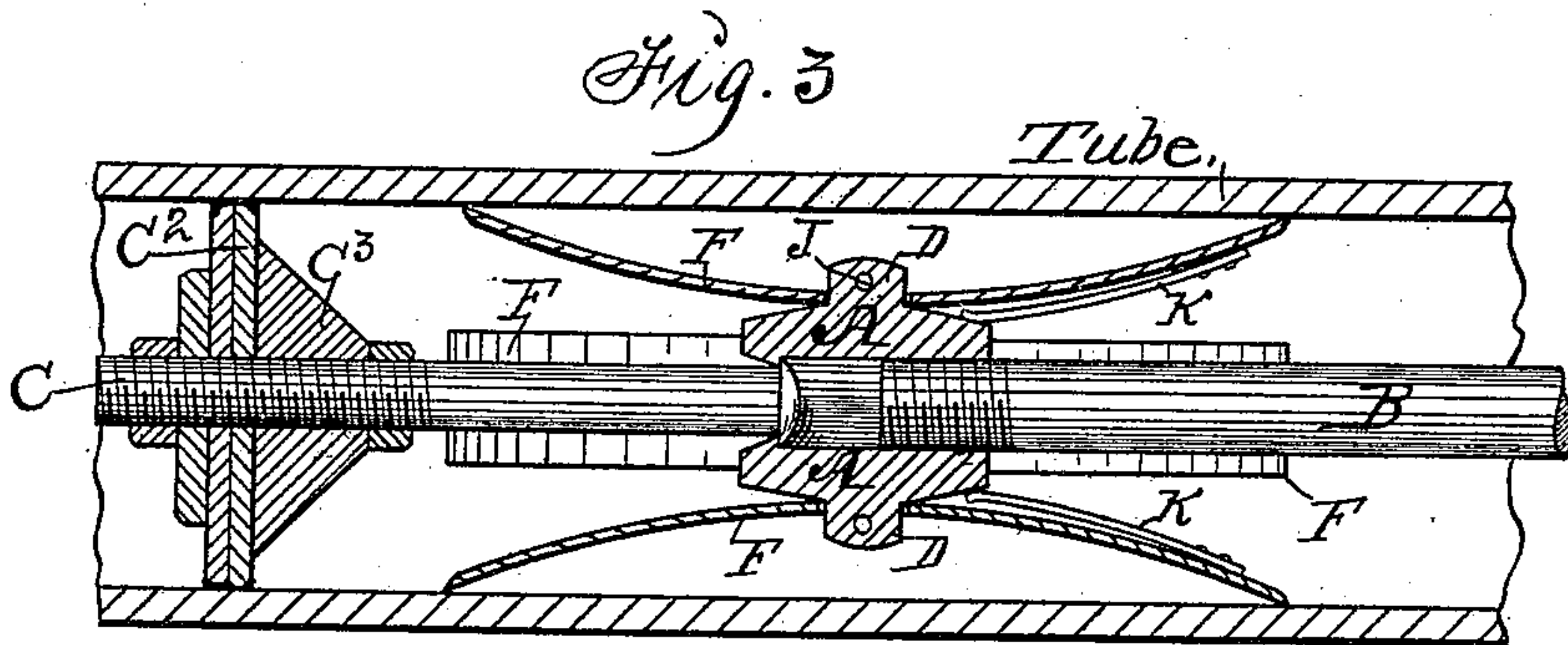
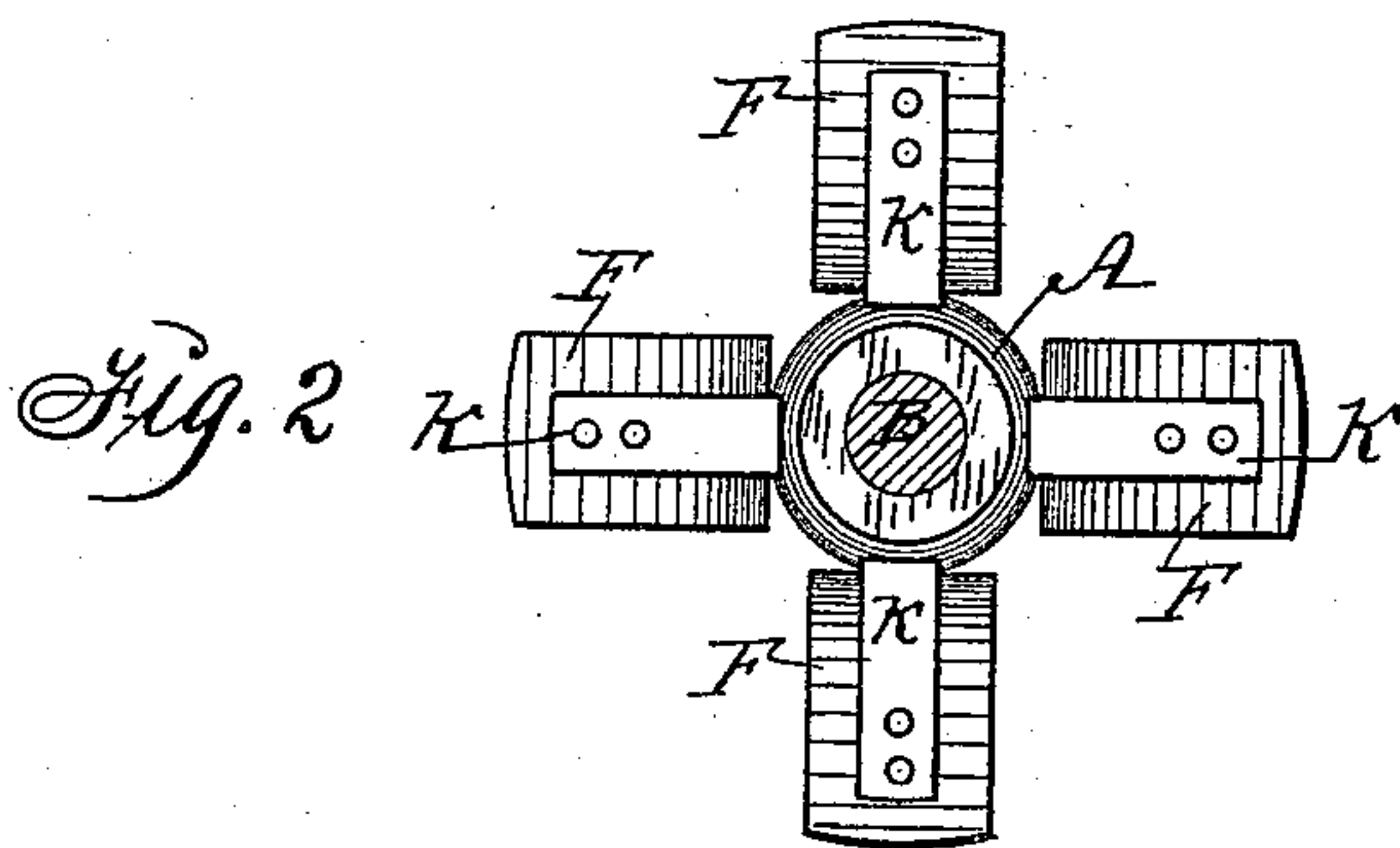
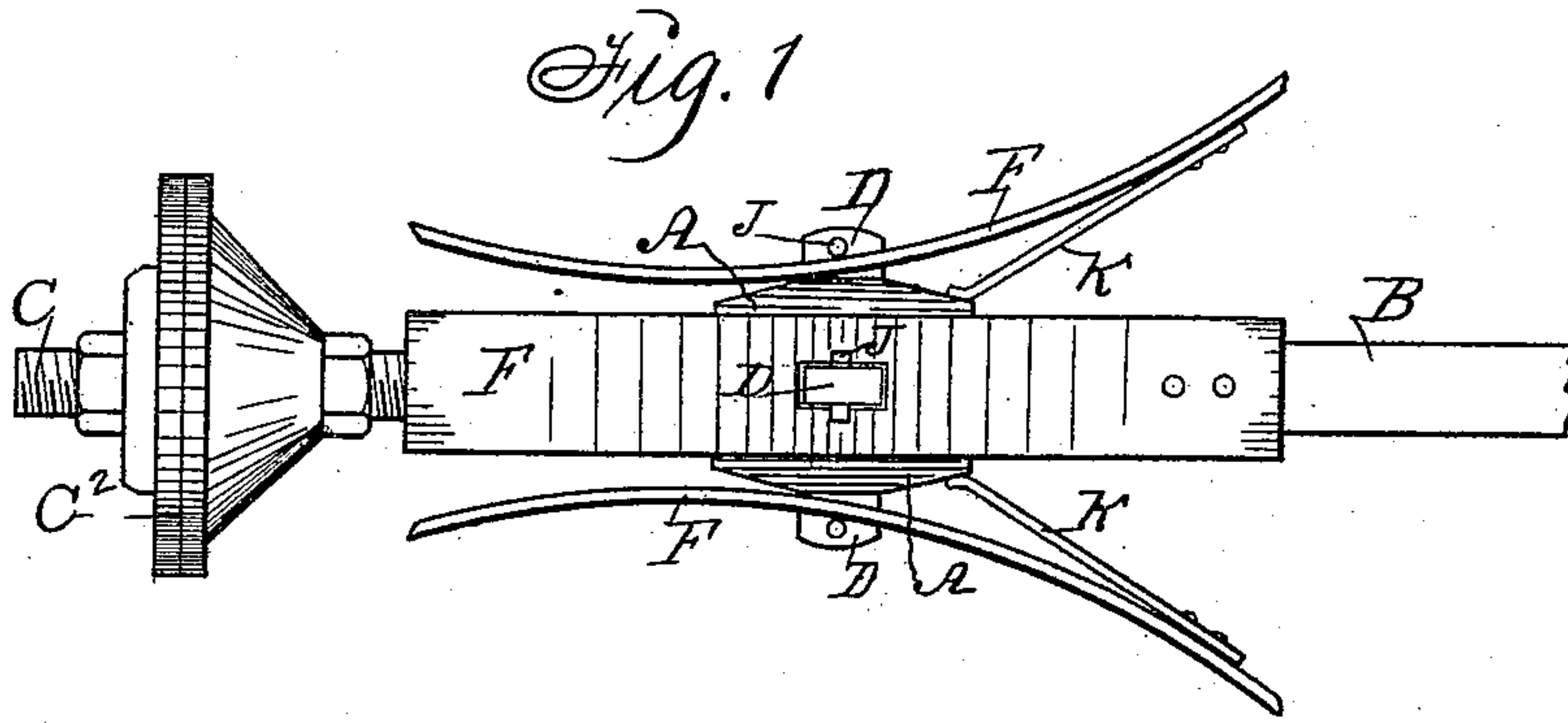


(No Model.)

J. O. DRENNEN.
FLUE CLEANER.

No. 464,788.

Patented Dec. 8, 1891



Witnesses:
H. J. Sankey,
R. H. Orrig. }

Inventor: Joseph O. Drennen,
By Thomas G. Orrig, Atty.

UNITED STATES PATENT OFFICE.

JOSEPH O. DRENNEN, OF DES MOINES, IOWA.

FLUE-CLEANER.

SPECIFICATION forming part of Letters Patent No. 464,788, dated December 8, 1891.

Application filed January 28, 1891. Serial No. 379,454. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH O. DRENNEN, a citizen of the United States of America, and a resident of Des Moines, in the county of Polk and State of Iowa, have invented an Improved Flue-Cleaner, of which the following is a specification.

The object of my invention is to provide improved means for cleaning the flues in steam-boilers.

My invention consists in certain details of construction hereinafter clearly set forth, pointed out in my claims, and illustrated by the accompanying drawings, in which—

Figure 1 is a side view of my device, a portion of the handle being broken away. Fig. 2 is an end view of the same. Fig. 3 is a central sectional view of my device inserted in a boiler-flue as required in practical use, a portion of said flue and the handle of my device being broken off.

A represents a hub, preferably made of cast-iron. This hub has a longitudinal bore and an annular shoulder near the rear end. The front end is screw-threaded to engage the screw-threaded end portions of the handle B. The handle B consists of a straight bar, preferably made of metal. The coupling-piece C is used to connect a circular swab or scraper C² with the hub to aid in removing the scale cut loose from the interior of a tube. The piece C has a head that engages the annular shoulder in the hub to produce a flexible connection that will prevent binding.

D represents four ears, formed integral with the hub, as shown in Figs. 1 and 2.

F represents cutters, made of curved pieces of strap metal, the ends of which are slightly convex on the outer sides thereof. These scrapers are each provided with an elongated slot H, adapted to admit one of the ears D, to which they are attached by means of keys J, which latter are passed through perforations in the said ears. The scrapers are preferably of concavo-convex form in longitudinal section.

K represents leaf-springs, one of which is fixed to each of the scrapers F by one end,

the other end impinging against the hub A and free to move on said hub. The resilience of the springs K press the ends of the cutters, to which they are attached, away from the hub.

In the practical use of my invention I insert the smaller end of the device within a flue in the direction indicated by the arrow in Fig. 3. When the rear end portions of the scrapers come in contact with the flue L, the springs K are thereby compressed, thus bringing the forward ends of the said cutters into the same plane, as shown in Fig. 3. A reciprocating movement being then imparted to the device by means of the handle, coupled with an intermittent rotary movement thereof, the cutters will engage with the inner surface of the flue and remove all foreign substances therefrom.

I claim as my invention—

1. The combination, in a flue-cleaner, of a hub having a screw-threaded longitudinal bore and in the rear end of the bore an annular shoulder and ears projecting from the periphery, concavo-convex cutters pivotally connected at their centers with the central portion of the hub and having yielding pressure interposed between their cutting ends and the hub, and a swab or scraper having a flexible connection with the rear end of the hub, substantially as shown and described, to operate in the manner set forth.

2. A flue-scraper comprising a hub that has a longitudinal bore and a shoulder in the rear end of the bore, integral perforated ears on its periphery and central portion, concavo-convex cutters pivoted to said ears to extend over the ends of the hub, springs connected with the front ends of the cutters to engage the hub, a rod swiveled to the rear end of the hub by means of the shoulder in the bore of the hub, and a flexible swab attached to the free end of the rod, all arranged and combined to operate in the manner set forth.

JOSEPH O. DRENNEN.

Witnesses:

J. A. SMITH,

THOMAS G. ORWIG.