D. W. ANDERSON.

AUTOMATIC HEAT REGULATING ATTACHMENT FOR HEATERS OF VARIOUS KINDS.

APPLICATION FILED FEB. 25, 1918.

1,286,489.

Patented Dec. 3, 1918.

2 SHEETS—SHEET 1.

Fig. 1.

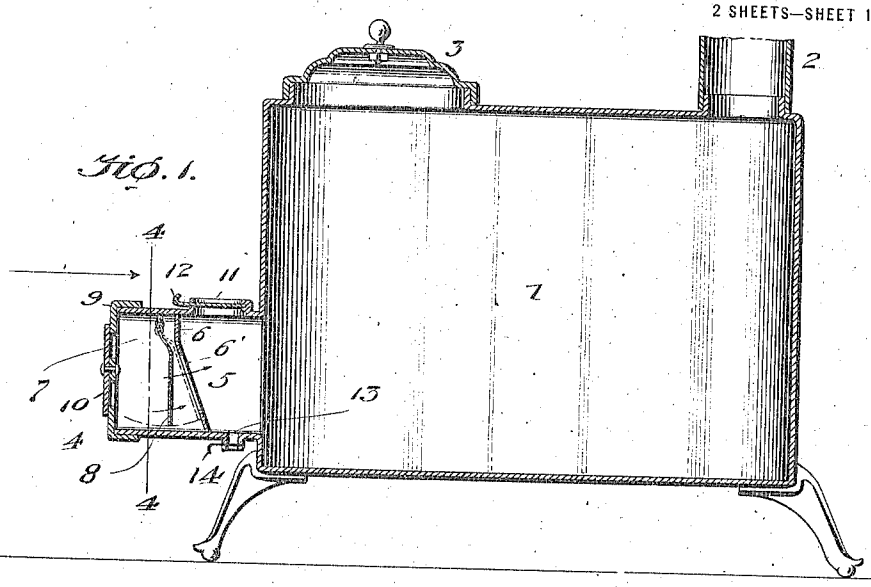


Fig. 2.

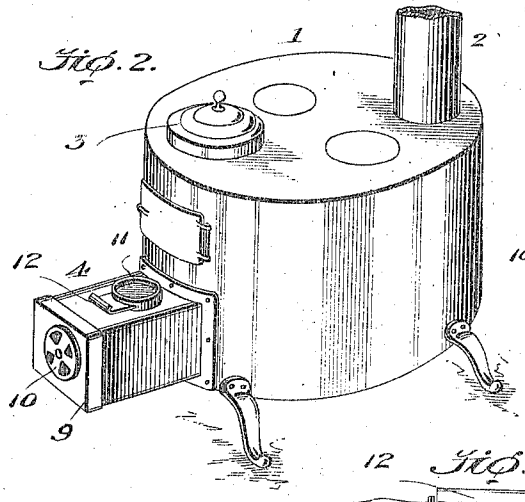


Fig. 3.

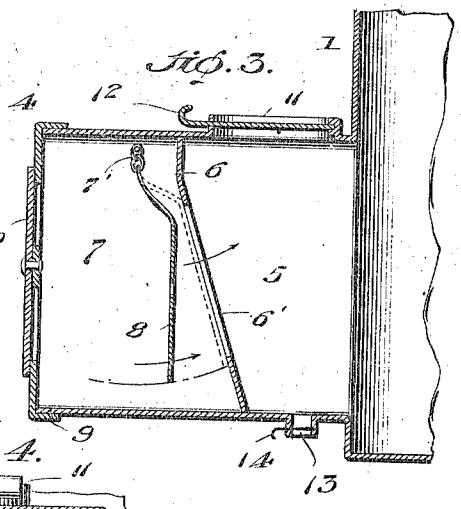
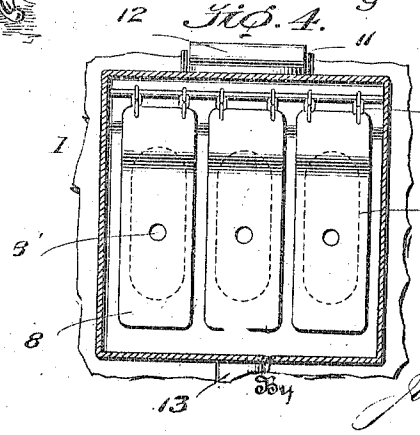


Fig. 4.



Inventor

David W. Anderson

By Jas. L. Skidmore

his Attorney.

D. W. ANDERSON.

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2 SHEETS—SHEET 2.

Fig. 5.

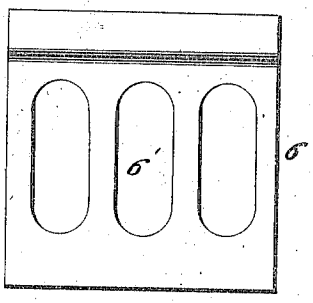


Fig. 6.

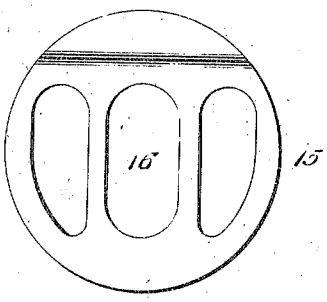


Fig. 7.

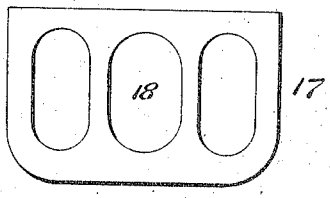


Fig. 8.

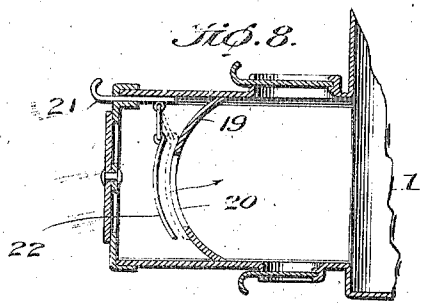


Fig. 9.

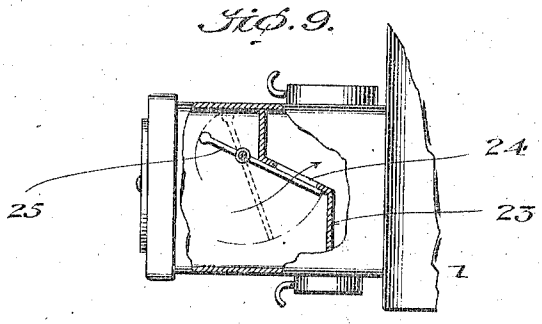
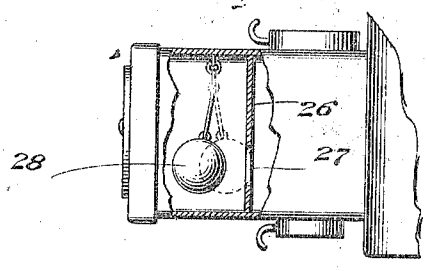


Fig. 10.



Inventor

David W. Anderson

By Jas. L. Gradmore

His Attorney.

UNITED STATES PATENT OFFICE.

DAVID WILEY ANDERSON, OF SCOTTSVILLE, VIRGINIA.

AUTOMATIC HEAT-REGULATING ATTACHMENT FOR HEATERS OF VARIOUS KINDS.

1,286,489. Specification of Letters Patent. Patented Dec. 3, 1918.

Application filed February 25, 1918. Serial No. 219,112.

To all whom it may concern:

Be it known that I, DAVID WILEY ANDERSON, a citizen of the United States, residing at Scottsville, in the county of Albemarle and State of Virginia, have invented certain new and useful Improvements in Automatic Heat-Regulating Attachments for Heaters of Various Kinds, of which the following is a specification.

This invention relates to an automatic heat regulating attachment for stoves, furnaces, ranges, ovens, and heaters of various kinds.

The prime object of my invention is to provide a simple, durable, economical, novel and efficient self-regulating attachment for heaters which will readily demonstrate its fuel saving as well as its sanitary qualities.

A further object of the invention is to so construct my improved attachment that it may be secured to, or be formed integral with stoves, furnaces, and heaters of various types, and will be automatically operated by the increased air inlet current and gravitation, or by the increased or decreased atmospheric pressure which is occasioned by the increased or decreased intensity of the heat inside of the stove or heater, together with gravity, thereby preventing the stove or heater from being overheated and also from getting too cold, thus eliminating the trouble of having to frequently turn on and off the draft dampers, as is customary with the ordinary devices now employed.

A further object of this invention is to provide a novel attachment which may be constructed of sheet or cast metal, of any suitable or desirable size or shape which will be readily capable of meeting the required conditions of the stove, furnace or heater to which it may be connected.

The foregoing and such other objects as may appear from the ensuing description are attained by the novel features of construction, combination, location and arrangement of parts hereinafter more fully described, illustrated in the accompanying drawings and particularly pointed out in the claims appended hereto, it being understood that slight changes in the form, proportions, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings which form a part of the specification, it will be seen that:

Figure 1, is a horizontal section through an ordinary wood stove embodying my invention.

Fig. 2, is a perspective view of the improved device.

Fig. 3, is an enlarged longitudinal sectional view, showing a portion of the stove or furnace casing broken away.

Fig. 4, is an enlarged vertical section taken on the line 4—4, Fig. 1, looking in the direction of the arrow, showing a portion of the stove or heater broken away.

Fig. 5, is a detail view of the partition removed from the attachment.

Figs. 6 and 7 are detail views showing different shapes of partition wall which may be employed in connection with the attachment.

Fig. 8, is a longitudinal section showing a slightly modified form of attachment.

Fig. 9, is another slight modification showing the attachment partly in section and partly in side elevation, and

Fig. 10, is a further modified form of the attachment shown partly in section and partly in side elevation.

Similar numerals of reference are employed to designate corresponding parts throughout the several figures of the drawings.

In carrying out this invention as illustrated and which shows a preferred construction, the numeral 1 designates a stove or furnace of any suitable type having an outlet draft flue 2, and a suitable cover 3, and secured to the body or casing of the stove or heater in any desirable manner, preferably at a point directly opposite of the draft flue 2, is an automatic heat regulating rectangular attachment 4, having a fire kindling and ignition chamber 5, said attachment being provided with an inner partition wall, formed integral therewith or rigidly secured thereto, having a plurality of openings 6′ therethrough, and 7 indicates an air inlet chamber within which, near the ceiling thereof, is loosely suspended by chain links 7′, a plurality of dampers 8, each provided with an opening 8′, as clearly shown in Fig. 4, the outer end of the attachment being provided with a removable cover

or cap 9, carrying an ordinary suitable closing damper 10, which forms a part of said removable cover or cap.

The chamber 5 is provided at its upper portion with a hand opening 11, for placing therein the suitable kindling material, and for ignition purposes, said openings also constituting an air inlet, and it is provided with a slidable or other suitable cover plate or door 12 for closing the same and regulating the admission of air, and the lower portion of the chamber is provided with an opening 13 for removing dust, ashes and other foreign matter from the chamber, said opening also being utilized for the admission of air and is normally closed by a suitable sliding door or cover 14.

Referring now to Fig. 6 of the drawings, it will be seen that the partition 15 is of circular contour and is provided with a plurality of openings 16 varying in size, while Fig. 7, shows the partition plate 17 as being flat on top and rounded at the bottom portion, and also having a plurality of openings 18 therethrough varying in size.

In the modified form of attachment shown in Fig. 8, the partition 19 is shown curved into a substantially semi-circular shape with one or more openings 20 therethrough, and adjustably, removably and loosely suspended to a slidable plate or bar 21 is one or more curved dampers 22, which may be suitably adjusted with respect to the partition and adapted to conform with the shape of the partition so as to automatically open and close the openings in the said partition.

In the modification shown in Fig. 9 it will be seen that the partition 23 is inclined at its central portion, which is provided with one or more openings 24 therethrough, and loosely pivoted in front of the said partition is one or more dampers 25, for automatically covering and uncovering the said openings, while in the modification shown in Fig. 10, the partition 26 is arranged vertically and provided with one or more openings 27, and loosely suspended in front of the partition by means of links is one or more dampers 28, in the shape of thin hollow balls of any suitable material which are adapted to automatically open and close the said openings.

It will be readily perceived that the partition or division wall 6 between the kindling and ignition chamber 5 and the air chamber 7, is provided with a plurality of openings 6′, shown by dotted lines Fig. 4 and full lines, Fig. 5, and loosely suspended within said air chamber in front of the partition, is a plurality of dampers 5, which are caused to swing toward the partition by the air inlet currents and close the openings in said partition as indicated by dotted lines in Figs. 1 and 3, the removable cap or cover 9 being provided with a damper 10 for turning on and off the air from the air chamber 7, and consequently from the attachment and heater.

It will be obvious that since the loosely suspended damper and division wall or partition are preferably made of thin metal, the dampers are so shaped and supported as to respond readily to the increased air inlet and operate to automatically close the openings in the partition and likewise respond to the action of gravitation and uncover the said openings as soon as the stove or heater has sufficiently cooled and the air inlet current has become more or less weakened, or the dampers are automatically actuated by the increased and decreased atmospheric pressure on the dampers which is caused by the increased or decreased intensity of the heat inside the stove or furnace, together with the action of gravitation, which is readily understood, as the suspended dampers will swing back and forth sometimes, collectively and respectively, and thus prevent the stove or furnace from being overheated and also getting too cold.

It will be understood that the suspended dampers readily close the openings in the partition by any excess of air draft, and obviously open them by gravitation when the air draft has diminished, the openings 8′ affording enough draft to prevent closing off the draft entirely except by the damper 10, and the sliding doors 12 and 14.

The suspended dampers may be made to vary slightly in size and weight in order to secure a greater scope of regulation when in use; further, the openings in the partition as well as the openings in the dampers may vary in size thus adding to the efficiency of the attachment.

The control and adjustment of the dampers 8 is readily accomplished by the actuation of the damper 10 and the regulation of the cover plate of the opening 11, thereby fixing the necessary amount of draft at these two points whereby the dampers 8 are set in motion, and if desired the opening 13 may be utilized as an additional air inlet by the proper adjustment of the cover plate in the same manner as the opening 11.

While I have shown a plurality of dampers suspended within the air chamber, it will be readily understood that, if desired a single damper may be employed.

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

1. An automatic heat regulating attachment for heaters of various kinds, comprising a fire kindling chamber and an air inlet chamber, a partition wall between said chambers provided with a plurality of openings therethrough, and a plurality of dampers loosely suspended within said air chamber adapted to automatically open and close said openings.

2. An automatic heat-regulating attachment for heaters, comprising a fire kindling chamber and an air inlet chamber, a partition wall for separating said chamber provided with an opening therethrough, a damper loosely suspended from the top wall and within said air chamber adapted to automatically open and close said opening, and a removable end cap carrying a damper.

3. An automatic heat regulating attachment for heaters, comprising a fire kindling chamber and an air inlet chamber, a partition wall between the said chambers provided with a plurality of openings therethrough, a plurality of loosely suspended dampers within the said air chamber, an air opening in the top of said kindling chamber, and a removable end cap having a damper fixedly secured thereto.

4. An automatic heat regulating attachment for heaters, comprising a fire kindling chamber and an air inlet chamber, a partition wall between said chambers, a plurality of loosely suspended dampers within the said air chamber, and an opening formed in the top and an opening formed in the bottom of the fire kindling chamber, and a removable end cap having a damper fixedly secured thereto.

5. An automatic heat regulating attachment for heaters, comprising a fire kindling chamber and an air inlet chamber, a partition wall intermediate said chamber provided with a plurality of openings therethrough, and a plurality of adjustable and removable loosely suspended dampers within said air chamber adapted to automatically open and close the said openings.

6. An automatic heat regulating attachment for heaters, comprising a fire kindling chamber and an air inlet chamber, a partition wall positioned between said chambers provided with a plurality of openings therethrough, a plurality of adjustable and removable dampers loosely suspended within said air chamber, and a removable end cap provided with a damper fixedly secured thereto.

7. An automatic heat regulating attachment for heaters, comprising a fire kindling chamber and an air inlet chamber, a partition wall disposed between said chambers provided with a plurality of openings therethrough, a plurality of loosely suspended dampers within said air chamber adapted to automatically open and close said openings, an opening formed in the top and in the bottom of the fire kindling chamber, a cover for each opening in said kindling chamber, and a removable end cap having a damper fixedly secured thereto.

8. An automatic heat regulating attachment secured to a heater, comprising a fire kindling chamber having an opening in the top and bottom thereof, means for covering the said openings, an air inlet chamber, a partition wall positioned between said chambers, a loosely suspended damper within the air chamber, and a removable end cap with a damper fixedly secured thereto.

DAVID WILEY ANDERSON.