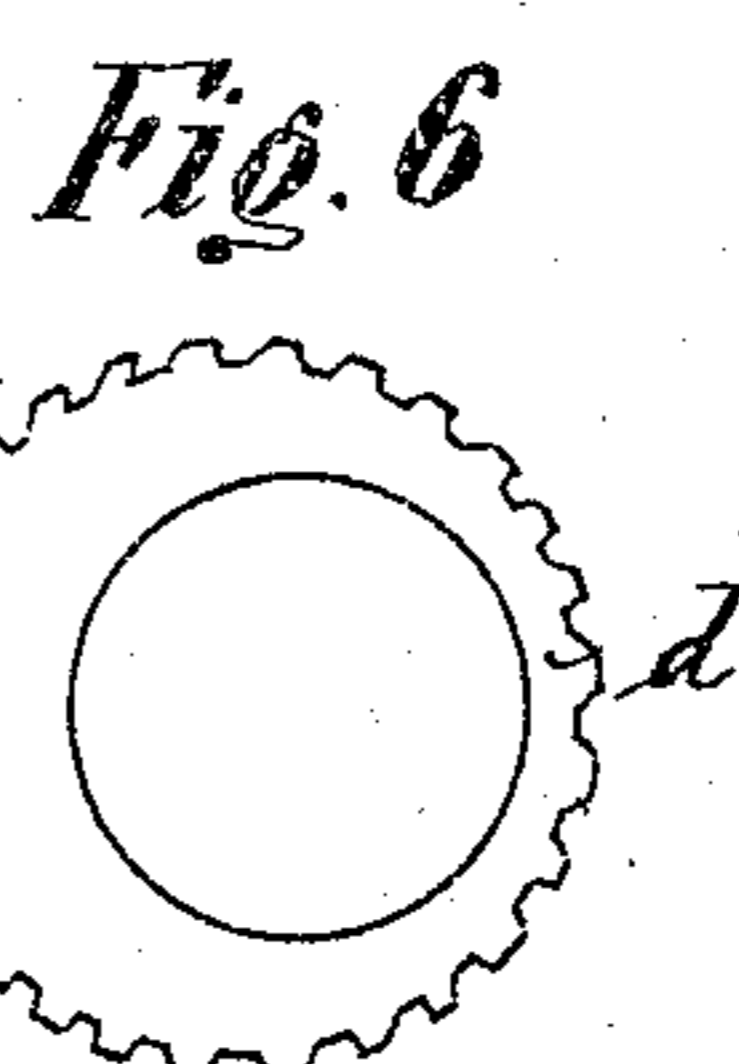
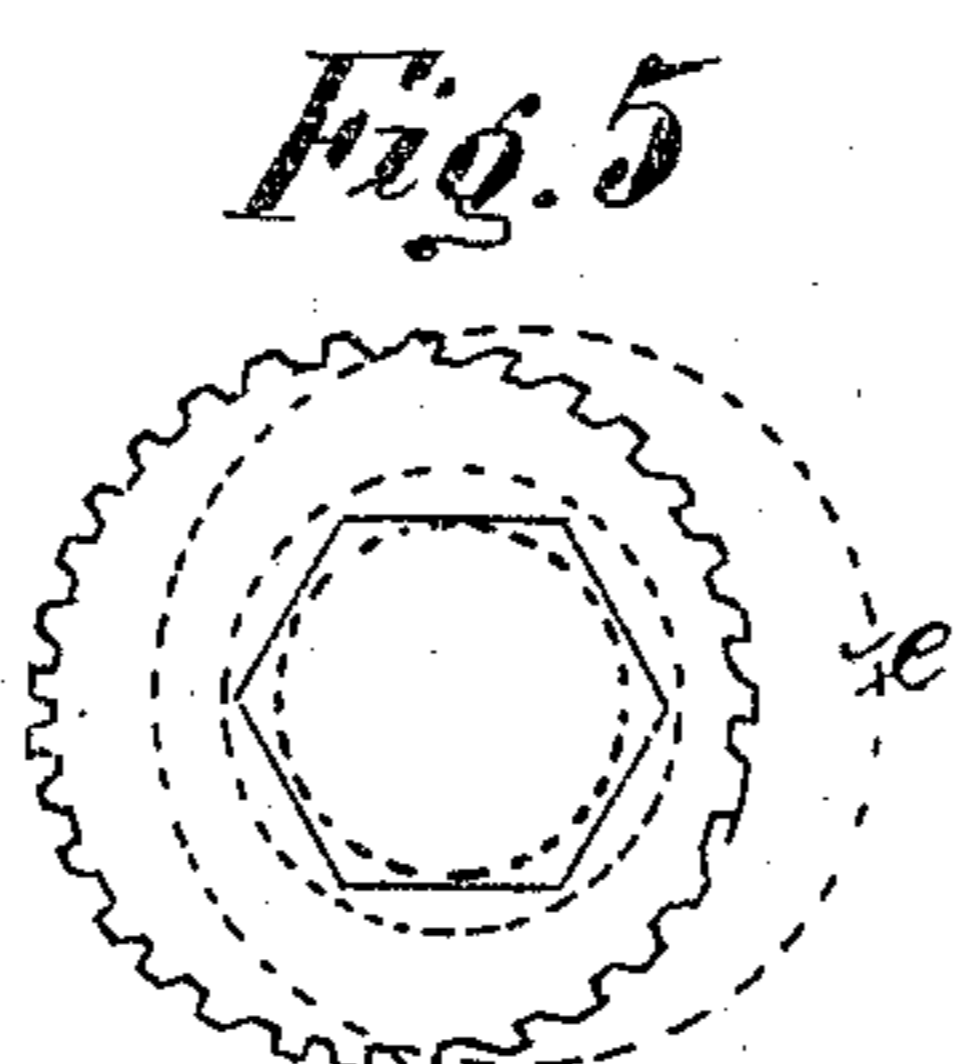
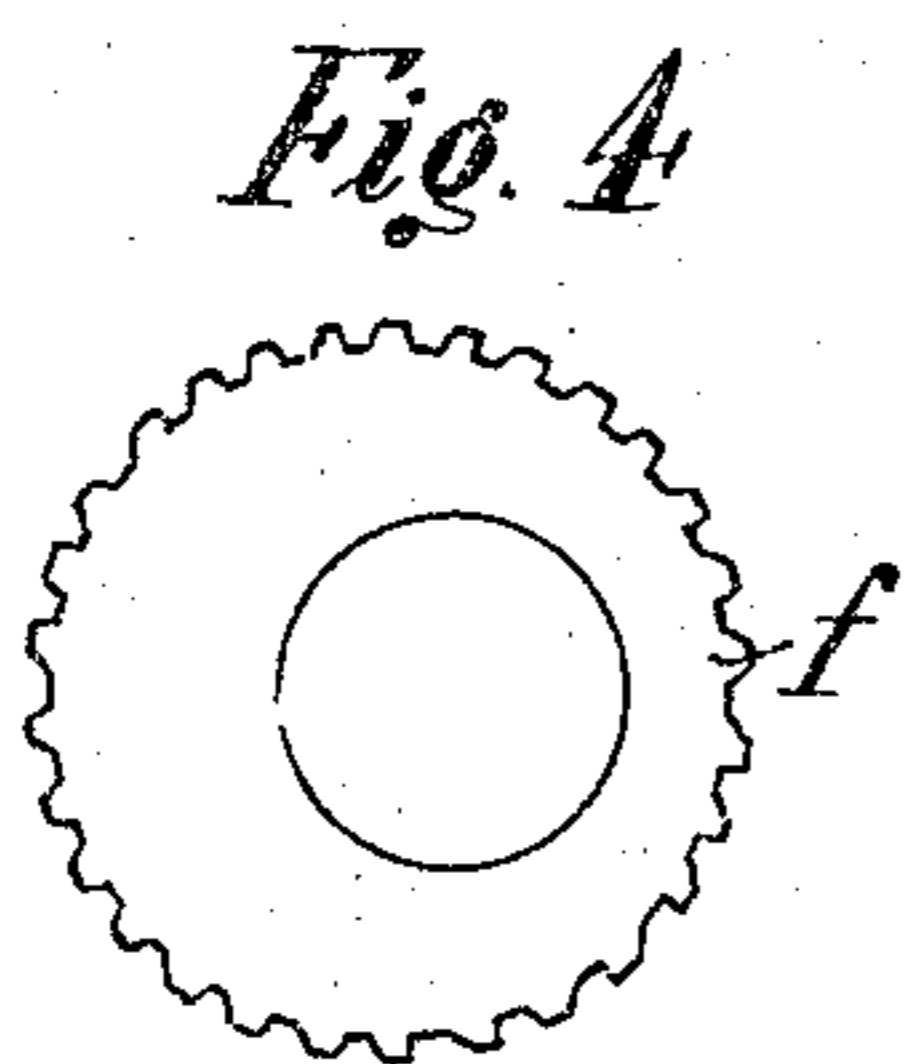
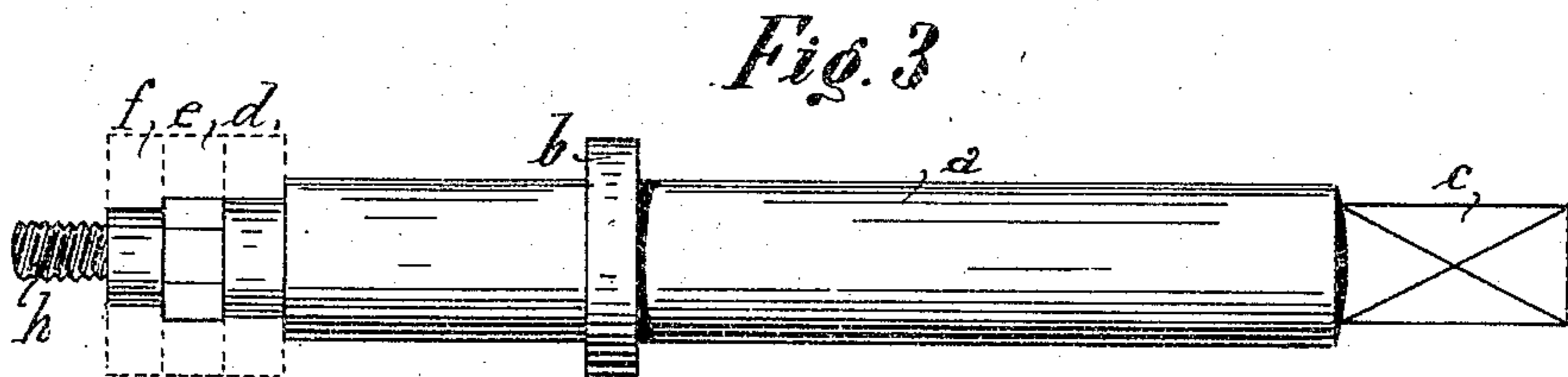
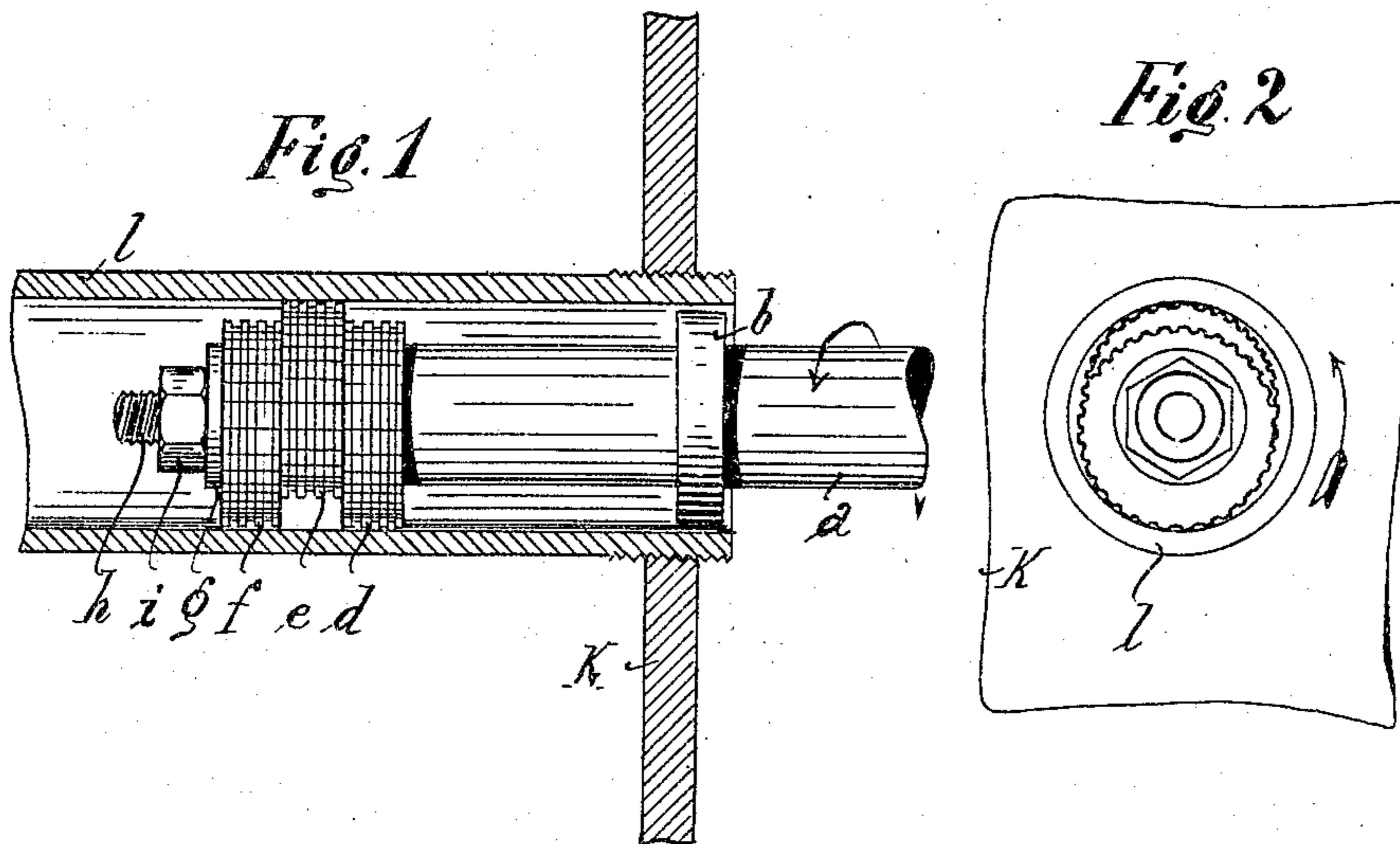


No. 785,162.

PATENTED MAR. 21, 1905.

E. FREYTAG.
INTERNAL PIPE WRENCH.
APPLICATION FILED APR. 28, 1904.



Witnesses.
J. Heeren
franz bluer.

Inventor
Emanuel Freytag
by *P. Singer atty*

UNITED STATES PATENT OFFICE.

EMANUEL FREYTAG, OF HAMBURG, GERMANY.

INTERNAL PIPE-WRENCH.

SPECIFICATION forming part of Letters Patent No. 785,162, dated March 21, 1905.

Application filed April 28, 1904. Serial No. 205,413.

To all whom it may concern:

Be it known that I, EMANUEL FREYTAG, engineer, residing at 40 Versetzen, Hamburg, in the Empire of Germany, have invented a certain new and useful Improvement in Internal Pipe-Wrenches, (for which patent applications are made in Germany, filed July 3, 1903, and Great Britain, filed October 9, 1903,) of which the following is a specification.

This invention relates to an internal pipe-wrench or tool for unscrewing pipes and facilitating their removal from tubular boilers and the like.

The invention is illustrated in the accompanying drawings.

Figure 1 is a side view of the gripping end of the wrench in the interior of a pipe shown in section. Fig. 2 is an end view of the pipe-wrench. Fig. 3 is a plan of the whole device, the disks being indicated by dotted lines. Figs. 4, 5, and 6 show the eccentrically-mounted and grooved and serrated gripping-disks of the wrench.

The wrench consists of a shaft *a*, with a guide piece or shoulder *b* and a square head *c*. The central disk *e* is fixed to the spindle *a*, the two other disks, *d* and *f*, on the contrary, being movable thereon and arranged eccentrically, the outer disk *f* being supported by the washer *g* and nut *i*, the latter being screwed onto the threaded extension *h* of the spindle *a*.

Fig. 1 shows the method of employing the wrench. *k* is a plate or side wall into which a pipe *l* is screwed. If this pipe *l* is to be removed or unscrewed, the wrench is pushed into the pipe so far that the guide-piece *b*

comes even with the mouth of the pipe, and the tool is turned in the direction of the arrow by means of a crank-handle or the like, which is applied to the squared end *c*. Owing to this turning of the tool, the grooved and serrated disks "spread apart," so to speak, and firmly grip the inside of the pipe. The wrench is then rotated, thus causing the end of the screwed-in pipe to become unscrewed to such an extent that the pipe can be easily removed. The same tool can also be employed for screwing in the pipe if it be turned in the opposite direction, the gripping-disks will come into close connection with the inside of the pipe.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A pipe-wrench, comprising a shaft, a gripping-disk rigidly and eccentrically secured to said shaft, and a plurality of revolvable gripping-disks eccentrically mounted on said shaft.

2. A pipe-wrench, comprising a shaft, a guide-piece on said shaft, a gripping-disk eccentrically and rigidly secured on said shaft, one or more gripping-disks eccentrically mounted on said shaft and adapted to coact with the first-named disk to engage the interior of a pipe, and means for turning said shaft.

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

EMANUEL FREYTAG.

Witnesses:

E. H. L. MUMMENHOFF,
OTTO W. HELLMRICH.