

No. 665,250.

Patented Jan. 1, 1901.

E. H. MESSITER.

FLUE.

(Application filed May 15, 1900.)

(No Model.)

Fig. 1.

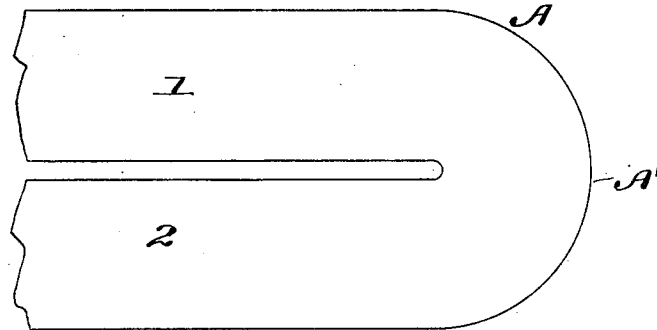


Fig. 2.

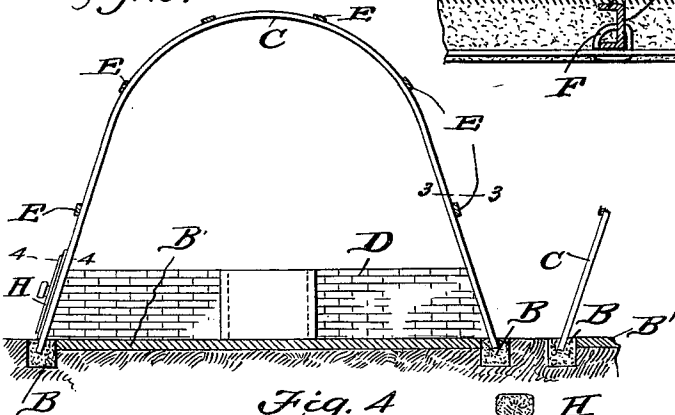


Fig. 3.

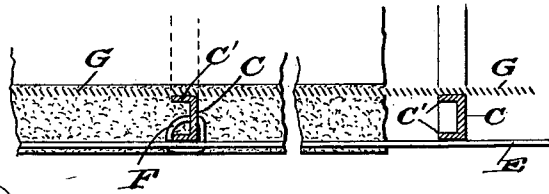


Fig. 4.

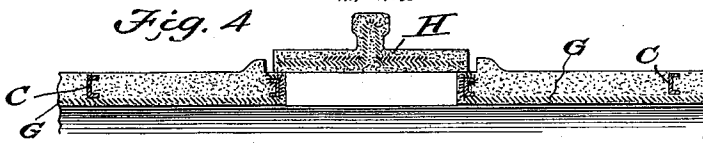
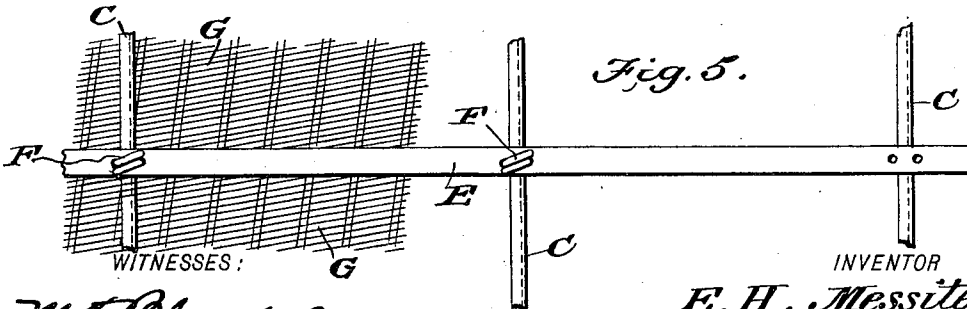


Fig. 5.



WITNESSES:

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FLUE.

SPECIFICATION forming part of Letters Patent No. 665,250, dated January 1, 1901.

Application filed May 15, 1900. Serial No. 16,756. (No model.)

To all whom it may concern:

Be it known that I, EDWIN HENRY MESSITER, residing at Leadville, in the county of Lake and State of Colorado, have made certain new and useful Improvements in Flues, of which the following is a specification.

My invention is an improvement in flues for conveying smoke or gases from any point of delivery to the chimney or other place to which it may be desired to conduct the same; and the invention consists in the novel constructions and combinations of parts hereinafter described and claimed.

In the drawings, Figure 1 is a diagrammatic top plan view of a portion of a flue embodying my invention. Fig. 2 is a cross-sectional view on about line 2 1 of Fig. 1. Fig. 3 is a detail longitudinal section on about line 3 3 of Fig. 2. Fig. 4 is a longitudinal section on about line 4 4 of Fig. 2, and Fig. 5 is a detail face view of a part of the metal framing.

The flue A is shown U shape in plan view, with a loop or return-bend at A' and with the receiving-leg 1, which receives the gases, and the discharge-leg 2, which discharges the gases in the desired direction. Manifestly the flue may be built of any length and in any direction and either in straight or curved lines.

In constructing the flue I provide base-walls B, in which are seated the ends of the arches, which are of metal, preferably channeled in cross-section and brought to the arched form, as shown. In channeling the metal I provide the channels between the inner and outer sides of the arches C, and also provide the plates or flanges C', arranged flatwise at the inner and outer sides of the arches to receive the metal lathing and the longitudinal bars, presently described.

A pavement B' extends between the walls B, forming a floor for the flue, and at intervals brick raffle-walls D may extend across the bottom of the flue to aid in collecting valuable dust which may be present in the gases.

In forming the walls of the flue I employ flat iron connecting-bars E, which extend longitudinally along the flue and across the arches C and are secured thereto, preferably, by clenched staples F, as shown. These bars E are shown as extending along the outer sides of the arches and resting against the flat

plates at such sides of the arches. To the inner sides of the arches I secure the lathing G, of metal, suitably fastened to the arches and forming therewith and with the bars E a main skeleton or frame, which is finally embedded in a mortar composed, preferably, of one part of cement to three parts of sand or in concrete. In finishing the flue the inside of the wall may be given a wash of Neat cement, making a smooth uniform finish.

At a suitable point in the side or otherwise in the flue a door H may be provided to permit convenient access to its interior.

The flue when built of concrete with an embedded metallic skeleton as described is very rigid and can be built at but a slight cost. All metal used in the construction is protected by the concrete or mortar from corrosion either from the atmosphere or from the gases conducted by the flue. In operation, when conveying gases carrying valuable dust or fume the same pass through the flue, being somewhat cooled, and depositing in their passage the valuable elements contained, and finally pass out to the chimney or other destination. In other cases the flue acts simply as a conduit for the gases. It will be noticed that the arches are firmly braced by embedding their lower ends in the base-walls and by the metallic lathing and longitudinal bars E, as well as by the concrete filling, as before described.

As shown in Fig. 2, the flue has the opposite inclined walls and the arched roof thereon, the inclination of the walls being such that they will take up the thrust of the arched roof. By this construction the flue is practically a single arch springing from the ground-line or near it, requiring no separate provision for thrust of arch or wind stresses.

While the improved flue has been used mainly as a smoke or dust flue for furnaces, it will operate well as a conduit for gas with or without solid or liquid matters suspended therein. By the use of the form or shape of flue shown the requirements of structural stability are satisfied with a smaller amount of material than by the use of ordinary forms and finds its principal application in places where the ordinary round smoke flue or pipe is seldom used—namely, for flues of, say, sixty to three hundred or more square feet area—

where pipes of such great size would be out of the question on account of structural difficulties or on account of injurious action from acids or heat in the gases on the materials of which pipes are conveniently made. By my invention there is provided a simple cheap construction of flue with inclined side walls and an arched top, employing the inclined side walls to take up the thrust of the arch and brace and stiffen the structure, accomplishing the result with no other elements than the arch and the inclined side walls.

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

1. In a flue, the combination of the two inclined side walls, the arched roof, the metallic ribs of channeled cross-section having inner and outer plates or flanges, the connecting-bars secured to the metallic ribs, the metal lath, and the concrete filling, substantially as described.

2. A dust-flue for furnaces comprising the arch-bars, the base-walls in which the ends of said bars are seated, the metallic devices

coöperating with said arch-bars in forming a metallic skeleton or framework and the concrete filling substantially as set forth.

3. A dust-flue for furnaces comprising the arch-bars, the longitudinal bars connecting said arch-bars, the metallic lathing extending on the opposite sides of the arch-bars from the longitudinal connecting-bars, and the concrete filling, substantially as described.

4. A dust-flue for furnaces having its walls composed of a metallic skeleton or framework, and a concrete filling and having across its bottom at intervals the baffle-walls substantially as described.

5. In a dust-flue for furnaces, the combination of the channel arch-bars having inner and outer plates or flanges, the connecting-bars secured to the outer flanges, the metallic lathing secured against the inner flanges, and the concrete filling substantially as set forth.

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Witnesses:

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