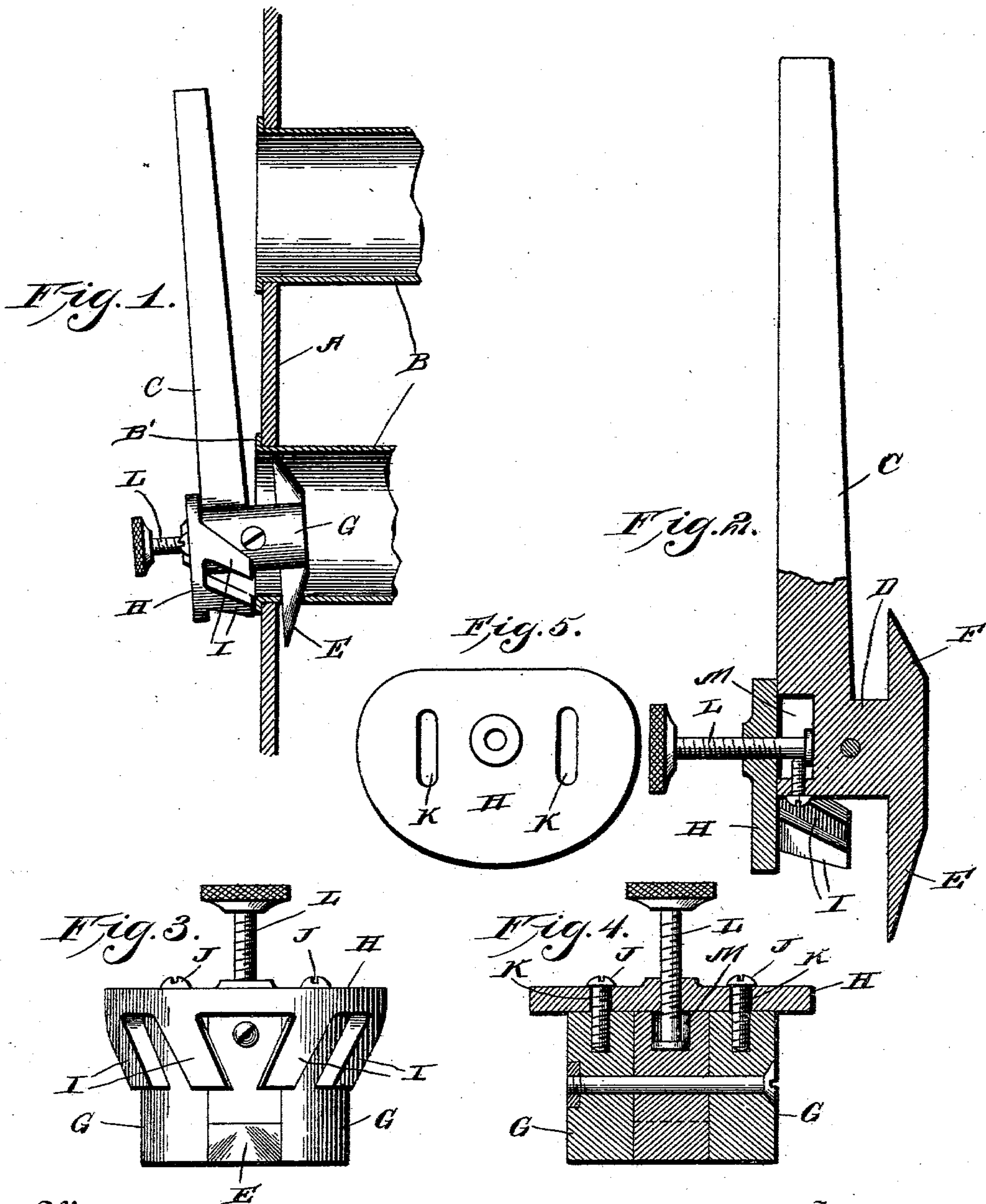


No. 716,911.

Patented Dec. 30, 1902.

F. E. LYON.
TOOL FOR REMOVING BOILER FLUES.
(Application filed May 20, 1902.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

FRANCIS E. LYON, OF ATLANTIC, IOWA.

TOOL FOR REMOVING BOILER-FLUES.

SPECIFICATION forming part of Letters Patent No. 716,911, dated December 30, 1902.

Application filed May 20, 1902. Serial No. 108,163. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS E. LYON, a citizen of the United States, residing at Atlantic, county of Cass, and State of Iowa, have invented a certain new and useful Improvement in Tools for Removing Boiler-Flues, of which the following is a specification.

My invention relates to a new and useful improvement in tools for removing boiler-flues, and has for its object to provide a tool which may be operated by hand-power, which will quickly and effectually cut off the tube inside of the boiler-head and at the same time remove the bead upon the outside of the boiler-head, so that the old tube can be easily removed and replaced by a new one.

With these ends in view this invention consists in the details of construction and combination of elements hereinafter set forth and then specifically designated by the claims.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, the construction and operation will now be described in detail, referring to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a sectional view of a portion of a boiler-head, showing my tool in action; Fig. 2, a longitudinal section through the tool; Fig. 3, an end elevation of the same; Fig. 4, a cross-section through the tool; Fig. 5, a plan view of the top plate.

A represents the boiler-head, and B represents the flues. The tool consists of the handle C, which has formed with it a lateral projection D, which carries upon the end the two blades E and F. These blades are flat upon the side next to the handle, but are rounded or beveled upon the opposite side. Upon each side of the tool opposite the lateral projection D are secured the half-round projecting portions G.

H is a plate adapted to be secured to the back of the tool, and this plate has extending from it the inclined cutters I. One half are inclined in one direction and the other half in the other, as shown in Fig. 3. These cutters are sharpened upon their lower edges for the purpose hereinafter described.

In using the tool the long blade E is insert-

ed in the flue, and by pounding upon the end of the handle C this blade is forced through the tube just inside of the boiler-head A, and this blade is forced down through the flue until the shorter knife F can also pass in the flue, and then by working the tool backward and forward the knife E will act to shear the tube off by reason of the shorter knife F also coming in contact with the flue, so as to form a fulcrum. The side projections G serve to steady the tool while in action. On account of the knife E being flat upon one side when it comes against the boiler-head the flue will be sheared off flush with the inside of the boiler-head and the cut edges will be all turned in, so that said flue may be easily removed after being severed. At the same time the flue is being cut the cutters I are operating against the bead B' upon the outside of the boiler-head, so as to cut off said bead, and thus facilitate the removal of all parts of the flue.

If it is desired to give increased leverage, an ordinary gas-pipe may be passed through the handle C, so as to lengthen the handle, or, the handle being square, an ordinary monkey-wrench may be attached thereto, so as to increase the leverage.

For the purpose of adjusting the cutters I in relation to the knives E and F to accommodate different thicknesses of boiler-heads I make the top plate H adjustable, it being secured to the body of the tool by means of the screws J, which pass through slots K in the plate H.

L is a set-screw threaded through the plate H and bearing against the body of the tool, so that when it is necessary to increase the distance between the cutters I and the knives E and F the screws J may be loosened, and then by turning the set-screw L the plate H may be forced away from the body until it comes in contact with the heads of the screws J, and thereby hold the plate immovable, and to lessen the distance between the cutters and the knives E and F it is simply necessary to loosen the screw L and then tighten the screws J, and to make the cutters I adjustable to different sizes of boiler-flues the slots K are provided, so that the plate may be moved inward or outward for different-size flues, and

an opening M is provided in the body of the tool to accommodate the end of the screw L, so that it may be moved with the plate H.

While I have shown the blades E and F integral with the body of the tool, it is obvious that said blades could be made separate and attached thereto.

Of course I do not wish to be limited to the exact construction here shown, as slight modifications could be made without departing from the spirit of my invention.

Having thus fully described my invention, what I claim as new and useful is—

1. In a tool for removing flues, a handle, a body to which said handle is secured, a cutting-blade secured to the body parallel with the handle and extending downward from the body, a second cutting-blade extending upward from the body parallel with the handle, a plate adjustably secured to the rear of the body, cutters arranged in a circle and extending toward the cutting-blades, as and for the purpose specified.

2. In a tool of the character described, a handle, a body to which said handle is secured, a lateral projection extending outward from the body, two cutting-blades, one extending upward and the other downward from said lateral projection and secured thereto, a plate adjustably secured at the rear of the body, inclined cutters formed with the plate and extending toward the cutting-blades, half of said cutters being inclined in one direction and the other half in the other, as and for the purpose specified.

3. In a device of the character described, a handle, a body to which said handle is secured, a lateral projection extending outward from said body, two blades secured to said lat-

eral projection, one blade extending upward and the other downward parallel with the handle, rounded projections secured upon each side of the body, an adjustable plate secured at the rear of the body, cutters formed with said plate and extending toward the cutting-blades, said cutters being inclined half in one direction and the other half in the other, as and for the purpose specified.

4. In a tool of the character described, a handle, a body to which said handle is secured, a lateral projection extending outward from said body, two knife-blades secured to said lateral projection, one of said knife-blades projecting upward and the other downward from the lateral projection and being formed flat upon the side next to the handle and rounded or beveled upon the opposite side, a plate arranged upon the rear of the body, cutters secured to said plate in a circle and projecting toward the cutting-blades, said cutters being inclined half in one direction and the other half in the other direction, said plate provided with slots parallel with the handle, screws passing through said slots and into the body of the tool, said screw threaded through the plate and adapted to bear against the body of the tool, said body being provided with an opening to allow for the longitudinal movement of the end of said screw when moved with the plate, as and for the purpose specified.

In testimony whereof I have hereunto affixed my signature in the presence of two subscribing witnesses.

FRANCIS E. LYON.

Witnesses:

H. F. DUVAL,
S. A. WORTHING.