

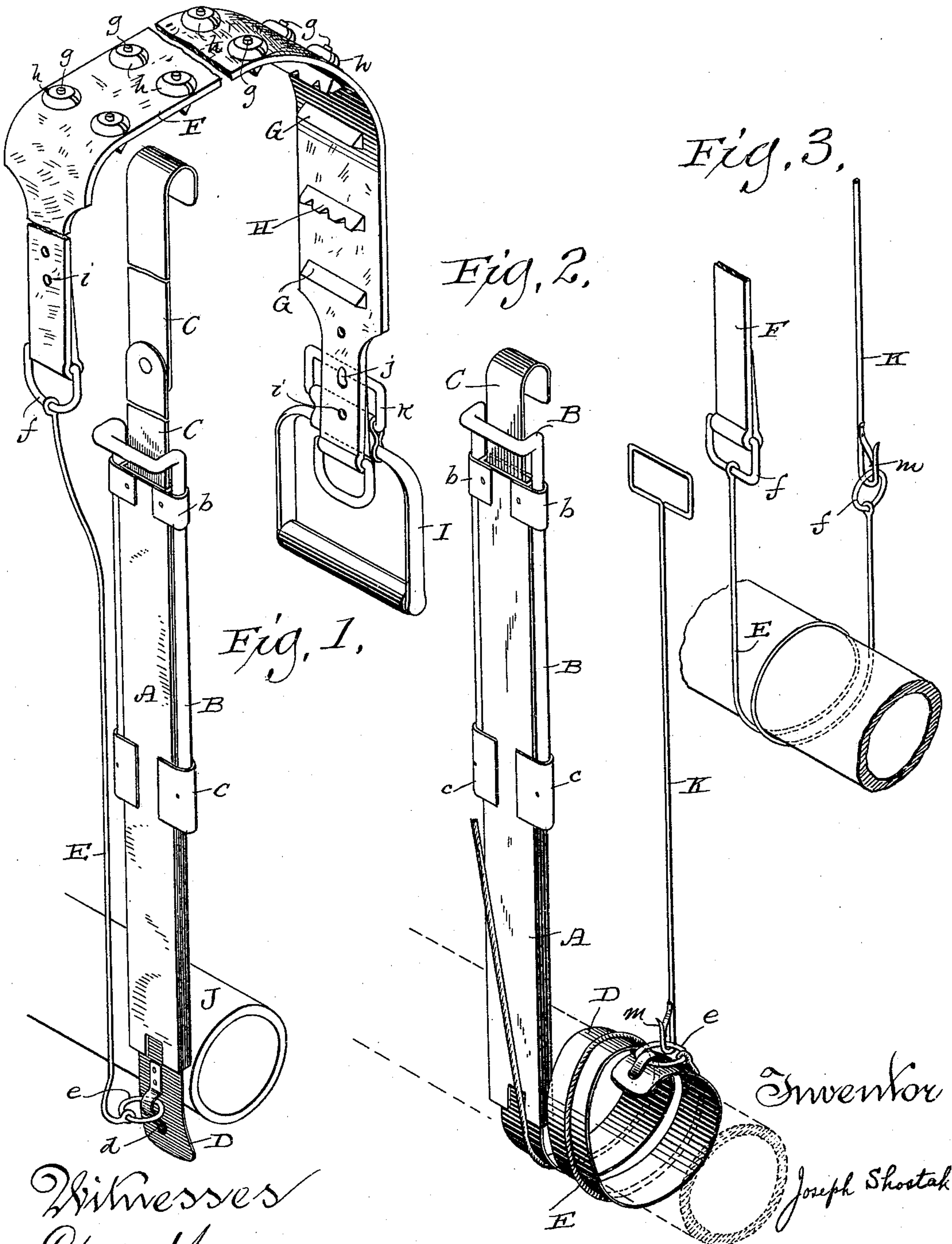
(No Model.)

2 Sheets—Sheet 1.

J. SHOSTAK.  
CLEANING BOILER FLUES.

No. 478,824.

Patented July 12, 1892.



Witnesses  
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(No Model.)

2 Sheets—Sheet 2.

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Fig. 6.

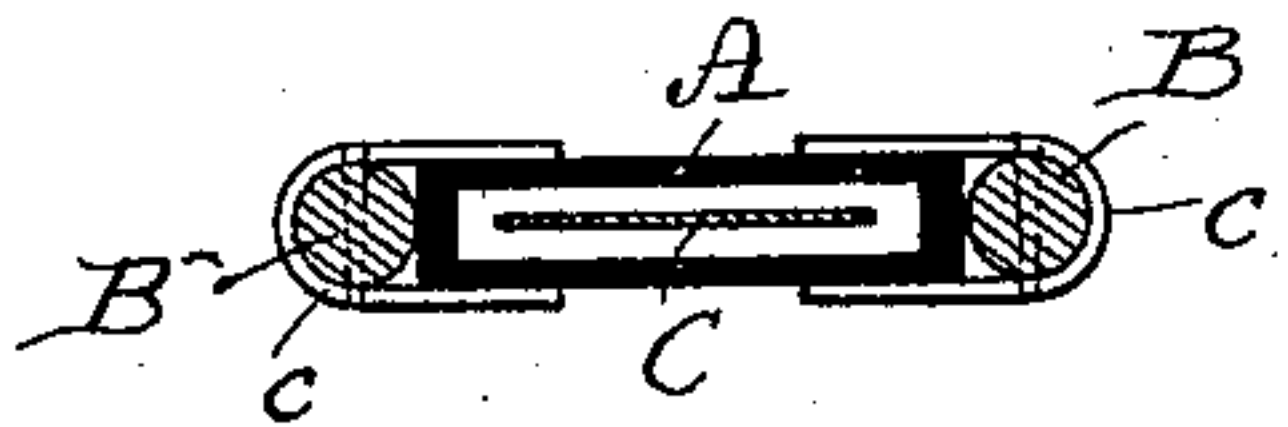


Fig. 7.

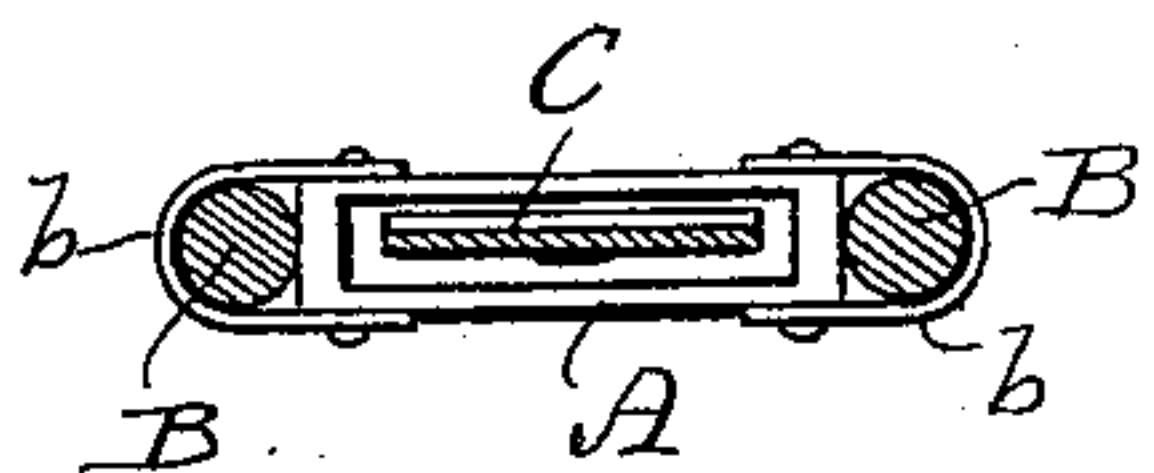


Fig. 4.

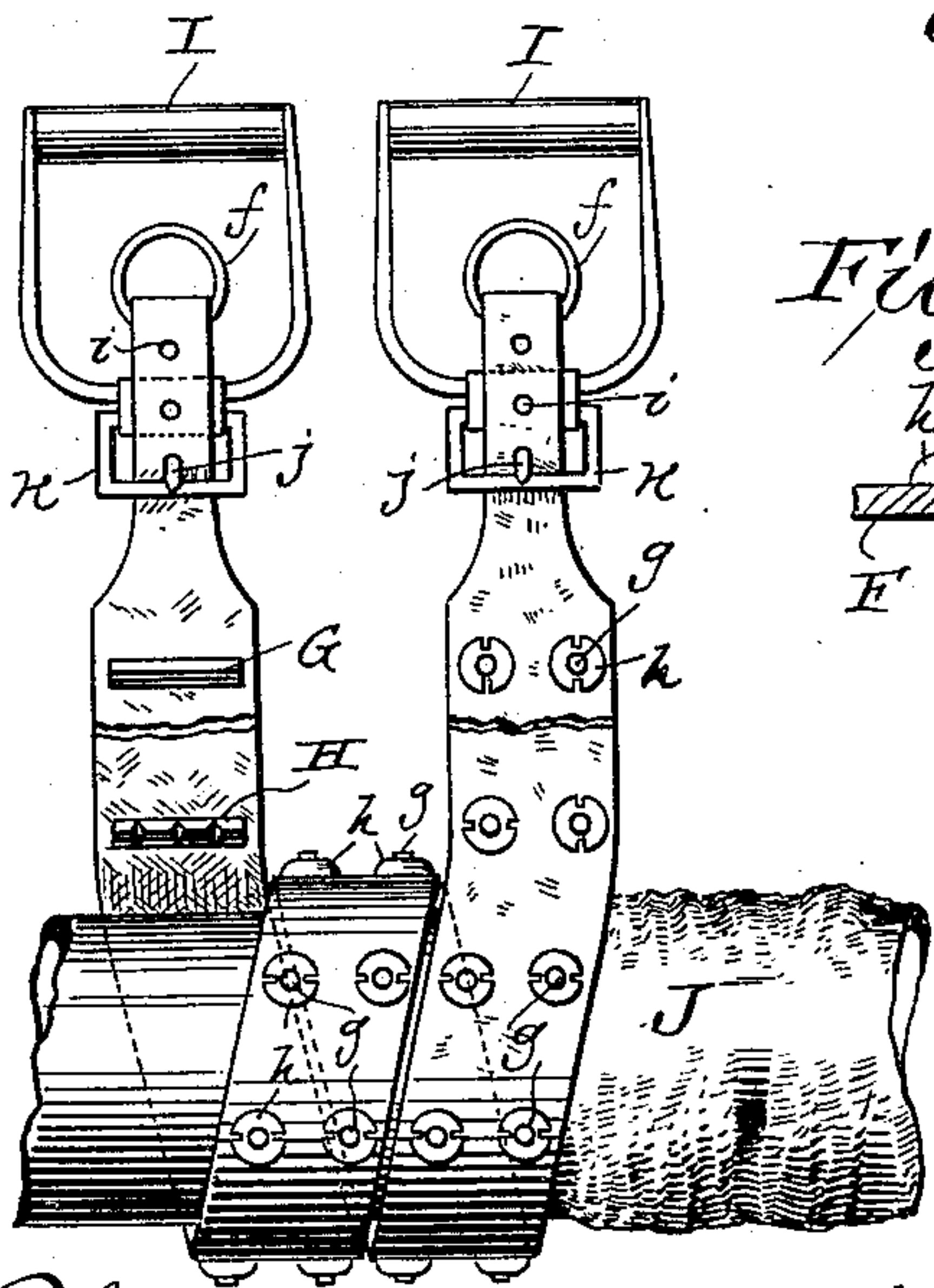


Fig. 8.

Fig. 9.

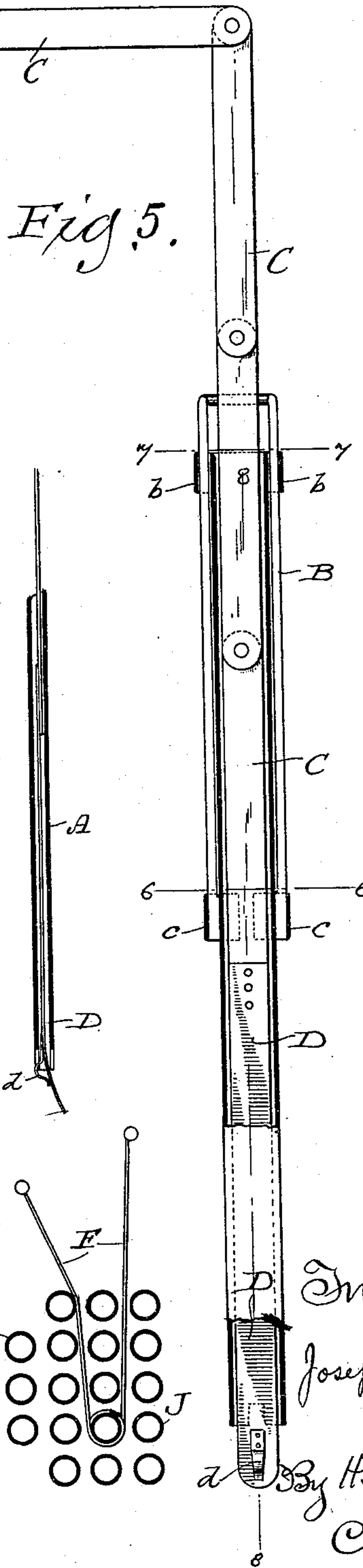
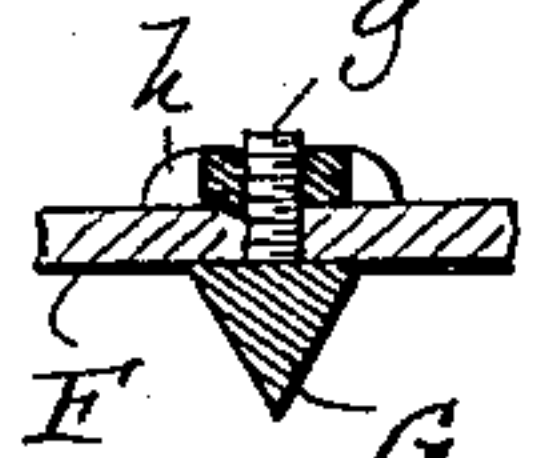
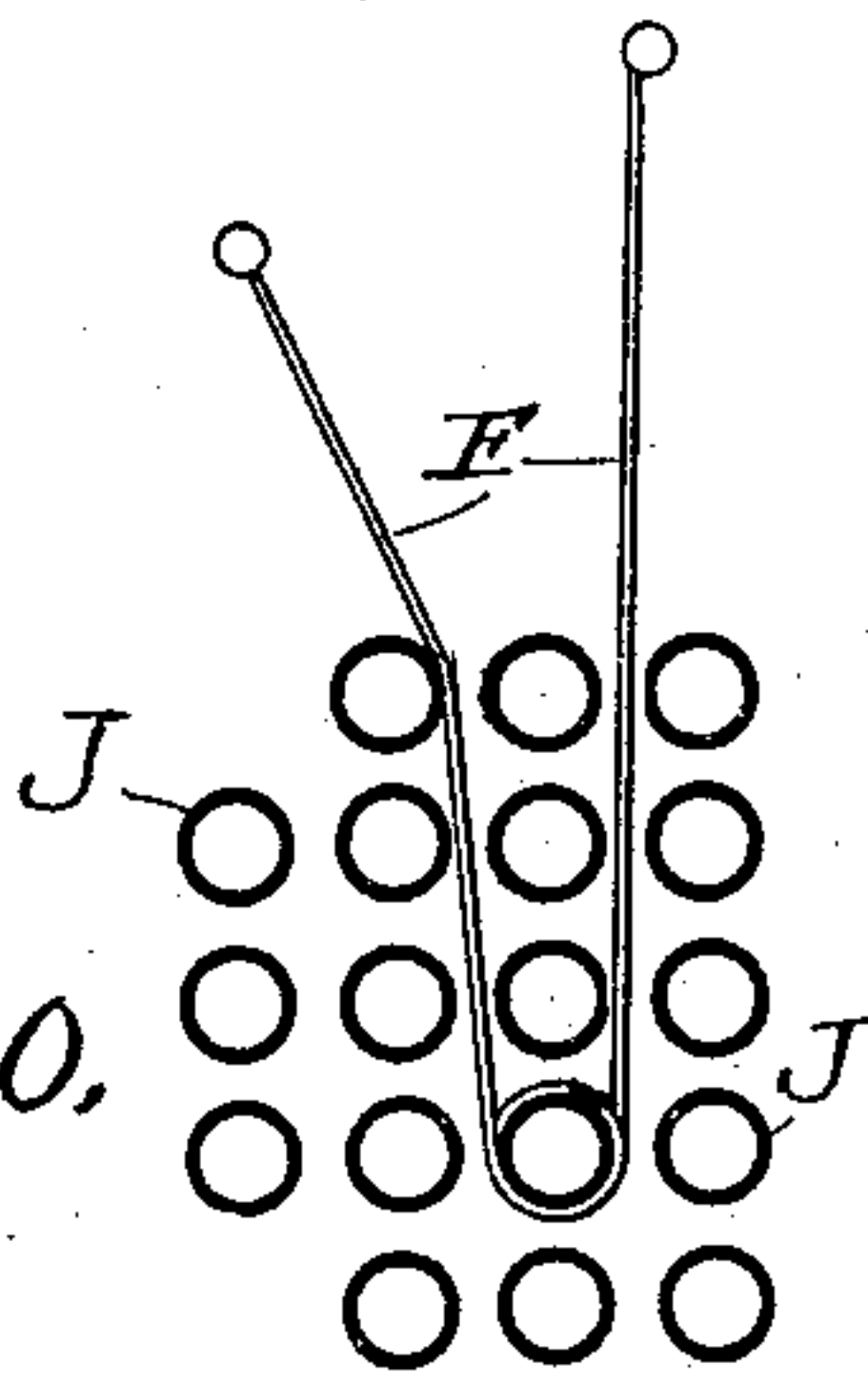


Fig. 10.



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# UNITED STATES PATENT OFFICE.

JOSEPH SHOSTAK, OF MILWAUKEE, ASSIGNOR OF ONE-HALF TO JACOB RUBIN, OF WHITEWATER, WISCONSIN.

## CLEANING BOILER-FLUES.

SPECIFICATION forming part of Letters Patent No. 478,824, dated July 12, 1892.

Application filed February 9, 1892. Serial No. 420,846. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH SHOSTAK, a subject of the Czar of Russia, and a resident of Milwaukee, in the county of Milwaukee, and in the State of Wisconsin, have invented certain new and useful Improvements in Cleaning Boiler-Flues; and I do hereby declare that the following is a full, clear, and exact description thereof.

10 My invention has for its object to mechanically remove the deposits that accumulate on the outside of boiler-flues, the operation being performed within the boiler.

15 To this end the said invention consists in a peculiar apparatus, to be hereinafter described, with reference to the accompanying drawings, and subsequently claimed.

20 In the drawings, Figures 1, 2, and 3 represent perspective views of certain parts embodied in the apparatus that forms part of my invention and illustrate three successive steps necessary to a spiral arrangement of a scraper-carrying strap on a boiler-flue. Fig. 4 represents an elevation of a portion of an incrustated boiler-flue with the scraper-carrying strap in working position thereon; Fig. 5, an elevation, partly in section, of a portion of said apparatus necessary in the operation of placing said scraper-carrying strap in its working position; Figs. 6, 7, and 8, detail sections respectively taken on lines 6 6 and 7 7 of the preceding figure, and Fig. 9 a detail section of the aforesaid scraper-carrying strap. Fig. 10 is a diagram illustrating the carrying out of my invention.

35 Referring by letter to the drawings, A represents a rectangular casing provided at its upper end with guides *b* for a skeleton handpiece B, and fast to the lower portion of this handpiece are clips *c*, that engage the casing. By means of the guides and clips just described a telescopic connection is formed between the casing A and handpiece B, and the frictional contact of the engaging parts is sufficient to hold said handpiece in the position to which it may be adjusted.

45 Arranged to slide in the casing A is a bar comprising a series of jointed sections C, and to the lower end of this bar I fasten a strip D of spring-steel, the latter having been given a spiral twist. The spring-strip is normally

drawn out straight and into the casing A, that forms a guide for the jointed bar.

50 Arranged on the free end of the strip D is a spring-clip *d* for engagement with the ring *e* on a cord E or other suitable flexible device, that is attached in any convenient manner to an eye *f* on each end of a strap F, and on the inner side of this strip is a series of transverse scrapers G, that have plain edges and alternate with other transverse scrapers H, the edges of the latter being notched at regular intervals.

Each scraper is provided with screw-threaded lugs *g*, that pass through the strap F to engage set-nuts *h*, this detachable connection permitting of broken or worn-out scrapers being readily detached from said straps and new ones placed in position thereon. In addition to the eyes *f* the ends of the strap F are provided with perforations *i* for engagement with the tongues *j* of buckles *k*, connected to handles I, the latter being placed in position for use after the strap is arranged to spirally encircle a boiler-flue J, as will be hereinafter more fully described.

75 A rod K (shown in Figs. 2 and 3) is provided at its lower end with a snap-hook *m* for detachable connection with the ring *e* on the flexible device E, specified in the foregoing.

80 In practice the flexible device E is attached to one end of the strap and the ring *e* on said flexible device engaged with the spring-clip *d* on the retracted spring-strip D, after which the casing A is placed by the operator so that the free end of said spring-strip will come adjacent to the flue J that it is desirable to clean. The jointed bar C is now pushed upon to force the spring-strip D out of the casing A, and as this spring-strip has been given the proper twist it automatically encircles the adjacent flue in a spiral direction, the flexible device E being carried therewith in the same direction, as clearly shown in Fig. 2. The snap-hook *m* on the rod K is now engaged with the ring *e* on the flexible device E and said ring detached from the spirally-wound spring-strip D, after which this spring-strip is retracted into the casing A and the latter drawn up away from the flue to be laid aside until again needed. By means of the hook-rod K the flexible device E is drawn up into reach



of the operator, and this flexible device is followed by the strap F, carrying the scrapers G H, above described. By the operation just described a portion of the strap F is spirally wound on the flue to be cleaned and the scraper G H on the inner side of said strap faces said flue. Both ends of the strap being now in reach of the operator, the handles I are connected to said strap and the latter given a reciprocative motion to cause the scrapers to remove the deposits on the flue. By having the strap wound spirally on the flue I cover considerable area and obtain the best results, the notched scrapers acting to score and break the deposits on said flue, while the remaining scrapers act to entirely remove said deposits. Inasmuch as the work is done inside of a boiler the bar C is jointed and let out joint after joint as said bar is pushed down, said bar being folded up joint by joint as the spring-strip D is retracted into its casing. Hence it will be seen that the operator has ample clearance when manipulating the parts necessary in the work of encircling a flue with the spirally-twisted spring-strip.

In order to get at the lowermost flues in a boiler, the casing A is run down or the hand-piece B drawn up, as may best suit the con-

venience of the operator, and thus the tool comprising said casing, handpiece, jointed bar C, and spring-strip D may be lengthened or shortened at will within predetermined limits.

Having now fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

An apparatus for cleaning the outside of boiler-flues, that consists of a suitable casing provided with guides, a skeleton handpiece loose in the guides and having clips that loosely engage the casing, a jointed bar loose in said casing, a spirally-twisted strip of spring material connected to one end of the bar and retractible within the aforesaid casing, a strap having a series of scrapers thereon, and suitable means for detachably connecting the spring-strip and strap, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

JOSEPH SHOSTAK.

Witnesses:

N. E. OLIPHANT,  
GEO. W. YOUNG.