(No Model.)

D. G. ORMSBY.

MAGAZINE LIMEKILN.

No. 414,437. Patented Nov. 5, 1889.

Fig. 1.

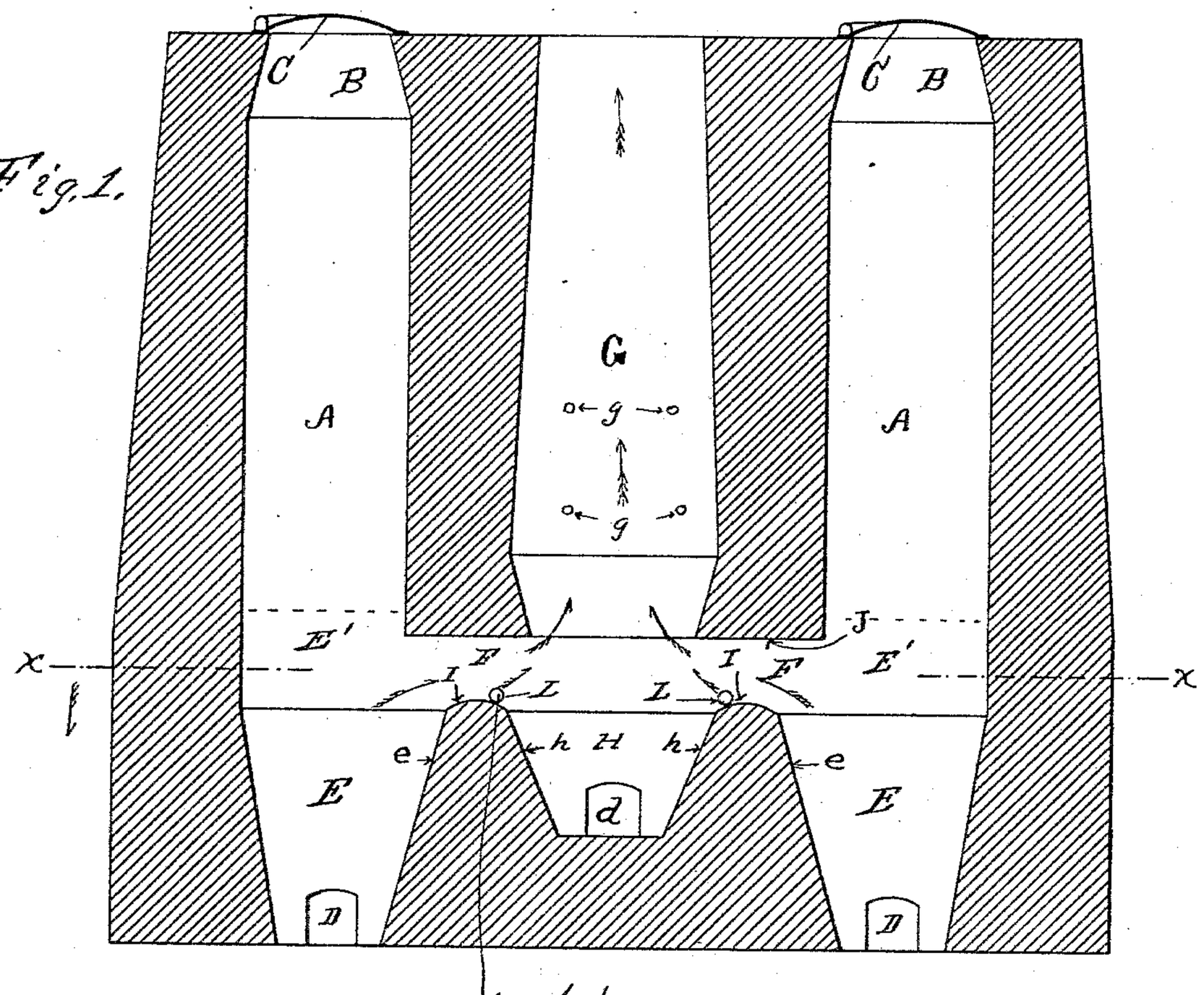
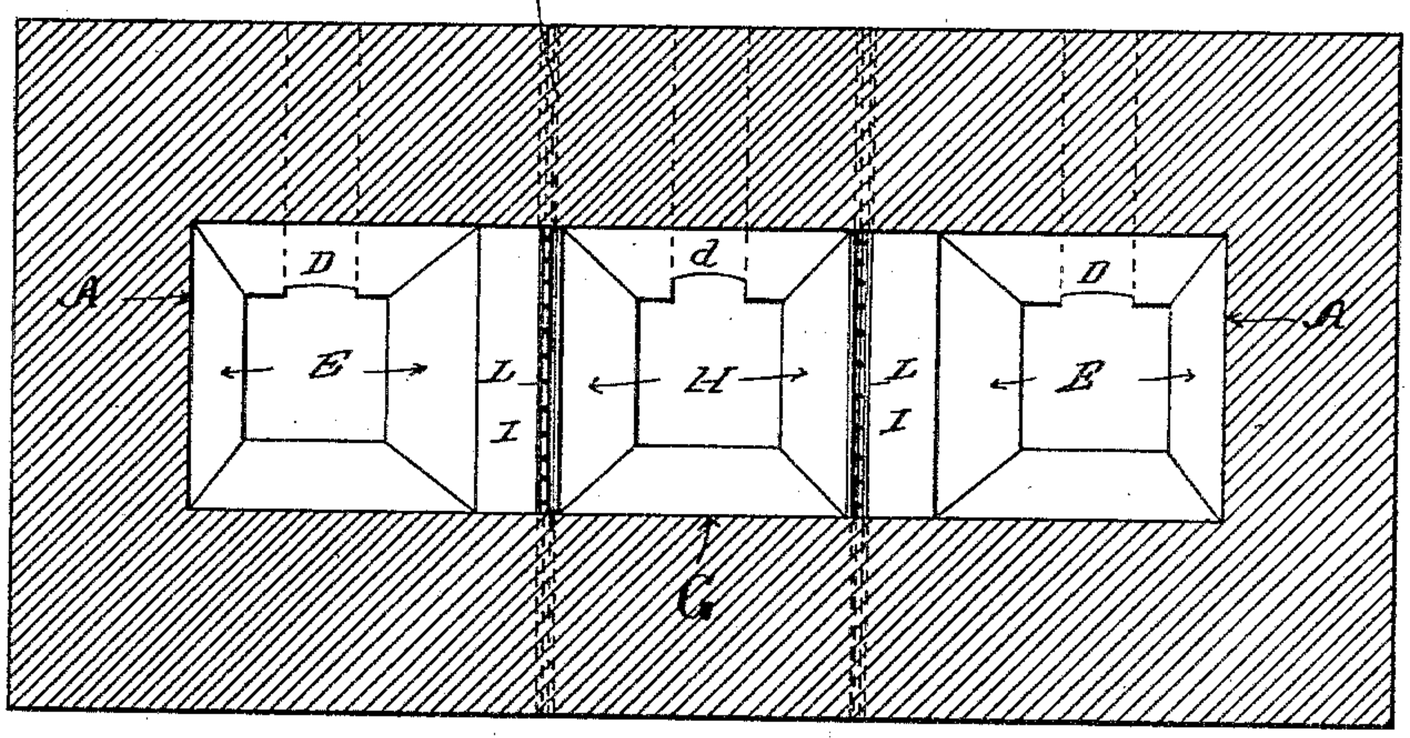


Fig. 2.

Air pipes.



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MAGAZINE-LIMEKILN.

SPECIFICATION forming part of Letters Patent No. 414,437, dated November 5, 1889.

Application filed July 27, 1889. Serial No. 318,936. (No model.)

To all whom it may concern:

Be it known that I, DAVID G. ORMSBY, a citizen of the United States, residing at Pewaukee, in the county of Waukesha and State of Wisconsin, have invented certain new and useful Improvements in Magazine-Limekilns; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, forming part of this specification.

My invention consists in the improvements in magazine-limekilns hereinafter set forth and explained, and illustrated in the accompanying drawings, in which—

Figure 1 is a central vertical section of my improved kiln. Fig. 2 is a horizontal section of the same on the line *x x* in Fig. 1, looking in the direction of the arrow.

The objects of my invention are to construct a limekiln having one or more magazines adapted to be charged from time to time at the top with alternate layers of limestone and fuel, and then closed up at the top, from which magazine or magazines lateral flues conduct the heated gases of combustion into the lower portion of a cupola, which is charged with limestone alone, and which also operates as the chimney of the kiln, by which construction I am enabled to produce a much more uniform heat in the kiln, and also to utilize the heat of the fuel much more completely than is done in kilns of usual and ordinary construction.

In the construction of my improved magazine-limekiln shown, A A are magazines, adapted to be charged from the top with alternate layers of limestone and fuel, these charges being placed therein from time to time, as desired. Covers C are placed over the tops B of the magazines A, so as to close them up substantially tight. In the bases of the magazines A, I place small doors D, through which air is supplied to aid the combustion in the magazines, and also to admit of the calcined lime being removed from the bases of the magazines from time to time, as desired, the lower portions E of the magazines being made hopper-shaped, so that the calcined limestone gradually settles down to the central part of the bottoms of the magazines. At about one-third of the height of the magazines from the bases thereof I make lateral flues F, extending into the lower portion of the cupola G, which cupola I fill with limestone alone, this cupola G being open at the top, so that it operates both as a chimney or flue for the magazines, and also utilizes the heat therefrom to calcine the limestone therein. The cupola G has a hopper-shaped base H, which extends down below the flues F a short distance, which is provided with a door *d* in one side thereof, through which the calcined limestone can be withdrawn from time to time, as desired. The inner walls *e* of the hopper-shaped portions E of the magazines A and the walls *h* of the hopper-shaped portion H of the cupola G are built at such an angle that they form a bridge-wall I under the flue F, considerably narrower than the crown portion J of the flue F, so that the limestone and fuel, as they pass down into the portions E and E′ of the magazines which form the combustion-chambers thereof, will not obstruct the flues F. The sides *h* of the hopper-shaped portion of the cupola G also operate in the same manner as to the calcined limestone passing down the cupola G into the hopper H. Across the tops of the bridge-walls I, I preferably place perforated pipes L, which extend out through the sides of the walls of the kiln, through which air can be supplied as desired to the gases as they pass through the flues F into the cupola G to aid in the combustion thereof.

In constructing my improved magazine-limekiln I make any desired number of magazines A, communicating by means of flues F with each other and with a cupola G, or directly with a cupola G, which operates not only as a flue for conveying off the products of combustion from the magazines A, but also as a kiln for burning limestone, the latter being accomplished by means of the surplus heat and the combustion of the unconsumed gases passing thereto from the magazines A, the fire-chambers of the magazines A being in the vicinity of and below the flues F, so that the magazines A are substantially base-burning,

they being supplied from time to time with fresh fuel and limestone by raising the covers C of the magazines and putting fuel and limestone into the top thereof, from which point they settle down as the burning progresses, and the calcined lime is drawn off through the doors D, and in the cupola G fresh limestone is added at the top thereof as fast as the stone therein is calcined and drawn off at the bottom through the door *d*, thus making the operation of calcining continuous in both the magazines A and the cupola G.

Having thus described my invention and its operation, so as to enable others to construct and use the same, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a limekiln, the combination of a cupola adapted to be filled with limestone, with one or more covered magazines communicating by means of a flue or flues with said cupola and adapted to be charged with layers of limestone and fuel, substantially as and for the purpose set forth.

2. In a limekiln, the combination of a magazine A, having a hopper-shaped bottom E, and a door D at the bottom thereof, and a removable cover C at the top thereof, with a cupola G, having a hopper-shaped bottom H and a door *d* therein, a flue F, connecting said magazine with said cupola, and an air-supply pipe L, substantially as and for the purpose set forth.

3. In a limekiln-magazine, the combination of a hopper-shaped base E, having a door D therein and a cover C on the top thereof, with a lateral flue F, opening into a cupola G, substantially as and for the purpose set forth.

4. In a limekiln, the combination of a magazine A and a cupola G with a flue F, connecting the magazine A with the cupola G, and a perforated air-pipe L over the bridge-wall I in said flue, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

DAVID G. his × mark ORMSBY.

Witnesses:
THEO. M. KNIGHT,
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