

(No Model.)

P. W. CORNWELL.
DRAFT REGULATOR.

No. 491,082.

Patented Feb. 7, 1893.

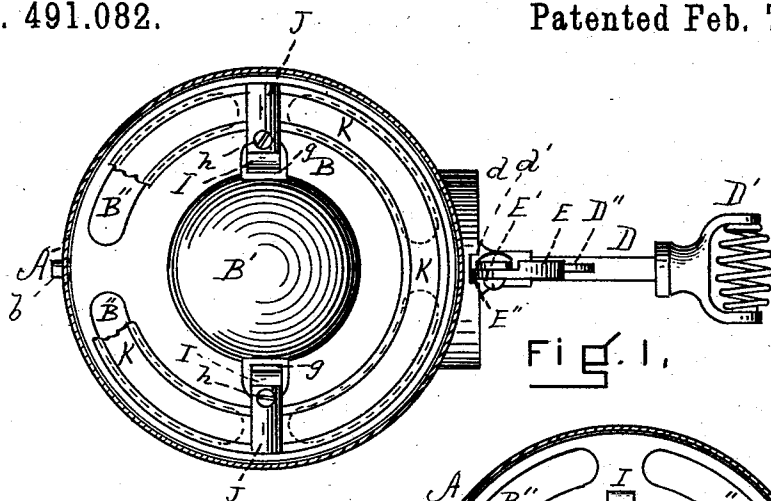


Fig. 1.

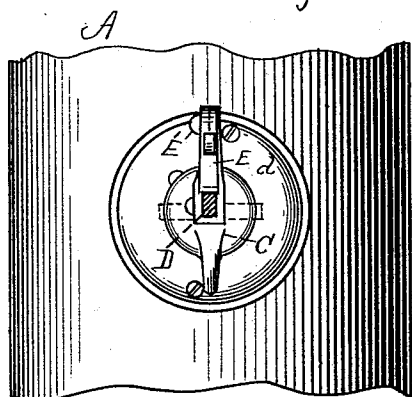


Fig. 2.

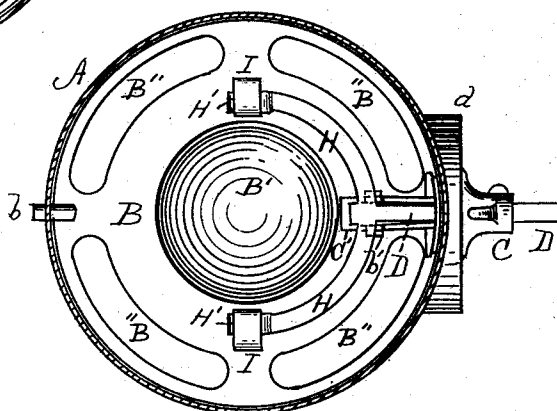


Fig. 3.

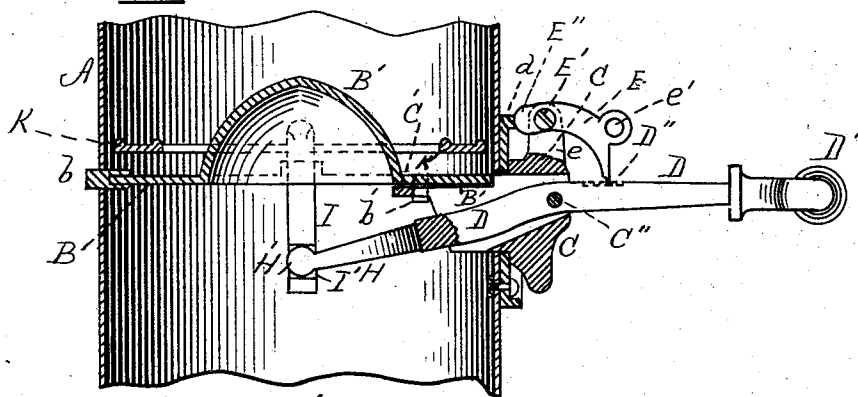


Fig. 4.

WITNESSES

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DRAFT-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 491,082, dated February 7, 1893.

Application filed June 2, 1892. Serial No. 435,278. (No model.)

To all whom it may concern:

Be it known that I, PHILLIP W. CORNWELL, a citizen of the United States, residing at Brockton, in the county of Plymouth and State of Massachusetts, have invented new and useful Improvements in Draft-Regulators, of which the following is a specification.

This invention relates to draft-regulators for application to the flues of stoves, furnaces, locomotives &c., and it has for its object to improve upon the construction of the draft-regulator for which Letters-Patent of the United States, numbered 390,284, were granted to me October 2, 1888.

The nature of the invention is fully described below and illustrated in the accompanying drawings, in which;

Figure 1. is a cross section of a stove-pipe or flue with my improved draft-regulator applied thereto and shown in plan view, the damper being closed, and a portion of the supplemental damper or ring being represented as broken out, the better to illustrate the invention. Fig. 2. is an elevation with the operating lever shown in cross vertical section. Fig. 3. is a cross section of a stove-pipe or flue taken below the damper, looking up, and showing a plan of the under side of the damper. Fig. 4. is a central vertical section, showing the operating lever and pawl for holding the same in position, in elevation.

Similar letters of reference indicate like parts.

A represents an ordinary stove-pipe or flue.

B is the main damper provided centrally with the concavo-convex dome B' constructed substantially as shown in the Letters-Patent above referred to. This damper is pivoted at *b* in one side of the pipe, and at its opposite edge is rigidly secured, by means of suitable clamps *b'*, to an extension C' which is integral with the hollow plug or thimble C which is driven into the side of the flue, as shown in Fig. 4. This thimble (which is not new in this invention) extends through and has interposed between it and the outer surface of the flue, a circular flat plate or disk *d*, as shown.

Pivotally secured at C' to the thimble is the actuating lever D which extends from the

outside to the inside of the flue through the chamber or plug in said thimble, substantially as shown in the Letters-Patent above referred to. This lever is provided with a suitable handle D' on its outer or free end, and with a few notches or teeth D'' on its upper edge, into which drops a pawl E pivotally secured at E' to a projection *e* integral with the thimble C. This pawl is preferably provided with a perforation *e* into which a hook or chain may be secured for the purpose of lifting it out of engagement with the teeth D'' on the lever D. In the Letters-Patent above referred to, the actuating lever D was shown as extending directly to the middle of the flue, and at that point connected with a bail which actuated a supplemental damper or ring. It has been found in practice that this extension of the actuating lever, being situated in the center of the flue where the greatest heat is found, is exceedingly liable to be injured or "burned out" by the intense heat. In my present invention I secure rigidly to the inner end of the lever D a semi-circular or half round attachment or bar H. This bar is secured at its center to the actuating lever, and its ends are preferably formed up into approximately circular shape, as shown at H' Fig. 4. Thus no portion of the actuating lever or the bar secured thereto is in the center of the flue. These ends H' engage, by means of suitable slots I', the lower ends of two vertical guide-rods I, which extend up through suitable openings *g* in the damper B on opposite sides of the dome B'; and their upper ends are secured by means of screws *h*, or equivalent mechanical device, to the horizontal pieces or brackets J rigidly secured to and extending from the supplemental damper or ring K, which is, in itself considered, similar to the ring or supplemental damper shown in the Letters-Patent above referred to and which serves to open or close the curved slots B'' situated in and near the periphery of the main damper B. It will be noticed however, that the bail shown in said Letters-Patent is done away with in this improvement, and hence the space occupied by said bail left free, and the draft increased by so much. This is accom-

plished by the vertical connecting rods I above described, whereby practically no obstruction to the draft is produced.

In operation, the greatest draft is produced
5 by turning the handle D' which, of course, turns the entire damper on its pivot b. This would be done when building a fire. When the main damper B is in the position shown in the drawings, the draft is regulated by vibrating the lever D, and thus moving the ring
10 or supplemental damper K toward and from the openings B'' in the main damper B. By means of the circular enlargements H' at the ends of the semi-circular rod H, a loose joint
15 is provided between said ends and the vertical connecting rods I. This makes an easily working joint, with less opportunity for the collection of rust than a pivot or hinge would afford. Moreover, it provides for the ready
20 removal of the parts, and in fact, all the parts of this device may be easily removed and duplicated. The rim of the plate d is provided with a notch d' into which the heel E'' of the pawl E extends when the main damper is
25 closed and the pawl dropped into one of the notches D'', thus preventing rotation of the main damper, while the pawl, by its engagement with the notches prevents the supplemental damper from falling from a given position.
30

Having thus fully described my invention, what I claim and desire to secure by Letters-Patent is:

1. The combination with the flue and main damper B provided with the openings g, of the supplemental damper or ring K, the vertical
35 reciprocating guide-rods I located on opposite sides of the center of the flue and rigidly secured to said ring, and the actuating lever D and semi-circular or curved bar H rigidly secured to said lever and engaging said rods I,
40 substantially as described.

2. The combination of the vertically reciprocating rods I for actuating the supplemental damper and provided with the slots I' near
45 their lower ends, and the curved bar H provided at its ends with the enlarged curved portions H', said bar being rigidly secured to the actuating lever D, substantially as set forth.
50

3. In combination, the rotative thimble C provided with the extension e, the stationary plate d secured to the flue and having its rim provided with the notch d', the pawl E formed with the extension or heel E'', and the notched
55 actuating lever D, substantially as described.

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Witnesses:

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