

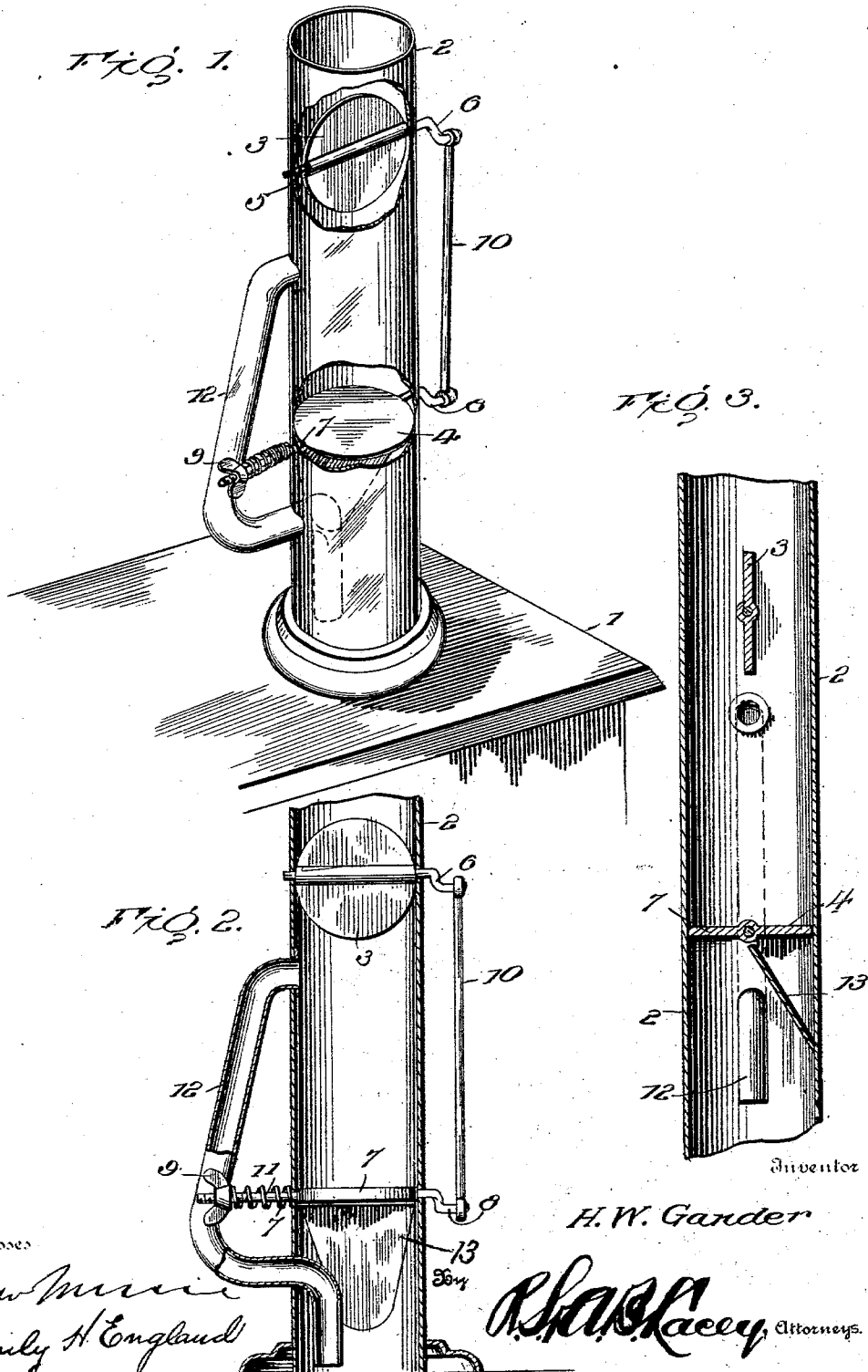
No. 752,061.

PATENTED FEB. 16, 1904.

H. W. GANDER.
HEAT REGULATOR.

APPLICATION FILED JUNE 24, 1903.

NO MODEL.



UNITED STATES PATENT OFFICE.

HARRY W. GANDER, OF RUDY, PENNSYLVANIA.

HEAT-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 752,061, dated February 16, 1904.

Application filed June 24, 1903. Serial No. 162,947. (No model.)

To all whom it may concern:

Be it known that I, HARRY W. GANDER, a citizen of the United States, residing at Rudy, in the county of Montgomery and State of Pennsylvania, have invented certain new and useful Improvements in Heat-Regulators, of which the following is a specification.

The vital feature of this invention is to devise peculiar means for automatically controlling the heat and draft of a stove, most especially of cooking-stoves, whereby a uniform temperature may be maintained without necessitating extreme watchfulness on the part of the housekeeper or cook.

While the invention is intended chiefly for cook-stoves, it may be applied to heating-stoves of any type, so as to preserve an approximately uniform temperature.

In its structural organization the invention consists of complementary dampers connected for simultaneous movement in opposite directions, means coöperating with the dampers for varying the resistance to their automatic operation by draft and heat currents, and a draft-pipe spanning the lowermost damper and connecting the space below said damper with the space intermediate of the complementary dampers.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result reference is to be had to the following description and drawings hereto attached.

While the essential and characteristic features of the invention are susceptible of modification, still the preferred embodiment of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is a detail perspective view of a smoke-pipe, showing the application of the invention thereto, portions of the pipe being broken away. Fig. 2 is a vertical central section of the smoke-pipe and the draft-pipe. Fig. 3 is a detail view showing more clearly the relation of the deflector and the lower damper.

Corresponding and like parts are referred to in the following description and indicated

in all views of the drawings by the same reference characters.

The numeral 1 designates a fragmentary portion of a stove of the cook type, since the invention is designed most especially for this class of heaters. The smoke-pipe is indicated at 2 and connects with the stove or heater 1 in the usual manner.

The complementary dampers 3 and 4 are of the butterfly or winged type, being pivotally mounted within the smoke-pipe 2 and located the one above the other at any determinate distance apart. The dampers 3 and 4 are disposed relatively at a right angle to each other, so that when the damper 4 extends crosswise or horizontally of the smoke-pipe 2 the damper 3 occupies a vertical position and is open. The rod 5, supporting the damper 3, is provided at one end with a crank 6, and the rod 7 of the damper 4 is provided at one end with the crank 8, and its opposite end extends some distance beyond the smoke-pipe and is threaded to receive a thumb-nut 9. A rod or stout wire 10 connects the cranks 6 and 8, so as to cause the dampers 3 and 4 to move in unison, so that as one closes the other correspondingly opens. A coil-spring 11 is mounted upon the extended end of the rod 7 and is secured at one end to the smoke-pipe and at its opposite end to the thumb-nut 9. By turning the thumb-nut 9 either forward or backward upon the rod 7 the tension of spring 11 is varied, thereby admitting of the dampers turning with greater or less resistance, whereby they may be caused to respond more readily to a draft of given force.

The draft-pipe 12 connects at its upper end with the smoke-pipe at a point between the upper and lower dampers, preferably nearer the upper damper 3, and its lower portion extends through the pipe 2 at a point below the damper 4 and extends downward a short distance within the smoke-pipe to insure the creation of a draft therethrough, the same being essential to the operativeness of the regulator to the attainment of the objects in view.

It is well understood that the greater the draft of a heater the more intense the fire, and consequently the higher the temperature.

By cutting off the draft more or less the intensity of the heat may be varied. When the upper damper 3 is open to its fullest extent, a maximum draft is obtained. Consequently the heat is the greatest possible. By closing the damper 3 more or less the draft is correspondingly modified and the heat accordingly varied. The superior pressure exerted by the draft against the exposed half of the damper 4 opens the same when the tension of the spring 11 is overcome, thereby moving the damper 3, connected with the damper 4, in the manner stated. By varying the tension of the spring 11 more or less force is required to open the damper 4. Hence provision is had for maintaining an approximately uniform heat, since the dampers 3 and 4 move together in opposite directions and are controlled by both the heat and the draft, as will be readily comprehended.

The deflector 13, located below the lower damper 4, is inclined inward and upward from its lower end and terminates as close to the axis or rod 7 of damper 4 as practicable. This deflector fits snug against the inner wall of the pipe 2 and is designed to direct the ascending heat against one half of the damper 4, only some of the current entering the lower end of the draft-pipe 12 and passing up therethrough and being discharged against one half of the damper 3. It will thus be understood that there will be a difference of force acting on the halves of the lower damper when the heat either falls below or exceeds an approximate temperature, and this difference represents the force expended for operating the dampers.

Having thus described the invention, what is claimed as new is—

1. In a draft-regulator, the combination of a pipe, complementary dampers located within the pipe and arranged so that when one is closed the other is opened, means connecting the dampers for simultaneous movement in opposite directions, and a draft-pipe having connection with the pipe containing the dam-

pers at a point between the latter, substantially as specified.

2. In a draft-regulator, the combination of a pipe, complementary dampers located within the pipe and arranged so that when one is closed the other is opened, means connecting the dampers for simultaneous movement in opposite directions, and a draft-pipe connected at its upper end with the first-mentioned pipe at a point between the dampers and having its lower end connected with said pipe at a point below the lowermost damper, substantially as set forth.

3. In a heat-regulator, the combination of a smoke-pipe, upper and lower dampers connected for simultaneous movement and arranged so that when one damper is opened the other is closed, a spring mounted upon the rod of one of the dampers and connected at one end with the smoke-pipe, and a thumb-nut threaded upon said rod and having the outer end of the spring connected thereto, substantially as set forth.

4. In a heat-regulator, the combination of a smoke-pipe, upper and lower dampers connected for simultaneous movement and arranged so that when one damper is opened the other is closed, a spring mounted upon the rod of one of the dampers and connected at one end with the smoke-pipe, a thumb-nut threaded upon said rod and having the outer end of the spring connected thereto, and a draft-pipe spanning the lowermost damper and having its upper end connected to the smoke-pipe at a point between the dampers and having its lower end passed through a side of the smoke-pipe and extended downward therein, substantially as described.

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

HARRY W. GANDER. [L. S.]

Witnesses:

H. B. UPDEGROD,
W. S. SLOTTNER.