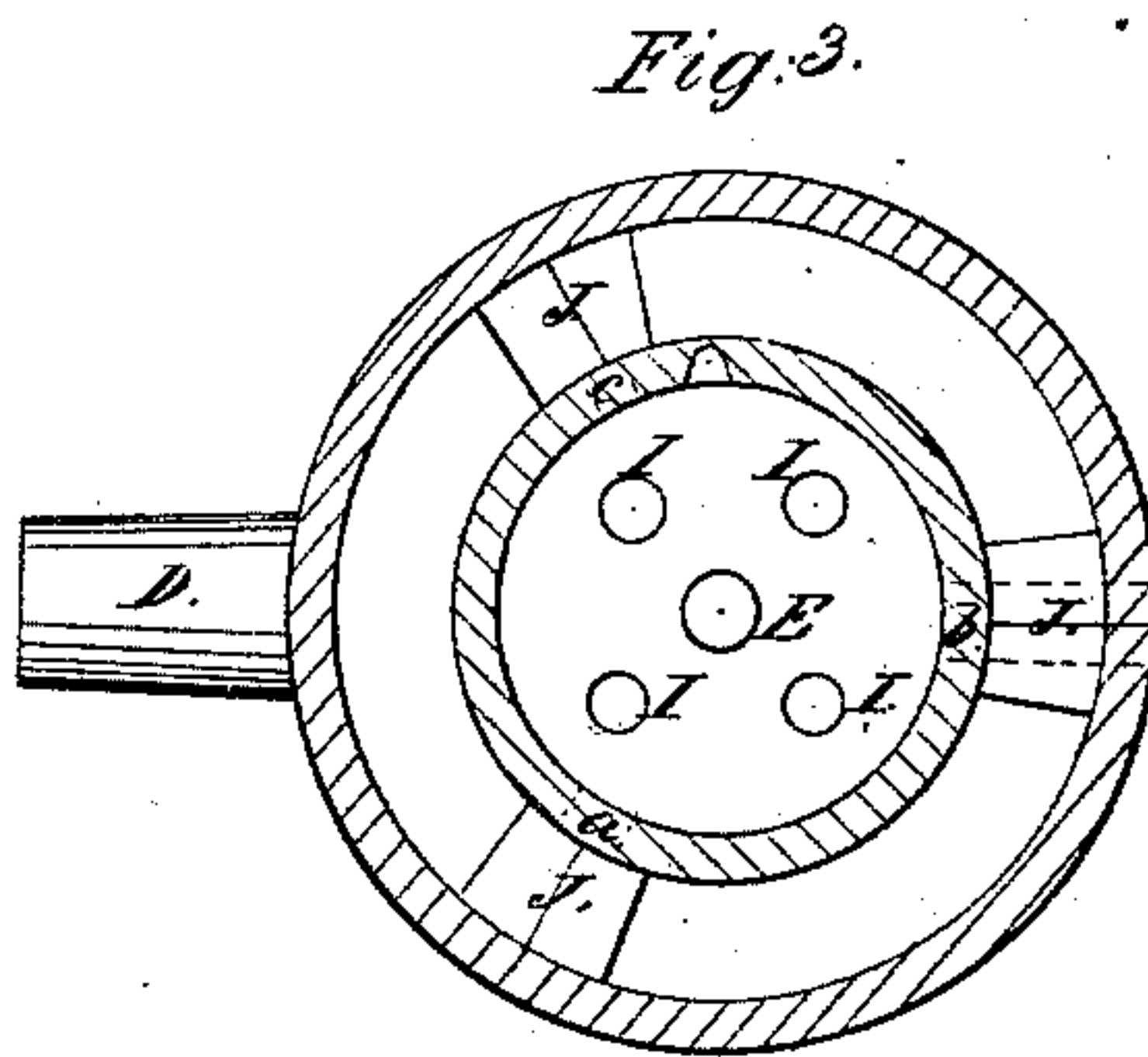
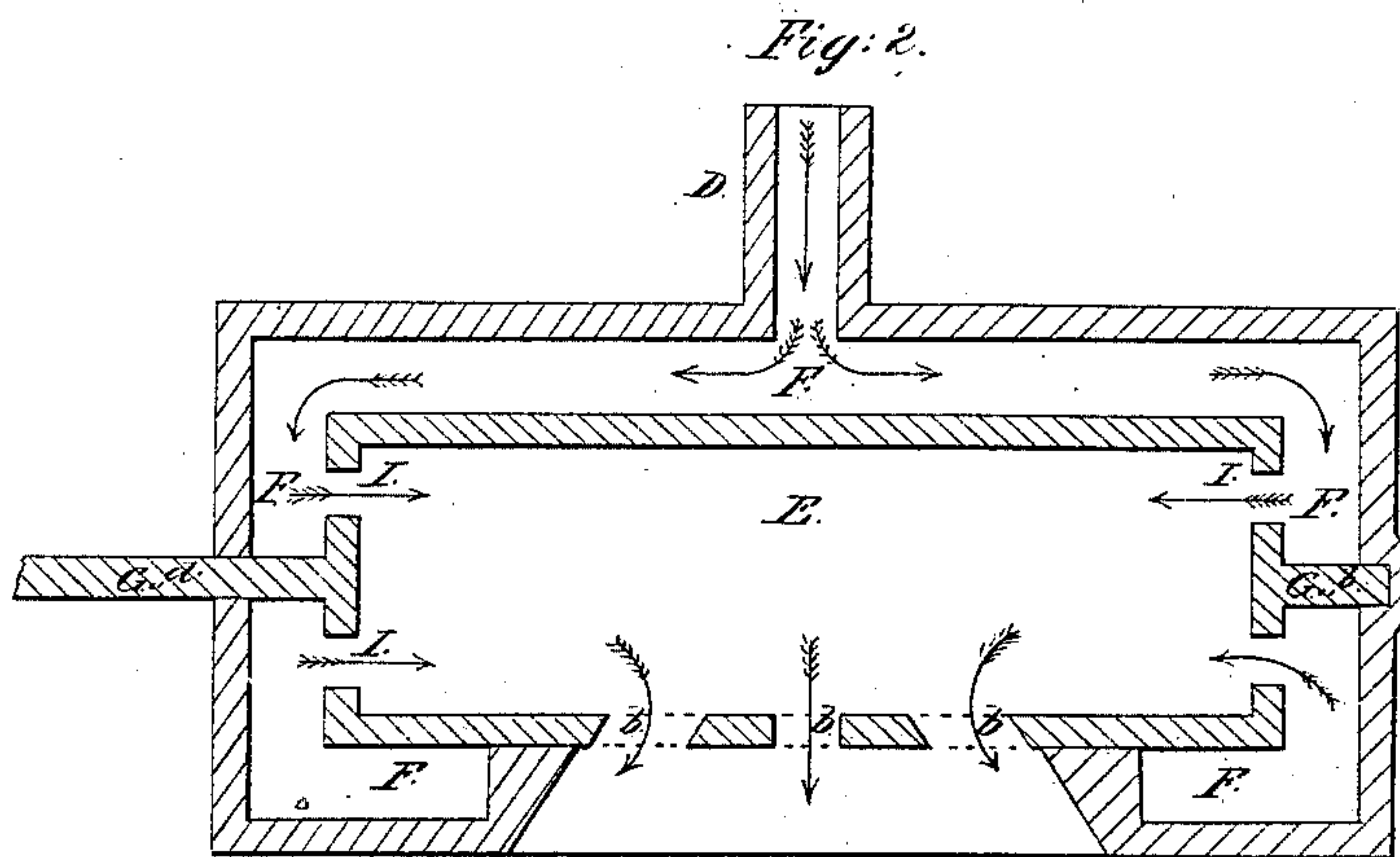
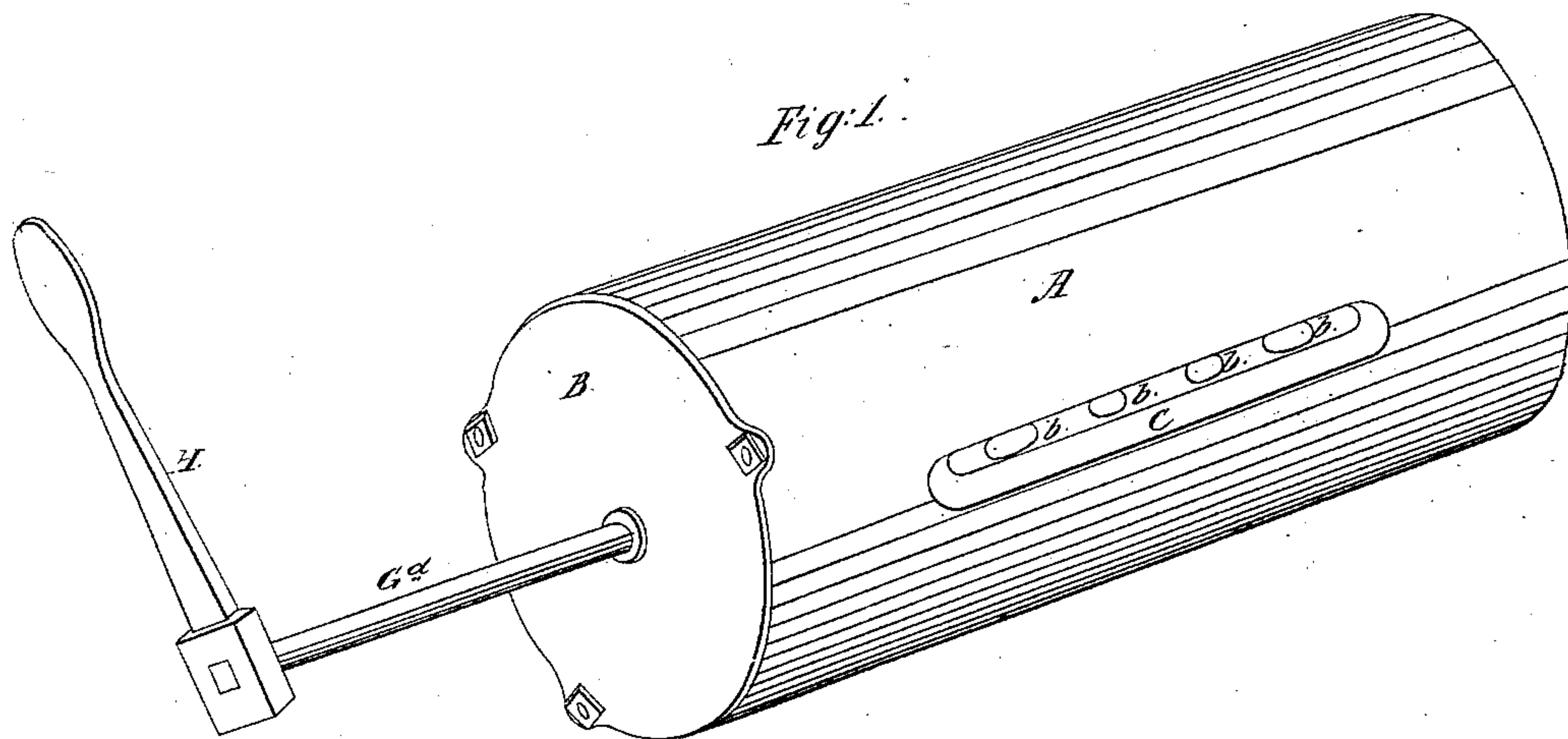


G. W. Finch,

Tuyere,

N^o 20,053.

Patented Apr. 27, 1858.



Witnesses:

George Johnson.
Lucius S. Myers

Inventor:

George W. Finch

UNITED STATES PATENT OFFICE.

GEO. W. FINCH, OF GIBRALTER, WISCONSIN.

TWYER.

Specification of Letters Patent No. 20,053, dated April 27, 1858.

To all whom it may concern:

Be it known that I, GEORGE W. FINCH, of Gibraltar, in the county of Door and State of Wisconsin, have invented a new and useful Improvement in Twyers for the Use of Blacksmiths; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a perspective view. Fig. 2, is a section, representing the twyer as cut through the center in a horizontal line. Fig. 3, is an end section, with the outer head removed.

The same letters refer to similar parts, in all the figures.

My improvement consists of two hollow cylinders of cast iron of nearly twice the size (for ordinary use) as represented by the annexed drawings. The outer cylinder A is stationary, and is usually cast open only at one end, (being the end which lies toward the outside of the forge) and to this end a cast iron cover or head B is fitted and secured, either by bolts, turnbuckles, or any other convenient manner. A long, narrow slot C is cast through the side in front of the forge fire, the ends of said slot being beveled to a sharp angle, outwardly, in opposite directions for the purpose of producing a diverging blast, and is of a length determined by the requirements of the work to be performed. A short tube D is cast on, and through the side, of this cylinder opposite the slot C to receive the bellows nozzle or pipe from a blower.

The inner cylinder E is much smaller than the outer one, the difference in size forming a wind chamber as shown in Fig. 2 at F F, &c. It is cast like the other with one end open, to which a head is fitted, so as to be easily detached; and is suspended and revolved by two spindles G^a and G^b passing through the heads of the outside stationary one. The spindle G^a is long enough to

reach to the outside of the forge and is furnished with a crank H. The wind is admitted to the inside of this cylinder through the holes I, I, I, I in its two heads and is discharged by one or another of a series of perforations *a, b, c*, around its periphery through the slot C, as they may successively be brought opposite to the said slot. J, J, J are lining strips cast on the inside of the outer cylinder, to confine the wind to its issue through the outlets, *a, b, c*.

The wind entering the nozzle D passes in the direction of the arrows through the holes I, I, &c., into the inner cylinder from whence it issues by one of the series of outlets, *a, b*, or *c* through the slot C in the outer cylinder.

This improved twyer costs very little to fit up, when it comes from the foundry. It is consequently cheap. Its form being cylindrical, prevents it from warping, and the free circulation of cold air over all its interior surfaces, does not allow it to heat to a destructive point. The outlets *a, b, c*, &c., can be made to correspond to the nature of every variety of work, and thus act only on such part of the fire as the heating portion requires. This effects the utmost economy in the consumption of coal, for the change from one kind of blast to another, is so easily made, by partially revolving the cylinder E, that no smith will omit making the change when necessary.

I do not claim separately, or in themselves considered any of the within described parts, but—

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

The use of the two hollow cylinders A and E in combination with the slotted opening C and the outlets *a, b, c* or more if necessary of varying forms, and sizes; all arranged to operate substantially as, and for the purpose herein set forth.

GEORGE W. FINCH.

Witnesses:

GEORGE JOHNSON,
LUCIUS G. NOYES.