

(No Model.)

T. J. HART.  
FLUE CLEANER.

No. 440,310.

Patented Nov. 11, 1890.

Fig. 1.

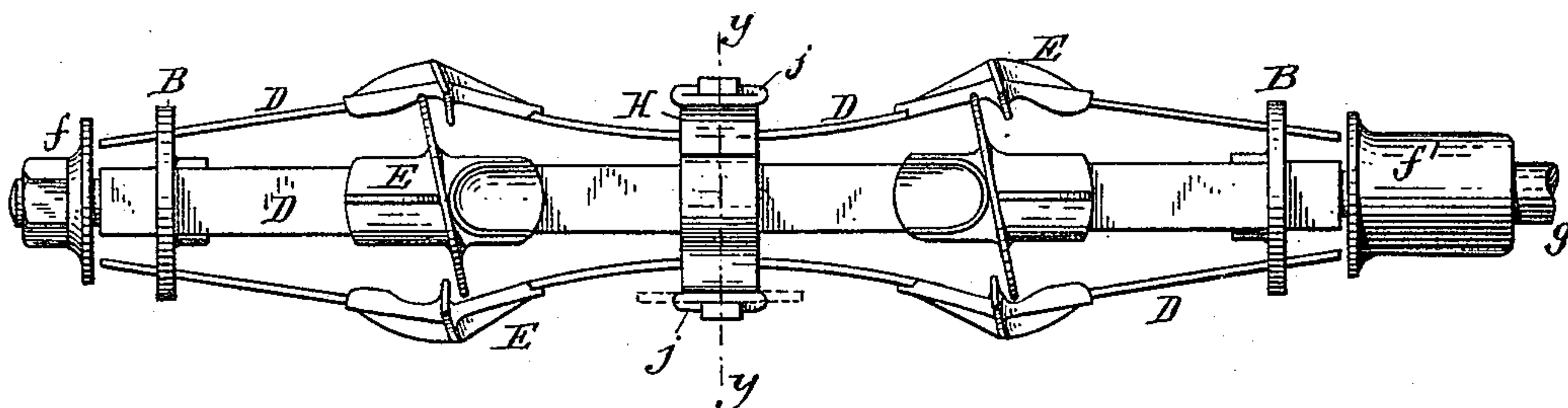


Fig. 2.

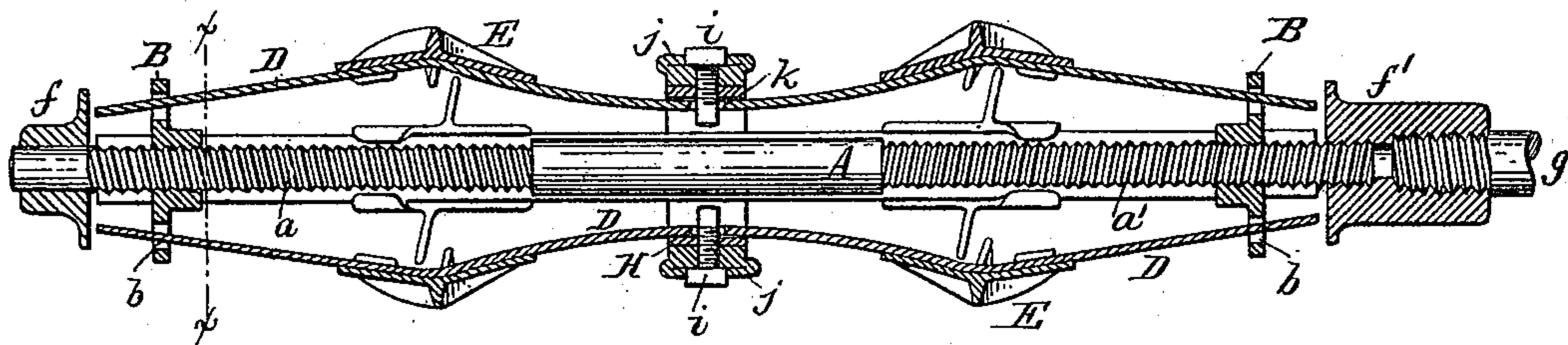


Fig. 3.

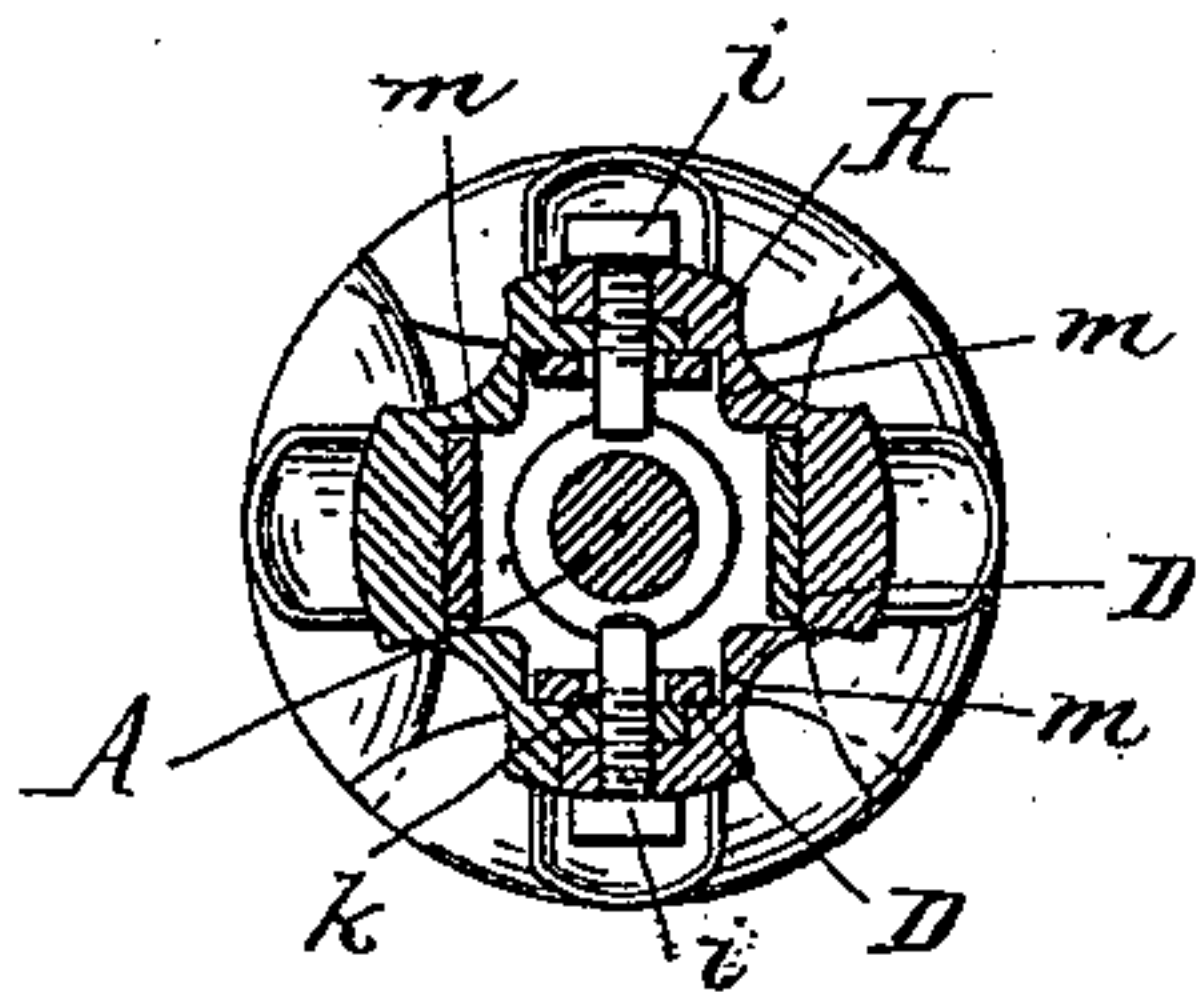
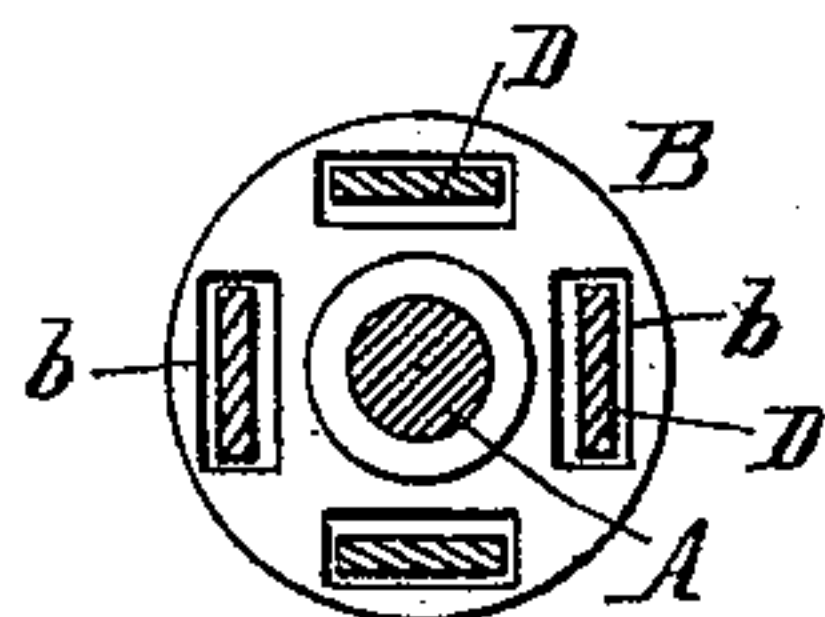


Fig. 4.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

THOMAS J. HART, OF BUFFALO, NEW YORK, ASSIGNOR TO THE SHERWOOD MANUFACTURING COMPANY, OF SAME PLACE.

## FLUE-CLEANER.

SPECIFICATION forming part of Letters Patent No. 440,310, dated November 11, 1890.

Application filed May 29, 1890. Serial No. 353,578. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS J. HART, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Flue-Cleaners, of which the following is a specification.

This invention relates to an adjustable flue-cleaner in which the scrapers are attached to flexible bars which are movable toward and from the axis of the cleaner, so that the size of the cleaner may be adjusted to fit flues of different diameters.

The object of my invention is to increase the flexibility of this class of scrapers, so that the same will yield to a greater extent and more readily pass incrustations or obstructions in the flues.

In the accompanying drawings, Figure 1 is a side elevation of my improved flue-cleaner. Fig. 2 is a longitudinal section thereof. Fig. 3 is a central cross-section of the same in line *y y*, Fig. 1. Fig. 4 is a cross-section in line *x x*, Fig. 2.

Like letters of reference refer to like parts in the several figures.

A represents the adjusting rod or spindle of the flue-cleaner, provided at opposite ends with right and left hand screw-threads *a a'*.

B B represent movable disks or followers arranged upon the threaded portions of the adjusting-spindle and having correspondingly-threaded openings which engage with the threads of the spindle. These disks are provided with slots or elongated openings *b*.

D represents the flexible bars or springs to which the scrapers E are secured and which are arranged with their ends in the openings of the movable disks B B. The spring-bars D each consists of a continuous spring extending nearly from end to end of the flue-cleaner, and are bulged or bent outwardly between their middle and ends, the scrapers being secured to these bulging portions. The end portions of the springs are inclined or bent inwardly, so that the movement of the disks B upon the spindle causes the springs to be moved radially toward and from the spindles.

The scrapers are preferably arranged spirally, so as to pass each other in contracting the cleaner.

*f* represents a screw-nut applied to the front end of the threaded adjusting-spindle, and *f'* is a screw-nut applied to the opposite end thereof. These screw-nuts form stops which hold the springs against lengthwise movement and also limit the outward movement of the disks B, so as to prevent detachment of the ends of the springs from the disks. The inner screw-nut *f'* is provided in its outer end with a screw-threaded socket, in which the handle *g* of the flue-cleaner is secured.

The screw-nuts *f* and *f'* are keyed or otherwise rigidly secured to the spindle so as to turn therewith, and the screw-nut *f*, secured to the outer end of the spindle, forms a cap or head, which prevents the outer ends of the springs from striking against the flue-plates or edges of the flues in inserting the cleaner in the flues.

H is a band or collar, which loosely surrounds the central portion of the springs D and whereby the springs are drawn toward each other at their center, so as to cause their outer inclined ends to assume the proper angle to prevent binding thereof against the spindle. The band or collar H is composed of two similar sections, as shown in Fig. 3, the ends of which overlap each other and are provided with screw-threaded holes, through which pass connecting screws or bolts *i*. The ends of the collar-sections are cast with lateral lugs or ears *j*, which are bent upwardly and inwardly against opposite sides of the flat-sided heads of the screw-bolts *i*, so as to lock the same against turning. The collar is formed of malleable metal, so as to permit the ears thereof to be bent by a cold-shut after the bolts have been screwed home. The inner projecting portions of these screws are smooth and pass loosely through openings *k*, formed in the adjacent springs D, whereby the collar is held centrally on the springs and prevented from moving lengthwise thereon.

The collar H is preferably formed with recesses *m*, in which the spring-bars are seated, and whereby the spring-bars are held in alignment with the slots or openings in the movable disk, through which the ends of the spring-bars pass.

Upon turning the spindle D in one or the other direction the disks B are moved in-



wardly or outwardly on the spindle, causing the inclined or outer portions of the springs to move radially toward or from the spindle and contracting or expanding the flue-cleaner.

5 The openings of the disk B are flared inwardly, as shown, to prevent binding of the springs in the openings.

By supporting the springs of the cleaner only at their ends and contracting the same  
10 at their middle by a collar which loosely embraces the springs the latter are free to move inwardly at their central portions as well as at their end portions, whereby the elasticity of the springs is considerably increased and  
15 the cleaner enabled to more readily pass obstructions without injury to the springs.

I claim as my invention—

1. In a flue-cleaner, the combination, with the spindle provided with right and left hand  
20 screw-threads and movable disks or followers arranged upon the threaded portions of the spindle and provided with openings, of continuous spring-bars extending from end to end of the cleaner and having inclined end  
25 portions arranged in the openings of the movable disks and outwardly bent or bulged portions carrying scrapers, and a collar loosely embracing the central portions of the spring-bars, whereby the central portions of the  
30 spring-bars are free to move inwardly while being limited in their outward movement, substantially as set forth.

2. In a flue-cleaner, the combination, with the spindle provided with right and left hand  
35 screw-threads and fixed stops or caps arranged at opposite ends of said spindle, of movable disks or followers arranged upon the threaded portions of said spindle between said stops and provided with slots or open-  
40 ings, continuous spring-bars extending from end to end of the cleaner and having inclined end portions arranged in the openings of the movable disks and outwardly bent or bulged portions carrying scrapers, and a collar loosely  
45 embracing the central portion of said spring-bars, substantially as set forth.

3. In a flue-cleaner, the combination, with the spindle provided with right and left hand screw-threads and fixed stops or caps arranged at opposite ends of said spindle, of  
50 movable disks or followers arranged upon the threaded portions of the spindle and provided with openings, continuous spring-bars extending from end to end of the cleaner and having inclined end portions arranged in the  
55 openings of the movable disks and outwardly bent or bulged portions carrying scrapers, a collar loosely embracing the central portions of the spring-bars, and screws or pins projecting inwardly from said collar and passing  
60 through openings in the spring-bars, substantially as set forth.

4. In a flue-cleaner, the combination, with a spindle provided with right and left hand  
65 screw-threads and fixed stops arranged at opposite ends of the spindle, of movable disks or followers arranged upon the threaded portions of the spindle and provided with openings, continuous spring-bars extending from  
70 end to end of the cleaner and having inclined end portions arranged in the openings of the movable disks and outwardly bent or bulged portions carrying scrapers, a sectional collar loosely embracing the central portions of the  
75 spring-bars, and screws connecting the sections of the collar and passing with their inner projecting portions through openings in the spring-bars, substantially as set forth.

5. The combination, with the adjusting-spindle, the movable disks, and the spring-  
80 bars, of a collar embracing the central portions of the spring-bars and composed of sections provided with lateral ears or lugs, and screw-bolts connecting the ends of said sections and held against turning by said ears,  
85 substantially as set forth.

Witness my hand this 15th day of May, 1890.

THOS. J. HART.

Witnesses:

JNO. J. BONNER,  
EMIL NEUHART.