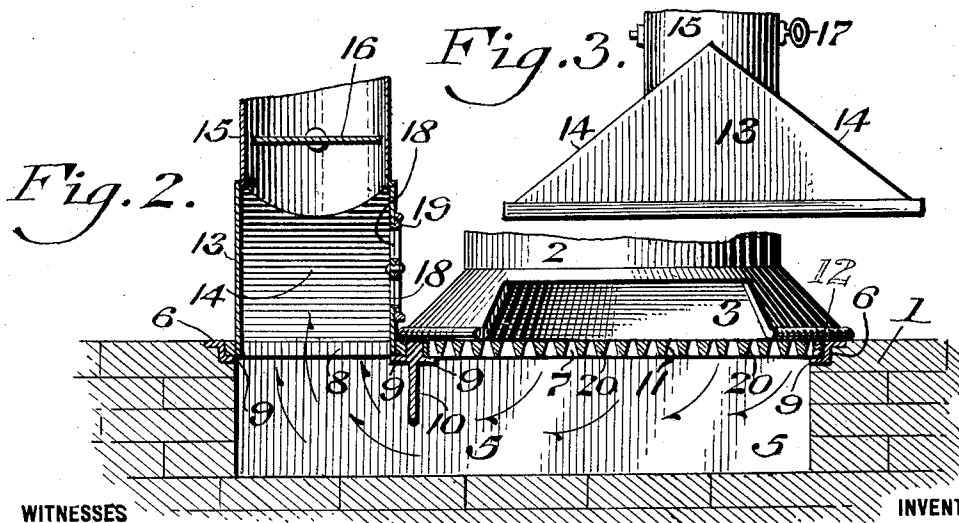
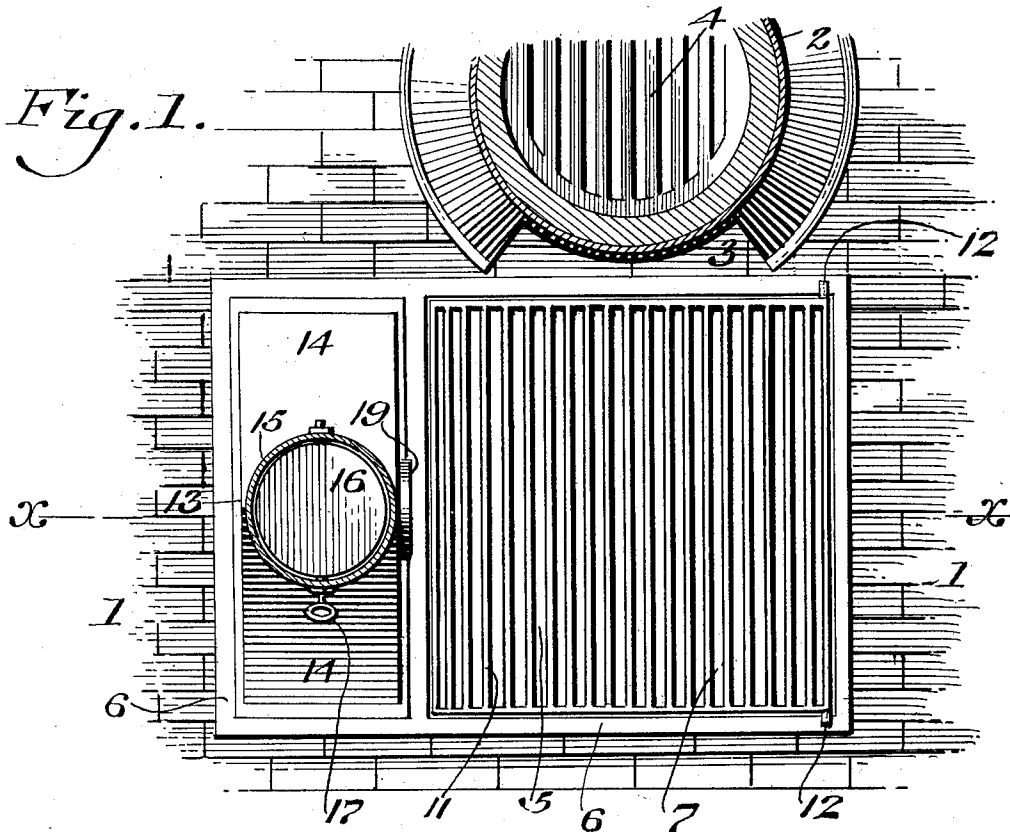


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2 SHEETS—SHEET 1.



WITNESSES

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INVENTOR

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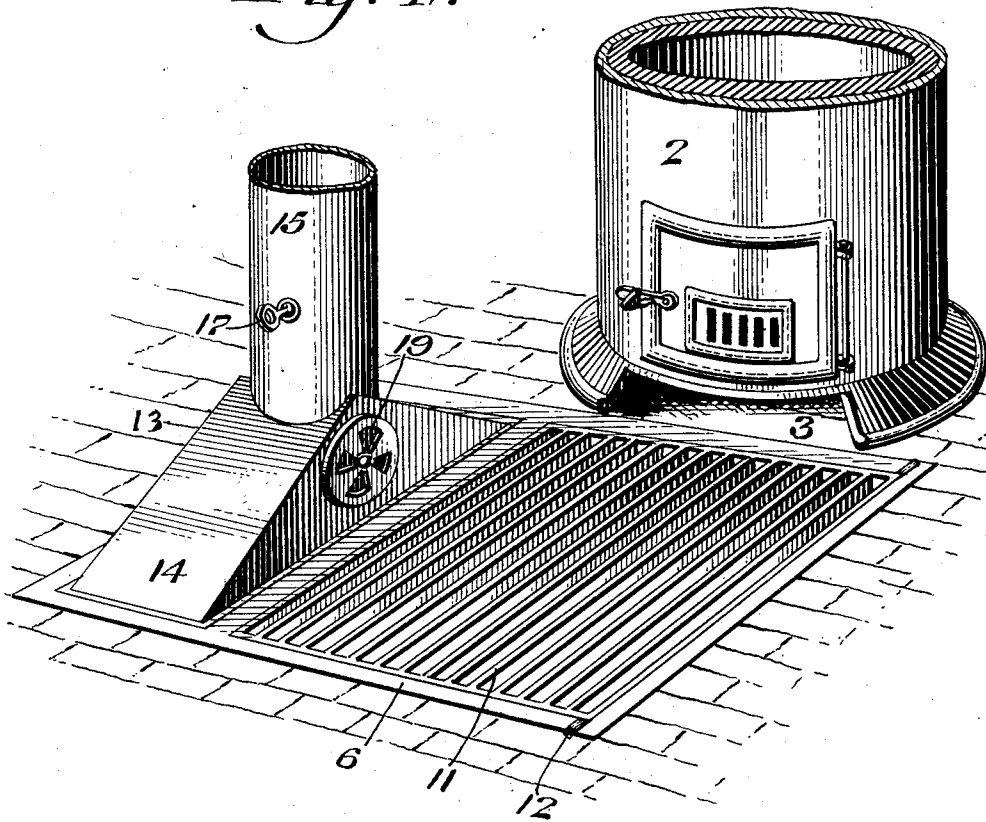
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*Fig. 4.*



WITNESSES

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# UNITED STATES PATENT OFFICE.

CHARLES GORGAS, OF PHILADELPHIA, PENNSYLVANIA.

DUST-FLUE HOOD, ASH-GRATE, AND COAL-ECONOMIZER.

1,047,044.

Specification of Letters Patent.

Patented Dec. 10, 1912.

Application filed March 6, 1912. Serial No. 681,876.

*To all whom it may concern:*

Be it known that I, CHARLES GORGAS, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Dust-Flue Hood, Ash-Grate, and Coal-Economizer, of which the following is a specification.

This invention relates to furnace grate structures and more particularly to a device for separating partly consumed fuel from ashes and sifting the ash dust into a separate compartment from which it is conducted by a suitable conduit to the flue, thereby preventing the escape of the fine particles of ash dust to the exterior of the furnace and eliminating the spreading of the same throughout the building.

It further consists of other novel features of construction, all as will be hereinafter fully set forth.

For the purpose of illustrating my invention, I have shown in the accompanying drawings one form thereof which is at present preferred by me, since the same has been found in practice to give satisfactory and reliable results, although it is to be understood that the various instrumentalities of which my invention consists can be variously arranged and organized and that my invention is not limited to the precise arrangement and organization of these instrumentalities as herein shown and described.

Figure 1 represents a plan view of my novel ash grate and dust flue shown in operative position adjacent the furnace. Fig. 2 represents a section on line  $x-x$  of Fig. 1. Fig. 3 represents a side elevation of the flue hood. Fig. 4 represents a perspective of the device embodying my invention showing its relation to a furnace.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings:—1 designates a base of brick, cement or the like forming the setting for a furnace or heater of which only the base portion 2 is shown, these being the only parts necessary for a full and clear understanding of my invention. This base portion 2, in the present instance, is provided with a cut-away portion or opening 3 at one side thereof which forms a communication between the outside of the casing and the ash pit which is beneath the usual grate 4. Adjacent to this opening 3 and preferably in close proximity thereto is a pit 5

formed in the base 1, the walls of which are cut away or recessed to form a seat for a metal frame 6 which is provided with openings 7 and 8 and formed with inwardly disposed flanges 9 which latter serve as supports for certain cooperating adjuncts. It will further be noted that a depending flange 10 is formed integral with the said frame 6 and located between the openings 7 and 8 but terminating a suitable distance from the bottom of the pit 5 in order to form a passageway for the ash dust and the like.

11 designates an auxiliary grate structure adapted to seat on the flanges 9 of the opening 7 and provided at one end with lugs 12 upon which said grate may be pivotally swung to open position if desired.

13 designates a hood suitably mounted on the flanges 9 of the opening 8 and provided, in the present instance, with upwardly converging sides 14 which terminate in a pipe or conduit 15 leading to the flue (not shown) of the furnace. Within this conduit 15 a damper 16 is located and controlled in the usual manner by means of a projecting handle 17. In my present construction I have preferred to form two sides of the hood substantially vertically and in one of these I provide a plurality of openings 18 to admit outside air to the hood 13 and thus draw dust particles into the flue during the operation of raking out the ashes from beneath the grate 4. A rotary register 19 is pivotally mounted on the hood 13 and is adapted to open or close the openings 18, as will be apparent.

In connection with the grate structure 11 it will be noted that the transverse bars thereof are each preferably beveled or tapered downwardly in order to provide a comparatively small opening at the top of the grate which opening flares outwardly and thus permits the ashes to fall through the grate freely without choking or clogging. This construction also effectually separates the unburned coal from the ash.

In the operation of the device the parts are shown in operative position in Fig. 1 and any ashes which are beneath the grate 4 are raked out upon the adjacent grate 11 where the finer portions of the same fall through into the pit 5 and the dust and particles drawn out by way of the hood 13 and conduit 15. Whatever dust is stirred up during the transfer of the ashes from the

furnace 2 to the grate 7 is directed to the openings 18 by suction and thus to the flue or chimney.

It will now be apparent that I have devised a complete unitary structure, simple in construction and efficient in operation by means of which the ashes from the furnace may be sifted without the usual attendant dust cloud and the unconsumed coal will be separated out and may be used again if desired.

It will now be apparent that I have devised a novel and useful construction of a dust flue hood, ash grate and coal economizer which embodies the features of advantage enumerated as desirable in the statement of the invention and the above description and while I have, in the present instance shown and described a preferred embodiment thereof which has been found in practice to give satisfactory and reliable results, it is to be understood that the same is susceptible of modification in various particulars without departing from the spirit or scope of the invention or sacrificing any of its advantages.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a device of the character stated, a base having an auxiliary ash pit therein located adjacent the ash discharge of a furnace, a frame mounted on said base having a plurality of apertures therein, a grate, means to support said grate in one of said frame apertures, a hood suitably mounted over a second aperture in said frame, a conduit connected to said hood and leading to a suitable flue, and a damper movably mounted in said conduit.

2. In a device of the character stated, a base having an auxiliary ash pit therein located adjacent the ash discharge of a furnace, a frame mounted on said base having a plurality of apertures therein, a grate, means to support said grate in one of said frame apertures, a hood suitably mounted over a second aperture in said frame, a partition between said frame aperture and spaced from the bottom of said pit to form a passage, a conduit secured to said hood and adapted to communicate with a suitable flue, and a damper in said conduit.

3. In a device of the character stated, a base having an auxiliary ash pit therein located adjacent the ash discharge of a furnace, a frame mounted on said base having a plurality of apertures therein, a grate, means to support said grate in one of said frame apertures, a hood suitably mounted over a second aperture in said frame, a conduit connected to said hood and leading to a suitable flue, a damper movably mounted in said conduit, and means to control the admission of air to said hood.

4. In a device of the character stated, a base forming an auxiliary ash pit located adjacent the ash discharge of the furnace, a frame removably mounted on said base having a plurality of apertures therein, a grate pivotally carried by said frame in one of said frame apertures, a hood suitably mounted over a second aperture in said frame, a conduit connected to said hood and leading to a suitable flue, and a damper movably mounted in said conduit.

CHARLES GORGAS.

Witnesses:

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