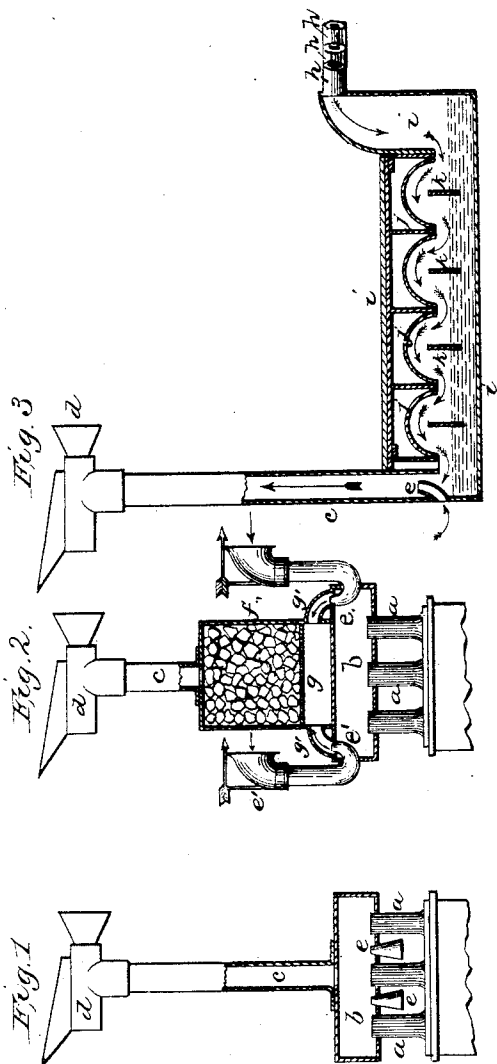


(No Model.)

T. ROWAN.
CHIMNEY OR FLUE.

No. 283,025.

Patented Aug. 14, 1883.



WITNESSES.
Frank L. Curand.
Chas. K. Curand.

INVENTOR
Thomas Rowan,
by John F. Halsted & Son his Attorneys,

UNITED STATES PATENT OFFICE.

THOMAS ROWAN, OF LONDON, ENGLAND.

CHIMNEY OR FLUE.

SPECIFICATION forming part of Letters Patent No. 283,025, dated August 14, 1883.

Application filed November 3, 1882. (No model.) Patented in England February 5, 1881, No. 505.

To all whom it may concern:

Be it known that I, THOMAS ROWAN, a subject of the Queen of Great Britain, residing at London, England, have invented certain new and useful Improvements in and applicable to Chimneys or Flues, parts of such improvements being applicable to other purposes, (for which I have received Letters Patent in England, No. 505, dated February 5, 1881, and sealed August 2, 1881,) of which the following is a specification.

This invention relates to improvements in and applicable to the chimneys or flues of houses and other buildings, and of steam-vessels, the object of the improvements being, chiefly, to provide means for insuring an effectual updraft in such chimneys or flues, and for filtering or purifying the smoke therefrom, so as to free it from dust, soot, sulphureted hydrogen, and carbonic acid, and for neutralizing these gases.

To make my invention better understood, I will proceed to describe the same by reference to the accompanying drawings.

Figure 1 is a sectional elevation; Fig. 2, a similar elevation having a filtering-box; and Fig. 3, a sectional elevation with a water-chamber, all illustrating my invention.

In the drawings, Fig. 1 is a sectional elevation showing my arrangement for producing an updraft in chimneys, so as to allow of burning anthracite coal or the like without the necessity of employing a blower to the fire-place below. The flues *a* open into a chamber, *b*, from which passes a shaft or chimney, *c*, provided at the top with suitable means for producing an induced current—such as a cowl, *d*, similar to the cowl described in the specification of “improvements in the method of and apparatus for ventilating buildings, water-closets, ships, or vessels, and the like,” for which I have applied for Letters Patent. The said chamber *b* is provided, as shown, with conical air-inlets *e*, hereinafter described, or with the air inlet or inlets described in the said specification. The said air-inlets (or inlet, where there is only one) may be applied to the shaft or chimney *c*, instead of to the chamber *b*; or the said air-inlets may be dispensed with. In some cases a strong updraft may be produced by forcing air through the air inlet or inlets, in which case the cowl *d* at the

top of the shaft would not be required. By this arrangement it will thus be seen that the smoke from several chimneys or flues can pass into the box *b*, and the updraft created by the air-inlets *e e* and the cowl *d* will force or draw the same out through the single discharge-chimney *c*, for the purpose hereinbefore described.

Fig. 2 is a sectional elevation showing my improved arrangement for filtering or purifying the smoke, and thus freeing it from dust, soot, sulphureted hydrogen, carbonic acid, and the like. In this arrangement I employ the box *b*, hereinbefore described, and also an additional box or chamber, *f*, having a perforated bottom, *g*. Such chamber *f* communicates, by means of the tubes *g' g'*, with the box or chamber *b*, hereinbefore described, and opens into the shaft or chimney *c*. *e' e'* are air tapering inlets, similar in construction to those described in my said former specification, and are preferably placed as shown; or they may be placed in any other suitable position; or the conical air-inlets, hereinafter described, may be employed. The perforated bottom *g* of the box or chamber *f* is supplied with suitable damp porous material, or porous material kept damp for the purpose of filtering and purifying the smoke; or the said porous material may be placed on trays in the said box or chamber. The operation is similar to that hereinbefore described with reference to Fig. 1, except that in the present arrangement the smoke, before escaping through the chimney *c*, has to pass through the purifying-chamber *f*, so that it is discharged into the atmosphere free from dust, soot, and noxious impurities.

Fig. 3 shows a longitudinal section of the arrangement I prefer to employ where it is desired to pass the smoke over water before it enters the shaft. The flues or chimneys open at *h* into the upper part of the chamber *i*, partly filled with water; with or without the presence of any suitable purifying or neutralizing agent, such chamber having a corrugated top or roof, *j*, and division-plates *k* dipping into the water, and placed between the corrugations, for the purpose of directing the smoke onto the water in its passage through the chamber *i*, as shown by the arrows. *e* is the air-inlet, *c* the shaft, and *d* the cowl. In

addition to the said water-chamber *i*, the smoke may also be caused to pass through a filtering-chamber such as that hereinbefore described, and shown at *f*, Fig. 2, and the carbonic acid and sulphureted hydrogen which it may contain may be absorbed by bringing the smoke in contact with dry slaked lime and sulphate of iron placed therein.

The operation will be understood without further description.

The smoke from chemical-works and like factories may, in like manner, be also treated, and the acid or alkaline fumes it may contain can be neutralized or absorbed by the employment of suitable agents.

The arrangements for carrying out my improvements for preventing smoke in steam-vessels of all classes are substantially the same as those hereinbefore described, except that to overcome the effect of rolling on board ship the water-box may be provided with a suitable porous material—such as coke—which may be kept saturated with the sea or other water passing through it.

Having thus described the nature of my said invention and the best means with which I am acquainted for carrying the same into effect, what I claim is—

1. In combination with the several flues, and with a chamber into which they lead, one or more tapering or conical air-inlets, *e*, and the shaft or chimney *c*, having a positively-induced current, and serving to eject the smoke which enters the chamber.

2. In combination with the series of flues, and with a chamber into which they lead, the chimney having a positive induced current, a conical air-inlet, *e*, a water-chamber having a corrugated roof, *j*, and division-plates *k*, all arranged and operating substantially as shown and described.

THOMAS ROWAN.

Witnesses:

A. ALBUTT,
B. BRADY.