De W. C. BAXTER.

Portable Forges.

No. 164,512. Patented June 15, 1875.

FIG. 1.

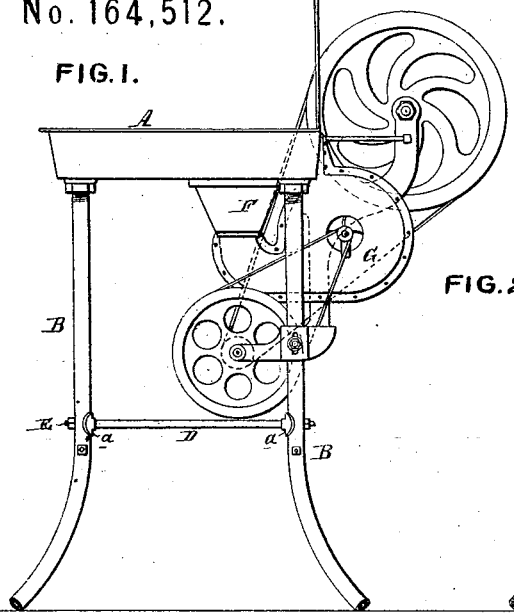


FIG. 2.

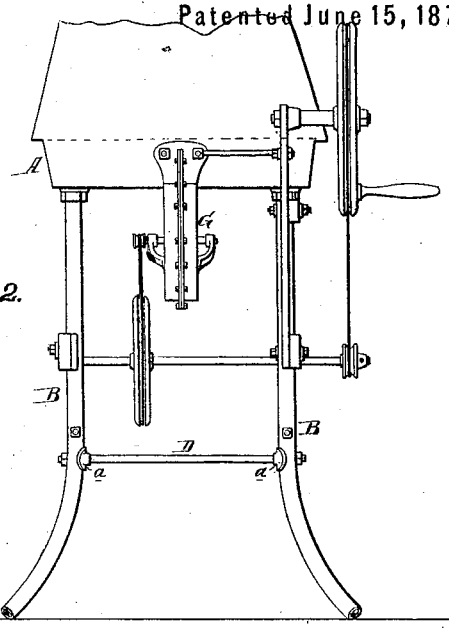


FIG. 6.

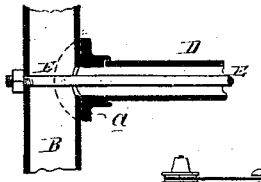


FIG. 7.

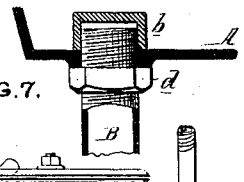


FIG. 3.

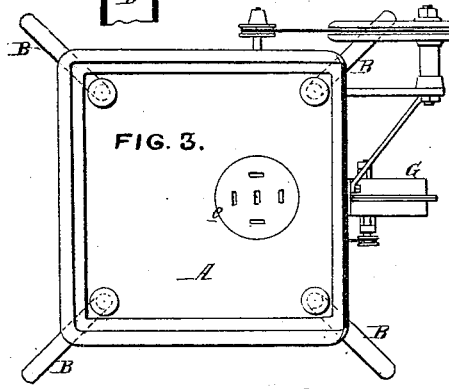


FIG. 5.

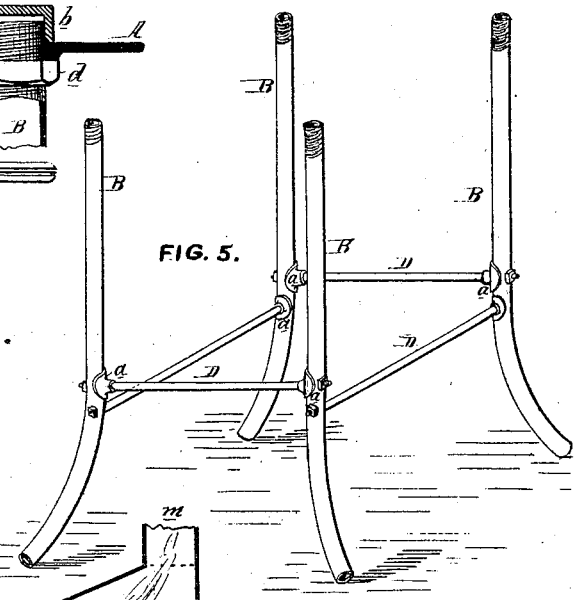


FIG. 4.

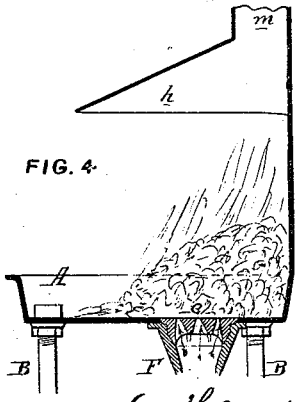


FIG. 8.

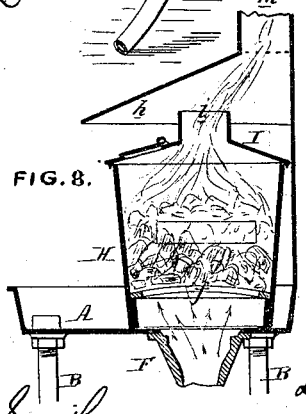
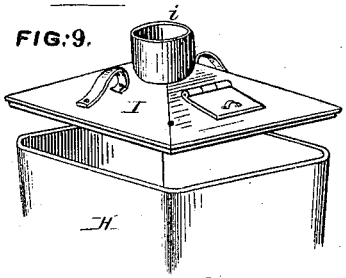


FIG. 9.



WITNESSES { Harry Smith
John Tucker

De Witt C. Baxter
by his Attys
Stoughton & Son

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE.

DE WITT C. BAXTER, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO HIMSELF, CHAS. C. TORR, AND COCHRAN FORBES, OF SAME PLACE.

IMPROVEMENT IN PORTABLE FORGES.

Specification forming part of Letters Patent No. **164,512**, dated June 15, 1875; application filed November 1, 1871.

To all whom it may concern:

Be it known that I, DE WITT C. BAXTER, of Philadelphia, Pennsylvania, have invented an Improvement in Portable Furnaces, of which the following is a specification:

My invention consists of a peculiar manner, too fully described hereafter to need preliminary explanation, of constructing the stands or supports of portable furnaces, with a view to the attainment of lightness, durability, and stability. My invention further consists of the combination, with a portable furnace, of a grated vessel for containing a concentrated mass of ignited fuel, available for purposes which could not be accomplished with an ordinary open hearth.

In the accompanying drawing, Figure 1 is a side view of my improved portable furnace; Fig. 2, a front view; Fig. 3, a plan view; Fig. 4, a vertical section of part of the furnace; Fig. 5, a perspective view of the stand or frame; Figs. 6 and 7, views drawn to an enlarged scale, and illustrating the detailed construction of the stand; and Figs. 8 and 9, views illustrating the furnace as arranged for refining and other purposes.

A is the hearth of the furnace, which I prefer to make of cast-iron, and to this hearth are secured the upper ends of four legs, B B B B, made of wrought-iron tubes, which are connected together in the manner best observed in Fig. 6, where *a* is a socket, adapted to the sides of the leg B, and arranged to receive the end of a light wrought-iron tube, the opposite end of the latter fitting into a similar socket adapted to the opposite leg. A bolt, E, passes through the tube D and through both of the legs, and serves to secure the whole firmly together. The method of securing the legs to the hearth is illustrated in Fig. 1. The upper threaded end of the leg passes freely through the hearth-plate B, the portion which projects above the plate receiving a screw-cap, *b*, which is brought to bear on the hearth-plate by a nut, *d*, on the leg. In other words, the plate is firmly confined between the nut and screw-cap, and the leg thereby rigidly secured to the plate. The conical or flaring termination F of a fan-blower, G, is secured to the under side of the hearth-plate, and into the mouth of this pipe fits a tuyere-plate, *e*, having any desired number of holes. The fan may be secured to the stand, frame, or hearth-plate in any suitable manner, and may be driven by the system of belts illustrated in Figs. 1 and 3, or by any other equivalent appliance.

It should be understood that neither the blowing-fan nor the mechanism for operating the same forms any part of my present invention.

When arranged as shown in Fig. 4 the portable furnace may be used as a blacksmith's fire; but when it is required for refining metals, or for other purposes where a large concentrated mass of fuel is necessary, I remove the tuyere-plate *e*, and place on the hearth, immediately above the conical termination F of the fan, a vessel, H, having a cover, I, with a central discharge-tube, *i*, there being within the vessel a grate, *f*, for supporting the fuel, which, owing to the steady blast beneath the grate, soon becomes highly heated, and in a proper condition to be used for melting or refining metals, and for various purposes where an open hearth, as in Fig. 4, would not be available. The products of combustion from the vessel H pass off through the central tube *i*, and are directed by the hood *h* to the chimney-pipe *m*. By raising a small door in the cover I of the vessel the condition of the fuel and the objects acted on by the same can be observed from time to time.

It has been a common practice to make portable furnace-supports either of heavy cast-iron, or of equally cumbrous sheet-iron, in the form of a hollow cylinder, the frames or supports in either case detracting from the portability of the furnace.

The frame or stand of wrought-iron tubes is not only economical in point of construction, but is remarkably light, and at the same time more capable of withstanding the shocks necessarily received during transportation than the heavier cast-iron frames.

I claim as my invention—

The combination, in a portable forge, of the hearth-plate A and tubular legs B B B B, connected to each other, and extending into and secured to the hearth-plate, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

DE W. C. BAXTER.

Witnesses:
WM. A. STEEL,
HARRY SMITH.