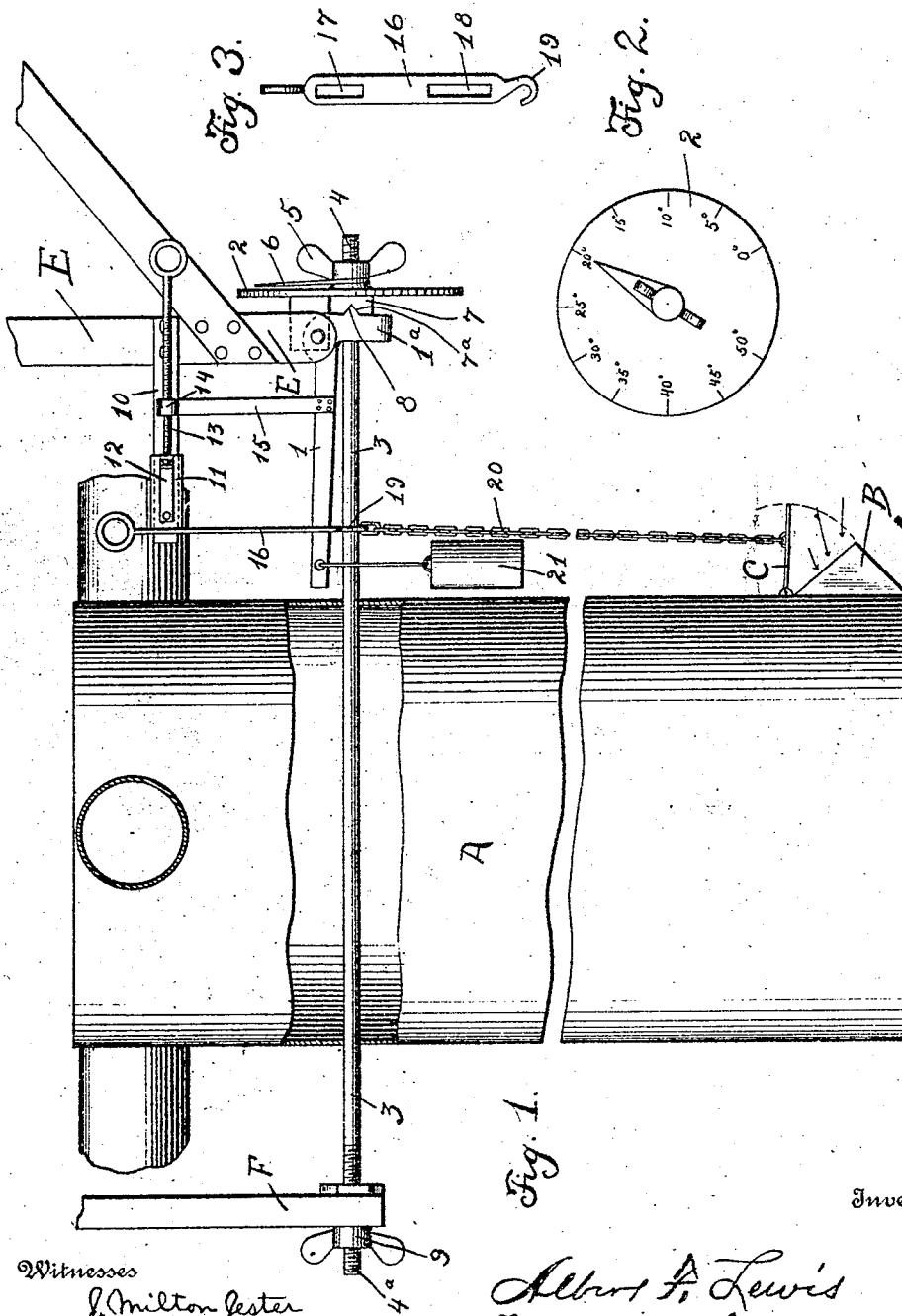


A. F. LEWIS:
DRAFT REGULATOR FOR FURNACES.
APPLICATION FILED JUNE 13, 1910.

977,663.

Patented Dec. 6, 1910.



Witnesses

Milton Jester
J. Randolph Jr.

Fig. 1.

Albert F. Lewis
By A. A. Gourick Attorney

Inventor

UNITED STATES PATENT OFFICE.

ALBERT F. LEWIS, OF URBANA, OHIO.

DRAFT-REGULATOR FOR FURNACES.

977,663.

Specification of Letters Patent.

Patented Dec. 6, 1910.

Application filed June 13, 1910. Serial No. 586,506.

To all whom it may concern:

Be it known that I, ALBERT F. LEWIS, a citizen of the United States, residing at Urbana, in the county of Champaign and State of Ohio, have invented certain new and useful Improvements in Draft-Regulators for Furnaces, of which the following is a specification.

My invention relates to devices for automatically regulating the drafts of furnaces by the employment of an expansible rod in the furnace that is operatively connected to the drafts, and has for one of its objects the provision of means by which the regulating rod may be lengthened and shortened in accordance with the weather conditions.

Another object of my invention is the provision of means by which the drafts may be held open while a fresh fire is being started, and when the fire has burned up sufficiently the expansion regulator will be automatically thrown into operation.

My invention will be described in detail hereinafter and illustrated in the accompanying drawings in which—

Figure 1 is a side view of a conventional furnace partly broken away and showing my draft regulator applied thereto, Fig. 2, a front view of the dial and pointer, and Fig. 3, a detail view of the link to which the draft chains are attached.

In the drawings similar reference characters indicate corresponding parts in all of the views.

A indicates a furnace of conventional type having the draft opening B adjacent to its base closed by hinged door C, and D a ceiling joist of the furnace room having the depending brackets E, F secured thereto.

1 indicates the draft regulating bell crank lever pivotally secured to the lower end of bracket E, 2 a dial plate also secured to the bracket, 3 the expansible rod of copper or other suitable metal having one end mounted in the lower end of bracket F and its other end inserted through the depending end 1^a of bell crank lever 1 and dial plate 2, the two ends of rod 3 being threaded as shown at 4^a and 4^b.

5 indicates a thumb nut having an integral pointer 6 mounted on threaded end 4 of the rod 3, and 7 a block loosely mounted on the rod 3 and having a transverse angular groove 7^a thereon that engages angular projection 8 on the end of lever 1.

9 indicates a thumb nut on threaded end

4^a for adjusting the length of the rod 3, when installing the apparatus, to suit the individual furnace.

10 indicates a horizontal arm rigidly secured to bracket E, 11 a sleeve slidably mounted on arm 10, 12 a rod pivotally secured to sleeve 11, and 13 a threaded rod swivelly secured to the end of rod 12 that engages a threaded bore 14 in vertical arm 15 secured to regulating lever 1.

16 indicates a plate having two slots 17 and 18 therein, and a hook 19 to which the chain 20 is secured that supports the draft door C. The end of lever 1 engages slot 18 so that as the rod 3 expands and contracts under the influence of the heat door C is lifted or closed as desired to keep the fire burning properly to create sufficient heat to warm the building.

The dial plate 2 as shown in Fig. 2 has the degrees of temperature indicated on its face and in use it is intended that the pointer be set at the point to indicate the temperature outside of the house and this will regulate the operative length of the rod 3 so as to keep the temperature in the house at a comfortable degree. It has been found that a change of ten degrees in the temperature outside of the house makes a change of one degree within so that it will be apparent that but a slight adjustment of the operative length of the rod 3 is necessary to keep the temperature within the house the same at all times.

As in starting a furnace fire it is desirable to let the fire burn briskly for a time to thoroughly warm the house before starting the automatic regulation of the furnace drafts I accomplish this by lifting the plate 16 with chain 20 and draft door C and placing the plate on the end of arm 10 by inserting the arm through slot 17. This will hold the draft door open until the heat of the furnace has so expanded the rod 3 that the movement of lever 1 and vertical arm 15 is sufficient to move the sleeve 11 to the end of arm 10 and push the plate 16 off of the arm when the automatic adjustment of the draft door will be started.

21 indicates a weight suspended from lever 1 and normally tending to move it downwardly.

Having thus described my invention what I claim is—

1. In combination with a furnace having a pivoted draft door, brackets suitably se-

cured adjacent to the furnace, a lever fulcrumed on one of the brackets, a horizontal arm secured to the same bracket, an expandible rod secured to the lever and the other 5 bracket and extending through the furnace aforesaid, a plate connected to the draft door and having two slots therein, one of said slots being adapted to engage the lever aforesaid and the other slot to engage the 10 arm aforesaid, and means operated by the lever to remove the plate from the arm.

2. In combination with a furnace having a pivoted draft door, brackets suitably secured adjacent to the furnace, a lever fulcrumed on one of the brackets, a horizontal 15 arm secured to the same bracket, an expandible rod secured to the lever and the other bracket and extending through the furnace aforesaid, a plate connected to the draft door and having a slot therein to engage the arm, a sleeve slidably mounted on the horizontal arm, a vertical arm secured 20 to the lever, and operative means connecting the vertical arm and sleeve aforesaid.

3. In combination with a furnace having 25 a pivoted draft door, brackets suitably secured adjacent to the furnace, a lever fulcrumed on one of the brackets, a horizontal arm secured to the same bracket, an expandible rod secured to the lever and the 30 other bracket and extending through the furnace aforesaid, a plate connected to the draft door and having two slots therein, one of said slots being adapted to engage the lever aforesaid and the other slot to engage 35 the arm, a sleeve slidably mounted on the horizontal arm, a rod pivotally secured to said sleeve, a threaded rod swivelly secured to said pivoted rod, and a vertical rod secured to the lever aforesaid and engaging 40 said threaded rod.

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

ALBERT F. LEWIS.

Witnesses:

J. R. HUGHES,

A. K. BROWN.