

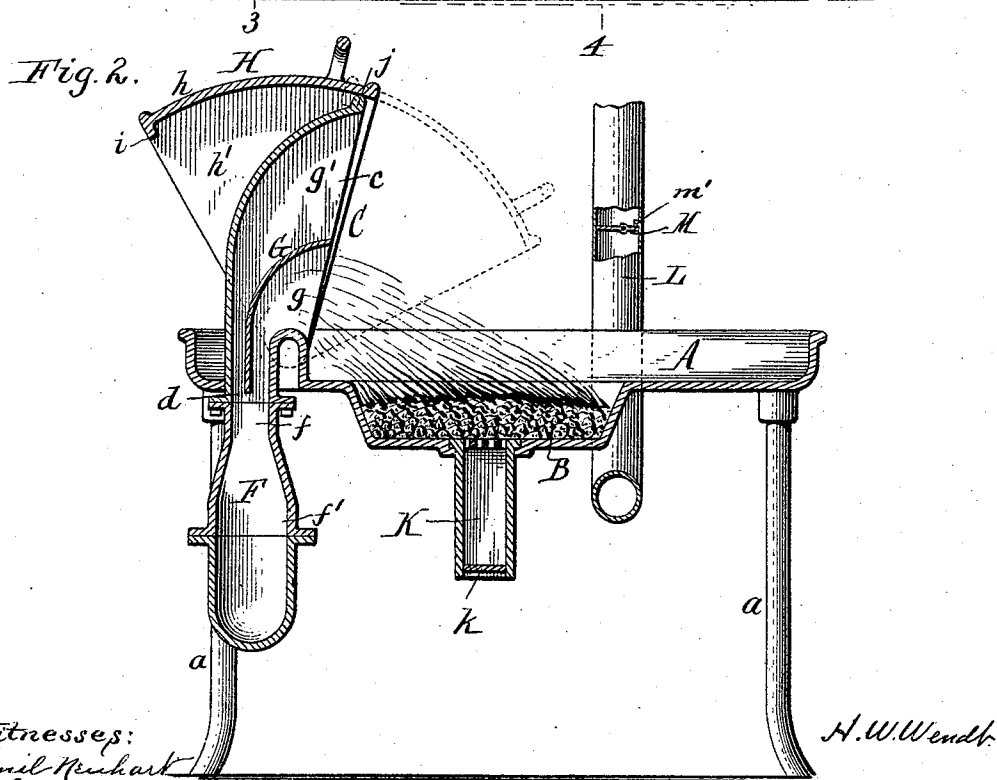
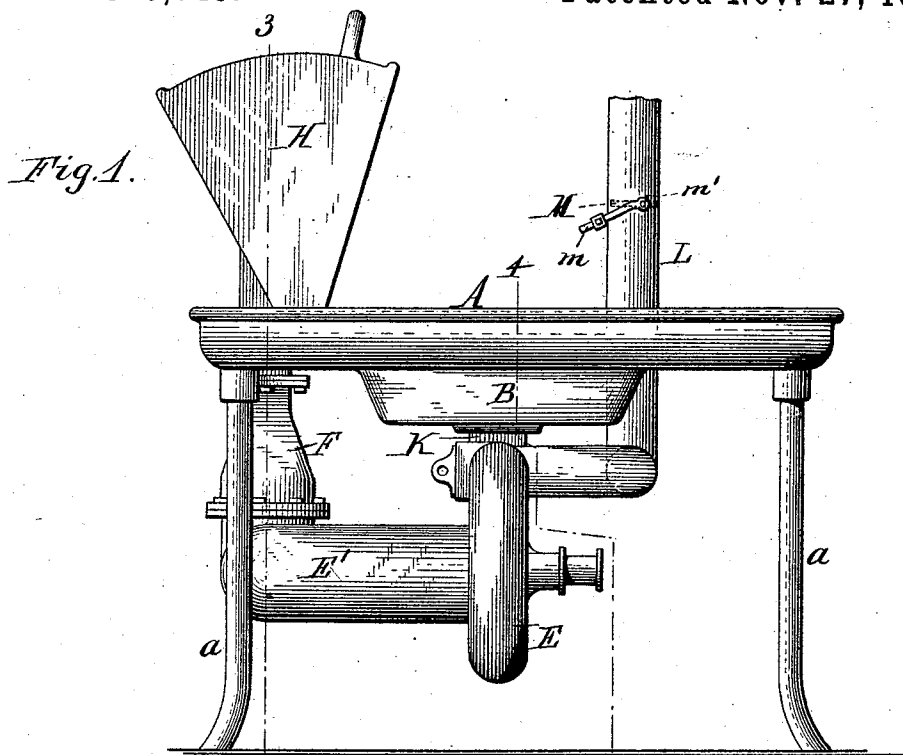
(No Model.)

2 Sheets—Sheet 1.

H. W. WENDT.
FORGE.

No. 529,845.

Patented Nov. 27, 1894.



Witnesses:

Emil Henhart

Theo. L. Opp.

H. W. Wendt

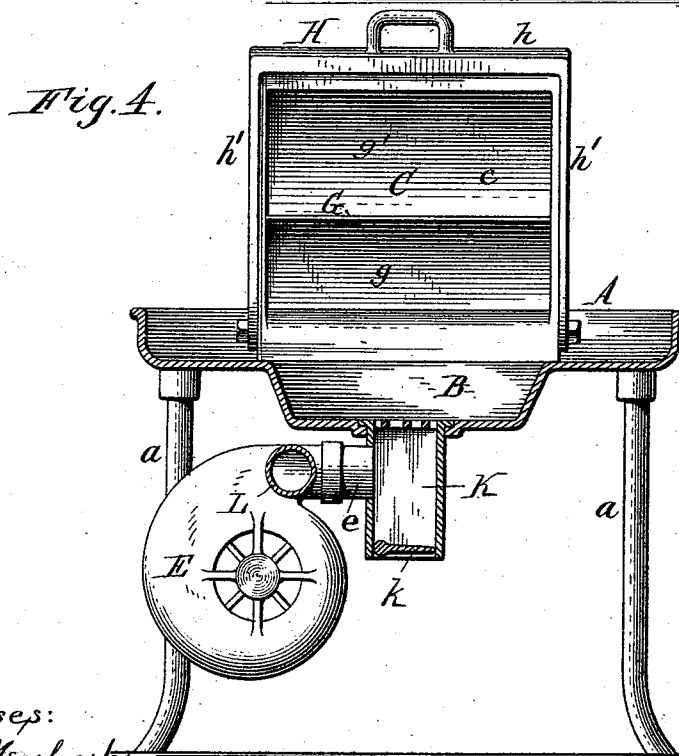
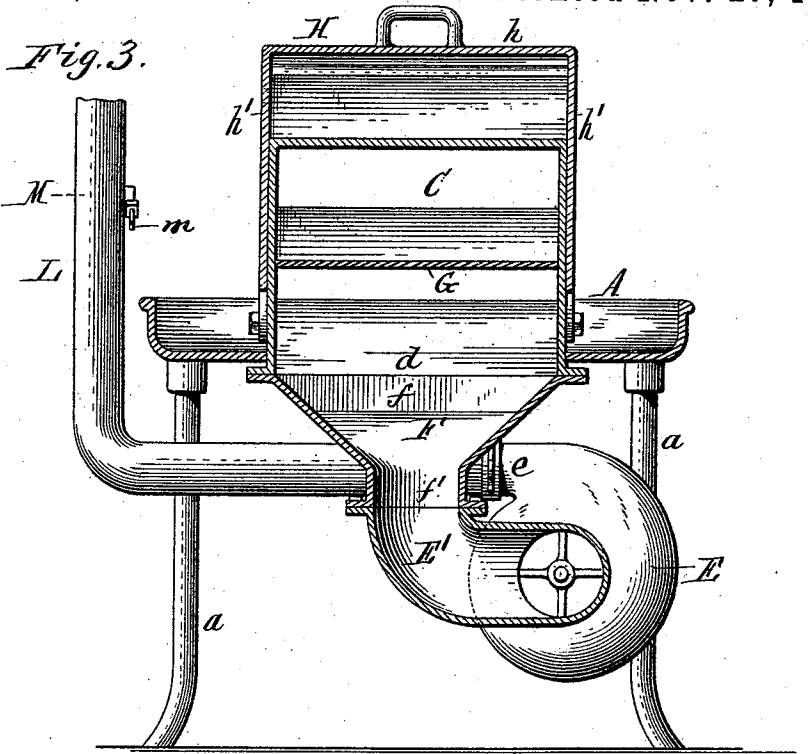
By Wilhelm Bonner

Inventor.
Attorneys.

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FORGE.

No. 529,845.

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Witnesses:

Emil Heubach

Theo. L. Popp.

H. W. Wendt

By Wilhelm Bormes. Inventor.
Attorneys.

UNITED STATES PATENT OFFICE

HENRY W. WENDT, OF BUFFALO, NEW YORK, ASSIGNOR TO THE BUFFALO
FORGE COMPANY, OF SAME PLACE.

FORGE.

SPECIFICATION forming part of Letters Patent No. 529,845, dated November 27, 1894.

Application filed June 11, 1894. Serial No. 514,133. (No model.)

To all whom it may concern:

Be it known that I, HENRY W. WENDT, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented a new and useful Improvement in Forges, of which the following is a specification.

This invention relates more particularly to forges having a movable hood or smoke catcher which is placed over the hearth in starting the fire, and which is connected with a suction fan for carrying off the smoke.

One of the objects of my invention is to provide the forge with an improved smoke catching device which, while producing a more effective suction does not obstruct access to the hearth.

Another object of the invention is to dispense with the use of a separate blast fan for the hearth.

In the accompanying drawings consisting of two sheets: Figure 1 is a side elevation of a portable forge containing my improvements. Fig. 2 is a longitudinal sectional elevation thereof. Fig. 3 is a transverse vertical section in line 3—3, Fig. 1. Fig. 4 is a similar section in line 4—4, Fig. 1.

Like letters of reference refer to like parts in the several figures.

A represents the hearth supported on legs *a* and provided centrally with the usual depressed fire place B.

C represents an upright smoke funnel which catches the smoke as it rises from the fire. This funnel is arranged transversely in rear and above the hearth and is provided at its upper end with a flaring inlet or mouth *c* which opens laterally toward the hearth. The lower portion of the smoke funnel extends downwardly through an opening in the hearth and opens below the same in the form of a transversely elongated outlet *d*.

E represents a fan or blower arranged preferably underneath the hearth, and E' is a suction pipe connected at one end with the eye of the fan and having its opposite end connected with the outlet *d* of the smoke funnel.

F is a coupling pipe, the upper portion *f* of which is elongated to conform to the outlet of the smoke funnel, and the lower portion

f' preferably cylindrical to conform to the shape of the adjacent end of the suction pipe. The area of the elongated inlet of the coupling pipe is preferably the same as the area of its circular outlet, so that the capacity of the coupling pipe is practically uniform throughout.

G represents a curved partition arranged in the smoke funnel and dividing the same into a main or primary smoke passage *g* which opens with its inlet close to the fire place, and a secondary passage *g'* which opens with its inlet above the inlet of the main passage. The outlet of the main passage is somewhat larger than the outlet of the secondary passage, so that the greater portion of the smoke rising from the fire is drawn by the fan through the main passage, while the remainder which rises above the main passage is carried off through the secondary passage.

H represents a movable hood or extension of the funnel, whereby the greater portion of the fire place can be covered for catching the smoke in starting the fire. This hood consists of a segment *h* arranged over the smoke funnel and two side pieces *h'* arranged along the sides of the funnel and pivoted at their lower ends to the lower portion of the funnel by horizontal pivots or bolts, so that the hood can be swung forward or backward.

In the normal condition of the fire the hood is raised, as represented in full lines in Fig. 2, in which position it permits free access to the hearth. In starting the fire, the hood is lowered into the position shown in dotted lines in the same figure, which causes the smoke to be directed into the funnel. The downward movement of the hood is limited by a lug or stop *i* formed on the underside of the segment and adapted to engage against a stop *j* formed on the top of the funnel.

By arranging the smoke funnel in the manner herein shown and described, the same is brought closely to the fire, without interfering with the blacksmith's work at the forge. A more effective suction is thus obtained over the whole width of the fire place with a smaller expenditure of power.

K represents the blast pipe leading to the bottom of the fire place and having the usual damper *k*. The blast spout *e* of the fan E

is connected with the blast pipe of the fire place, as shown in Fig. 4, so as to deliver a blast upward through the fire.

L is the smoke pipe which leads to the chimney and which is connected with one side of the blast spout of the fan, as shown in Fig. 4. In the smoke pipe is arranged an automatic damper M which prevents the escape of the blast through the smoke pipe, except when the pressure of the blast through the fuel in the fire place exceeds a certain predetermined degree. This damper preferably consists of the ordinary swinging plate and is provided outside of the pipe with an overhanging weighted arm *m* which tends to keep the damper closed but allows the same to open when the force of the surplus blast overcomes the resistance of the weighted arm. The damper is prevented from swinging beyond its closed position in one direction by a stop *m'* arranged within the smoke pipe. As the smoke rises from the fire it is drawn by the fan into the smoke funnel and through the suction pipe E' and the fan case, whence it is blown through the burning fuel in the fire place. A portion of the blast charged with smoke passes into the smoke pipe but its escape therefrom is checked by the automatic damper M until the blast becomes excessive, when the damper opens and allows the surplus to pass to the chimney. The unconsumed gases and particles of carbon withdrawn from the fire are thus again returned to the latter and consumed, thereby effecting a saving in fuel. This arrangement possesses the further advantage of delivering a comparatively hot blast to the fuel, instead of a cold blast, as heretofore, thus avoiding cooling of the fire. As but a single fan is employed for the double purpose of carrying off the smoke and delivering a blast to the fire, the cost of the forge is materially reduced.

I claim as my invention—

1. The combination with the hearth, of an upright smoke funnel located on one side of the hearth, leaving the space over the hearth entirely free, the said smoke funnel having a lateral opening or inlet at the hearth, and a fan whereby the products of combustion rising from the hearth are drawn into said smoke funnel, substantially as set forth.

2. The combination with the hearth, of a

smoke funnel having its inlet arranged above the hearth and its outlet extending downwardly, and a partition dividing the funnel into a main passage and a secondary passage, substantially as set forth.

3. The combination with the hearth and the cylindrical suction pipe arranged below the hearth, of a smoke funnel having its inlet arranged above the hearth and having an elongated outlet, and a coupling pipe having an elongated inlet which connects with the elongated outlet of the funnel, and a cylindrical outlet which connects with the cylindrical suction pipe, substantially as set forth.

4. The combination with the hearth, of an upright smoke funnel arranged at one side of the hearth and having its inlet arranged to open laterally toward the hearth, and a pivoted hood forming an extension of said funnel and capable of swinging toward and from the hearth for lengthening and shortening said funnel, substantially as set forth.

5. The combination with the hearth, of a smoke funnel having its inlet arranged above the hearth, and a movable hood adapted to form an extension of the funnel and consisting of a segment arranged over the top of the funnel and side pieces arranged on opposite sides of the funnel and pivoted at their lower ends to the sides of the funnel, substantially as set forth.

6. The combination with the hearth and a smoke catcher arranged adjacent thereto, of a fan or blower having its blast spout connected with the hearth, a suction pipe leading from the smoke catcher to the eye of said fan, and a smoke pipe leading from the blast spout of the fan, substantially as set forth.

7. The combination with the hearth and a smoke catcher arranged adjacent thereto, of a fan or blower having its blast spout connected with the hearth, a suction pipe leading from the smoke catcher to the eye of said fan, and a smoke pipe leading from the blast spout of the fan and having an automatic damper, substantially as set forth.

Witness my hand this 2d day of June, 1894.

HENRY W. WENDT.

Witnesses:

THEO. L. POPP,
CARL F. GEYER.