(No Model.)

E. PECKHAM.

AIR BLAST HEATING OVEN.

No. 343,061. Patented June 1, 1886.

FIG-1-

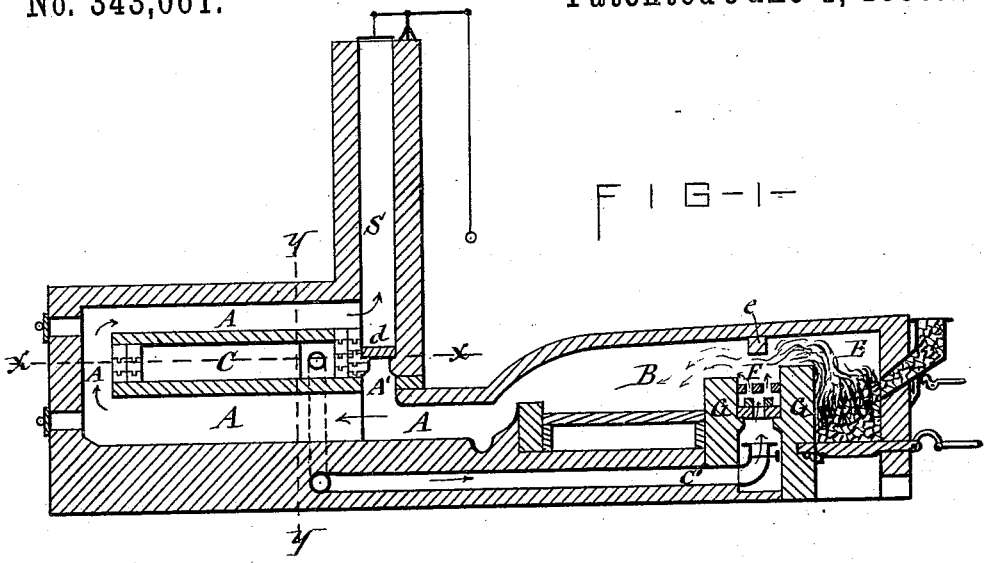


FIG-2-

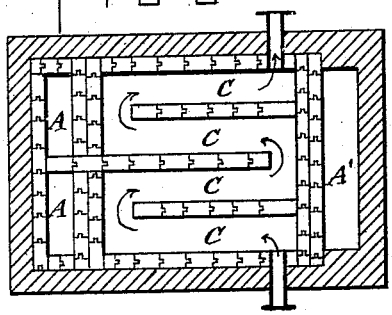


FIG-3-

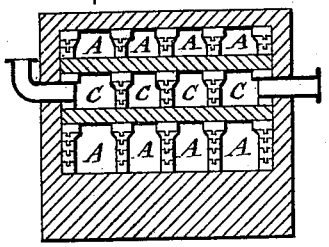


FIG-4-

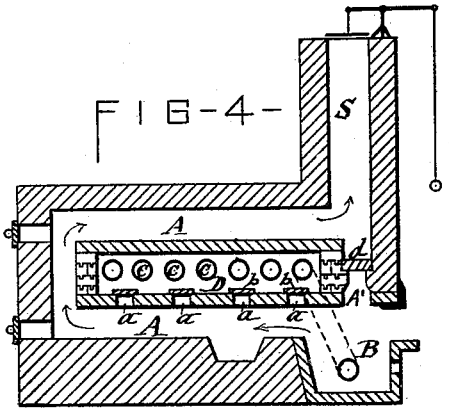
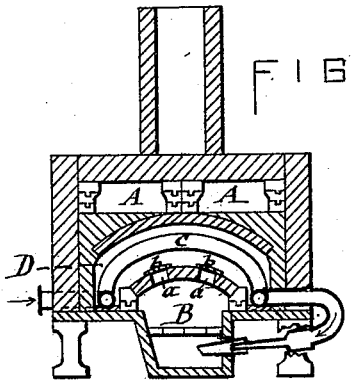


FIG-5-



ATTEST-

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EDGAR PECKHAM, OF SYRACUSE, NEW YORK.

AIR-BLAST-HEATING OVEN.

SPECIFICATION forming part of Letters Patent No. 343,061, dated June 1, 1886.

Application filed March 14, 1884. Renewed April 17, 1886. Serial No. 199,241. (No model.)

To all whom it may concern:

Be it known that I, EDGAR PECKHAM, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Air-Blast-Heating Ovens, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention consists, first, in the combination, with a furnace or a Catalan forge-fire, of a horizontally-prolonged tortuous fire flue, and an air-blast oven arranged horizontally across said flue, whereby the ir-blast is heated in a simple, effective, and economical manner; and, secondly, in certain novel devices for commingling the heated air with the gases generated in the fire-box of the furnace, so as to produce perfect combustion of said gases, all as hereinafter more fully described, and specifically set forth in the claims.

In the annexed drawings, Figure 1 is a longitudinal section of a heating-furnace with my invention connected therewith. Fig. 2 is a horizontal section on line *x x*, Fig. 1. Fig. 3 is a vertical transverse section on line *y y*, Fig. 1; and Figs. 4 and 5 are longitudinal and transverse sections of a Catalan forge-fire provided with my invention.

Similar letters of reference indicate corresponding parts.

A represents the exit fire flue of a furnace, B, such as a puddling or heating furnace or forge-fire, from which usually a great amount of heat escapes through the aforesaid flue and is thus wasted. In order to utilize this heat in a simple, economical, and effective manner, I horizontally prolong the flue A, and extend horizontally through the same a tortuous or sinuous air-blast duct or pipe, C, which conveys the hot-blast to the furnace or its combustion-chamber to supply the fire with heated oxygen and thus produce perfect combustion.

In constructing the aforesaid air-blast-heating oven I prefer to arrange the fire-flues A in two or more series in different horizontal planes and the air-ducts C in horizontal planes between the planes of the flues A, and running respectively parallel one directly over or under the other, as shown in Fig. 3 of the drawings, so that the air-ducts are uninterruptedly impinged by the heat passing through the flues A. When the oven is to be constructed wholly of fire-brick, I usually employ brick fitted to each other by a tongue-and-groove joint, as shown. When iron pipes are desired for the air-duct and the oven is to be arranged near the source of heat or near the furnace or forge-fire, as represented in Figs. 4 and 5 of the drawings, I inclose said pipes in a fire-brick chamber or case, D, provided on its under side with ports *a a* for the admission of the heat into said chamber, the ingress thereof being regulated by removable covers or dampers *b b*, as shown. The chamber D, forming a dead air space, protects the pipes from excessive heat.

S represents the stack, arranged at or near the junction of the tortuous flue A with the furnace B, and A′ is a flue connecting the furnace direct with the stack, and provided with a damper, *d*, by the opening or removal of which the products of combustion are diverted from the tortuous flue A and allowed to escape direct through the stack. This is done whenever it is desired to cool the hot-blast oven for repairs or other purposes.

Between the fire-box E and furnace B, I erect two bridge-walls, G G, with a space between them. Across the upper part of this space I build a hot-blast disseminator, F, in the form of reticulated brick-work, underneath which is arranged the discharge end of the hot-blast pipe C, as shown in Fig. 1 of the drawings.

Over the disseminator I arrange a fire-deflector, *e*, in the form of a projection from the roof of the furnace. The deflection of the fire directly over the ascending disseminated hot-blast serves to thoroughly intermix the latter with the heated gases and thus promote the combustion of the same.

I am aware that tortuous passages have been formed for escaping products of combustion, and that fresh air heated in such passages has been carried back to be injected into such products near the combustion-chamber. Such features, broadly, are not sought to be covered in this application.

What I claim as new is—

1. The combination, with the combustion-chamber E, tortuous passages A, stack S, and direct passage A′, controlled by a valve, *d*,

the air-blast passages C, nearly surrounded by the passages A, and the passage C′, terminating and delivering the hot air near the combustion-chamber, substantially as described.

2. The combination, with the combustion-chamber E, the two bridge-walls, G G, and deflector *e*, of the tortuous passage A, stack S, direct passage A′, controlled by valve *d*, the tortuous air-blast pipes C, arranged as shown, the hot air passage C′, and the disseminator F, all combined and arranged to serve as and for the purpose set forth.

In testimony whereof I have hereunto signed my name and affixed my seal, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 1st day of March, 1884.

EDGAR PECKHAM. [L. S.]

Witnesses:
C. H. DUELL,
C. BENDIXON.