

J. P. DAWSON.

Improvement in Air-Pipes for Furnaces.

No. 128,864.

Patented July 9, 1872.

Fig. 1.

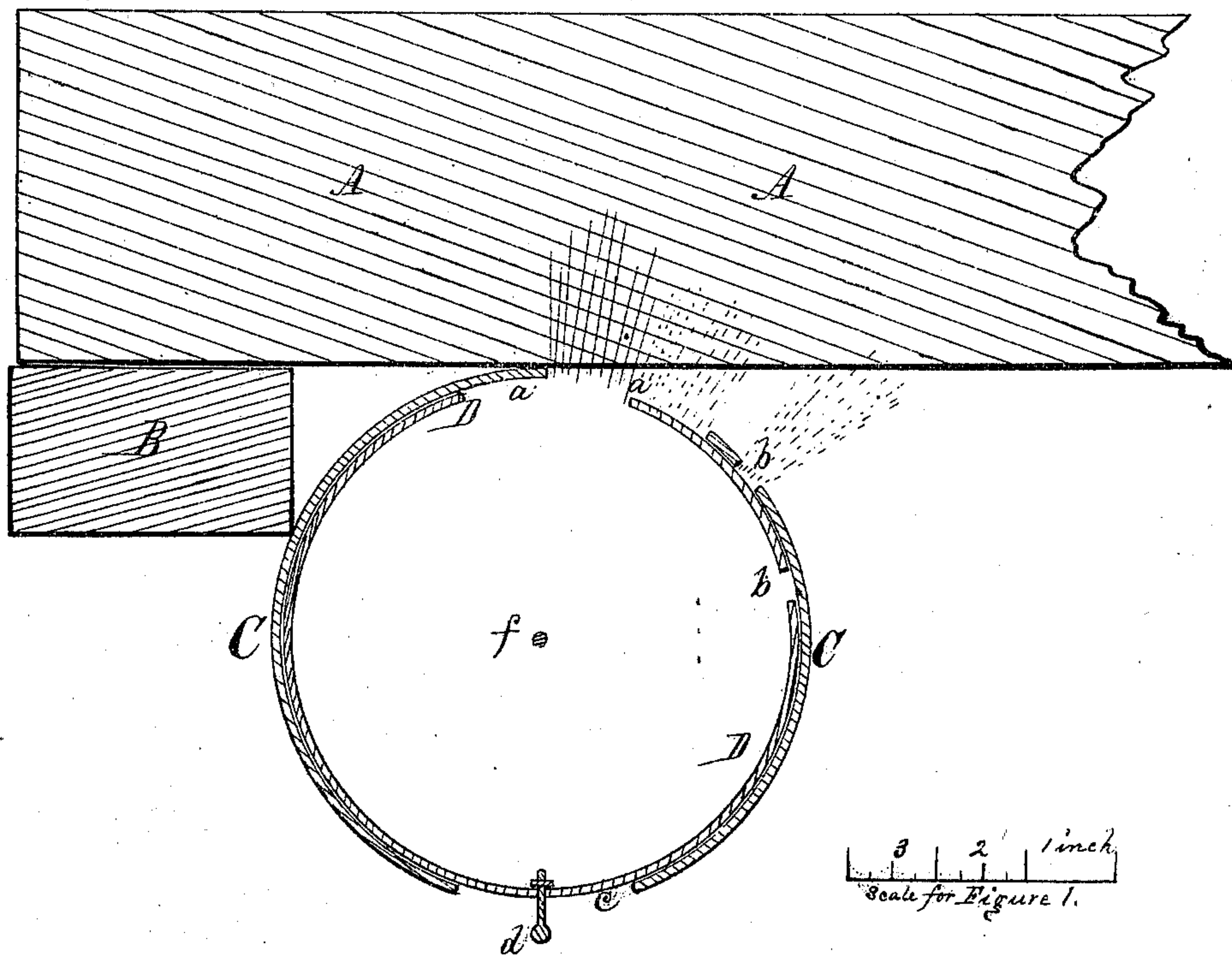
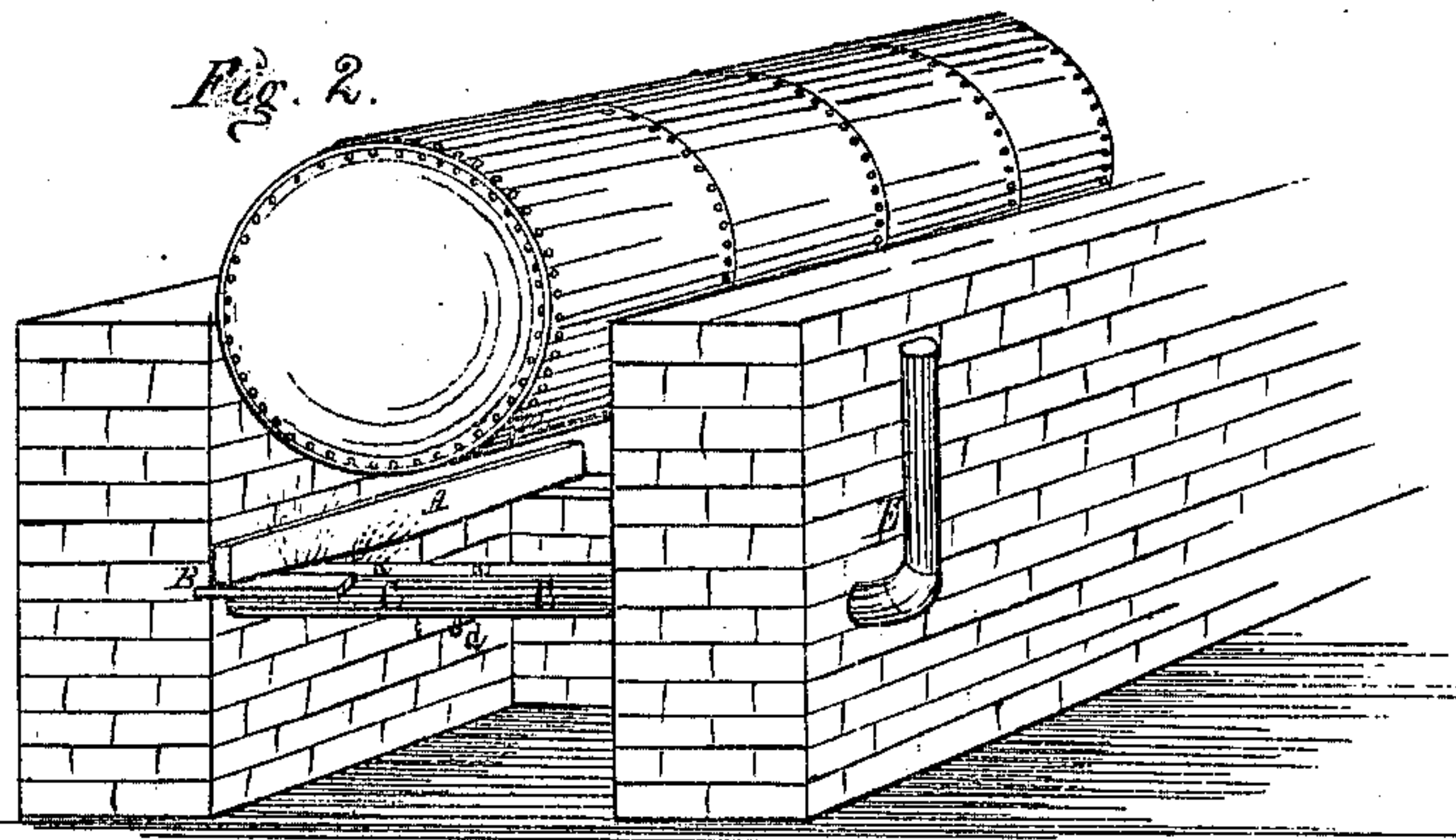


Fig. 2.



Witnesses.

A. G. Littleton
J. K. Marsh

John P. Dawson,
Inventor.
Thomas G. Orwig,
Atty.

UNITED STATES PATENT OFFICE.

JOHN P. DAWSON, OF DES MOINES, IOWA.

IMPROVEMENT IN AIR-PIPES FOR FURNACES.

Specification forming part of Letters Patent No. 128,864, dated July 9, 1872.

SPECIFICATION.

Specification describing a certain Improved Attachment for Furnaces, invented by JOHN P. DAWSON, of Des Moines, in the county of Polk and State of Iowa.

My invention is an improved means of conducting and distributing a current of air to a furnace-fire for the purpose of aiding combustion and keeping the grate-bars cool. It consists in combining two cylinders, one within the other, in such a manner that one of them may be turned to regulate the distribution of air when they are placed under a furnace-grate bar, as hereinafter fully set forth.

Figure 1 of my drawing is a vertical central section of my double cylinder, and illustrates the manner of its construction and operation as attached under a furnace-grate.

A A represents a common grate-bar. B is a common bar or support. C C is a hollow cylinder, made of metal, six inches in diameter; the size may vary, as desired. One of the ends may be permanently closed or covered with a movable cap; the other end is open, and formed to connect with a common conducting-pipe. D D is a metal cylinder fitted inside of the cylinder C C in such a manner that it can be turned. *a a* are wide slots running lengthwise in the two cylinders. The slots may vary in size and shape, but must be uniform in the two cylinders. *b b* are smaller slots or perforations. *c* is a slot in the under part of the outside cylinder. *d* is a handle, secured in a common way to the inner cylinder D D, and passes through and traverses the slot *c* when the inner cylinder is turned. The inner cylinder may be stationary, and the outside one made to turn and accomplish the objects contemplated in my invention. *f* represents a shaft that may pass longitudinally through the inner cylinder and serve to keep the two cylinders in their proper relative positions, and also as an axis, upon which turns one of them; but the cylinders can be mounted and attached in a common way, and operated without the shaft *f*.

Fig. 2 is a miniature perspective view, illustrating the manner of applying and operating my double cylinder attached to a furnace. The same letters of reference are used as in Fig. 1, and in addition the letter E is used to

designate a common conducting-pipe, which is designed to connect with a fan.

To operate my invention it must be adjusted to suit the various conditions of the furnace-fire. Fig. 1 represents the large slots *a a* half closed, and the smaller openings *b b* entirely closed. In this condition a moderate blast will be blown upon the front part of the grate and fire, and the handle *d* will be in the center of the transverse slot *c*. To lessen the blast and close the slots *a a* entirely the handle *d* will be turned backward to the rear end of the slot *c*. To increase the blast and to open the slots *a* and *b* entirely, bring the handle *d* to the front end of the slot *c*. Moving the handle backward and forward turns the inner cylinder and opens and closes the slots or apertures *a* and *b*, which can vary in size, form, and number, as desired.

I am aware that conducting and distributing pipes have been placed under grate-bars in a manner similar to my attachment for the same purposes, and that longitudinal sliding registers have been used to regulate the escape and distribution of the air. The object sought thereby is to govern the quantity, force, and direction of the air. In some conditions of the fire the blast must be concentrated upon the front part of the fire; in other stages the blast should be distributed over considerable space backward. Where only one pipe is used, with a register or damper sliding lengthwise, the quantity or volume of air is regulated, but the direction of the blast remains unchanged. Where several pipes, or one pipe with several chambers or divisions, is used to direct the air at different angles and from different points of escape, several sliding registers are required. By the use of my invention I accomplish the desired results by simply turning the cylinder D. By one motion of the handle *d* backward I can close the escape-passages *a b* entirely, or to such a degree as may be desired to regulate the quantity and direction of the blast. By a reverse motion I can open the passage *a* partly, so that the air will escape in a continuous line from the top of the cylinder only, and directly upward to the front of the grate and fire. As the condition of the fire demands, the passages *a b* may be opened further or entirely, so that a larger volume of air will escape from a lower

point in the cylinder, and in an angling and rearward direction, to strike a larger surface of grate-bar, fuel, and fire.

Claim.

I claim as my invention—

The double cylinder C C and D D with openings *a* and *b* and handle *d*, substantially as de-

scribed, as a means to distribute air to a furnace to keep the grate-bars cool and to regulate the fire.

JOHN P. DAWSON.

Witnesses:

LOUIS RUTKAY,

WM. W. WITMER.