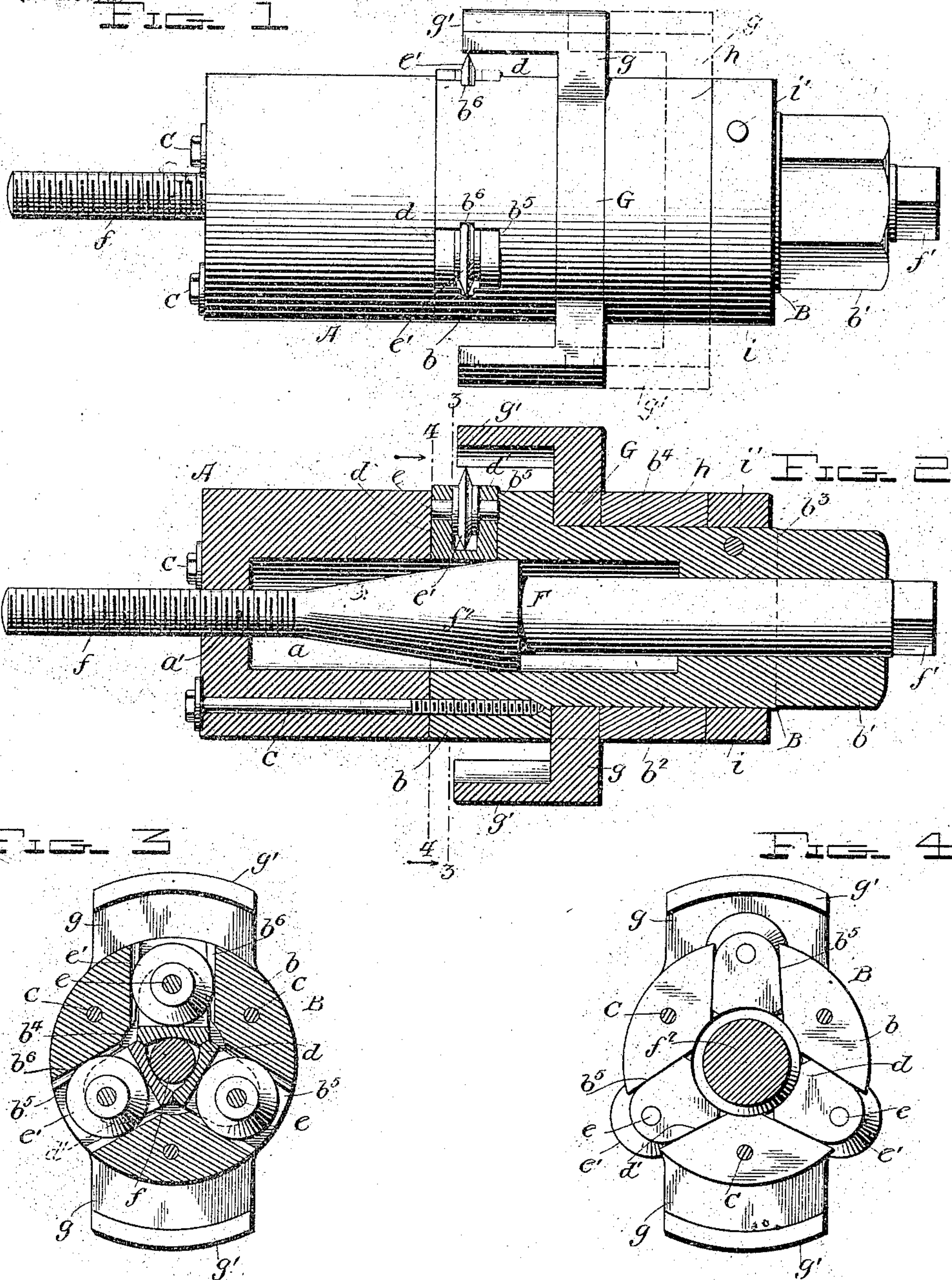


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FLUE OR PIPE CUTTER.

(Application filed July 12, 1901.)

(No Model.)



Witnesses

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UNITED STATES PATENT OFFICE.

ADAM SIMPSON BOYD AND AUGUSTUS DANIEL GABLE, OF SHENANDOAH,
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FLUE OR PIPE CUTTER.

SPECIFICATION forming part of Letters Patent No. 686,252, dated November 12, 1901.

Application filed July 12, 1901. Serial No. 68,075. (No model.)

To all whom it may concern:

Be it known that we, ADAM SIMPSON BOYD and AUGUSTUS DANIEL GABLE, citizens of the United States, residing at Shenandoah, in the county of Schuylkill and State of Pennsylvania, have invented certain new and useful Improvements in Flue and Pipe Cutters; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to devices for cutting flues, pipes, and the like, and has for its object the production of an improved cutter adapted to operate interiorly at any desired point to sever the flue or pipe, the operation being accomplished in the minimum of time and without the exercise of special skill.

The nature of the invention will be readily comprehended, reference being had to the following detailed description and to the accompanying drawings, in which—

Figure 1 is an elevation of a flue or pipe cutter embodying the invention. Fig. 2 is a central longitudinal sectional view of the same. Fig. 3 is a cross-sectional view on line 3 3 of Fig. 2, showing one adjustment of the cutters. Fig. 4 is a cross-sectional view on line 4 4 of Fig. 2, showing another adjustment of the cutters.

Referring to the drawings by letter, A denotes a casing-section of cylindrical form having a central bore or chamber a and a screw-threaded aperture a' of less diameter than the bore or chamber a . B designates a casing-section, also of cylindrical form, a portion b of which corresponds in diameter to the section A. The opposite end b' of the section B is of polygonal form, and b^2 is an intermediate portion of smaller diameter than the part b . The sections A and B are secured together endwise by a plurality of screw-bolts c . The section B has a central bore b^3 , enlarged toward the inner end to provide a chamber b^4 . At the inner end of the section B are a plurality of radial tapered openings

b^5 b^5 , which receive slidable cutter-heads. Each cutter-head consists of a block d , the inner end of which is concentrically curved and having sides d' , which taper slightly, and thus conform to the tapered opening b^5 , whereby the head is limited in its outward movement and cannot become disconnected while the parts are assembled. The outer end of the block is recessed, and in said recess is mounted on a pin e a cutter-wheel e' , having a knife-edge periphery. The walls of each opening b^5 are provided with grooves b^6 , which receive the periphery of the wheel.

F denotes a stem having at one end f screw-threads which engage the threaded aperture a' . The other end f' is squared, and between the ends is a tapered portion f^2 .

G denotes a gage, which is in the form of a collar, having extensions g g , from which project flanges g' g' . The gage-collar encircles the reduced portion b^2 of the section B, and in one adjustment is confined against the shoulder of the portion b by a sleeve h and a set-collar i , which latter is secured by a pin or cotter i' . With this adjustment, the cutters will operate to sever a flue outside the boiler-head. If the flue is to be cut within the boiler, the gage is shifted to a position to the rear of the sleeve h , such position being shown in dotted lines in Fig. 1. When it is desired to cut a flue or pipe at a considerable distance from the end, the gage, sleeve, and collar are removed from the device to enable the latter to be moved inwardly the desired distance. The section A and part b of section B are of slightly less diameter than the inside diameter of the pipe to be cut.

In operation the device is inserted the desired distance and a wrench or similar tool being applied to the squared end f' of the stem said stem is rotated and through the screw-thread connection is moved inwardly. In such movement the tapered portion f^2 engages the concentric surfaces of the blocks d and forces said blocks, with the cutters, outwardly against the inner surface of the flue or pipe. A wrench or like tool is then applied to the polygonal portion b' of the section B, and the device is turned to sever the flue or

pipe. During the cutting operation the stem is moved inwardly by degrees to increase the depth of cut.

The device is very simply and durably constructed and is not liable to disorder. In operation it is very efficient, the cut being made in a comparatively very short time and with the exercise of ordinary skill. The parts are assembled in such a manner as to afford ready access to the cutters, thereby facilitating sharpening or replacing of the same.

We claim as our invention—

1. An inside cutter for flues and pipes consisting of a rotatable cylindrical casing centrally apertured, a rotatable stem in the aperture having a threaded end engaging threads in the aperture and having an opposite squared end and an intermediate tapered portion, tapered blocks mounted in tapered radial openings in the casing said blocks being engaged at their inner end by the tapered portion of the stem, an adjustable and removable gage consisting of flanges carried by a collar loose on a reduced portion of the casing, a sleeve on said reduced portion adapted to

be placed in front or to the rear of the gage to change the location of the latter, and a set-collar removably confining the gage and sleeve.

2. An inside cutter for flues and pipes consisting of a rotatable cylindrical casing formed of sections detachably secured together end to end, one of the sections having in its inner end a plurality of radially-disposed tapered openings the walls of which are grooved, tapered blocks having a limited adjustment in said openings, rotary cutters mounted in the blocks and extending into the grooves, a tapered stem movable in the casing to engage the blocks and adjust the cutters, and a gage adjustable on the casing to determine the location of the cut and removable therefrom to permit the further insertion of the cutter.

In testimony whereof we affix our signatures in presence of two witnesses.

ADAM SIMPSON BOYD.

AUGUSTUS DANIEL GABLE.

Witnesses:

GEORGE OATES,

JAMES GLOVER.