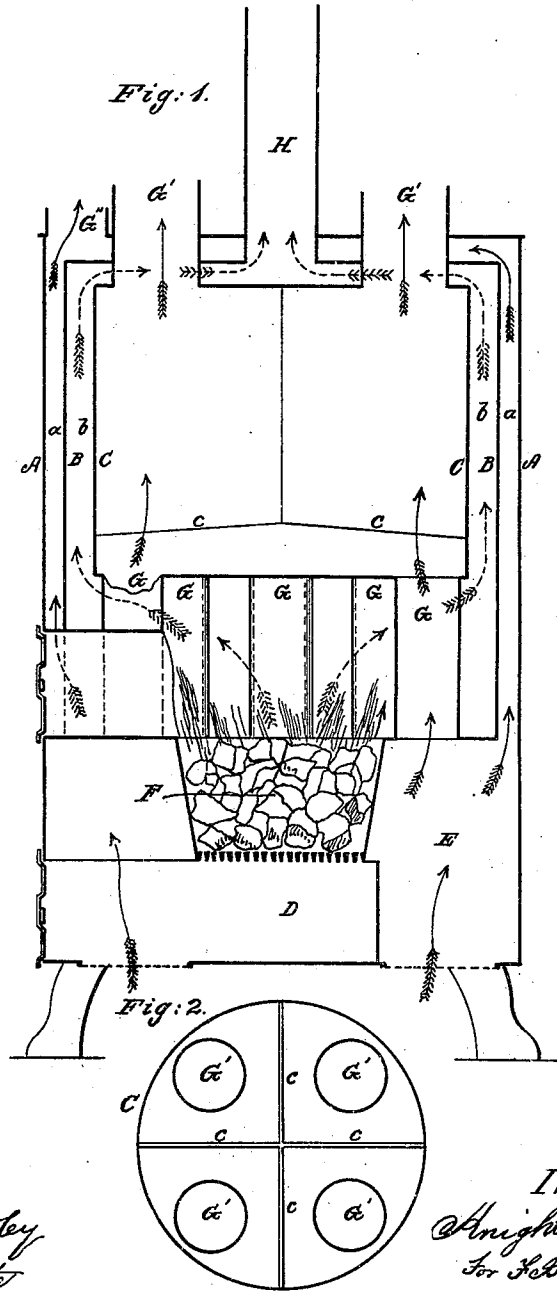


HELLER & YOUNG.  
Hot Air Furnace.

No. 29,167.

Patented July 17, 1860.



Witnesses:  
James H. Gridley  
John H. Blute

Inventor:  
Knight Brothers. Atty.  
For Heller & Young.

# UNITED STATES PATENT OFFICE.

FRANCIS P. HELLER AND ELIAS YOUNG, OF CINCINNATI, OHIO.

## WARM-AIR FURNACE.

Specification of Letters Patent No. 29,167, dated July 17, 1860.

*To all whom it may concern:*

Be it known that we, FRANCIS P. HELLER and ELIAS YOUNG, both of Cincinnati, Hamilton county, Ohio, have invented a new and useful Warm-Air Furnace; and we hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, making part of this specification.

Our invention consists in an arrangement of warm air passages and flues for the more effective equable and healthy action of this class of furnaces.

In the accompanying drawings Figure 1 is an axial section of a furnace illustrating our improvements. Fig. 2 is a horizontal section.

A is an external shell or case and B an internal shell, inclosing between them an annular space *a* which serves the double purpose of a non-conducting envelop, and a warm air reservoir.

Fixed concentrically within the upper portion of the shell B is a drum C. The annular space *b* between the shell B and the drum C, constitutes the upper portion of the smoke passage.

D is the ash pit; E cold air vestibule or reservoir; F fire pot; G tubes which conduct from the cold air reservoir E to the drum C, which they also serve to support.

G' are tubes (four in the present illustration) which afford as many warm air exits.

G'' is a warm air exit from the annular space—or pocket.

H is the smoke escape flue.

*c* are four vertical diaphragms which depend from the ceiling of the drum C to

within a short distance of its floor, and serve the purpose of preventing an undue draft through any one passage, at the expense of the others.

By simply varying the relative size of the pipes the volume of warm air which passes through each pipe may be accurately adapted to the size and requirements of each particular apartment or range of apartments.

A furnace built on this plan combines quick direct and ample draft both of smoke and warm air. With an extended heating surface there is no tendency in any part to detain or arrest the natural flow of the gases, so that instead of a limited and sluggish flow of over heated and scorched air, unfit for respiration and slow to mingle with the atmosphere of the room, a copious volume of moderately warmed and heating air is poured in.

We claim as new and of our invention herein—

1. The combination of the vertical diaphragms *c* with the drum C and tubes G and G' operating in the manner and for the purposes set forth.

2. The arrangement of the air reservoir E annular air and smoke chambers *a* and *b* and tubes G G' G'' operating in the manner and for the purposes explained.

In testimony of which invention, we hereunto set our hands.

F. P. HELLER.  
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Witnesses:

GEO. H. KNIGHT,  
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