

(No Model.)

W. F. ROSSMAN.
DRUM FOR HOT AIR FURNACES.

No. 306,432.

Patented Oct. 14, 1884.

Fig - 1 -

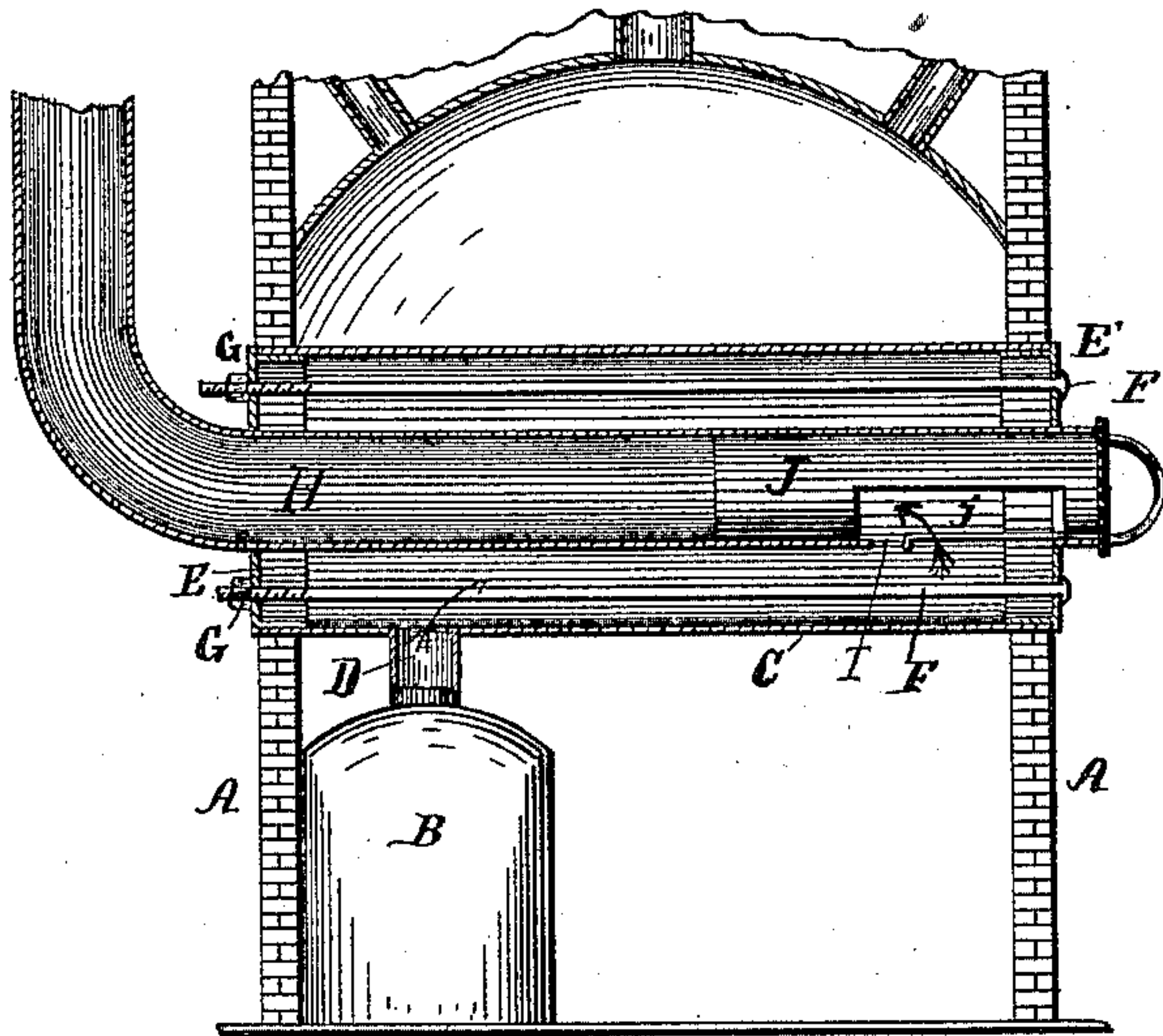
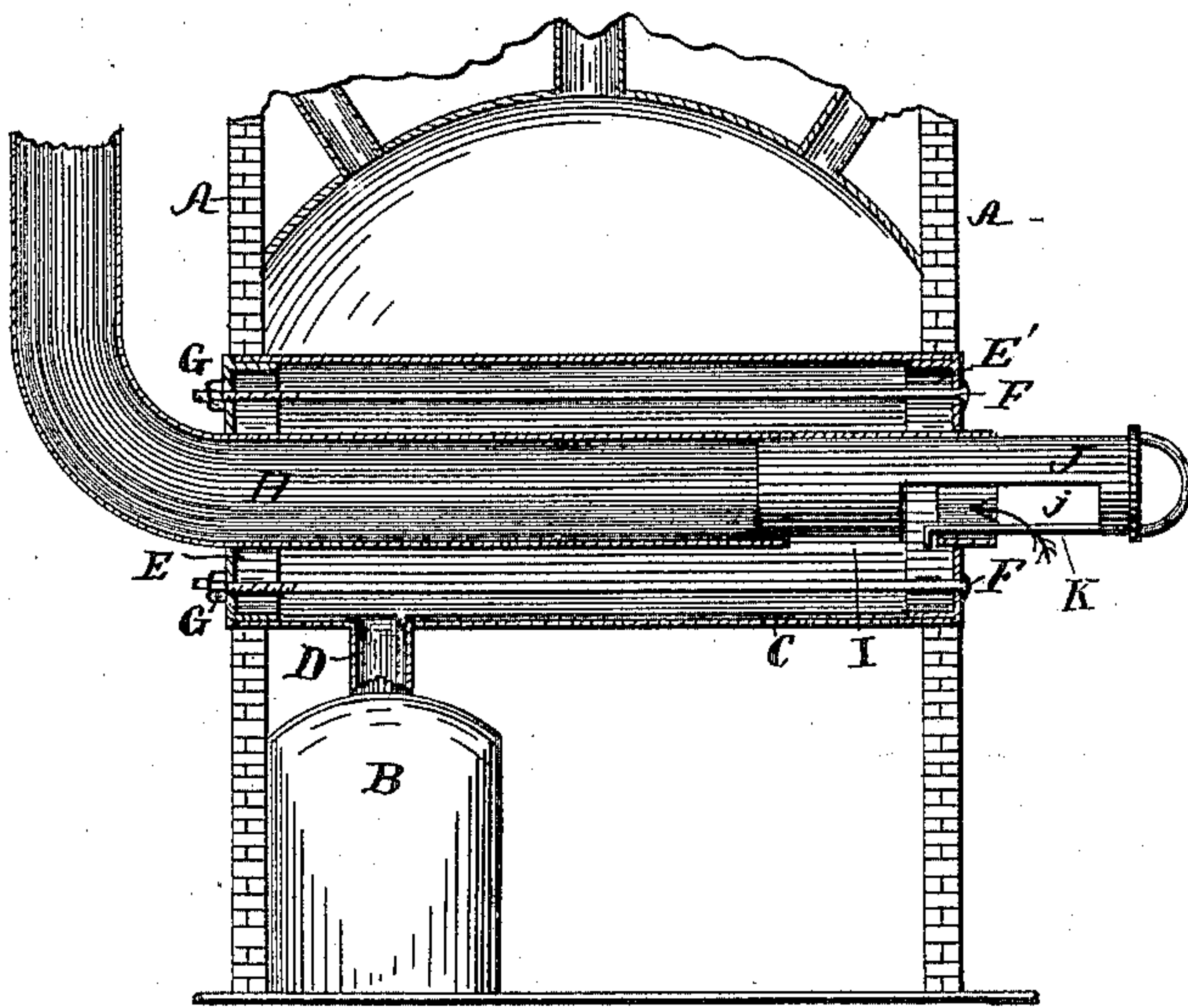


Fig - 2 -



WITNESSES:

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UNITED STATES PATENT OFFICE.

WILLIAM F. ROSSMAN, OF HUDSON, NEW YORK, ASSIGNOR OF ONE-HALF
TO MASON I. CROCKER, OF SAME PLACE.

DRUM FOR HOT-AIR FURNACES.

SPECIFICATION forming part of Letters Patent No. 306,432, dated October 14, 1884.

Application filed November 8, 1883. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. ROSSMAN, a citizen of the United States of America, residing at Hudson, in the county of Columbia and State of New York, have invented certain new and useful Improvements in Drums for Hot-Air Furnaces, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to an improvement in drums for hot-air furnaces; and it consists in the peculiar construction, combination, and arrangement of parts hereinafter more fully described, and then pointed out in the claims.

15 In the accompanying drawings, Figure 1 shows a vertical section of a furnace provided with my drum with the draft fully open, and Fig. 2 shows a similar view with the draft partly shut off and a cold-air passage open.

20 A represents the outer wall of a furnace; B, the furnace proper, of any suitable or ordinary construction; C, the drum, having an opening at D to receive the products of combustion from the furnace B. This drum is provided at its opposite ends with the heads E E', (which may be of cast or sheet iron,) secured by bolts F, passing through the drum from head to head, and secured by nuts G.

30 At H is a smoke-pipe, preferably concentric with the drum C, and passing through the heads at each end of the drum. One end of this smoke-pipe passes to the chimney, (not shown,) while the other end has an opening, I, through which the products of combustion pass after giving out most of the heat to the drum.

40 To regulate the draft in the smoke-pipe, I use a draw-pipe, J, which slides in the smoke-pipe H, and has an opening, j, through which the smoke, &c., passes, which opening is so constructed that when the draw-pipe J is drawn out to its fullest extent there is but a comparatively small passage between the drum and the pipe H, and there is a passage for the cold air into the pipe, as shown by the arrow in Fig. 2.

45 In order to prevent the draw-pipe J being withdrawn so as to entirely shut off the draft of the furnace, and to guard against its acci-

dental removal, I provide the said draw-pipe, 50 on its under side, with a stop, K, which is suitably fastened to the forward part of the pipe, but in such a manner as to have its under surface flush with or in line with the lowest element of the pipe. This construction admits 55 of the stop performing the functions of supporting the outer end of the pipe when partially withdrawn, as it extends within the slot j, and of guiding its outer end into the pipe H when it is slid into the position shown in 60 Fig. 1.

In operation, when the full draft is wanted, the draw-pipe is arranged as shown in Fig. 1; but when it is desired to check the draft the draw-pipe is drawn out, as in Fig. 2, by which 65 means ingress of the smoke is much retarded, and the cold air is thus admitted through the opening j, which checks the draft of the furnace. Combustion is thus retarded, and yet enough heat is retained in the drum to insure 70 a steady draft and temper the cold air, which, being admitted at this opening and required to travel the length of the drum through the inclosed smoke-pipe, becomes heated or tempered so as to preserve sufficient draft, while 75 it checks the fire and avoids all risk of reverting or back draft and emission of coal-gas into the rooms to be warmed. Thus it will be seen that when the draw-pipe is in, as represented in Fig. 1, the draft is open and free through 80 the opening in it into and through the smoke-pipe to the chimney, and when it is out, as shown in Fig. 2, only a very small portion is left open within the fire-drum, or only sufficient to permit the smoke and gas to pass off 85 into the smoke-pipe. The large portion being open or outside permits the cold air to enter the smoke-pipe, and thus the draft of the stove or furnace can be checked to any degree required by changing the position of the draw- 90 pipe without cooling so rapidly or to such an extent as to create a reverse or back draft.

This drum can be used either in a vertical or horizontal position, and can be made round or oval. One drum may be made to accommo- 95 date one, two, or more furnaces.

These drums are usually located within the heating-chambers of furnaces, but may be at-

attached to stoves or used independently or simply as heating-drums. In either case they will be found very economical and useful, as they save much coal, and prevent the back-draft so common in other arrangements.

I deem it important that the pipe H be inclosed within the drum, that it have a passage connecting with the interior of said drum, and that it pass through the heads at each end thereof, and that the opening I in said pipe, communicating with the drum, be regulated by the pipe J, for by this means the draft of the furnace is regulated as well as the distance the products of the combustion pass through the said drum, for as the products of combustion pass into the opening I as near as possible to their entrance into the drum, the partial drawing out of the pipe J virtually extends the acting surface of the drum, as it compels the products of combustion to pass farther through it before it can escape through the opening in the pipe J.

I am aware that it is not new to construct a stove-pipe with a ventilating-damper at one of its ends, consisting of a short pipe telescoping in said stove-pipe, and provided with an opening corresponding with that of the vertical flue, and make no claim to such construction as forming a part of my invention, for this is not adapted, as mine is, to lengthen or shorten the passage of the products of combustion

through the drum. Moreover, in the construction referred to there is no means of guarding against accidental displacement of the damper.

What I claim as new is—

1. The combination, with a drum, of the smoke-pipe H, having an opening, I, draw-pipe J, having opening *j*, and the stop K, all combined and operating substantially as and for the purpose specified.

2. The combination, with the furnace B and drum C, having opening D, heads E E', and bolts F, of the smoke-pipe H, provided with an opening, I, draw-pipe J, having opening *j*, and the stop K, arranged substantially as and for the purposes set forth.

3. In combination with the furnace B and drum C, the pipe H, passing through and supported by said drum, and provided with an opening into said drum, and the pipe J, for regulating the length of said opening, whereby the draft of the furnace is governed and the passage of the products of combustion on their way through the drum lengthened or shortened, as desired, substantially as and for the purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

WM. F. ROSSMAN.

Witnesses:

C. W. BOSTWICK,

MARY E. BOSTWICK.