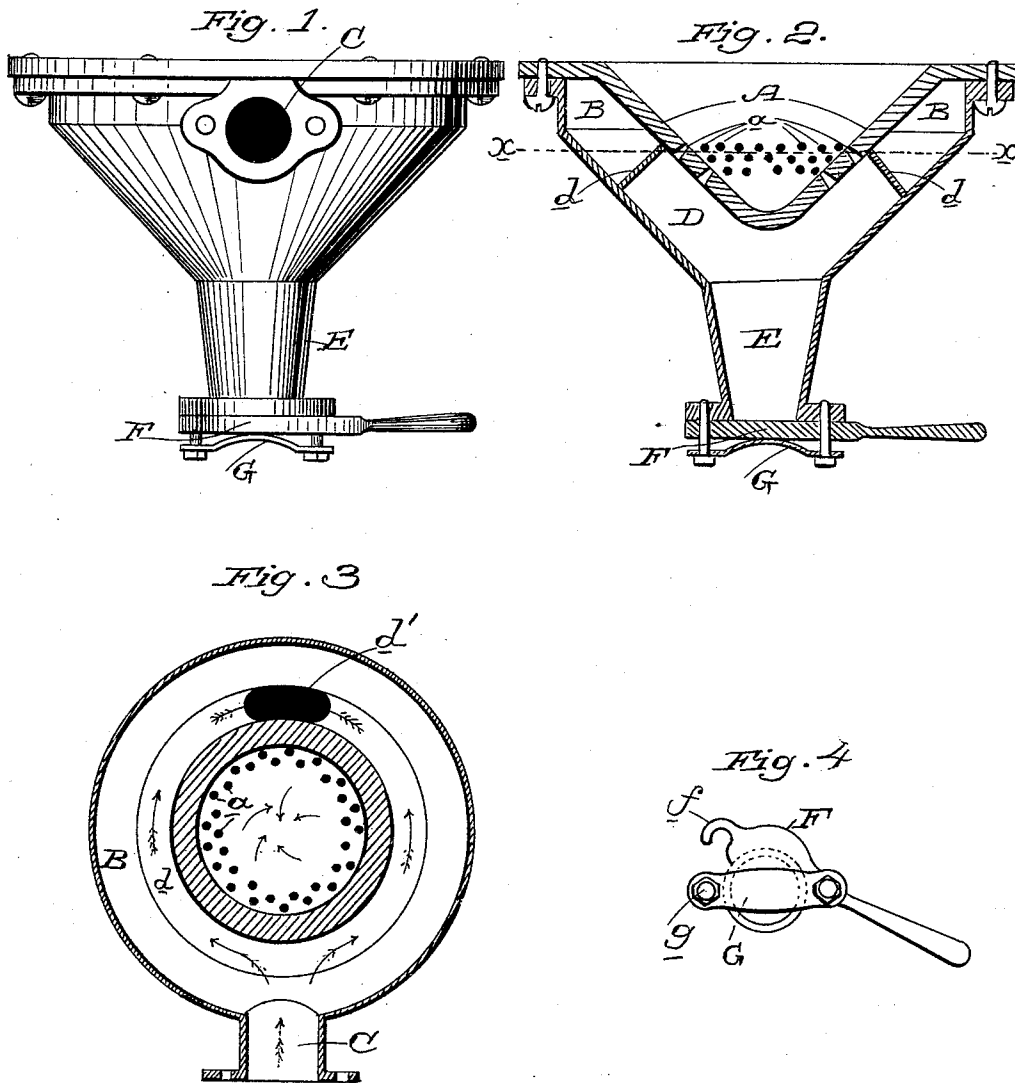


(No Model.)

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BLACKSMITH'S FORGE.

No. 479,286.

Patented July 19, 1892.



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BLACKSMITH'S FORGE.

SPECIFICATION forming part of Letters Patent No. 479,286, dated July 19, 1892.

Application filed November 4, 1891. Serial No. 410,849. (No model.)

To all whom it may concern:

Be it known that we, THEODORE W. LENZEN and LOUIS HECKENROTH, citizens of the United States, residing at San José, Santa Clara county, State of California, have invented an Improvement in Blacksmiths' Forges; and we hereby declare the following to be a full, clear, and exact description of the same.

Our invention relates to the class of blacksmiths' forges or fires; and it consists in the novel shape of the fire-receptacle, and also in connection therewith of the novel air passages or chambers leading thereto, in the peculiar bottom lock, and finally in the general construction and arrangement of the forge hereinafter fully described, and specifically pointed out in the claims.

The objects of our invention are to provide means for introducing the air to the fire in a heated condition, whereby more perfect combustion is had; to introduce it in such manner as to concentrate it on the working basis or seat of the fire; to provide for an easy discharge or removal of the slack without disturbing the fire, and to provide for a perfect regulation of the current of air and a convenient discharge of the cinders, these several objects being attained, respectively, by the arrangement of the air-passages, the shape of the fire-receptacle, and the provision of the bottom lock.

Referring to the accompanying drawings for a more complete explanation of our invention, Figure 1 is a side elevation of our forge. Fig. 2 is a vertical central section of the same. Fig. 3 is a horizontal section on the line *x x* of Fig. 2. Fig. 4 is a bottom view of the lock.

The main body of the forge is of an inverted conical shape and provided with a downwardly-extending neck. This especially provides for the inverted conically-shaped fire-receptacle A, the flare of which is preferably such that its walls shall incline at an angle of forty-five degrees. Around the upper portion of this fire-receptacle is made an annular passage or chamber B, the entrance to which is at C, as shown in Figs. 1 and 3, said entrance being supposed to be connected with the bellows. Around the lower portion of the fire-receptacle is the annular passage or

chamber D, which is separated from the passage or chamber B above by means of a partition *d*, in which at the side opposite to the inlet C is an aperture *d'*, Fig. 3, whereby the two passages or chambers B and D communicate.

From the lower portion of the passage or chamber D extends downwardly the hollow neck E, the lower open end of which is controlled by a swinging gate or lock F, held to its place by a spring G, said gate or lock having a hooked end *f*, adapted to engage one of the bolts *g*, by which the spring G is supported from the bottom of the neck E.

Around the lower interior portion of the fire-receptacle A are holes *a*, through which the passage or chamber D communicates with the fire-receptacle A. These holes incline upwardly, being made through the wall at right angles, and they taper inwardly to provide free exit for the cinders.

Though the arrangement and parts thus described may be made in any suitable construction, they are preferably formed of two main castings, as is shown in Fig. 2, wherein it will be seen that the fire-receptacle A is formed of an inverted-conical-shaped casting provided with a horizontal top flange, and the passages B and D and neck E are formed of another casting or shell having a top flange bolted to the flange of the first casting. This makes a practical and durable construction.

The operation of the forge is as follows: The air from the bellows passes in through the inlet C into the annular passage or chamber B. It passes around in both directions, as shown by the arrows in Fig. 3, to the aperture *d'* in the partition *d*, and in its course it is heated by contact with the inner wall of the forge. It thence passes downwardly through the opening *d'* into the chamber or passage D, wherein it is kept heated and is discharged into the fire-receptacle in a heated condition through the holes *a*. Thus a perfect combustion is had. The shape of the fire-receptacle A and the arrangement of its air-holes *a* are such that the air from chamber or passage D is admitted from all directions and converges or focuses obliquely upwardly upon the working basis or seat of the fire, the slack in the bottom not interfering with it; also, the shape of the fire-receptacle

A is such that the slack accumulates at the apex or bottom thereof, and being thus concentrated can be easily removed by raising it out of the apex or bottom and up any portion of the side without disturbing the fire materially, as it can all be removed from one point. The cinders which drop freely through the flaring holes *a* fall down through the neck E and can be discharged by opening the lock F, their discharge being assisted and insured by the air in passage or chamber D blowing downwardly and forcing them out. By manipulating this gate the current of air can be regulated.

15 Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a blacksmith's forge, a fire-receptacle of inverted-cone shape having a closed bottom and a series of holes in its inclined sides, in combination with a surrounding air-chamber having a partition dividing said chamber into upper and lower passages which communicate with each other through an opening formed in said partition, said lower passage communicating with the fire-receptacle, substantially as herein described.

2. In a blacksmith's forge, a fire-receptacle, an air chamber or passage communicating with the bellows and encircling the upper portion of the fire-receptacle, and a partition *d* in said passage, forming a second passage or chamber separated from the first and surrounding the lower portion of the fire-receptacle, said second chamber communicating with the first and also communicating with the fire-receptacle, substantially as and for the purpose herein described.

3. A blacksmith's forge having a fire-receptacle of an inverted conical shape, an annular

air passage or chamber surrounding its upper portion and communicating with the bellows and having a partition in said passage, forming a second air passage or chamber surrounding its lower portion and separated from the first passage or chamber, a communication between the two passages or chambers, and a series of upwardly-inclined communicating apertures between the second passage or chamber and the fire-receptacle, substantially as herein described.

4. A blacksmith's forge having the inverted conical fire-receptacle A, the encircling communicating air passages or chambers B D, having a partition separating one from the other, said chamber D communicating through the holes *a* with the fire-receptacle, the discharge-neck E and the laterally-swinging pivoted lock or gate F, and the spring G below the same, controlling said neck, substantially as herein described.

5. A blacksmith's forge consisting of the inverted-conical-shaped casting forming the fire-receptacle A, provided with the series of inwardly and upwardly inclined holes *a*, the surrounding shell with apertured partition forming the air passages or chambers B and D and neck E, the controlling-gate at the bottom of the neck, having a hooked end, the bolts upon one of which the hook end of the gate engages to lock said gate, and a spring below the gate and held in place by the bolts, substantially as herein described.

In witness whereof we have hereunto set our hands.

THEODORE W. LENZEN.
LOUIS HECKENROTH.

Witnesses:

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