

W. E. CATLIN & J. HARMON.
Heating-Drums.

No. 150,133.

Patented April 28, 1874.

Fig. 1.

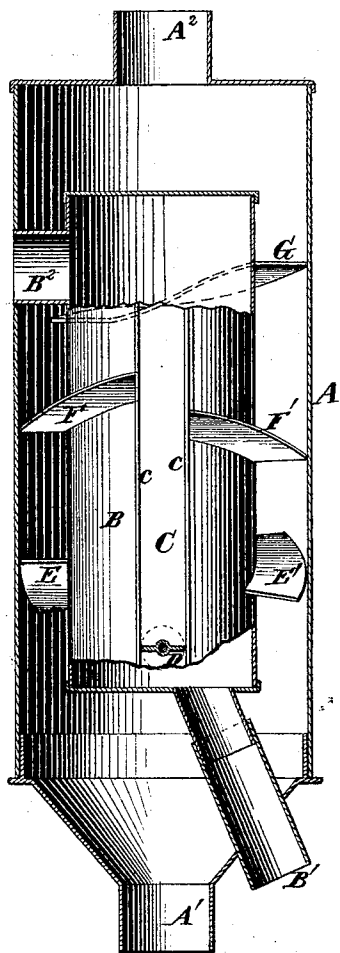
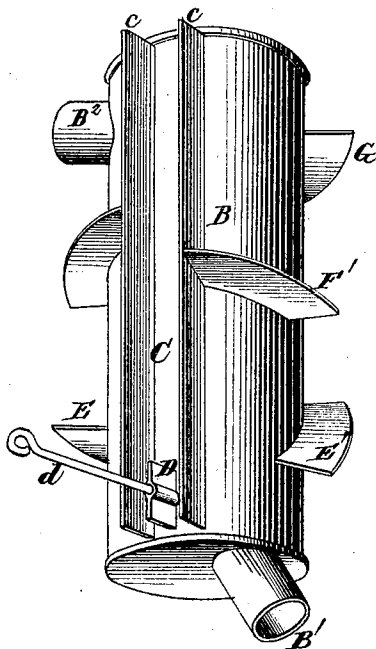


Fig. 2.



Witnesses.
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UNITED STATES PATENT OFFICE.

WILLIAM E. CATLIN AND JOSEPH HARMON, OF SHARON, WISCONSIN.

IMPROVEMENT IN HEATING-DRUMS.

Specification forming part of Letters Patent No. **150,133**, dated April 28, 1874; application filed March 19, 1874.

To all whom it may concern:

Be it known that we, WILLIAM E. CATLIN and JOSEPH HARMON, both of Sharon, in the county of Walworth and State of Wisconsin, have invented a certain Improvement in Stove-Pipe Drums, of which the following is a specification:

This invention relates to that class of stove-pipe drums which inclose an internal chamber, through which the air freely circulates, and is heated in its passage by the heat given off by the products of combustion passing up the drum, the annular space between the internal air-chamber and exterior shell of the drum being provided with suitable divisions or deflectors and dampers to obtain either a direct or a circuitous draft. Our improvement consists in the employment of a series of peculiarly-arranged spiral deflectors to retard the products of combustion in the tortuous flue and direct them in such a manner as to extract from them a greater portion of their heat than has heretofore been accomplished.

In the annexed drawings, Figure 1 is a vertical section of our improved stove-pipe drum, showing a portion of the internal air-chamber and the deflectors in elevation. Fig. 2 illustrates, in perspective, the internal air-chamber and the surrounding spiral deflectors, as well as the vertical flue and damper for the direct draft.

The same letters of reference are used in both figures in the designation of identical parts.

The exterior shell A of the drum is preferably made of cylindrical form, and is provided with suitable caps at either end to be connected to a stove-pipe by means of short ends A¹ and A². Within the shell is placed a cylindrical chamber, B, having no communication with the surrounding space inclosed by the shell A, but communicating by pipes B¹ and B² above and below with the external atmosphere, thus permitting a free circulation of the air through the chamber. A vertical flue, C, is formed in the annular space between the chamber B and shell A, through which the

smoke, &c., entering the drum through pipe A¹, may pass in straight lines, and a direct draft be maintained. A damper, D, operated by a rod, d, from the outside of the drum, controls the lower end of the vertical flue C, by closing which the smoke is compelled to pass up outside of the flanges c, forming the sides of the flue C. In thus rising in the space outside said flue C the smoke, &c., first strike two spirally-arranged deflectors, E and E', so located as to divide the body of the smoke into three currents. The side currents rising above these deflectors are caught by two other deflectors, F and F', which give to them a downward direction toward the center current, with which they unite and pass up to the uppermost centrally-located spiral deflector G, by which the united currents are again divided before they reach the upper end of the drum, and pass off through the pipe A². By thus alternately dividing and concentrating the products of combustion as they pass through the tortuous flue of the drum, it is found that a very large percentage of their heat is extracted from them, and utilized in heating the air circulating through the chamber B, which may be taken either from the room or from outside, and discharged anywhere where wanted.

What we claim as our invention, and desire to secure by Letters Patent, is—

The combination of the shell A A¹ A², internal chamber B B¹ B², vertical flue C, damper D, and spirally-arranged deflectors E E', F F', and G, disposed as described, so that the products of combustion, in passing through the tortuous flue of the drum, will be alternately divided and concentrated, substantially as and for the purpose specified.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

WM. E. CATLIN.
JOSEPH HARMON.

Witnesses:

H. D. UNDERHILL,
B. G. LYMAN.