

No. 713,012.

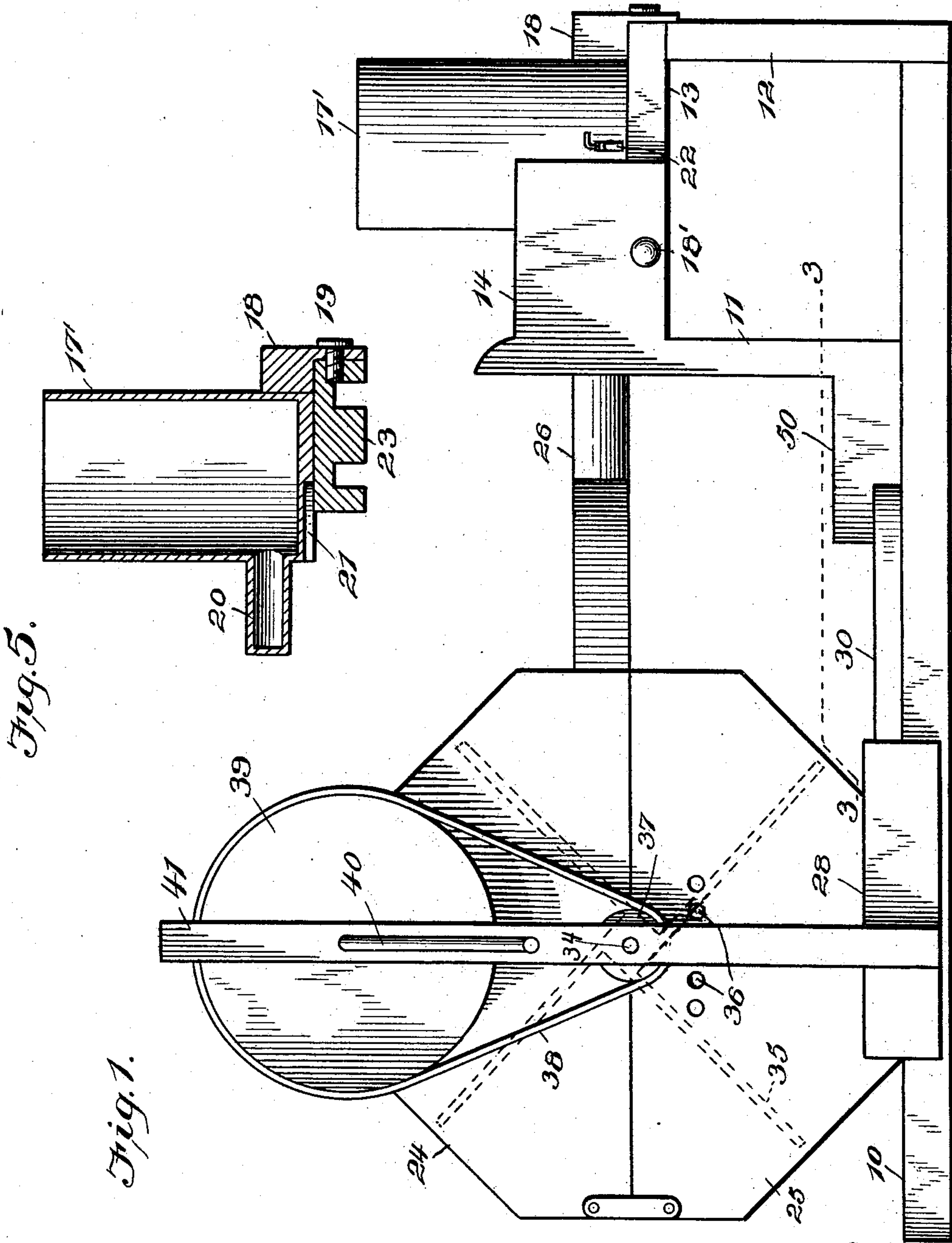
Patented Nov. 4, 1902.

G. B. MITCHELL.
COMBINATION BLAST FURNACE.

(Application filed Feb. 24, 1902.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses

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UNITED STATES PATENT OFFICE.

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COMBINATION BLAST-FURNACE.

SPECIFICATION forming part of Letters Patent No. 713,012, dated November 4, 1902.

Application filed February 24, 1902. Serial No. 95,346. (No model.)

To all whom it may concern:

Be it known that I, GIBB B. MITCHELL, a citizen of the United States, residing at Forsyth, in the county of Monroe, State of Georgia, have invented certain new and useful Improvements in Combination Blast-Furnaces; and I do hereby 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.

This invention relates to blast-furnaces; and it has for its object to provide a construction which may be used interchangeably for heating water, for heating irons, and as a forge.

A further object of the invention is to provide a simple and cheap construction which may be easily and quickly adjusted to perform its several functions; other objects and advantages of the invention being apparent from the following description.

In the drawings forming a portion of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 is a side elevation of the device equipped for heating water. Fig. 2 is a vertical section taken through the water-tank or boiler and the adjacent fire-pot and including a portion of the bellows. Fig. 3 is a horizontal section on line 3-3 of Fig. 1 and showing the lever mechanism for shifting the bellows from engagement with the fire-pot. Fig. 4 is a view similar to Fig. 2 and showing the fire-pot equipped for heating laundry-irons. Fig. 5 is a vertical section through the boiler and including the supplemental base on which it rests when detached from the fire-pot frame.

Referring now to the drawings, the present device comprises a base 10, at one end of which is fixed a frame comprising the uprights 11 and 12 and the upper cross-piece 13, the upright 11 extending above the portion 13 and forming one side of a fire-pot, of which the portion 13 forms the bottom. At the sides of the portion 13 are the upwardly-extending side portions 14, which join the upper portion of the upright 11, so that the three sides of the fire-pot are completed. In practice the portion 13, with the three sides of the fire-pot, may be cast integral, and on the inner faces

of the portions 14 are the shoulders 15. In the bottom of the fire-pot is an opening 16, with which communicates a transverse passage 17, in which is received a plug 18' to close the opening 16. When the plug is drawn outwardly, the ashes from the fire-pot will be discharged through the opening.

To provide for heating water, a boiler 17' is used. This boiler in the present instance is shown as cylindrical and is disposed upon the portion 13 at the open side of the fire-pot, and this boiler is of such width as to fill the opening and complete the fire-pot. To hold the boiler in place, a depending flange 18 is formed thereon at its side opposite to the fire-pot and rests against the face of the upright 12, to which it is held by a screw 19, passed through the flange and engaged with the upright. To facilitate heating of the water in the boiler, a tubular lateral projection 20 is formed thereon and extends into the fire-pot, so that the heat of the fire in the fire-pot may impinge directly thereagainst. To permit access of direct heat to a portion of the bottom of the boiler, said bottom is cut away partly, as shown at 21, on the side next to the fire-pot. The flames from the fire can thus pass partly under the boiler. A spigot 22 is provided for drawing water from the boiler. When the boiler is to be removed from the fire-pot, the attaching-screw is disengaged, and the boiler is then disposed upon a block 23 of a height equal to the depth of the flange of the boiler, and the block is secured in place against the bottom of the boiler by passing a screw through the flange and into the block. This block permits the boiler to be held upright when disengaged from the fire-pot.

To deliver a blast to the lower portion of the fire-pot to facilitate combustion therein, a blower or bellows is provided and comprises casing including the upper and lower portions 24 and 25, which when assembled produce a hexagonal casing. From the upper member 25 of the casing projects a spout or nozzle 26, the free end of which is passed through an opening 27 in the wall of the fire-pot, this spout being slidably engaged, so that when the casing is slid rearwardly the spout will be drawn from the opening and the fire-pot may have a natural draft. To facilitate manipu-

lation of the casing, it is slidably exposed upon the base 10, and at the sides thereof are depending guides 28 and 29, which embrace the side edges of the base, and to slide the casing
 5 two levers 30 and 31 are pivoted upon the upper face of the base in position for engagement of their outer end portions with the ends of the guides. The lever 30 overlaps the lever 31 at the side adjacent to the casing, and
 10 the outer end of the lever 30 is formed as a handle, so that the lever may be grasped to operate it. When the lever 30 is moved against the adjacent guide of the casing, the opposite end of the lever engages and operates the lever 31 to engage its outer end with the second guide, and both levers are thus made to press against the guide and slide the casing in a direction away from the fire-pot. The levers are held normally from engagement with the guides by means of a bow-spring 32, which is fixed upon the base and bears with one end against the lever 31.

The upper member 24 of the blower-casing is provided with journals in which are received the ends of the blower-shaft 34, which carries the blower-wheel 35, which when rotated forces air from the casing through the spout or nozzle, the air being drawn into the casing through perforations 36 in the lower member of the casing. The blower-shaft is provided with a belt-wheel 37, with which is engaged a belt 38, engaged also with a belt-wheel 39, mounted upon a crank-shaft 40, said crank-shaft being mounted in bearings upon the upper member of the casing and in an adjacent upright 41, respectively.

The shoulders on the inner faces of the side walls of the fire-pot are adapted to receive and support a grate 42 for use when laundry-irons are to be heated, at which time the boiler is removed. When the boiler is removed, a filling-block 43 is arranged in place of it, said filling-block having a central portion 46, which engages between the walls at the side opening of the fire-pot, while the block at the sides of the central portion rests against the edges of the sides of the pot. The block is held in place by a screw engaged with lining-perforations in the block and the portion 13.

When the device is to be used as a forge, the grate is removed, and the filling-block being in place the blower is brought to engage its nozzle with the side opening through the wall of the pot, when the blower may be operated in the usual manner.

It will be understood that in practice modifications of the specific constructions shown may be made and that any suitable materials and proportions may be used for the various parts without departing from the spirit of the invention.

Between the upright 11 and the blower is formed a box 50 to receive the filling-block and the boiler-supporting block when they are not in use.

What is claimed is—

1. A device of the class described comprising a base having a fire-pot mounted thereon and provided with a draft-opening, a blower slidably mounted upon the base and removably engaged with the draft-opening and means mounted upon the base for engagement with the blower to slide it from engagement with the draft-opening.

2. A device of the class described comprising a base having a fire-pot fixed thereon and provided with a draft-opening, a blower slidably mounted upon the base and removably engaged with the draft-opening, and a lever pivoted upon the base for engagement with the blower to slide it from engagement with the draft-opening.

3. A device of the class described comprising a base having a fire-pot fixed thereon and provided with a draft-opening, a blower slidably mounted upon the base and removably engaged with the draft-opening, a lever pivoted upon the base for engagement with the blower to slide it from engagement with the draft-opening, and a second lever pivoted upon the base in operative relation to the first lever and for engagement with the blower to slide it.

4. A device of the class described comprising a fire-pot having an open side to receive a boiler and a filling-block interchangeably, and having a draft-opening in its opposite side to receive a blower-nozzle.

5. A device of the class described comprising a fire-pot having an open side and an adjacent base extension, and a boiler disposed upon the base extension and in the side opening to fill the latter, said boiler having a lateral tubular projection extending into the fire-pot, and having a depending perforated flange for engagement of a retaining-screw.

6. A device of the class described comprising a fire-pot, having an open side and an adjacent base extension, and a boiler disposed upon the base extension and in the side opening to fill the latter, said boiler having a lateral tubular projection extending into the fire-pot, and being cut away at its base on the side next to the fire-pot to permit entrance of heat beneath a portion of the boiler.

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

GIBB B. MITCHELL.

Witnesses:

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