

(No Model.)

S. MURRELL.

Separating and Condensing Zinc or White Lead Fumes.  
No. 229,448.

Patented June 29, 1880.

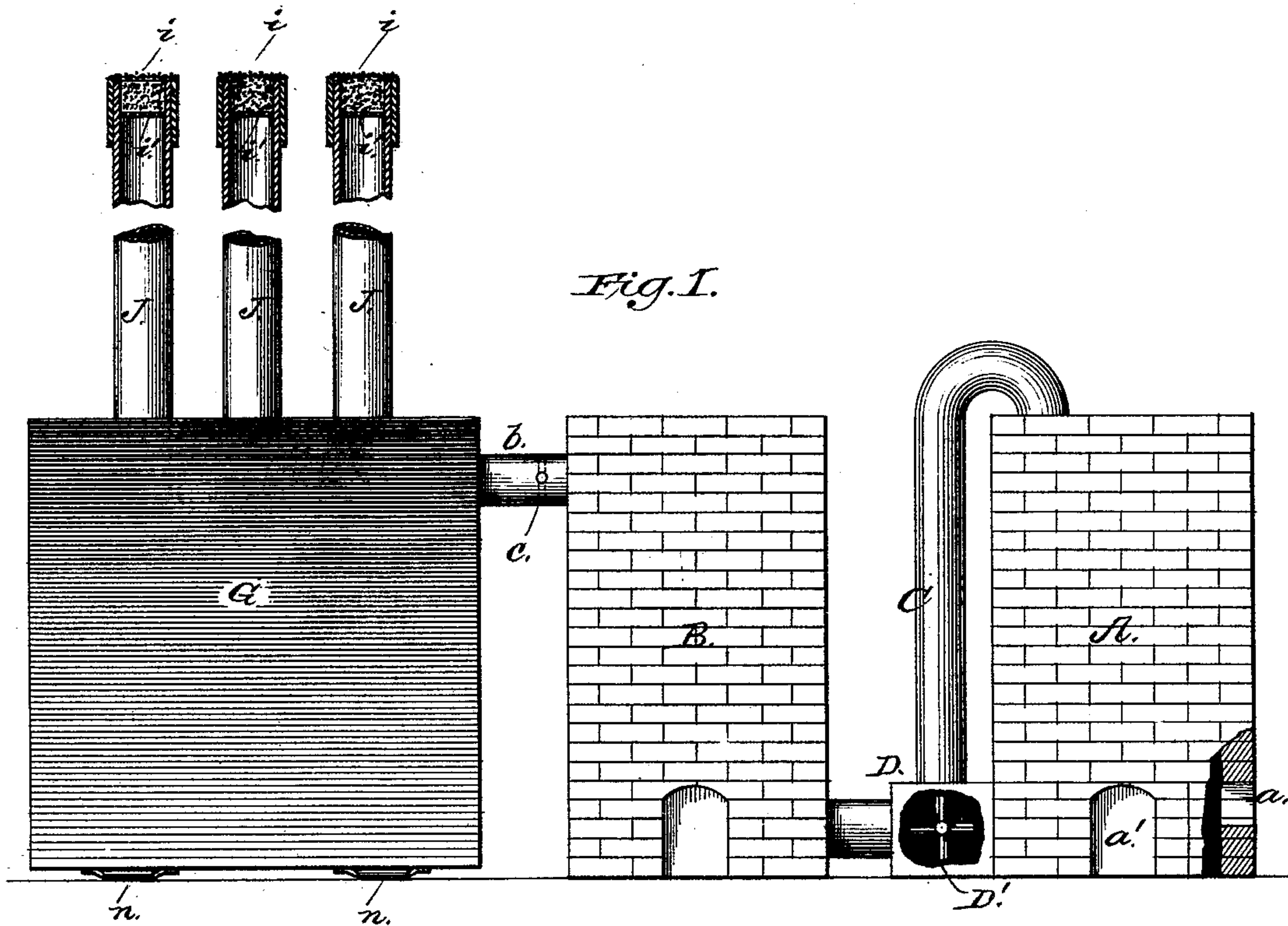
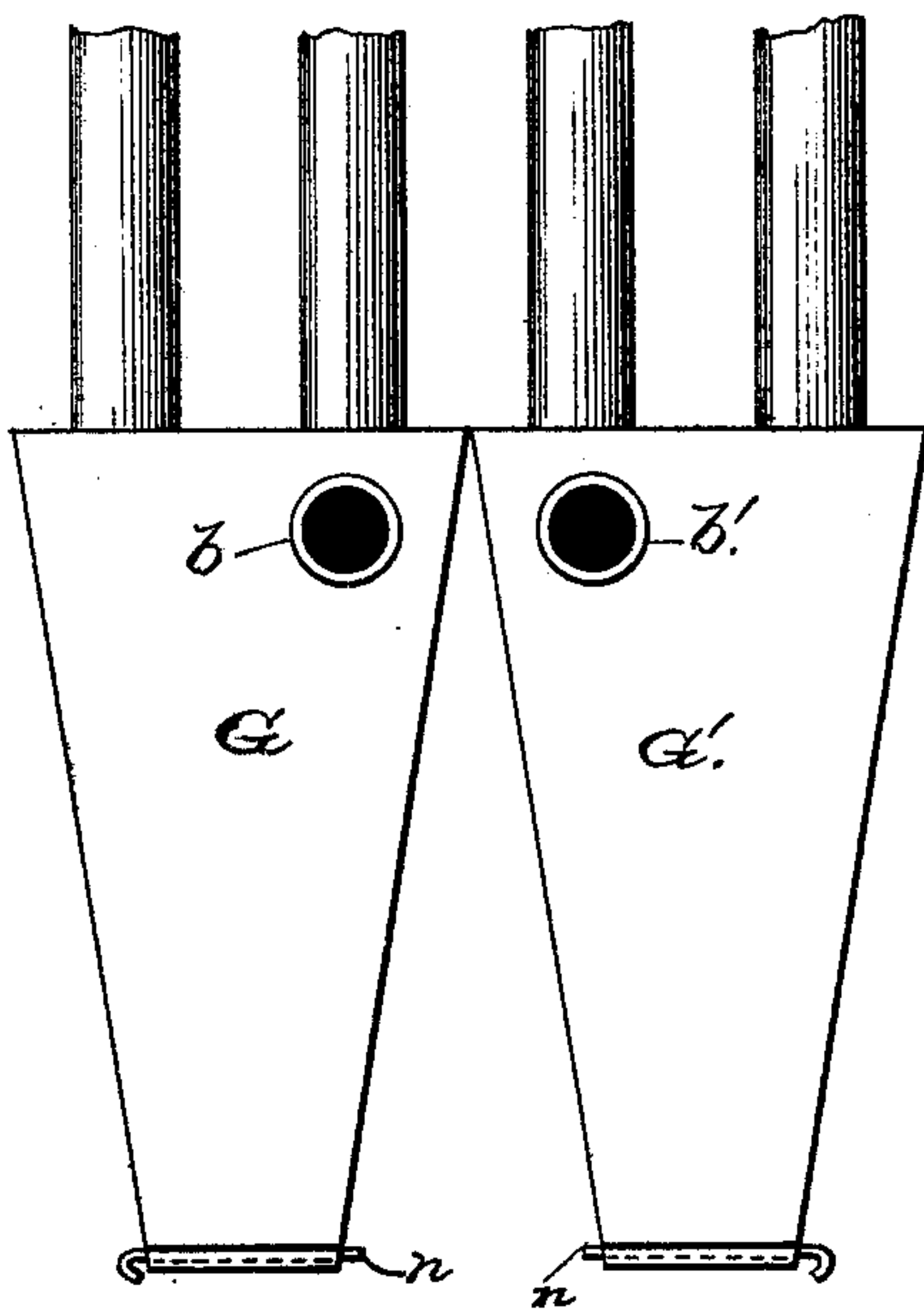


Fig. 2.



WITNESSES

*John A. Lee.*  
*Frank J. Massi.*

INVENTOR

*Samuel Murrell*  
*by E. W. Anderson*  
*his* ATTORNEY



# UNITED STATES PATENT OFFICE.

SAMUEL MURRELL, OF JOPLIN, MISSOURI, ASSIGNOR OF ONE-HALF OF HIS  
RIGHT TO JAMES MILLER LEONARD, OF SAME PLACE.

## SEPARATING AND CONDENSING ZINC OR WHITE-LEAD FUMES.

SPECIFICATION forming part of Letters Patent No. 229,448, dated June 29, 1880.

Application filed March 31, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, SAMUEL MURRELL, of Joplin, in the county of Jasper and State of Missouri, have invented a new and valuable  
5 Improvement in Apparatus for Saving, Separating, and Condensing Zinc or White-Lead Fumes; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same,  
10 reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a side view of my improved apparatus, and  
15 Fig. 2 is an end view of the hoppers.

This invention has relation to improvements in means for condensing and saving white lead or zinc-white, and separating it from the gas that escapes with it from the furnace.

20 The object of the invention is, mainly, while saving the metallic fumes and condensing them, to separate the deleterious gases therefrom and deliver them at a point where they cannot injuriously affect the life or health of the  
25 workmen; and it consists in the combination, with condensing-hoppers having escape-pipes provided with separated screens and a filtering material between them, and a stack connected by valved pipes with said hoppers, of  
30 a stack connected directly to the furnace, a pipe connecting said stack, and a fan in said pipe exhausting from one stack and blowing into the other, as hereinafter shown and described.

35 In the annexed drawings, the letter A designates a stack constructed or lined with fire-brick, into which the fumes or smoke passes directly from the furnace through a flue entering the same at *a*. This stack has near  
40 its bottom an opening, *a'*, closed by a suitable door, through which access is had to its interior for repairing or cleaning the same.

The stack A, from its top, is connected with a similar stack, B, at its bottom by a pipe, C,  
45 having at its lower end a fan-case, D, containing a fan, D', that exhausts the fumes from the furnace and stack A and forces them into

the stack B. This stack is provided with a suitable door, through which access is had to its interior.

*b b'* designate flues leading from the stack B into independent hoppers G G', and provided each with a valve, *c*, by means of which the connection between the stack and the said  
55 hoppers is established or cut off at pleasure.

The hoppers are close vessels, having in their bottoms a number of slides, *n*, by means of which their contents may be removed, and they are constructed narrower at bottom than  
60 at top.

J indicates escape-pipes extending upward a sufficient distance from the hopper, and provided at their upper ends with the double screens *i i*, arranged at a suitable distance  
65 apart, and having between them a filtering material, such as charcoal, small gravel, or other equivalent substance. This filter will allow the gases to escape, but will stop and precipitate the lead or zinc fumes. These gases, so  
70 injurious to health, may be discharged from the filter into a suitable chamber and then conducted by flues to any desired place.

In apparatus of this description heretofore used the operators have no control over the gases, and in consequence they are greatly injured in health by inhaling the same.

The valves *c* of the flues permit one of the hoppers to be cut off from the stack B and emptied, while the other collects the metallic  
80 fumes.

What I claim as new, and desire to secure by Letters Patent, is—

1. The apparatus herein described for condensing lead and zinc fumes and separating deleterious gases therefrom, consisting of the  
85 connected stacks A B and exhaust-fan in the connection thereof, the hoppers G G', connected to stack B, and the discharge-pipes J, having the screens *i i'*, and a filtering material between said screens, substantially as  
90 specified.

2. The combination, with the condensing-hoppers having the escape-pipes J, provided with the separated screens and a filtering ma-

terial between them, and a stack, B, connected by valved pipes with said hoppers, of a stack, A, connected directly to the furnace, a pipe, C, connecting the said stack, and a  
5 fan, D', in said pipe to exhaust from stack A and blow into stack B, substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

SAMUEL MURRELL.

Witnesses:

WILLIAM VENABLE KATES,  
HENRY LEE GIVENS.