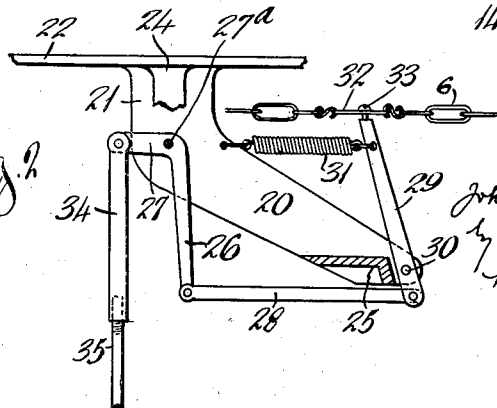
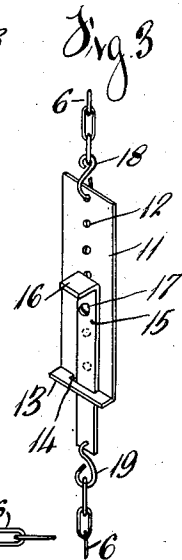
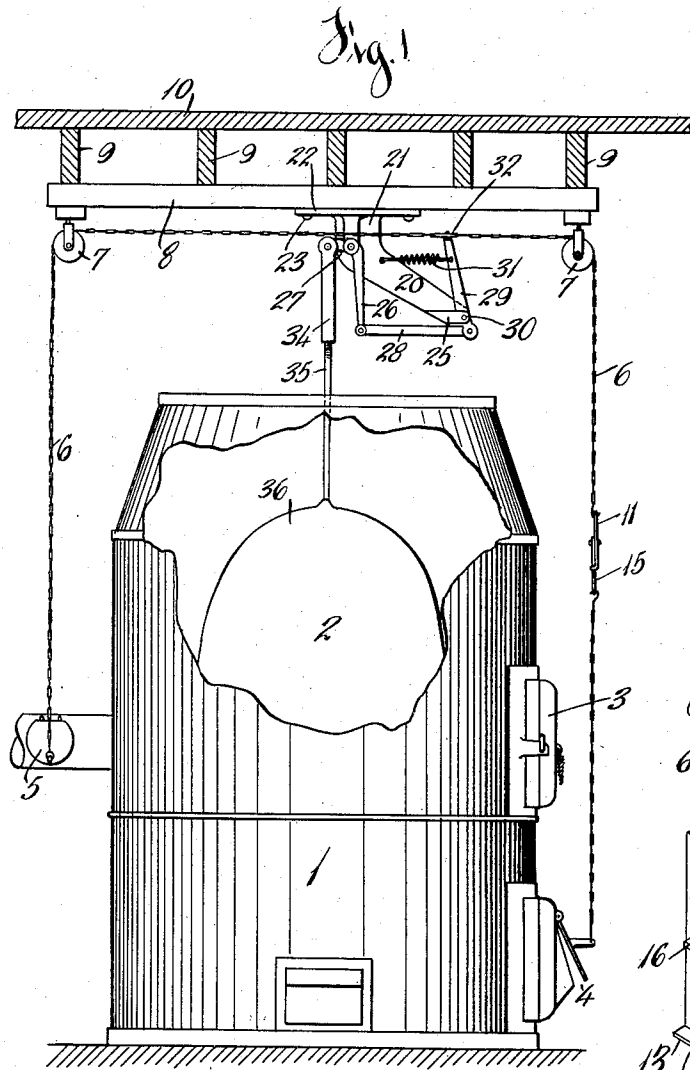


J. M. BEECH.
FURNACE REGULATOR.
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1,048,129.

Patented Dec. 24, 1912.



Witnesses
Oliver Herman
Laura E. Shields

Inventor
John M. Beech,
by John Elias Jones,
his attorney.

UNITED STATES PATENT OFFICE.

JOHN M. BEECH, OF MARSHALLTOWN, IOWA.

FURNACE-REGULATOR.

1,048,129.

Specification of Letters Patent. Patented Dec. 24, 1912.

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To all whom it may concern:

Be it known that I, JOHN M. BEECH, a citizen of the United States of America, and a resident of Marshalltown, in the county of Marshall and State of Iowa, have invented certain new and useful Improvements in Furnace-Regulators, of which the following is a specification.

This invention relates to furnace-regulators, especially to those of the thermo-automatic type in which the draft and check dampers are actuated simultaneously by the increase and decrease of the degree of heat within the fire-pot of the furnace, and the object of the invention is to provide simple, efficient and reliable means for accomplishing the desired result, which is that of maintaining a uniform degree of heat in the apartments above the furnace.

In the accompanying sheet of drawings, Figure 1 is an elevation showing my invention as it appears in use, with the front or draft damper partially open and the rear or check damper almost closed; Fig. 2, a fragmentary elevation, (taken on a somewhat larger scale than that of Fig. 1,) showing the essential features of my device herein; and Fig. 3, a detail perspective view of the longitudinal adjusting device used in that part of the chain that connects the front draft-damper with the said essential elements of my regulator device herein.

1 indicates the outer shell or jacket of an ordinary furnace, 2 the inner or heater portion proper of the furnace, 3 the feed-door, 4 the front draft-damper and 5 the rear check-damper, the latter being located in the smoke-flue as customary. Both the front and rear dampers are preferably hinged so as to swing upwardly, a chain 6 being used to connect them so that they operate in unison. The said chain 6 rides over several pulleys 7 suitably attached to a bar or timber 8 which, in turn, is attached to the joists 9 beneath the floor 10 of the apartment above that of the cellar or basement where the furnace is located.

The device used for adjusting the length of the chain to suit the desired temperature for the apartments above the furnace is composed of a bar 11 having a vertical series of perforations 12, a flange 13 at the bottom of said bar 11 having a slot 14 therein, a sliding-bolt 15 having a handle 16 and a screw-bolt 17 that connects said bolt 15

with the bar 11 in either of the holes or perforations 12 of the latter. A hook 18 is used to connect the upper end of the bar 11 with one end of the chain 6 and a hook 19 is used to connect the lower end of the bolt 15 with that part of the chain that leads downwardly to the front draft-damper 4. The adjustment is readily made by simply withdrawing the screw-bolt 17 and sliding the bolt 15 up or down in the slot 14 to suit the desired amount of swing upward of the draft-damper 4 and the degree of heat desired in the apartments.

I will now take up the description of the essential features of my furnace-regulator improvement herein.

20 indicates an inclined-arm having a perpendicular upward extension 21 provided with a lateral flange 22, the latter being adapted to receive screws or the like that engage the bar or timber 8 for supporting said arm 20 above the furnace.

24 is a pendent bracket-arm projecting from the flange 22 and 25 is a horizontal bracket-arm projecting from the lower end of the arm 20.

26 is the pendent portion of an angular-lever pivotally-supported on a transverse pin or shaft 27^a in the bracket-arm 24 and the lower part of the extension 21 of the arm 20, a horizontal arm 27 forming a part of said angular-lever and made somewhat shorter than the member 26. 28 is a horizontal rod pivotally-connected at one end to the lower end of the member 26 of the said angular-lever and likewise pivotally-connected to the lower end of a vertical lever 29 that is, in turn, pivotally-mounted on a bolt or pin 30 in the lower outer end of the arm 20, the outer end of the arm 25 serving as a bearing for one end of said bolt or pin 30. A spring 31 is interposed between the upper end of said lever 29 and the upper end of the inclined arm 20 to return said lever 29 to normal position with the front draft-damper open and the check-damper closed; that is, such normal position being assumed to be that of the active operation of the furnace when the fire has been started and before the operation of regulating the heat has begun. The upper end of the lever 29 is connected to a slotted bar or link 32 of the chain 6 by means of a screw 33, such slotted bar or link 32 forming a connection between the parts of the

chain that lead to both the front draft-damper and the rear check-damper, as best seen in Fig. 1.

34 is the upper member and 35 the lower member of a vertically-extensible rod, said member 34 being pivotally-connected to the outer end of the member 27 of the angular-lever and member 35 having screw-threaded connection with the lower end of said member 34. The lower end of the member 35 contacts with the upper part or top of the crown 36 of the heater portion 2 of the furnace, as best seen in Fig. 1, the expansion and contraction of the furnace, due to the greater or lesser degree of heat therein, being adapted to cause the vertical rod composed of the said members 34 and 35 to become in active relation with the other parts of the regulator.

I claim:—

In a furnace-regulator, a pendent supporting-arm, an upright lever fulcrumed

adjacent the lower end thereof to the lower end of said supporting-arm, a retractile spiral spring stretched between said supporting-arm and said upright lever, an angular lever fulcrumed to said supporting-arm, a horizontal link pivotally-connecting the lower ends of said upright lever and said angular lever, a vertical rod whose upper end is pivotally-connected with the lateral upper end of said angular lever and whose lower end contacts with the heater portion proper of the furnace and a chain-connection suitably coupled with the extreme upper end of said upright lever and having its respective opposite ends coupled with the front draft-damper and the rear check-damper.

JOHN M. BEECH.

Witnesses:

W. J. VAN DERVEER,
ROBT. E. JOHNSON.