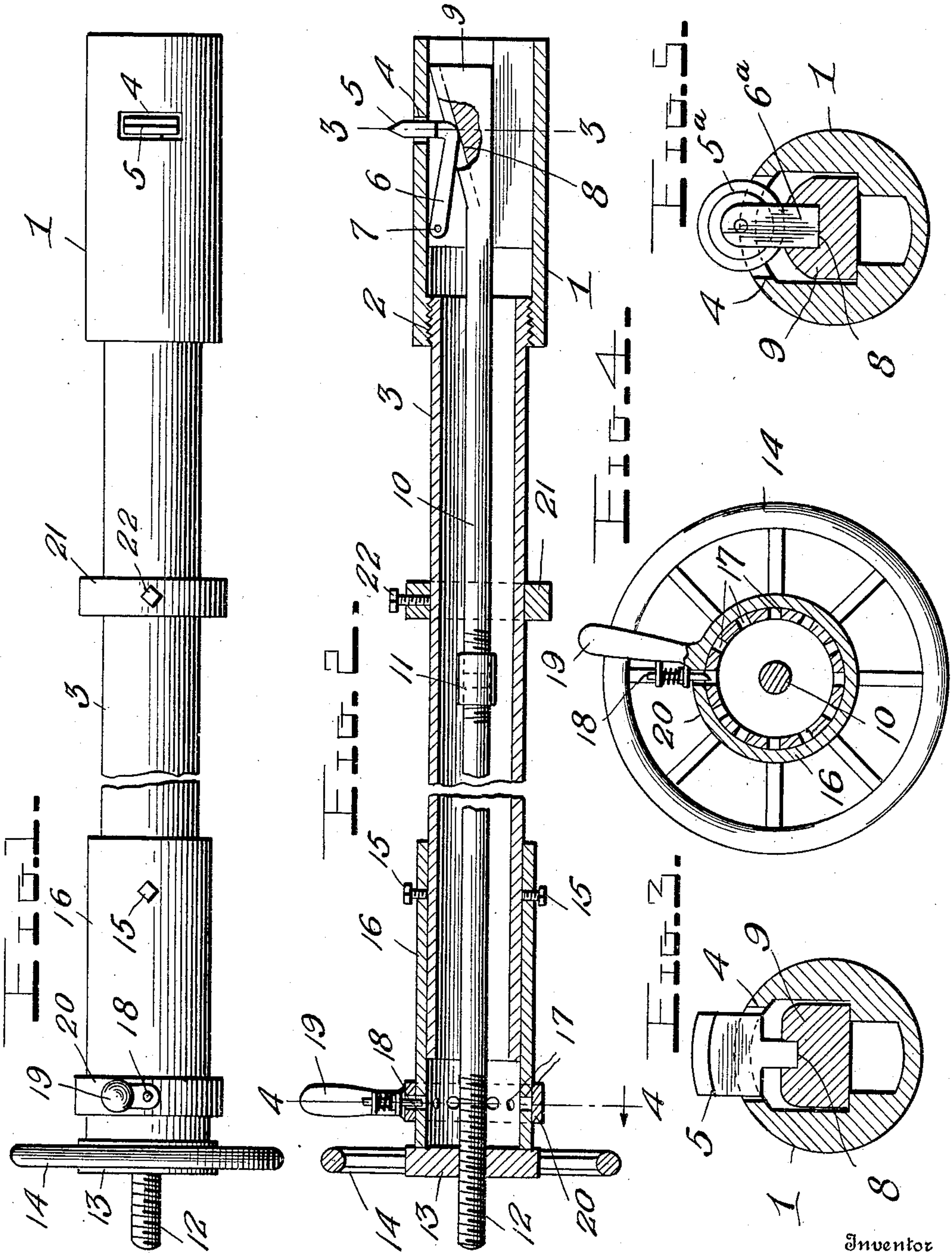


J. M. WENZEL.
FLUE CUTTER.
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940,222.

Patented Nov. 16, 1909.



Witnesses

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JOSEPH M. WENZEL, OF CORSICA, SOUTH DAKOTA.

FLUE-CUTTER.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOSEPH M. WENZEL, a citizen of the United States, residing at Corsica, in the county of Douglas and State of South Dakota, have invented certain new and useful Improvements in Flue-Cutters, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to improvements in devices for cutting boiler flues and the like.

The object of the invention is to provide a simple and practical device of this character which may be produced at a small cost and may be conveniently and effectively used for cutting tubes out of boilers.

With the above and other objects in view, the invention consists of the novel features of construction and the combination and arrangements of parts hereinafter fully described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the improved flue cutter; Fig. 2 is a longitudinal section; Figs. 3 and 4 are cross sections taken, respectively, on the planes indicated by the lines 3—3, and 4—4 in Fig. 2; and Fig. 5 is a detail view similar to Fig. 3 showing a modified form of knife or cutter.

The invention comprises a tubular body consisting, preferably, of a large outer section 1 having a threaded engagement, as shown at 2, with the end of a smaller intermediate section 3 arranged between the outer section 1 and an inner section 16. In the tubular section 1 is formed an opening 4 from which projects a knife or cutting blade 5, the latter being either in the form of a pivoted blade, as shown in Figs. 1 and 3 of the drawings, or in the form of a rotary cutting disk 5^a, as shown in Fig. 5. The knife 5 projects laterally from the free end of a lever 6, the other or inner end of which is pivoted at 7 in the tubular section 1. The roller 5^a is journaled in a bearing block 6^a which slides radially in the opening in the large tubular section; and either said lever 6 or block 6^a are adapted to work in a longitudinal groove 8 formed in one side of a wedge 9 carried by one end of a rod 10, which latter slides longitudinally through the tubular section 3. The rod 10 may be formed of one piece or of two or more sections connected by couplings, as indicated at 11, and its inner end which projects outside of the tubular section 3 of the

body is externally screw threaded, as shown at 12, to receive a nut 13 formed by the hub of a hand wheel 14. The grooved wedge 9 on the end of the screw rod 10 has a flat base portion which slides on longitudinal guide ways or shoulders formed in the bore of the section 1 opposite the transverse opening 4, as shown in Figs. 2 and 3. It will be seen that when the latter is rotated its hub bears against the inner end of the section or body 3 and draws the rod 10 longitudinally so that the wedge 9 will move the lever 6 or block 6^a to project the knife or cutter.

The section 3 of the body is preferably adapted to be telescoped by the next adjacent section 16 so that it can be adjusted longitudinally thereof and it is held in adjusted position by means of set screws 15. Said section 16 has the nut or wheel 14 bearing against its inner end and adjacent to said end it has formed in it an annular series of holes or seats 17 which form ratchets for the reception of a spring pressed pawl 18 carried by a hand lever 19. This lever has a hub 20 which surrounds and rotates upon the section 16 so that when the lever 19 is oscillated its dog 18 will cause the body of the device to be intermittently rotated.

21 denotes a gage in the form of a collar arranged upon the intermediate portion of the tubular body of the device and is provided with one or more screws 22 which secure it in adjusted position.

The operation of the device is as follows: The hand wheel or nut 14 is screwed inwardly on the rod 10 and the latter is moved outwardly in the tubular body so that the knife or cutter will be retracted into the large tubular outer section 1 of the body. The device is then inserted in the boiler flue or tube which is to be cut and the lever 19 is oscillated to rotate the tubular body and cause the knife or cutter to cut through the flue. As the body is rotated, the knife or cutter is forced outwardly in a radial direction by rotating the hand wheel 14, which latter causes the nut 13 to move the rod 10 inwardly so that its wedge 9 will project either the lever 6 or the block 6^a.

Having thus described the invention what is claimed is:

1. A flue cutter comprising a body having a tubular intermediate section, a tubular outer section formed with a transverse opening and with internal longitudinal guide

ways or shoulders adjacent said opening, a lever pivoted at one end in said outer section and having an angular outwardly projecting end formed with a cutting blade to project through the transverse opening in said outer section, a tubular inner section to telescope the inner end of the intermediate section and formed adjacent to its inner end with an annular series of openings, a set screw for retaining the inner section in adjusted position, a longitudinally movable rod extending through the body and having its inner end screw threaded, and its outer end formed with a wedge having a flat portion to slide on the longitudinal guide shoulders in the outer section, the opposite face of said wedge being inclined and formed with a groove to receive said blade-carrying lever, a hand wheel having an internally threaded hub to engage the inner section and arranged on the threaded end of said rod to serve as an actuating nut for the latter, a hand lever formed with a collar to surround and rotate upon the apertured portion of the inner section, and a spring pressed bevel ended pawl carried by said hand lever and adapted to enter the apertures or openings in said inner section.

2. A flue cutter comprising a body having a tubular intermediate section, a tubular outer section formed with a transverse opening and with internal longitudinal guide ways or shoulders adjacent said opening, a lever pivoted at one end in said outer section

and having an angular outwardly projecting end formed with a cutting blade to project through the transverse opening in said outer section, a tubular inner section to telescope the inner end of the intermediate section and formed adjacent to its inner end with an annular series of openings, a set screw for retaining the inner section in adjusted position, a longitudinally movable rod extending through the body and having its inner end screw threaded and its outer end formed with a wedge having a flat portion to slide on the longitudinal guide shoulders in the outer section, the opposite face of said wedge being inclined and formed with a groove to receive said blade-carrying lever, a hand wheel having an internally threaded hub to engage the inner section and arranged on the threaded end of said rod to serve as an actuating nut for the latter, a hand lever formed with a collar to surround and rotate upon the apertured portion of the inner section, a spring pressed bevel ended pawl upon said hand lever to enter the apertures or openings in said inner section, a collar longitudinally slidable on said intermediate section, and fastening screws in said collar.

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

JOSEPH M. WENZEL.

Witnesses:

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A. D. KNAPP.