

No. 760,405.

PATENTED MAY 17, 1904.

W. APPENBRINK.

FLUE SCRAPER.

APPLICATION FILED DEC. 9, 1903.

NO MODEL.

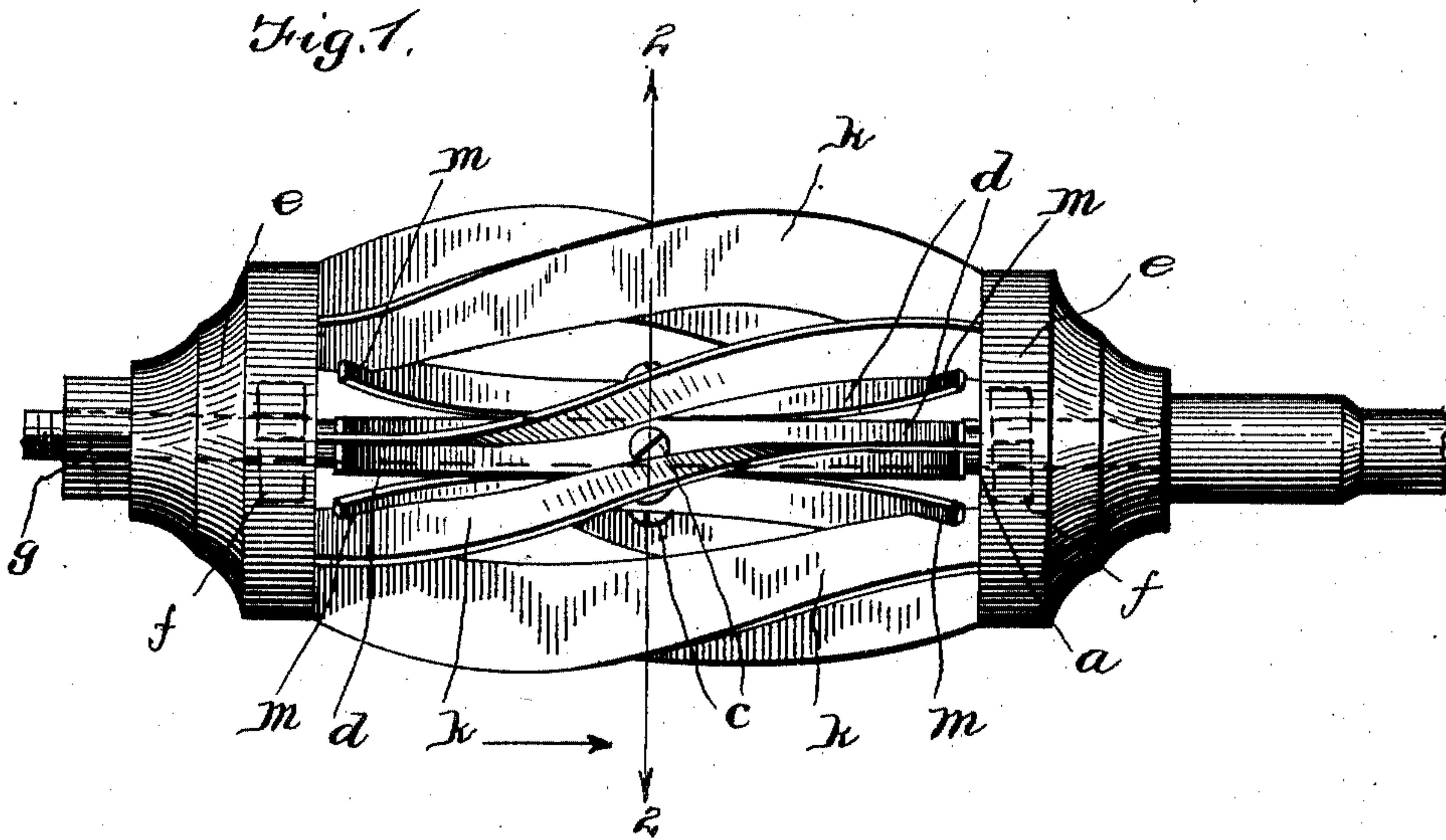


Fig. 2.

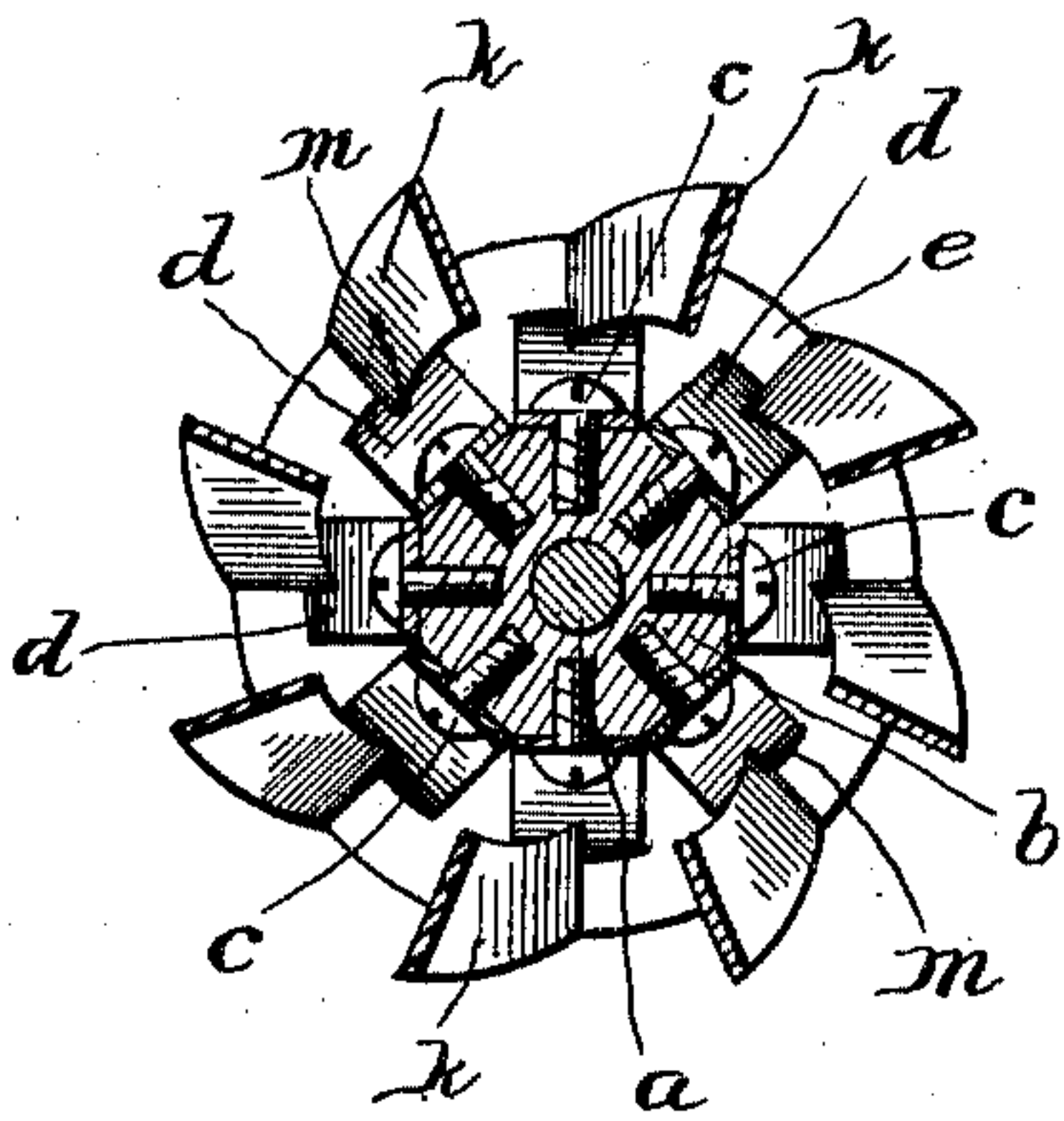
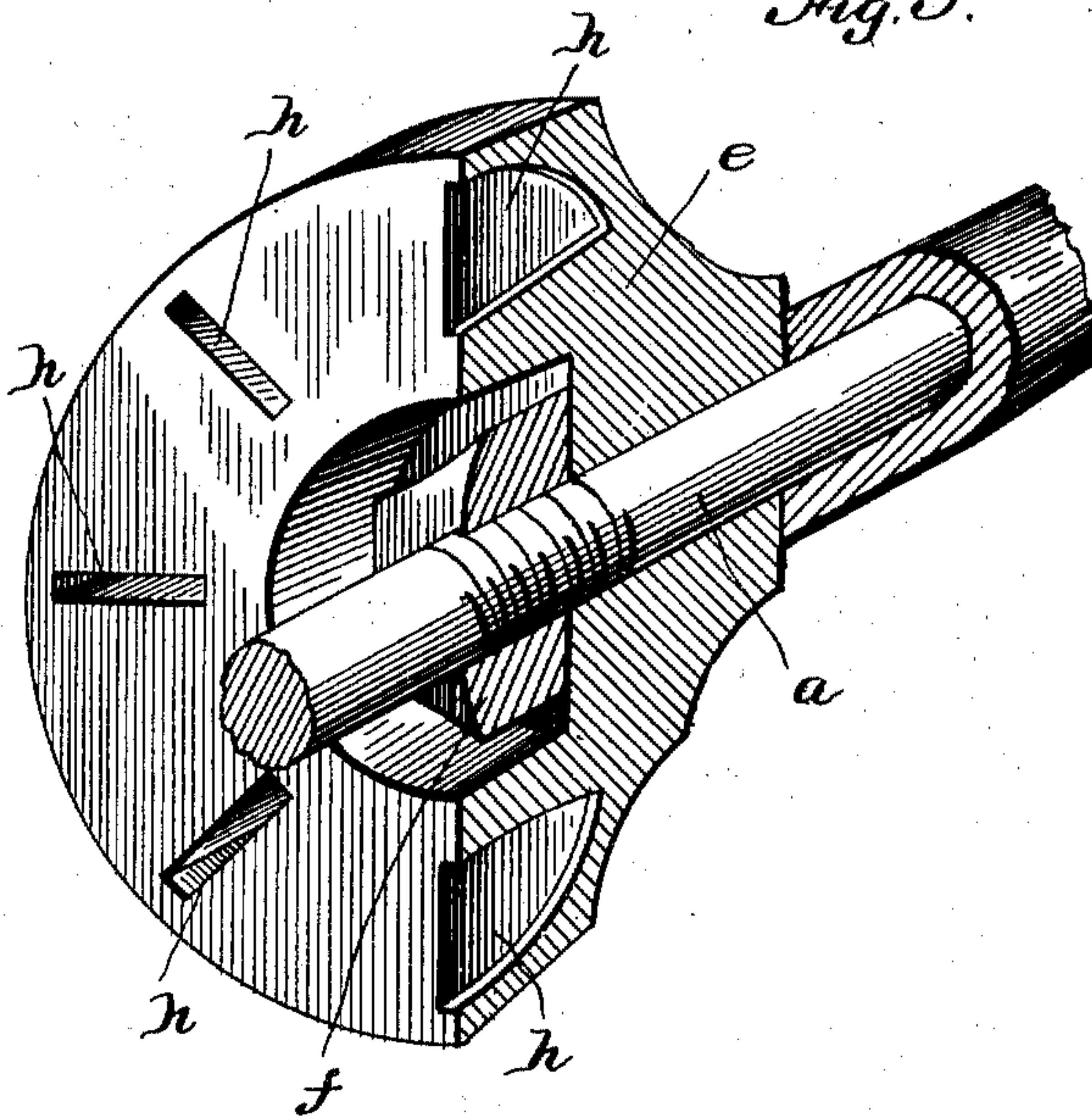


Fig. 3.



Witnesses

R. A. Boswell.
George M. Anderson

By

Inventor
William Appenbrink,
E. W. Anderson
his Attorney

UNITED STATES PATENT OFFICE.

WILLIAM APPENBRINK, OF QUINCY, ILLINOIS.

FLUE-SCRAPER.

SPECIFICATION forming part of Letters Patent No. 760,405, dated May 17, 1904.

Application filed December 9, 1903. Serial No. 184,436. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM APPENBRINK, a citizen of the United States, and a resident of Quincy, in the county of Adams and State of Illinois, have made a certain new and useful Invention in Flue-Scrapers; and I declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it appertains to make and use the invention, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 is a side elevation of my flue-scraper. Fig. 2 is a section on the line 2 2, Fig. 1. Fig. 3 is a detail sectional view.

The invention relates to flue-scrapers; and it consists in the novel construction and combinations of parts, as hereinafter set forth.

In the accompanying drawings, illustrating the invention, the letter *a* designates the axial bolt, which is threaded along each end, the middle portion being provided with a collar-bearing *b* of prismatic form perforated on its faces with threaded holes for the reception of fastening-screws *c*, which hold in place thereon the longitudinal springs *d*.

To each end of the bolt *a* are connected the heads *e*, which are held in position by interior and exterior nuts *f* and *g*. Each head is provided with radial recesses *h* in its inner wall, forming bearings in which are received the ends of the radial oblique scrapers or knives *k*, which near their ends engage notch-bearings *m* of the springs *d*. These springs are usually of elliptical flat form, having their concavities outward, so that their bearings present in proper position to receive the inner edges of the knives or scrapers, which are designed to have about a half-inch play in the bearings of the heads. The knives or scrapers *k* are laterally of undulating form, their ends presenting straight but in different planes to enter the bearings of the heads, one in advance of the other, while their middle portions are oblique and bent in opposite directions to join said ends. Each knife or scraper is in this manner designed to engage by one of its ends a notch-bearing at one end of one of the elongated springs, while by its other end it engages a notch-bearing at the opposite end

of the next elongated spring, and so on around the tool: Edgewise the knives are convex on their outer edges, having a general radial relation to the axes of the instrument. The inner edges of the knives are usually concave and parallel to the outer edges. The convex middle portions of the knives project beyond the imaginary cylinder joining the heads, so that the latter can enter the flue readily, while the knives, having elastic edgewise play in their bearings in the heads, will operate in an efficient manner in removing the scale or incrustation of the flue. In this operation the knives are pressed forcibly but elastically outward by the elongated springs. The bent or oblique middle portion of the knife facilitates the scraping by a sort of cutting action, and the springs engaging alternate knives in series provide an equalization of the action, causing the vibrations of each spring to be communicated to all the other springs and knives of the series. Furthermore, the engagements of each knife not only with the head-bearings, but also with the notch-bearings of alternate springs, serve to hold the knife securely in edgewise position during the scraping operation.

Having described this invention, what I claim, and desire to secure by Letters Patent, is—

1. In a flue-scraper, the combination with the heads an axial bolt connecting the same, and a series of flat elliptical springs connected to said bolt, of a series of radial oblique knives having end bearings in said heads and alternately engaging said springs at their opposite ends, substantially as specified.

2. The combination with the axial bolt and its prismatic collar, of the elongated flat springs connected to said collar, the recessed heads and the arched oblique radial knives engaging the recesses of said heads and engaging alternate springs at their opposite ends, substantially as specified.

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

WILLIAM APPENBRINK.

Witnesses:

J. R. PEARCE,
S. O. PEARCE.