No. 828,120. PATENTED AUG. 7, 1906.

L. T. JONES.

TUBE CUTTER.

APPLICATION FILED JAN. 10, 1906.

Fig. 1

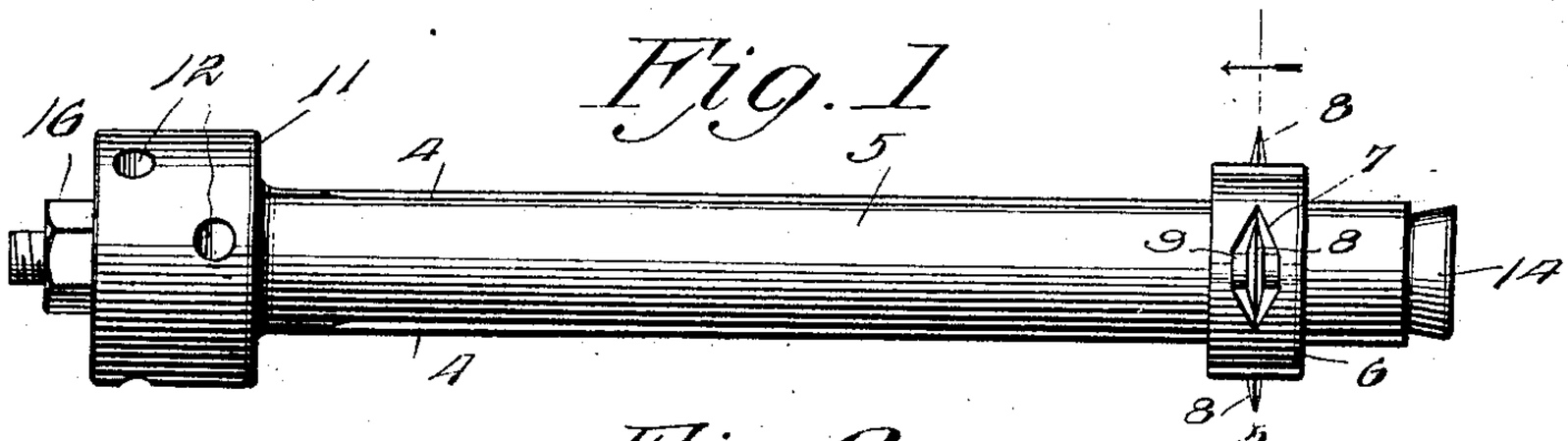

Fig. 2.

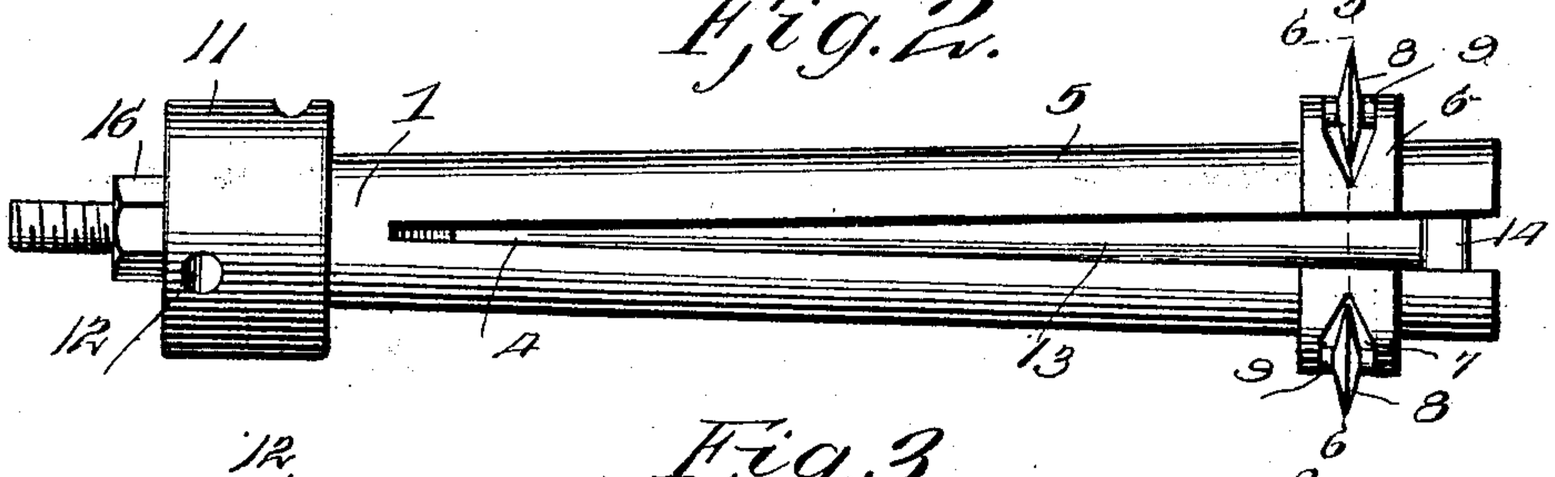

Fig. 3.

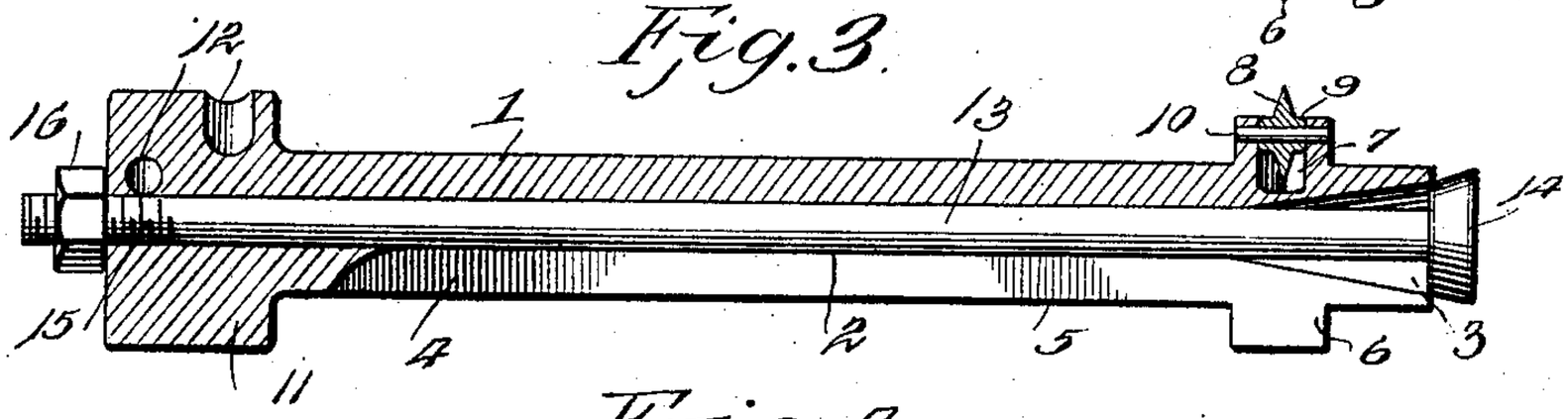

Fig. 4.

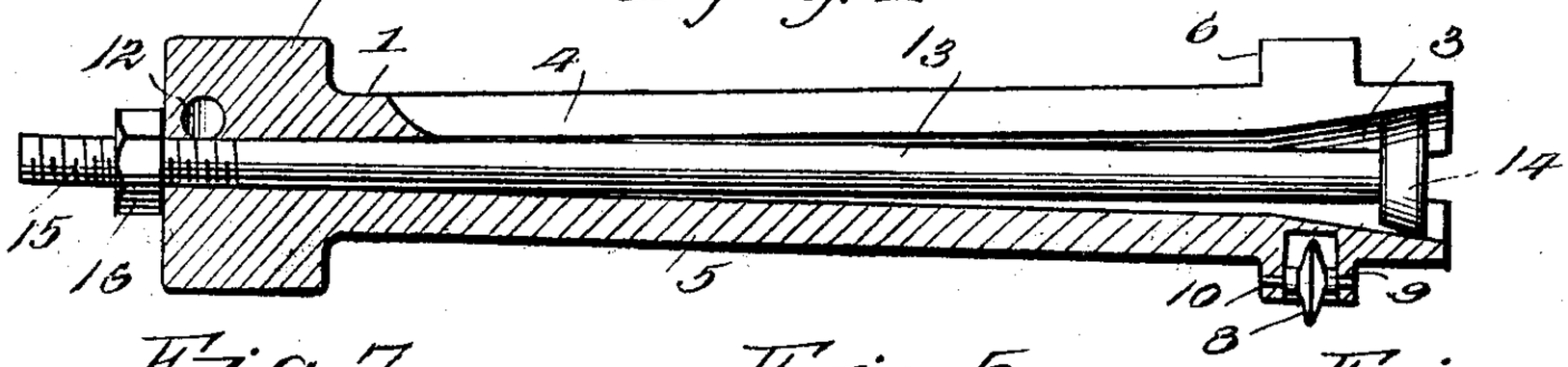

Fig. 7

Fig. 5.

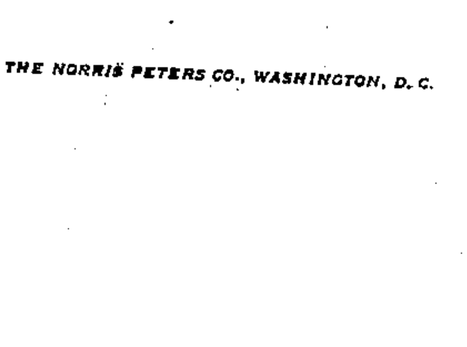

Fig. 6.

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TUBE-CUTTER.

No. 828,120. Specification of Letters Patent. Patented Aug. 7, 1906.

Application filed January 10, 1906. Serial No. 295,445.

To all whom it may concern:

Be it known that I, LEWIS T. JONES, a citizen of the United States, residing at Richville, in the county of St. Lawrence and State of New York, have invented new and useful Improvements in Tube-Cutters, of which the following is a specification.

This invention relates to tube-cutters designed especially for use in removing boiler-flues, and has for its objects to provide a comparatively simple inexpensive device of this character which may be readily introduced into the tube to be cut, one in which the expander or core may be readily operated for expanding the relatively movable spring-sections for drawing the cutting-dies into action, and one in which lateral movement of the dies will be obviated, thus to insure their proper action in cutting the tube.

With these and other objects in view the invention comprises the novel features of construction and combination of parts more fully hereinafter described.

In the accompanying drawings, Figure 1 is a side elevation of a tube-cutter embodying the invention. Fig. 2 is a similar view showing the spring-sections expanded. Fig. 3 is a longitudinal section centrally therethrough and showing the parts in normal position. Fig. 4 is a similar view showing the core in position for expanding the spring-sections. Fig. 5 is a detail cross-section taken on the line 5 5 of Fig. 1. Fig. 6 is a similar view taken on the line 6 6 of Fig. 2. Fig. 7 is a rear end view of the tool.

Referring to the drawings, 1 designates a cylindrical tubular body having a central longitudinal bore 2, terminating at its forward end in an outwardly-inclined conical recess 3, the body being provided with a plurality of longitudinal radiating slots 4, terminating adjacent the rear end of the body and dividing the latter into a series of relatively movable spring portions or sections 5, having adjacent their forward ends segmental bearing portions or enlargements 6, recessed at 7 to receive rotary cutting members or dies 8, each having a hub 9, which terminally bears upon the opposite walls of the recess and receives a pintle or axle 10, on which the cutter rotates. The body 1 is provided at its rear end with an annular head or enlargement 11, adapted to bear upon the interior of the tube to be cut and having transverse openings 12 for the reception of a spanner-bar 12′ to be employed in rotating the tool during the cutting operation.

Arranged for longitudinal movement through the bore 2 is an expander member or core 13, provided at its forward end with a trunco-conical head 14 and having its rear end, which projects beyond the rear end of the body, threaded, as at 15, for the reception of an operating member or nut 16, adapted to be manipulated for moving the core 13 back and forth through the body 1.

In practice supposing the parts of the device to be in normal position, as illustrated in Figs. 1 and 3, with the rod or core 13 moved forwardly and the head 14 projected beyond the forward end of recess 3, the spring portions 5 will be contracted relatively to permit introduction of the tool into the pipe to be cut. After positioning the tool in the pipe the nut 14 is manipulated for moving the core 13 rearwardly and drawing the head 14 into the conical recess 3, whereby the head will act upon the inner inclined faces of the recess for expanding the portions 5 relatively and pressing the cutting-dies 8 into active cutting engagement with the inner wall of the tube, whereupon bodily rotation of the tool is effected by means of the spiral bar 12′ in the manner heretofore explained. It will be noted that as the core 13 moves forwardly the sections 5 will move automatically under spring action toward one another or to contracted condition for permitting introduction of the tool into the flue, and, furthermore, that as the cutting operation progresses the dies 8 are forced from time to time to cutting position by manipulation of the nut 16.

From the foregoing it is apparent that I produce a comparatively simple inexpensive device admirably adapted for the attainment of the ends in view, it being understood that in attaining these ends minor changes in the details herein set forth may be resorted to without departing from the spirit of the invention.

Having thus described my invention, what I claim is—

1. In a flue-cutter, a body provided with a central bore and having its walls incised longitudinally to form a plurality of radially-movable spring-sections, said sections being provided at their forward ends with divergently-inclined inner faces and having adjacent their forward ends recessed segmental

enlargements, a plurality of rotary members journaled in said recessed enlargements for movement with the respective sections, a core fitted in and movable longitudinally of the bore and having a conical head adapted to act upon the inclined faces of the sections for expanding the latter radially, said core having a threaded portion projected beyond the rear end of the body, and an operating member tapped onto said threaded portion and operable for moving the core back and forth through the body.

2. In a flue-cutter, a body provided with a central bore and having its walls incised longitudinally to form a plurality of radially-movable spring-sections, said sections being provided at their forward ends with divergently-inclined inner faces and having adjacent their forward ends recessed segmental enlargements, a plurality of rotary members journaled in said recessed enlargements for movement with the respective sections, a core fitted in and movable longitudinally of the bore and having a conical head adapted to act upon the inclined faces of the sections for expanding the latter radially, and means for moving the core back and forth through the body.

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

LEWIS T. JONES.

Witnesses:

WILLIAM WALKER,

FRANK B. BEAMAN.