No. 689,742. Patented Dec. 24, 1901.

W. NEWMAN.

TOOL.

(Application filed July 3, 1901.)

(No Model.)

Fig. 1.

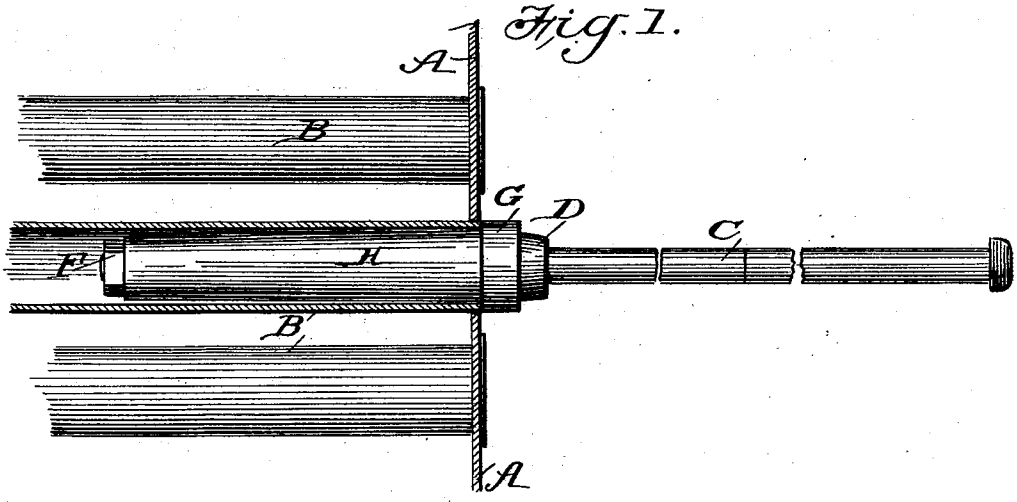


Fig. 2.

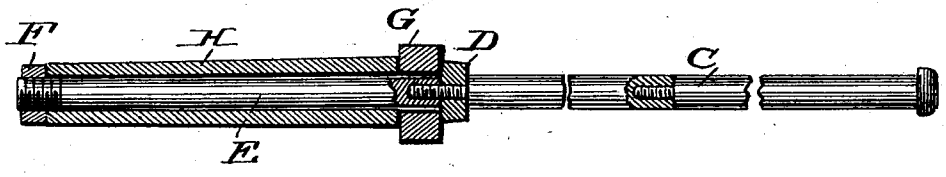
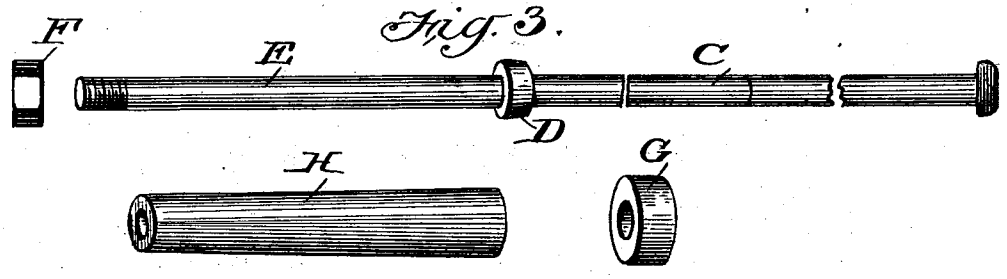


Fig. 3.



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UNITED STATES PATENT OFFICE.

WILLIAM NEWMAN, OF ALEXANDRIA, SOUTH DAKOTA.

TOOL.

SPECIFICATION forming part of Letters Patent No. 689,742, dated December 24, 1901.

Application filed July 3, 1901. Serial No. 67,055. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM NEWMAN, a citizen of the United States, residing at Alexandria, in the county of Hanson and State of South Dakota, have made certain new and useful Improvements in Tools, of which the following is a specification.

My invention is an improvement in devices for removing flues from boilers, and has for an object to provide a device simple in construction, easily operated, and by which the flue may be driven or punched from the flue-sheet of the boiler; and the invention consists in certain novel constructions and combinations of parts, as will be hereinafter described and claimed.

In the drawings, Figure 1 is a side view of my invention as in use, the flue-sheet and flue being shown in section. Fig. 2 is a longitudinal section of the device, partly broken away; and Fig. 3 illustrates the parts detached.

My invention is a device for removing flues from boilers, as will be understood from Fig. 1, wherein the flue-sheet A and the flue B are shown in section, the bead on the flue having been cut off level with the flue-sheet, so the tool may be operated as a ram or punch to punch out the flue.

The tool comprises the main bar, which has a handle C, which should be as long or a little longer than the flue to be removed, and the bar also has a shoulder D and beyond the same a shank or tang E, about two feet long, the end of which is threaded or otherwise adapted to receive a securing device, which may be a nut F or other suitable device, for retaining the tapered guide when such guide is made removable, as shown in the drawings. The tool also comprises a cutter G, which forms a shoulder or ring to abut the end of the flue, and this driving-shoulder G is preferably of tool-steel tempered with both edges sharp, so it can be reversed if one edge becomes dull or broken.

In operation the driving shoulder or ring G is fitted on the shank E up against the shoulder D, which forms a firm support for it. The tapered guide or cone H is now slipped over the tang with its larger end foremost, up against the driving shoulder or ring, and is then secured by the nut F, as shown. The cone forms the tapered guide and has its larger end adjacent to the driving shoulder or ring formed to fit in the flue, so it will guide the shoulder or ring in operation against the end of the flue, so it can operate as a ram for driving the same as may be desired. The driving shoulder or ring is of a diameter not exceeding the external diameter of the flue and is preferably made of the same or about the same diameter as the flue, so it will operate squarely against the end of the flue and may pass through the flue-openings in the flue-sheet of the boiler.

In operation the tapered guide and the drive shoulder or ring may be removed and others substituted to fit tubes of different sizes, and for this reason it is preferred to make the tapered guide and the driving shoulder or ring separate from the main bar of the device and removable, as described, as well as for the further reason that it enables me to so construct the device that the operating parts may be made of material suited for the purpose and that the wearing parts may be readily replaced whenever desired.

The tapered form of the guide-cone facilitates the introduction of the device into the flue and the operation of the device as a ram by guiding the driving shoulder or ring accurately against the end of the flue.

It will be understood that the same main bar can be used for all sizes of flues by having guide cones or rings fitted to the different flues. In practice I find it desirable to make the main bar of machine-steel about one and an eighth inches in diameter, the cones of cast-iron, and the cutter-rings of tool-steel. Where desired, the main bar may be jointed for convenience in transportation and storage.

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

1. A tool for removing flues substantially as described, comprising a driving shoulder or ring whose diameter does not exceed the external diameter of the flue to be removed, a guide extending beyond the same to operate in the flue, and a handle portion on the opposite side of the driving-shoulder from said guide, substantially as set forth.

2. A tool for removing flues substantially

as described, comprising the handle bar or rod a driving shoulder or ring whose diameter does not exceed the external diameter of the flue to be removed, and the tapered guide or cone extending beyond the driving shoulder or ring on the opposite side of the driving-shoulder from the handle-bar and adapted to operate in the flue, substantially as set forth.

3. A tool for use in removing flues from flue-sheets, comprising the main bar, and a separate detachable driving-ring and tapered guide thereon, substantially as set forth.

4. A tool for removing flues from flue-sheets, comprising the main bar having a handle, the guide-tube and the driving ring or cutter held on said main bar and between the handle and the guide-tube, substantially as set forth.

5. The combination with the main bar, of the driving-shoulder or cutting-ring, and the guide-tube, substantially as set forth.

6. The tool herein described, comprising the main bar having a shoulder and a tang or shank beyond the same, and the cutter-ring, and guide-tube on the same tang beyond the shoulder of the main bar, substantially as set forth.

7. The tool herein described, comprising the main bar having a stop-shoulder and the shank or tang beyond the same, the driving shoulder or ring fitted on said tang up against the shoulder, and of a diameter not exceeding that of the flue to be removed, and the tapered guide-tube fitting on the tang up against the driving shoulder or ring, with its larger end next the said ring, and of a diameter to fit the flue to be removed, substantially as set forth.

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