

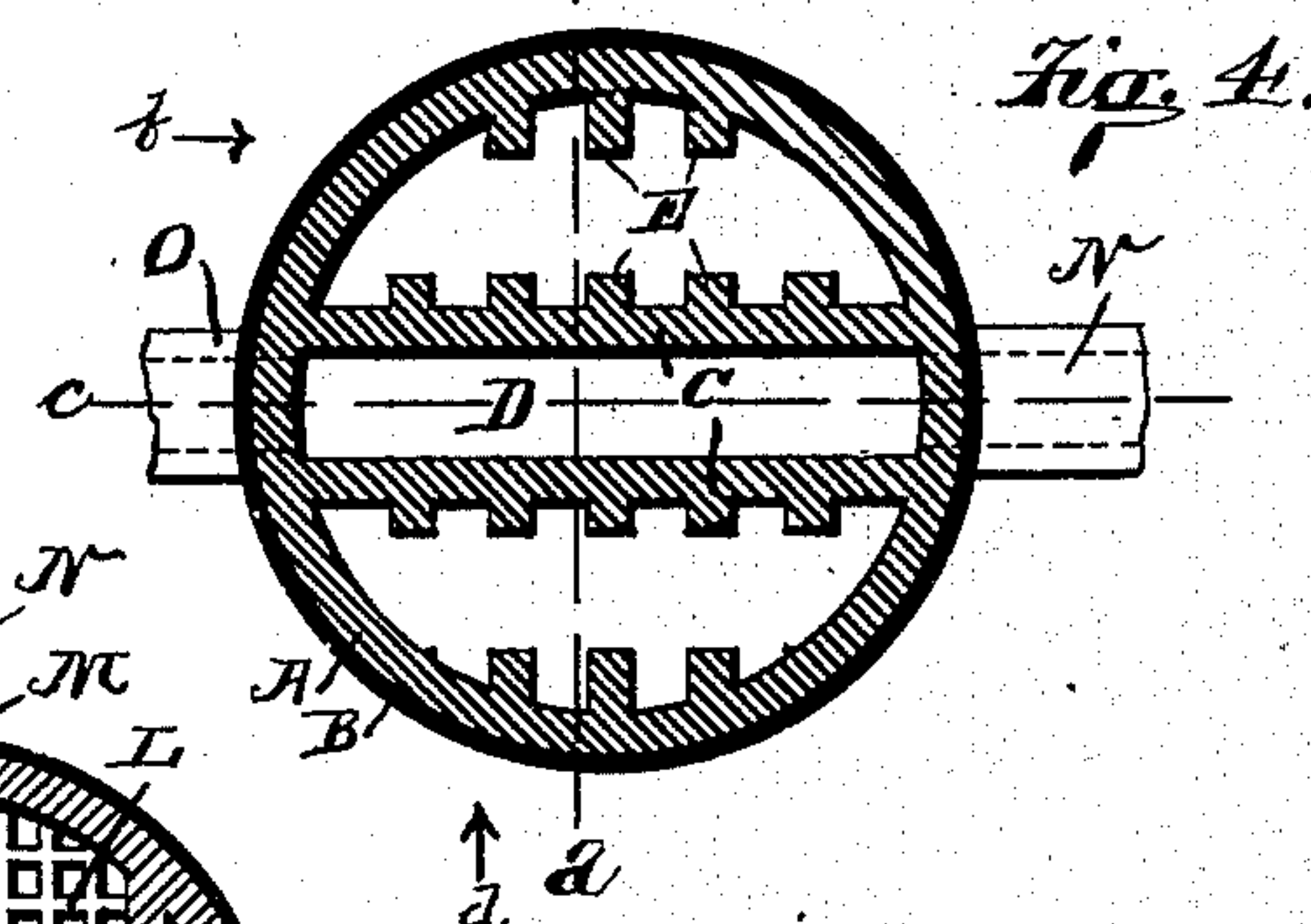
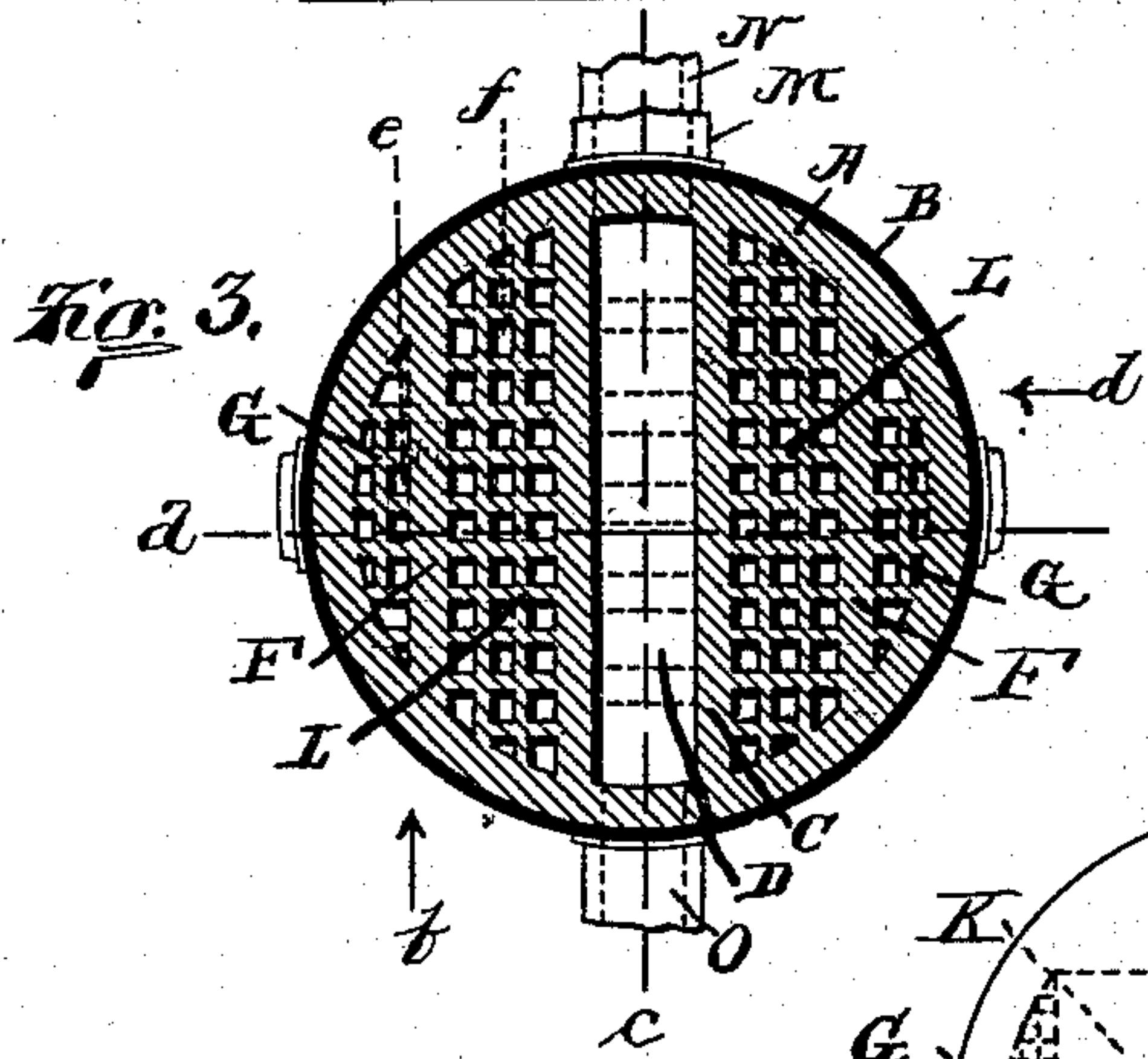
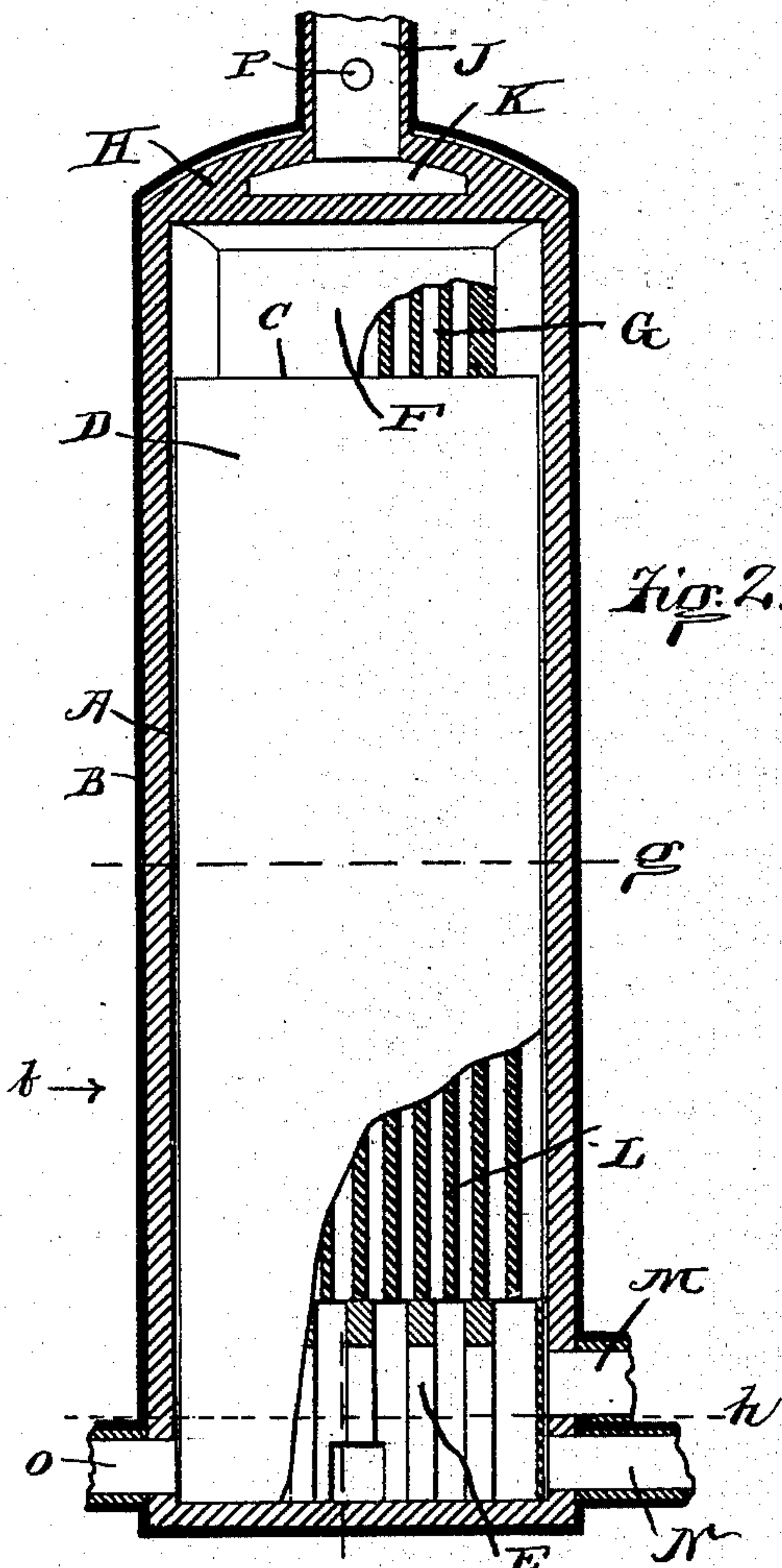
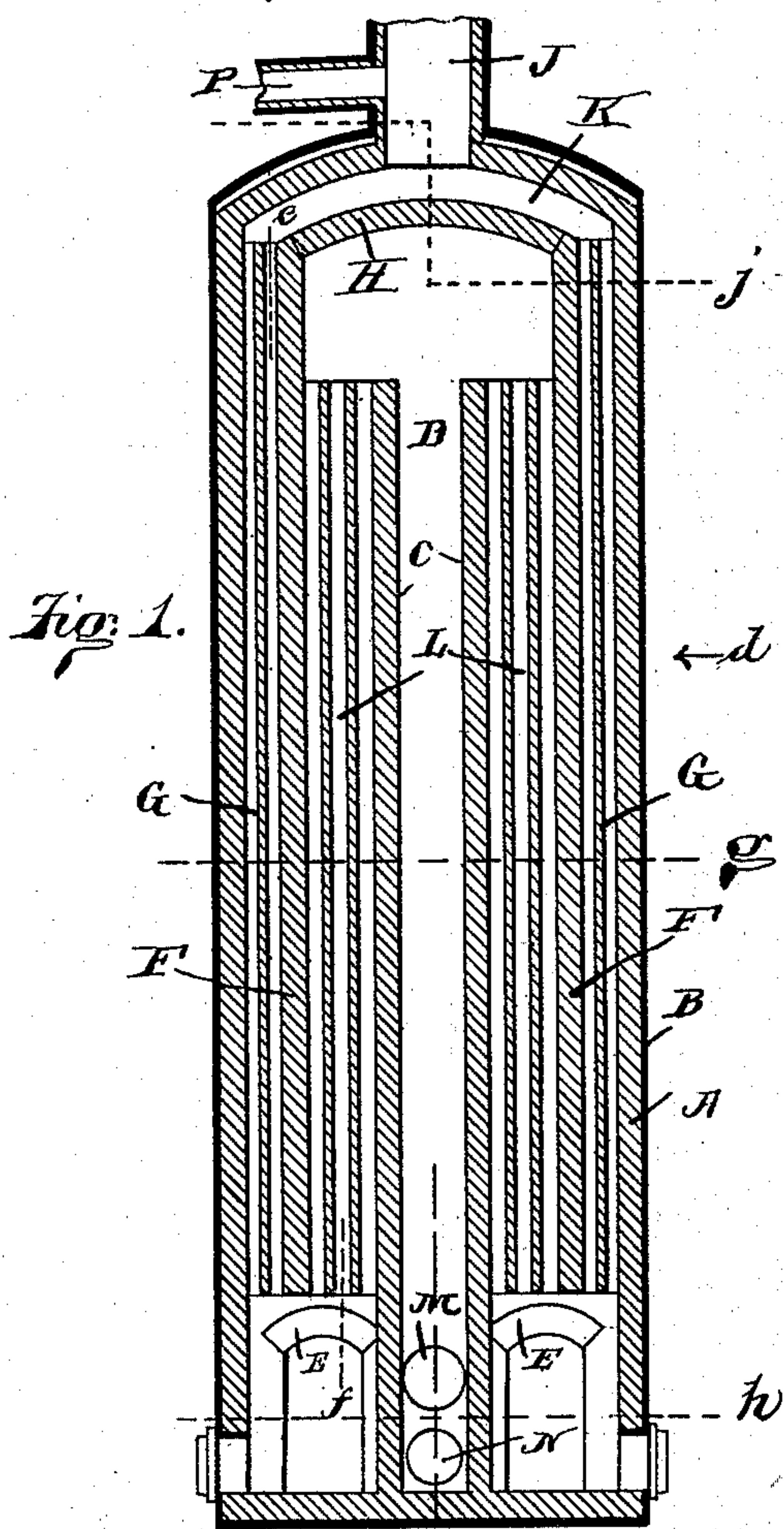
(No Model.)

V. O. STROBEL.

HOT BLAST STOVE.

No. 413,247.

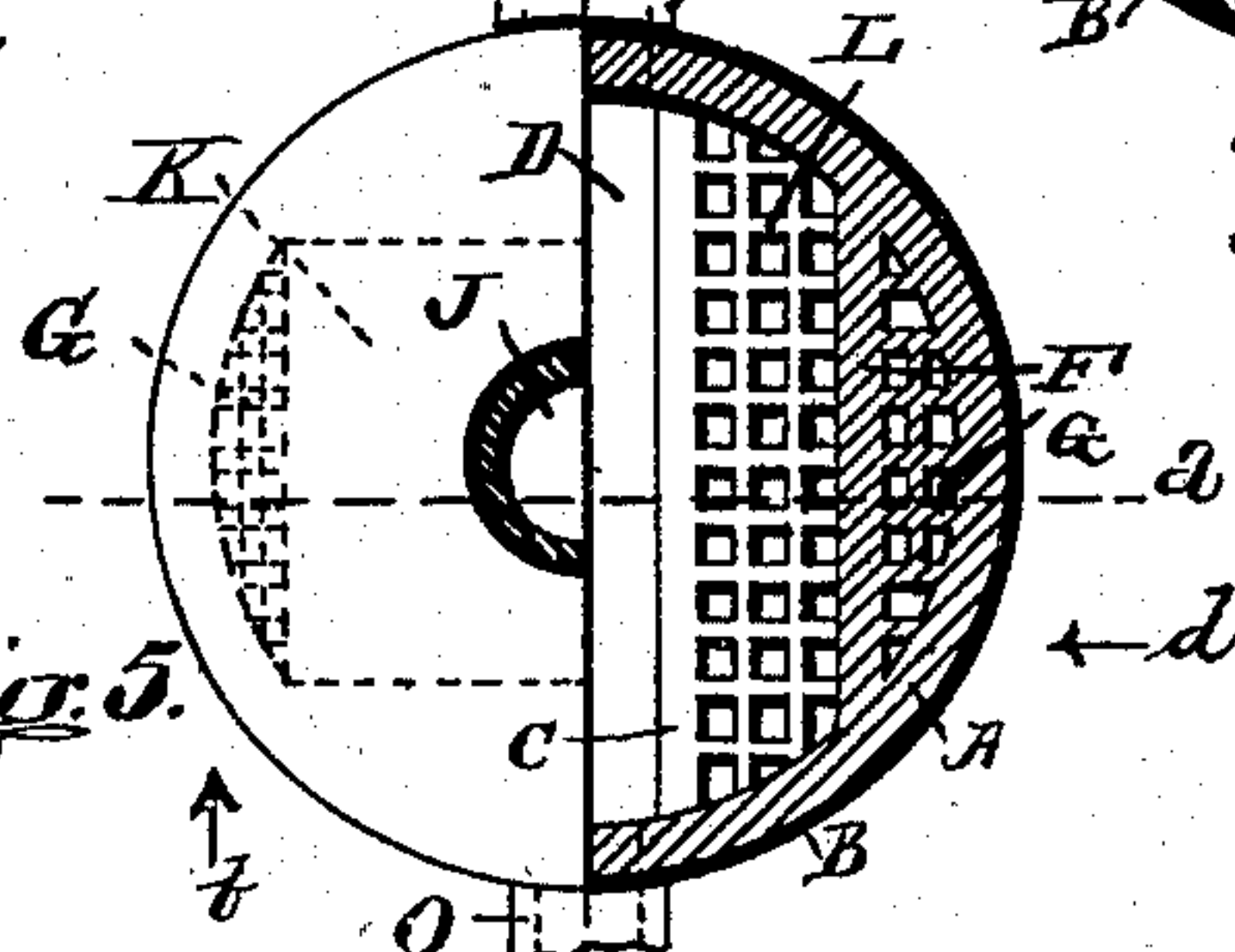
Patented Oct. 22, 1889.



Witnesses:

*A. C. Rogers*  
*C. Crawford*

*Fig. 5.*



*Victor O. Strobel*  
Inventor  
by *James W. Sec.*  
Attorney



# UNITED STATES PATENT OFFICE.

VICTOR O. STROBEL, OF PHILADELPHIA, PENNSYLVANIA.

## HOT-BLAST STOVE.

SPECIFICATION forming part of Letters Patent No. 413,247, dated October 22, 1889.

Application filed July 22, 1889. Serial No. 318,288. (No model.)

*To all whom it may concern:*

Be it known that I, VICTOR O. STROBEL, of Philadelphia, Philadelphia county, Pennsylvania, have invented certain new and useful  
5 Improvements in Hot-Blast Stoves, of which the following is a specification.

This invention relates to regenerative hot-blast stoves designed to be used in multiple for the heating of air-blast, &c.

10 The general exterior appearance and the manner of connecting up and using my improved stove present no points of novelty, my improvement having reference to the interior construction of the stove.

15 My improvements will be readily understood from the following description, taken in connection with the accompanying drawings, in which—

Figure 1 is a vertical section of a hot-blast  
20 stove exemplifying my improvements, the plane of the section of this view being indicated by the line *a* in other figures, and the direction of view by the arrow *b* in other figures; Fig. 2, a vertical section of the stove in  
25 the plane of line *c*, viewed in the direction indicated by arrow *d*, a portion of the wall *F* being broken away at the top to exhibit the regenerative work beyond in vertical section in the plane of line *e*, the wall *C* being broken  
30 away at the bottom to exhibit the work beyond in plane of line *f* of other figures; Fig. 3, a horizontal section in the plane of line *g* of other figures; Fig. 4, a horizontal section in the plane of line *h* of other figures, and  
35 Fig. 5 a horizontal sectional plan in the plane of line *j* of Fig. 1.

In the drawings, *A* indicates the main cylindrical shell-wall of the stove; *B*, the usual  
40 metallic shell of the stove completely inclosing the stove; *C*, a pair of walls arranged as chords of the stove-circle and extending from the base of the stove to near the top thereof, and entirely across the stove at a sufficient  
45 distance apart to form a combustion-chamber between them; *D*, the combustion-chamber formed between these chord-walls; *E*, sets of  
50 arches arranged at the base of the stove at each side of the combustion-chamber, and springing from the combustion-chamber walls to the shell-wall of the stove, these arches being at right angles to the combustion-chamber walls and serving to support the walls

which fill the chambers at each side of the combustion-chamber; *F*, walls, one at each  
55 side of the combustion-chamber, parallel with the walls of the combustion-chamber and supported by the arches *E* and reaching therefrom upwardly to the top of the stove; *G*, regenerative flues arranged in and filling the  
60 segmental chambers formed between the walls *F* and the shell-wall of the stove, these regenerative flues extending from the base-arches to the top of the stove and forming the final  
65 pass or uptake for the gases; *H*, the top or roof of the stove below the roof of the metallic shell, this roof-work *H* being of considerable thickness; *J*, the chimney-connection of the stove, the same being at the top of  
70 the stove; *K*, a flue extending across the stove through the roof-work *H* thereof and placing the two sets *G* of regenerative flues in connection with each other and with the chimney-connection; *L*, regenerative flues formed  
75 in and filling the chambers at each side of the combustion-chamber between the combustion-chamber walls *C* and the walls *F*, these regenerative flues extending from the  
80 base-arches upwardly to near the top of the stove; *M* and *N*, the two connections at the base of the stove leading from the exterior of the stove to the base of the combustion-chamber and serving for the admission of  
85 gas and of air of combustion; *O*, a similar connection at the other side of the stove, serving as the hot-blast outlet from the stove; and *P*, the cold-blast-inlet connection at the  
90 top of the stove, communicating with the top of the sets of regenerative flues *G* through the medium of the roof-flue *K*, this cold-blast connection being shown as connecting at the base of the chimney-connection. The usual  
95 cleaning-doors are arranged in the base of the stove and give access to the chambers at the foot of the regenerative flue-work at each side of the combustion-chamber. Gas and air of combustion enter the base of the combustion-chamber through inlets *M N*. The  
100 gas goes into combustion at the base of the combustion-chamber and rises in the same, and at the top of the combustion-chamber it turns and passes down the regenerative flues *L*. Upon reaching the base of those flues it turns under the walls *F* and passes up the regenerative flues *G* till it reaches the roof



of the stove, when it passes through roof-flue K to the chimney-connection and out thereat. It is to be understood, of course, that the connections for gas and air and also the chimney are to have the usual valves, by which they may be opened and closed, and that during the process of heating just mentioned the chimney-valve and the valve in the connections for gas and air will be open and the valves in the blast inlet and outlet closed. The passage of the burning gas through the stove serves to heat the regenerative wall-work, and when the wall-work is sufficiently heated the gas and air of combustion are shut off and the chimney-valve closed, and the stove is now ready for the heating of such air-blast as may be passed through it. The cold-blast inlet P is now to be opened, and also the hot-blast outlet O. The cold blast now enters the stove and traverses the flues thereof in a direction the reverse of that indicated for the burning gases, and the blast, in its passage through the stove, absorbs the heat from the wall-work thereof and issues in a heated state from the hot-blast outlet O. When the stove has become so far cooled as to require further heating, then the blast-connections are closed and the stove is again put under gas. The stove will of course be used, as usual, in multiple, one or more stoves being under gas while one or more stoves are under blast.

It is quite common in the construction of regenerative hot-blast stoves to provide a single connection to the combustion-chamber branched to form connections for the admission of gas and air of combustion and for the exit of the heated blast, such single connec-

tion being the well-known substitute for the three connections M, N, and O illustrated in the exemplification. The combustion-chamber D (shown as being entirely clear in the exemplification) may, if desired, have stay-walls constructed across it, as indicated in dotted lines in Fig. 3.

I claim as my invention—

In a regenerative hot-blast stove, the combination, substantially as set forth, of a circular shell-wall, a metallic jacket for the stove, a pair of vertical walls arranged as chords of the stove-circle and extending from side to side of the stove and from the base of the stove to near the top thereof and forming a combustion-chamber between them, a pair of walls exterior to said combustion-chamber walls and parallel thereto and extending from near the base of the stove to the top of the stove, regenerative wall-work arranged in the two chambers formed between said last-mentioned walls and the shell-wall of the stove, a chimney-connection and cold-blast inlet at the top of the stove, a roof-flue placing said regenerative work in communication at the top of the stove with said chimney-connection and cold-blast inlet, regenerative flues formed in the two chambers immediately exterior to the combustion-chamber and extending from near the base of the stove to near the top thereof, and connections for gas and air of combustion and hot blast communicating with the base of said combustion-chamber.

VICTOR O. STROBEL.

Witnesses:

ALF. H. FABER,  
J. C. GRAY.