(No Model.)

J. & P. DELANGIE.

FORGE.

No. 456,232. Patented July 21, 1891.

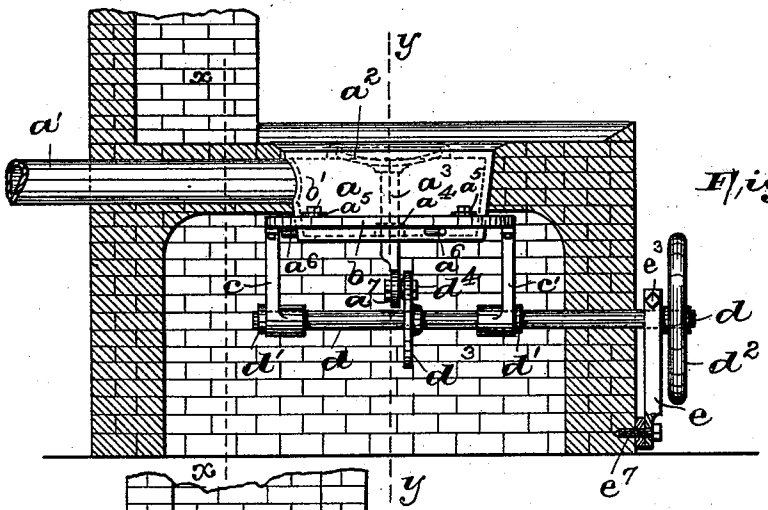


Fig. 1

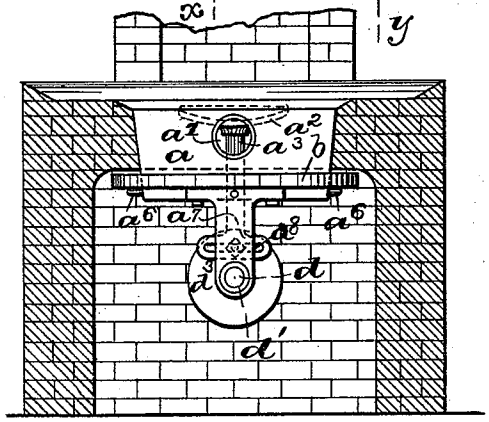


Fig. 2

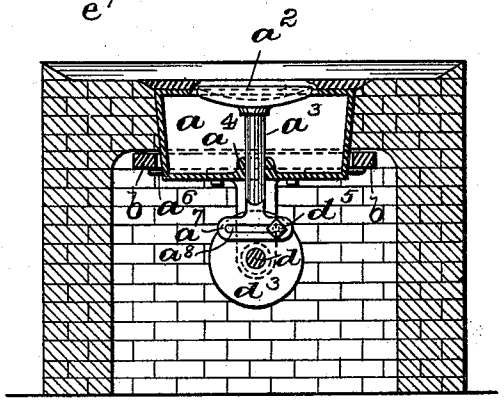


Fig. 3

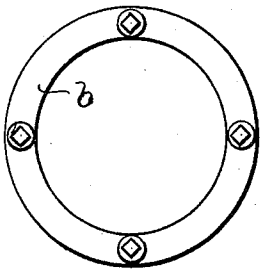


Fig. 6

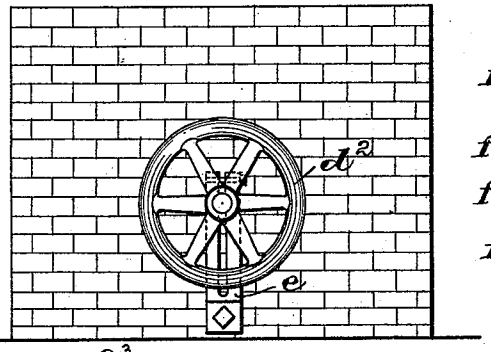


Fig. 4

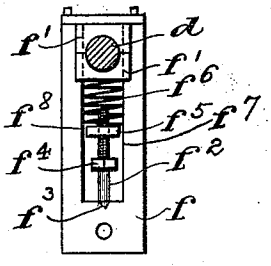


Fig. 7

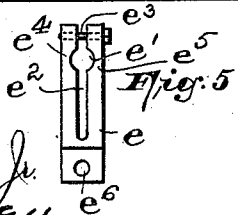


Fig. 5

WITNESSES:

Wm. H. Canfield, Jr.

INVENTORS.

Joseph Delangie,
and
Peter Delangie,
BY Fred'k C. Fraentzel, ATT'Y.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOSEPH DELANGIE AND PETER DELANGIE, OF NEWARK, NEW JERSEY.

FORGE.

SPECIFICATION forming part of Letters Patent No. 456,232, dated July 21, 1891.

Application filed November 15, 1890. Serial No. 371,533. (No model.)

To all whom it may concern:

Be it known that we, JOSEPH DELANGIE and PETER DELANGIE, citizens of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Forges; and we 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The invention herein set forth relates to improvements in blacksmiths' forges, and is constructed and designed that the air from the tuyere is so directed and controlled that it most effectually acts upon the fire during the heating of the metal which is to be hammered into the desired shape.

The invention therefore consists in certain arrangements and combinations of parts, as will be hereinafter fully described in the following specification and finally embodied in the clauses of the claim.

In the accompanying sheet of drawings, in which similar letters of reference are employed to indicate corresponding parts in each of the several views, Figure 1 is a vertical longitudinal section of an ordinary forge provided with our improved mechanism for operating the valve on the tuyere and regulating the flow of air that the blast can be varied by the operator to suit the case in hand, and can instantly be stopped when no longer needed. Figs. 2 and 3 are vertical cross-sections taken on lines x and y, respectively, in Fig. 1; and Fig. 4 is an end elevation of the forge, showing a hand-wheel for actuating the valve-operating mechanism. Fig. 5 is a detail view of a friction-clamp for steadying the shaft operating the valve mechanism, and Fig. 6 is a plan view of a ring provided with threaded perforations for securing said ring and its shaft-journals and their shaft to the tuyere. Fig. 7 is a modified form of construction of a spring friction-clamp for steadying the shaft.

As indicated in the above-described drawings, the hearth of a furnace, either stationary or portable, is centrally disposed with a chambered basin a, having communication by means of a tube or duct a' with a blower. (Not shown in the drawings.) In this chamber is a valve a^2 of any suitable construction, provided with a downwardly-extending arm or post a^3, passing through a hub a^4 in the bottom of the chambered basin a. Said basin is provided on its outer surface with any desirable number of lugs a^5, provided with holes, and beneath these lugs is placed a ring b. Pins a^6 are also tapped into the outer surface of the basin, as will be evident from Figs. 1, 2, and 3. Before these pins are tapped into the basin said ring is brought up against the lugs a^5 and the pins secured beneath the ring, which can then be moved upon the same so as to bring the shaft and its valve-operating mechanism into the most convenient position. After this has been done bolts b' are passed through the perforations in the lugs a^5 and tapped into the ring, which firmly holds the same in place. Said ring is provided on its under side with two bearings c and c', through which has been passed the horizontal shaft d, secured by suitable collars d', said shaft extending from beneath the hearth portion through a friction-clamp e and being provided on its free end with a hand-wheel d^2. As will be seen more especially from Figs. 2 and 3, said arm or post a^3 is tapped into a valve a^2, and is provided at its lower end beneath the basin with a cross-arm a^7, having a longitudinal slot a^8 therein. On the shaft d in close proximity to this arm is secured an eccentric d^3, provided with a pin or bolt d^4, passing through the slot a^8 in the cross-arm a^7 and provided on its opposite side with a nut d^5. Now when the operator desires to vary the blast or to completely shut it off a slight turn of the hand-wheel causes the shaft to revolve and the pin or bolt d^4 to travel along the slot in the cross-arm a^7, causing the valve a^2 to be either closed or opened, according in which direction the hand-wheel is turned, as will be evident.

In order to prevent the weight of the coal upon the upper surface of the valve acting upon the eccentric, and thereby turning the shaft d and lowering the valve, we have arranged on the outside of the forge a friction-clamp e, provided with a bearing e' in which the shaft can rotate, being slotted at e^2 and

provided with a bolt e^3. When the shaft has been arranged within this clamp, the sides e^4 and e^5 are clamped upon the shaft by the bolt e^3, being tightened up to such a degree as to prevent the shaft from turning accidentally, but still allowing the same to be turned by means of the hand-wheel.

The friction-clamp is provided with a perforation e^6 for securing the same by means of a bolt e^7 to the side of the forge, or it may be arranged upon the floor, as will be understood.

In Fig. 7 is illustrated another form of friction-clamp in which the shaft is placed in journal-boxes f', sliding in a slotted post f. A pin or screw f^2, revolving in a center f^3, is provided with a nut portion f^4 for a wrench, and a traveler f^5 works on a thread above the same. A spring f^6 is arranged above the traveler and beneath the lower journal-box f'. In order to adjust the shaft, a turn upon the nut f^4 causes the screw to turn, and the traveler, which is in contact with the edges f^7 and f^8 of the post, can be made to move up and down, as may be desired, the tension of the spring causing the boxes to hug the shaft tightly and preventing the same from turning.

One great advantage of the present invention is that before the ring b is permanently secured to the basin in building the forge the shaft and its valve-operating mechanism can be rotated in any desired position, or the shaft can be made to rotate in a slot in the foundation, so as to be brought in a more convenient position for the workman. Another advantage is that the blast can be varied quickly or can be instantly stopped when no longer required, the valve being more securely closed than could be done with an ordinary hand-lever.

It will be evident that the valve-operating mechanism can be used upon the portable furnaces as well as stationary ones.

Having thus described our invention, what we claim is—

1. In a forge, the combination, with the chambered basin a, duct a', and valve a^2, of a ring surrounding said basin on the outside, having journal-bearings and a shaft, an eccentric or its equivalent on said shaft connected with the valve and its stem, and means on said shaft for actuating the same, for the purposes set forth.

2. In a forge, the combination, with the chambered basin a, duct a', and valve a^2, of a ring surrounding said basin on the outside and placed upon pins a^6, journal-bearings on said ring, a shaft, an eccentric or its equivalent on said shaft connected with the valve and its stem, and means on said shaft for actuating the same, for the purposes set forth.

3. In a forge, the combination, with the chambered basin a, duct a', and valve a^2, of a shaft adapted to rotate in bearings arranged on said basin, an eccentric or its equivalent connected with the stem of the valve, a friction-clamp for holding said shaft, and means for operating the shaft, for the purposes set forth.

4. In a forge, the combination, with the chambered basin a, duct a', and valve a^2, of a ring surrounding the outside of the chamber, provided with bearings, a shaft working in said bearings, an eccentric or its equivalent on said shaft provided with a pin working in a slotted cross-arm on the valve-stem, a friction-clamp, and a hand-wheel for operating the shaft, for the purposes set forth.

In testimony that we claim the invention set forth above we have hereunto set our hands this 12th day of November, 1890.

JOSEPH DELANGIE.
PETER DELANGIE.

Witnesses:
FREDK. C. FRAENTZEL,
WM. H. CAMFIELD, JR.