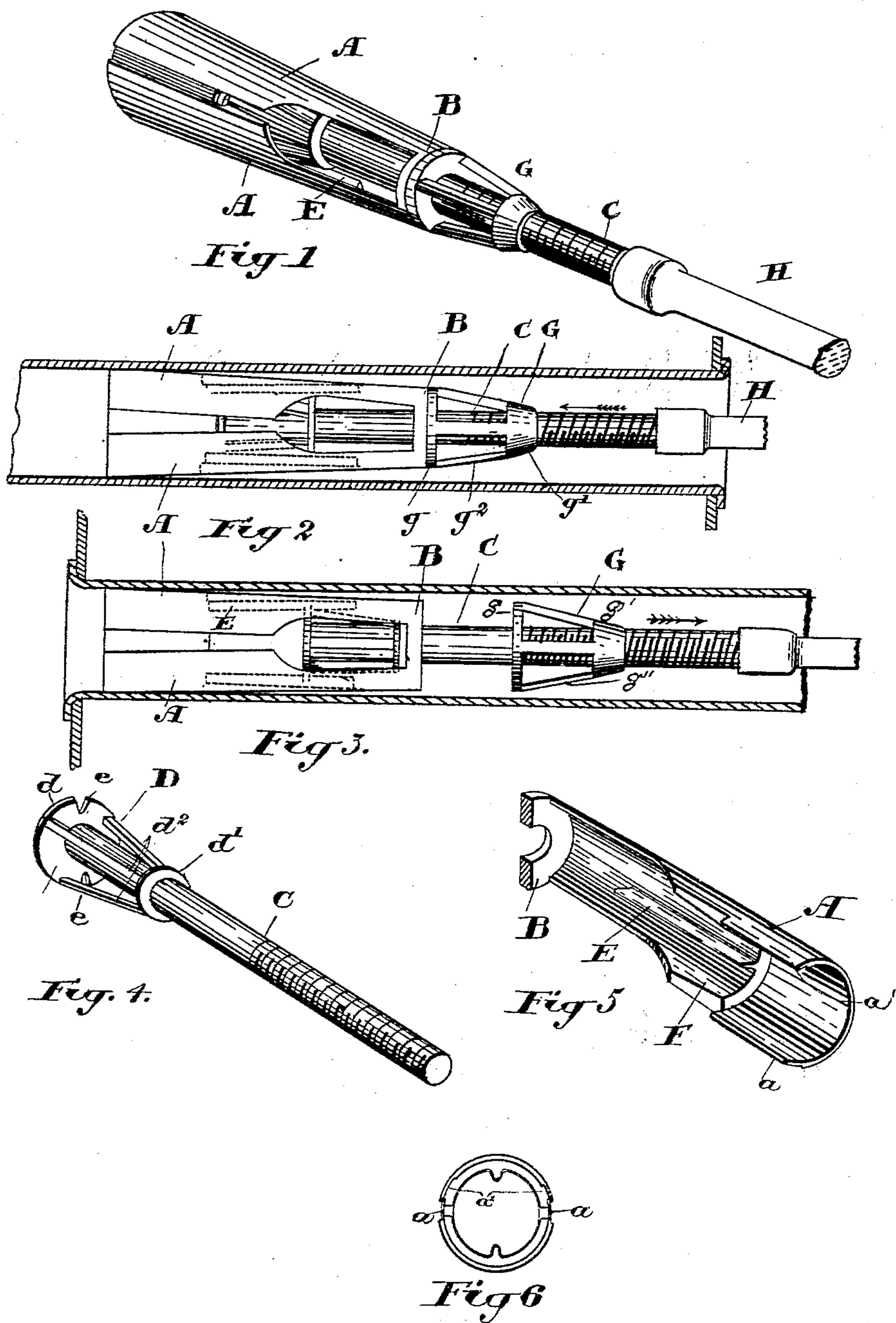


(No Model.)

J. M. DUNN.
BOILER TUBE CLEANER.

No. 504,569.

Patented Sept. 5, 1893.



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UNITED STATES PATENT OFFICE.

JOHN MOUNTAIN DUNN, OF TORONTO, CANADA.

BOILER-TUBE CLEANER.

SPECIFICATION forming part of Letters Patent No. 504,569, dated September 5, 1893.

Application filed February 4, 1893. Serial No. 461,025. (No model.) Patented in Canada December 13, 1892, No. 41,425.

To all whom it may concern:

Be it known that I, JOHN MOUNTAIN DUNN, fireman, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Boiler-Tube Cleaners, (patented in Canada December 13, 1892, No. 41,425,) of which the following is a specification.

My invention relates to improvements in cleaners for boiler tubes or flues and the object of the invention is to design a tube cleaner, which will thoroughly clean the tube and be easily withdrawn therefrom after having expelled the soot through the opposite end of the tube and it consists essentially of two curved spring blades which are attached to or form part of a disk and have secured within them tapered guiding sleeves in which move the disk shaped end of the backing frame of a central rod, the outer throw of which backing frame is controlled by a following frame screwed on to the central rod while the backward throw is controlled by the disk shaped end of the curved spring blades, the whole being arranged in detail and operating as hereinafter more particularly explained.

Figure 1, is a perspective view of my tube cleaner. Fig. 2, is a cross section through portion of a boiler tube showing my cleaner in the position in which it will be placed in order to remove the soot from the tube. Fig. 3, is a sectional view of the opposite end of the boiler tube showing my cleaner in the position it assumes when being withdrawn from the tube. Fig. 4, is a detail of the central rod and backing frame attached to or forming part of the same. Fig. 5, is a perspective sectional detail of one half of the curved blades. Fig. 6, is a front view of the cleaner showing the position of the disks, guiding sleeves and blades.

In the drawings like letters of reference indicate corresponding parts in each figure.

A, are curved blades which are attached to or form part of the central disk, B.

C, is the central rod or spindle which has a backing frame, D, secured on its outer end comprised of the front disk, *d*, rear disk, *d'*, and connecting bars, *d''*, which are secured

on the end of the rod, C, or form part of the same.

e, are notches made in the end disk, *d*.

E, are guiding ribs formed in the enlarged tapered inner split sleeve, F, forming part of the curved blades, A. The sleeves, F, taper from the disk B, outwardly, but the curved blades, A, of which the sleeves form part, taper from the outer end to the disk, B.

a, are flaps which project inwardly from the one side of the curved blades, A, and fit into corresponding recesses, *a'*, in the opposite curved blade, when the blades are compressed together. The notches, *e*, of the end disks, *d*, fit on to the ribs, E, of the blades, A.

G, is a following frame which is composed of a forward disk *g*, and a rear sleeve, *g'*, through both of which the screwed end of the rod, C, extends. The disk, *g*, and sleeve, *g'*, are joined by the connecting rods, *g''*.

H, is a rod which is made of sufficient length to reach through a boiler tube. The rod, H, is internally threaded on its outer end and screwed on to the threaded end of the rod, C.

In using my tube cleaner it will be seen that when the cleaner is pushed in the direction indicated by arrow in Fig. 2, the following frame abuts the disk, B, and the disk shaped end, *d'*, of the frame, D, is at the forward or narrow end of the split sleeve F, thereby holding the blades apart so as to thoroughly scrape the inner surface of the tube. When, however, the cleaner is pulled in the direction indicated by arrow as shown in Fig. 3, the disk shaped end, *d'*, of the backing frame, D, abuts the disk, B, and consequently the front disk, *d*, is toward the rear end of the split sleeve, F, which is of greater diameter toward this end and will thereby allow of the curved blades, A, collapsing so as to render the withdrawal of the tube cleaner or scraper back through the tube an easy matter.

The following frame, G, may be adjusted on the rod, C, so as to regulate the forward and backward throw of the backing frame and thus regulate to a nicety the diameter to which the blades, A, may be expanded in order to thoroughly clean or remove the soot from the tube.

What I claim as my invention is—

1. The combination with the curved spring blades, A, attached to or forming part of the disk, B, and having the tapered split sleeve, F, formed within it, of the rod, C, having secured to its outer end the backing frame, D, which moves within the tapered split sleeve, F, and the following frame, G, secured in position on the rod, C, as and for the purpose specified.
2. The combination with the curved spring blades, A, attached to or forming part of the disk, B, and having the tapered split sleeve, F, provided with ribs, E, formed within it, of the rod, C, having secured to its outer end the backing frame, D, comprised of the forward disk, *d*, having notches, *e*, and rear disk, *d'*, joined together by the connecting rods, *d''*, which moves within the tapered split sleeve, F, and is held in position by the ribs, E, along which the notches, *e*, pass, and the

following frame, G, screwed on to the threaded end of the rod, C, and the rod, H, as and for the purpose specified.

3. The combination with the curved spring blades, A, attached to or forming part of the disk, B, one blade having flaps, *a*, designed to fit and be adjustable within recesses, *a'*, of the opposite blade and both blades having a tapered split sleeve, F, of the rod C, having secured to its outer end the backing frame, D, which moves within the tapered split sleeve, F, and the following frame, G, secured in position on the rod, C, as and for the purpose specified.

Signed at Toronto this 1st day of February, 1893.

JOHN MOUNTAIN DUNN.

In presence of—

B. BOYD,

H. G. S. YOUNG.