

(No Model.)

K. HITZLBERGER.
BLACKSMITH'S FORGE.

No. 542,644.

Patented July 16, 1895.

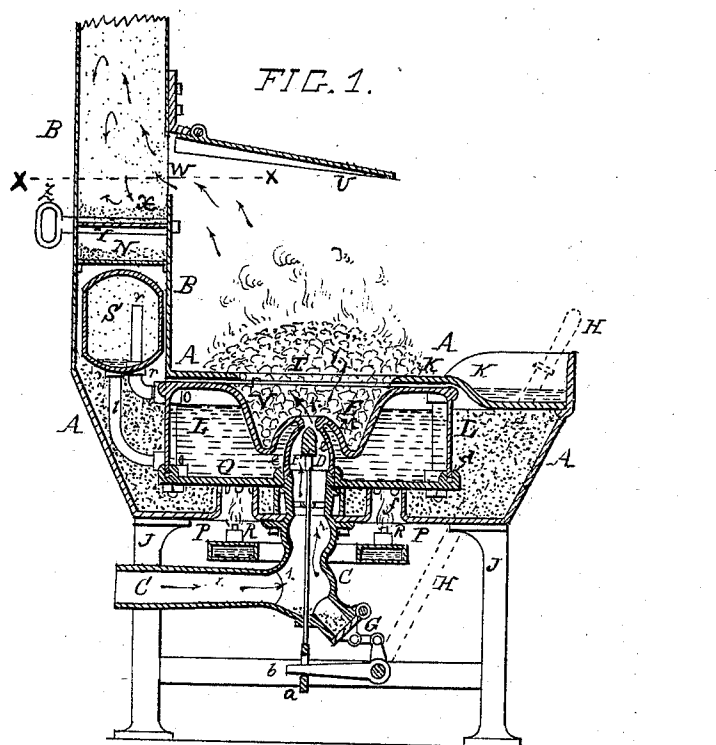
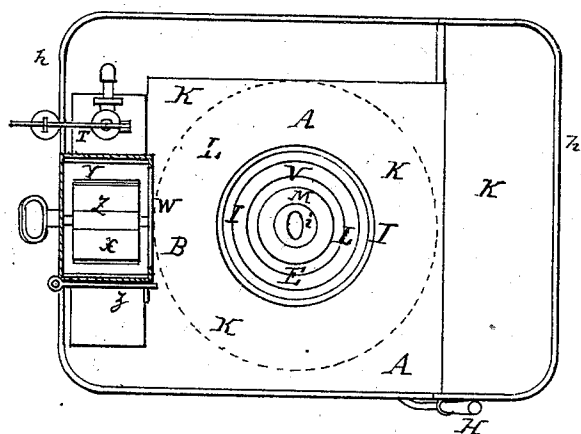


FIG. 2.



Witnesses
Wm H Taylor
Margaret Francis

Inventor
Karl Hitzlberger

UNITED STATES PATENT OFFICE.

KARL HITZLBERGER, OF NEW YORK, N. Y.

BLACKSMITH'S FORGE.

SPECIFICATION forming part of Letters Patent No. 542,644, dated July 16, 1895.

Application filed January 16, 1893. Serial No. 458,586. (No model.)

To all whom it may concern:

Be it known that I, KARL HITZLBERGER, a citizen of the Kingdom of Bavaria, and a resident of the city of New York, in the county and State of New York, have invented a new and useful Improvement in Blacksmiths' Forges, of which the following is a specification.

The essential features of this invention relate to the peculiar construction and combination, with the hearth of a blacksmith's forge, of a steam-generating chamber or boiler arranged to generate steam with the blacksmith's fire while heating the blacksmith's work and to use the steam for propelling and operating his blower, the drilling, and other required motive machine-tools.

A secondary essential feature relates to the peculiar construction and combination, with the hearth, the chimney, and hood of the forge, of a certain pocket and flue-passage arranged in said chimney to conduct and arrest the dust and ashes from unduly accumulating in the air for inhalation of the blacksmith, who is thereby greatly annoyed.

In the drawings hereto annexed, Figure 1 represents a central vertical longitudinal section of the blacksmith's forge constructed with my improvements. Fig. 2 is a sectional top view of the same, taken horizontally above the hearth and just below the hood of the chimney of the same.

The letter of reference A indicates the hearth of the forge, and B the chimney; C, the blast-pipe terminating with the tuyere-pipe D to convey the blast into the seat E for the fire upon the hearth.

F is the plug-valve within the blast-pipe for regulating and stopping the blast, and G the ash-door in the blast-pipe.

H represents the lever for operating the valve-plug F, which has a vertical valve-rod guided centrally in the blast-pipe, with a slotted bottom end *a*, in which the arm *b* of the said lever engages to operate the said rod and valve. The fulcrum-arbor of the lever H has also a short arm connected with the ash-door G, as shown.

The hearth A consists of a hollow oblong metal case *h* with a top plate K having concave and convex portions and a large opening I, and to its left side is attached the chim-

ney B. The outline of the hearth is rectangular with round corners, and the bottom P of the hearth is smaller than the top and its sides incline outward from the bottom to the top. The bottom of the hearth has suitable strong iron legs J J, of which the forward and rearward pair are connected by a cross-bar, which serves the purpose of a support and bearing of the fulcrum-arbor of the hand-lever H.

Within the hearth and close underneath the top plate K is provided a flat cast-metal circular case L, which is employed for a boiler. In its top is formed the bowl-shaped seat V for the blacksmith's fire, and with a central smaller semispherical or inverted bowl-shaped boss having the central oval tuyere-opening *i* through it by which the blast enters the fire. On the under side of the boss M is formed and cast with it a short downward-projecting tuyere-pipe *e*, to which the top end of the blast-pipe is tightly jointed by a taper-ground joint.

The sides of the case L and its top with the seat V are cast in one body, and the lower edges of the sides enter a circular groove *d* in the rim of the bottom O of the case and are fitted closely and are made water-proof with packing in the groove *d*. The central portion of this bottom O of the boiler has a hub into which both the top end of the blast-pipe and the tuyere-pipe *e* are closely and tightly fitted and made pressure and water proof. The said top end of the blast-pipe has a shoulder against the under side of the bottom O and also a flange to bolt against the under side of the bottom P of the hearth, and by means of the bolts both the bottom O and the bottom P of the hearth are secured together. The bottom P has two circular upward partitions with the annular space *f* between mostly open through the bottom for exposing for direct contact from a lamp R or flame placed underneath the bottom P the portion of the bottom of the boiler at the space *f*. With the boiler is connected a horizontal steam-drum S, located above the boiler and laterally through the base of the chimney B. By means of the pipe *r* the top portion or steam-space of the boiler is connected and by the pipe *l* the bottom or water-space with the steam-drum. Said steam-drum projects on both sides of the

base of the chimney, and one end has attached upon it the safety-valve T, with a steam-supply pipe to a steam engine or motor (not shown) for propelling the forge-blower, drilling, and other required moving machines or tools in the blacksmith-shop for executing the work.

The portion around the opening I of the top plate K of the hearth is flat and raised to spread and bank the fuel. To the right and rear of said portion from the operator said plate is depressed to form a trough to the right for containing the water for wetting the bank of the fire and to the rear for containing a supply of coal or fuel. At a proper height of the chimney is hinged strongly the hood U of the forge and right under it is made the flue-opening W into the chimney to pass off the smoke. To the chimney is attached the one leaf of a strong hinge and the other matching leaf is attached to the hood back from its relative end to have said end serve as a stop for the hood in dropping beyond the desired position. The object of hinging said hood to the chimney is to allow the hood to be turned up against the chimney at times to place it out of the way for heating tires or other high-extending work.

Below the flue-opening W in the chimney is arranged a pocket x, formed by the lateral bottom Y in the chimney below the flue-opening W, and below said bottom Y is a secondary bottom N for a receptacle for ashes, and the side of the chimney has a small door z to remove the ashes from said receptacle. The bottom Y has a large opening which is closed by a horizontal tilting valve Z, employed for dropping the ashes and dust from the pocket X.

The object of the pocket X is to arrest the

usual fine ash-dust from returning to the fire and blast, and thereby reduce its undue accumulation in the air for inhalation, thereby causing disease to the operator.

All spaces around and between the boiler and the case h of the hearth are filled in with sand to keep the heat within the hearth.

When the forge is first or any time to be operated with insufficient heat, the lamp R is used to begin the heating of the boiler until the fire upon the forge has sufficient heat to generate the required steam. Instead of oil-lamps R, the boiler may be heated as well by gas-burners.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a forge, the chimney provided with an opening W, in its side above the hearth, and the hood secured to the chimney above said opening, combined with the pocket X, formed by the lateral bottom Y, provided with a valve Z, a secondary bottom N forming a receptacle for the ashes, and the door Z, substantially as shown.

2. The hearth, and the boiler located under it, combined with the bottom P, having suitable openings through it, and means for heating the water in the boiler through the openings, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 5th day of January, 1892.

KARL HITZLBERGER.

Witnesses:

MARGARET FRANCIS,
WM. H. TAYLOR.