

No. 748,206.

PATENTED DEC. 29, 1903.

W. MÜLLER.
TUBE CLEANER.

APPLICATION FILED SEPT. 4, 1902.

NO MODEL.

FIG. 1.

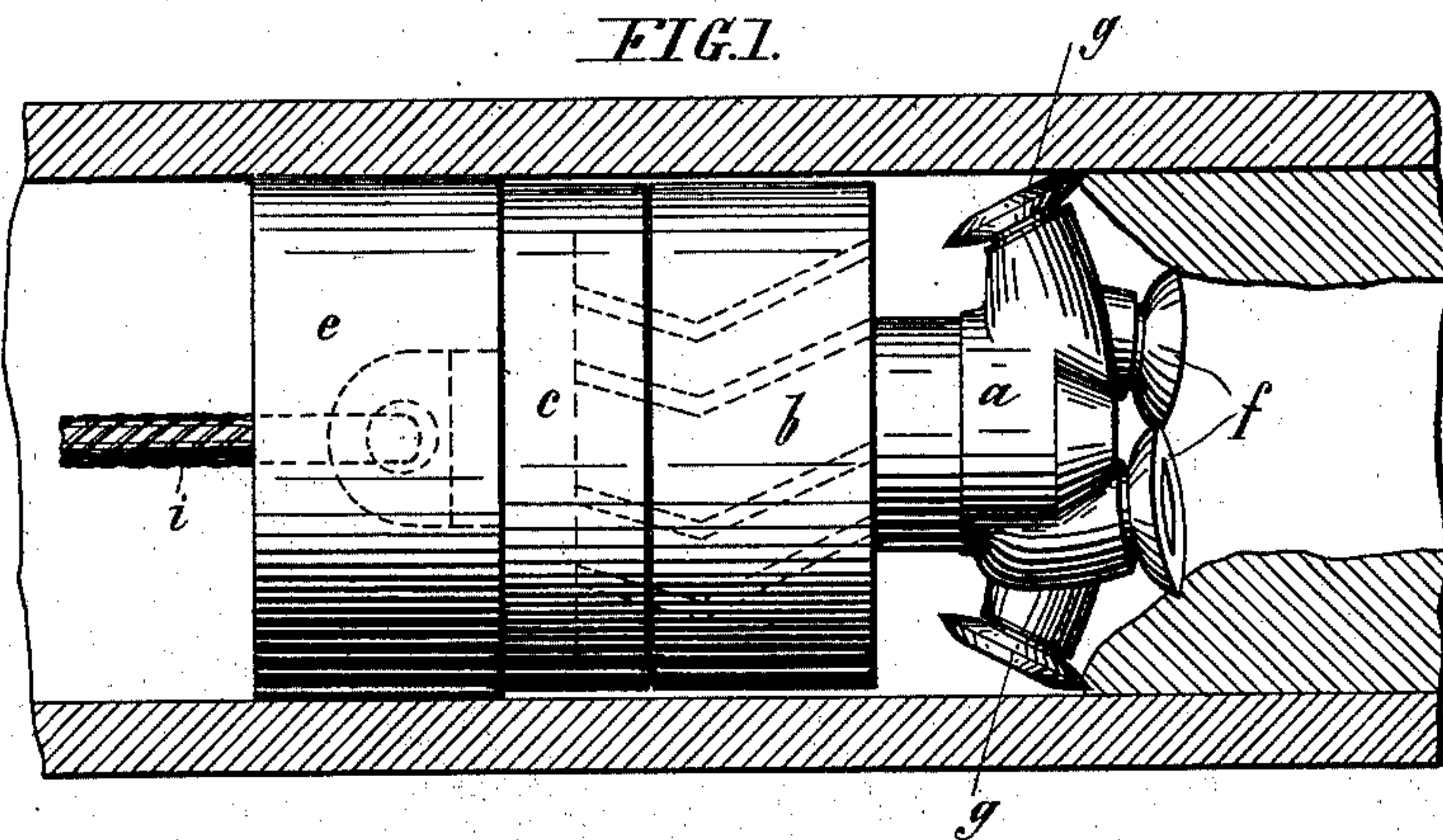


FIG. 2.

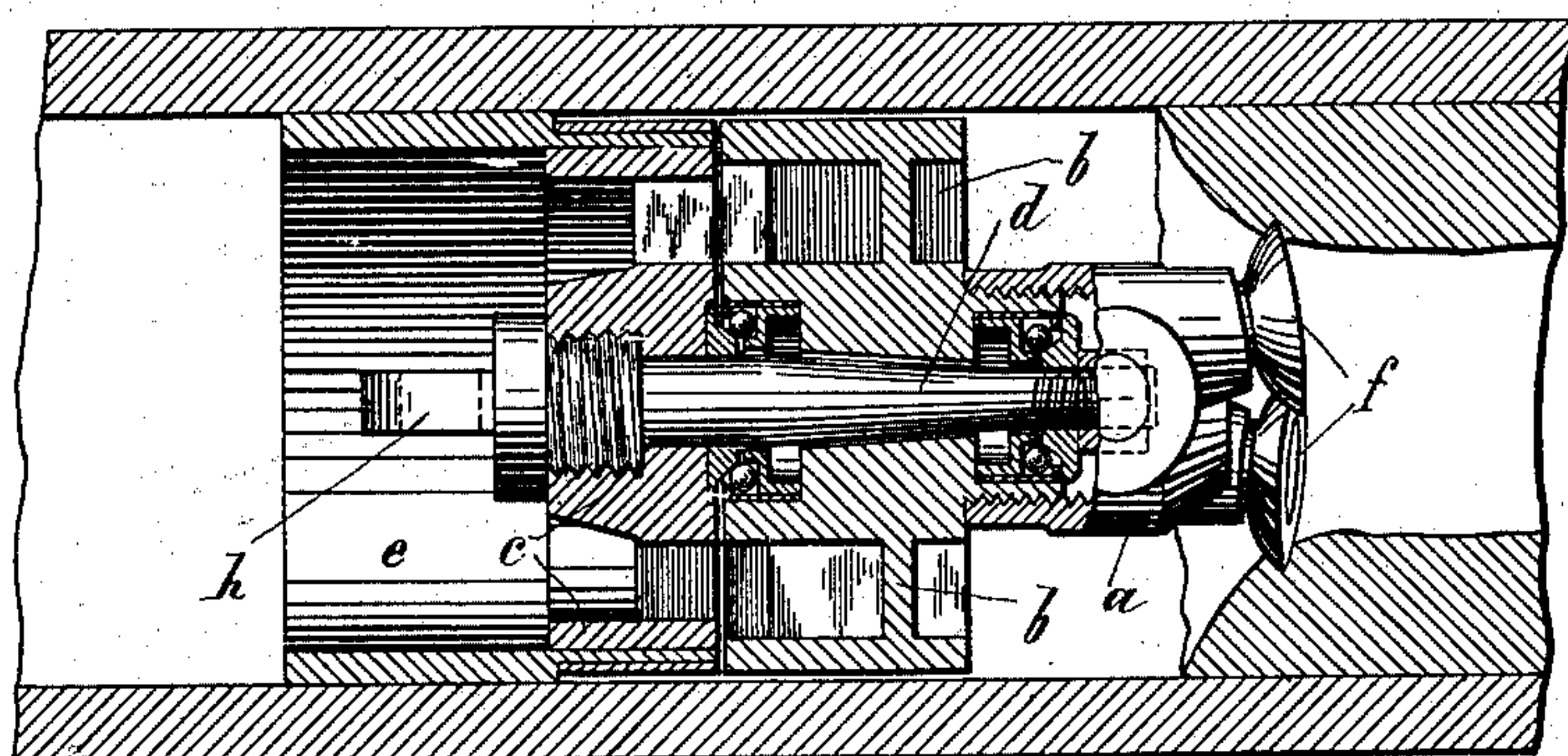
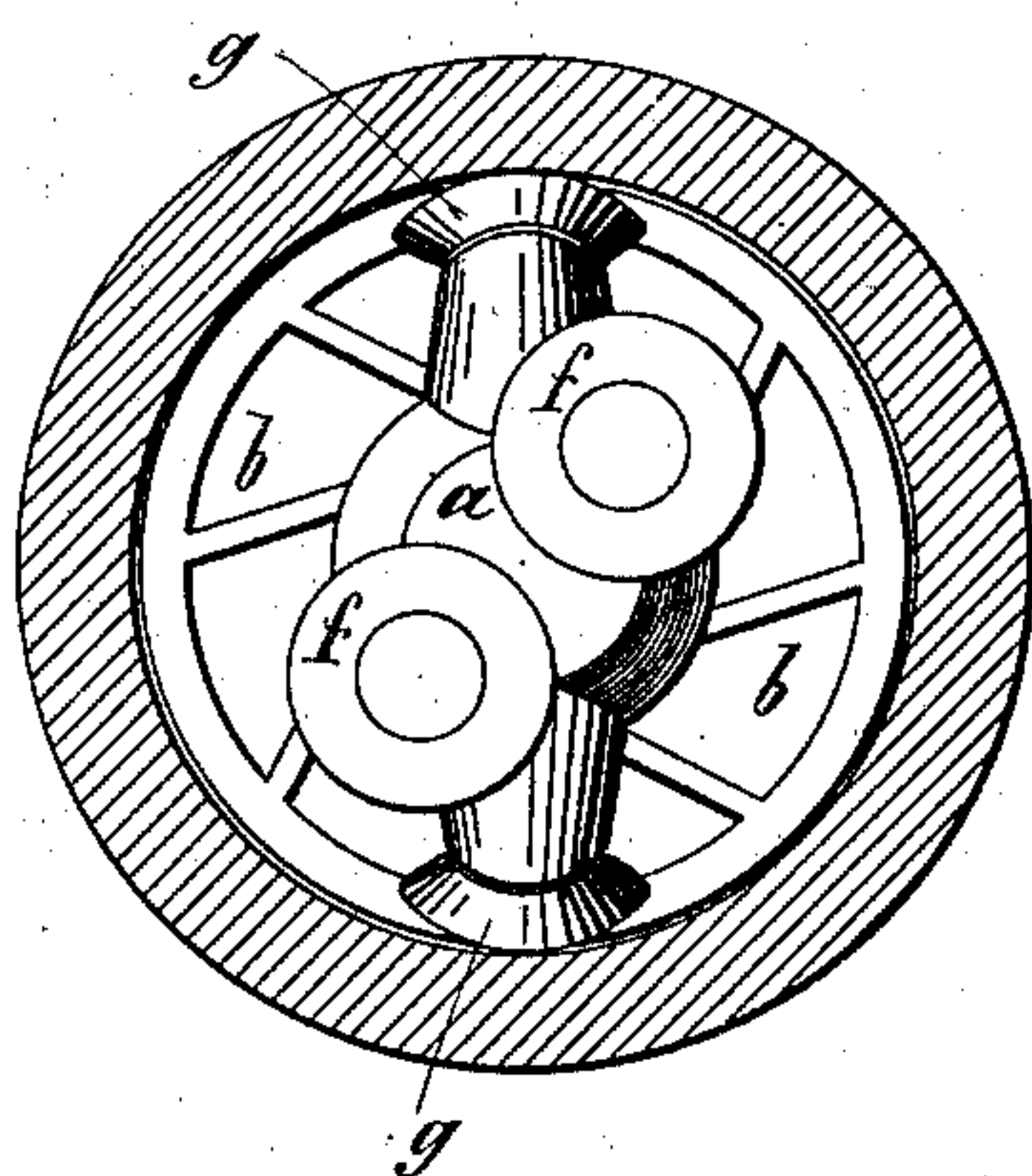


FIG. 3.



Witnesses:
C. Brignardello.
L. Maaden.

Inventor:
Wilhelm Müller,
per Alfred Müller,
Atty.

UNITED STATES PATENT OFFICE.

WILHELM MÜLLER, OF BERNBURG, GERMANY.

TUBE-CLEANER.

SPECIFICATION forming part of Letters Patent No. 748,206, dated December 29, 1903.

Application filed September 4, 1902. Serial No. 122,050. (No model.)

To all whom it may concern:

Be it known that I, WILHELM MÜLLER, a subject of the Duke of Anhalt, residing at Bernburg, in the Duchy of Anhalt, German Empire, have invented certain new and useful Improvements in Tube-Cleaners, of which the following is a specification.

My invention relates to an improved apparatus for cleaning the interior of tubes, pipes, and the like, and has a cutter-head or boring-bit furnished with a turbine.

My new tube-cleaner is illustrated in the annexed drawings, in which—

Figure 1 is a longitudinal section of a portion of a tube in the interior of which the cleaner is located. Fig. 2 is a similar view, the cleaner being shown partly in section and turned through an angle of ninety degrees from the position illustrated in Fig. 1. Fig. 3 is an end elevation of Fig. 1 seen from the right hand.

My improved cleaner consists of a cutter-head *a*, the rear portion *b* of which constitutes a turbine for driving the device by means of pressure-water, and of the guide-ring *c*. The cutter-head is mounted on ball-bearings on the spindle *d*, which is secured to the ring *c*. The latter is provided with a packing-leather *e*, which makes a tight joint with the interior of the tube being cleaned. The head *a* carries four circular knives or cutting disks *f g*, which rotate on their axis. Two of these disks *f* are located at the front of the cleaner and the other two, *g*, lie laterally. The lateral knives *g* are inclined at a certain angle to the wall of the tube in such manner that the cutting-surfaces on rotation of the cutter-head slide along the tube-wall, the knives thus exerting a scraping action, breaking up the sediment. The front knives *f* are so displaced relatively to one another that the cutting-surfaces bore into the sediment in the manner of a screw. These rotary cutters have the

advantage that in water-pipes the hemp packing, which during the operation of making the joint is frequently driven more or less into the tube, cannot be torn out. Where my cleaner is employed, the only thing that can happen is that the packing is cut through, so that the joint cannot be rendered defective. The front disks *f* serve as advance knives to cut the innermost and frequently softer layer of sediment. The cutting-surfaces of these knives advance with a screw action, whereby the operation of the lateral knives *g* is greatly facilitated.

The action of the device is as follows: The apparatus having been introduced into the tube, the water presses the leather *e* from the inside against the wall of the tube, so that an absolutely tight joint is made between apparatus and tube. Thus the whole of the water in the pipe is employed to actuate the turbine. The device is regulated by means of a wire rope *i*, attached to the eye *h*.

It is obvious that the precise construction of the cutter-head and coöperating parts may be considerably varied without departing from the essential features of the invention.

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

A tube-cleaner comprising a cutter-head *a* the rear portion of which constitutes a turbine *b* mounted on a spindle *d* and a guide-ring *c* on said spindle, said guide-ring having a cup-shaped, expansible packing-ring *e* making a tight joint with the interior of the tube, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILHELM MÜLLER.

Witnesses:

PAUL MÜLLER,
BERNHARD GRATZ.