(No Model.)

2 Sheets—Sheet 1.

L. BELLAMY.

DAMPER REGULATOR.

No. 484,529. Patented Oct. 18, 1892.

FIG. 1.

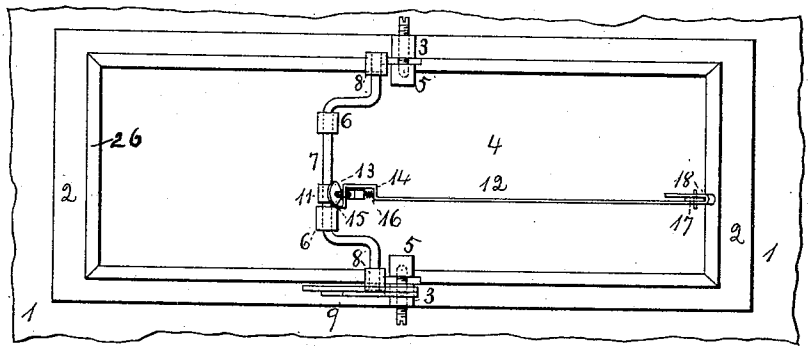


FIG. 2.

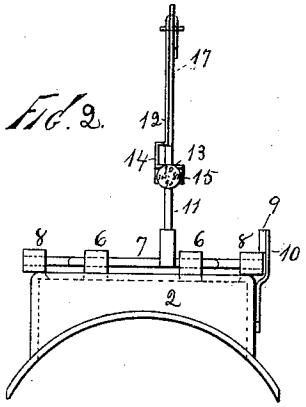
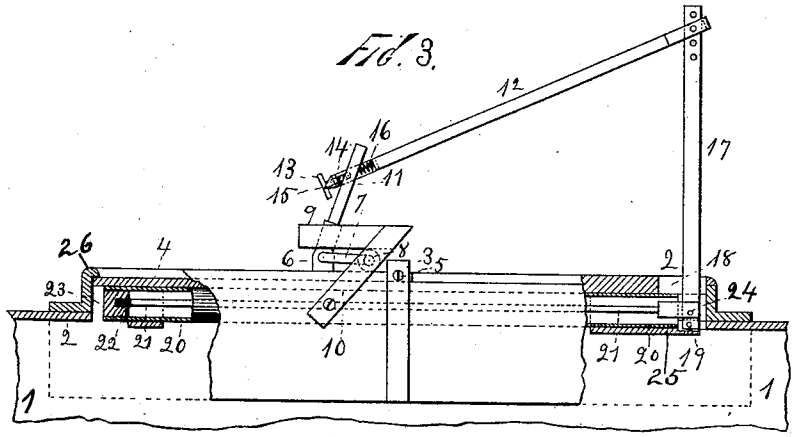


FIG. 3.



Witnesses
John Buckler,
Isabel Chester

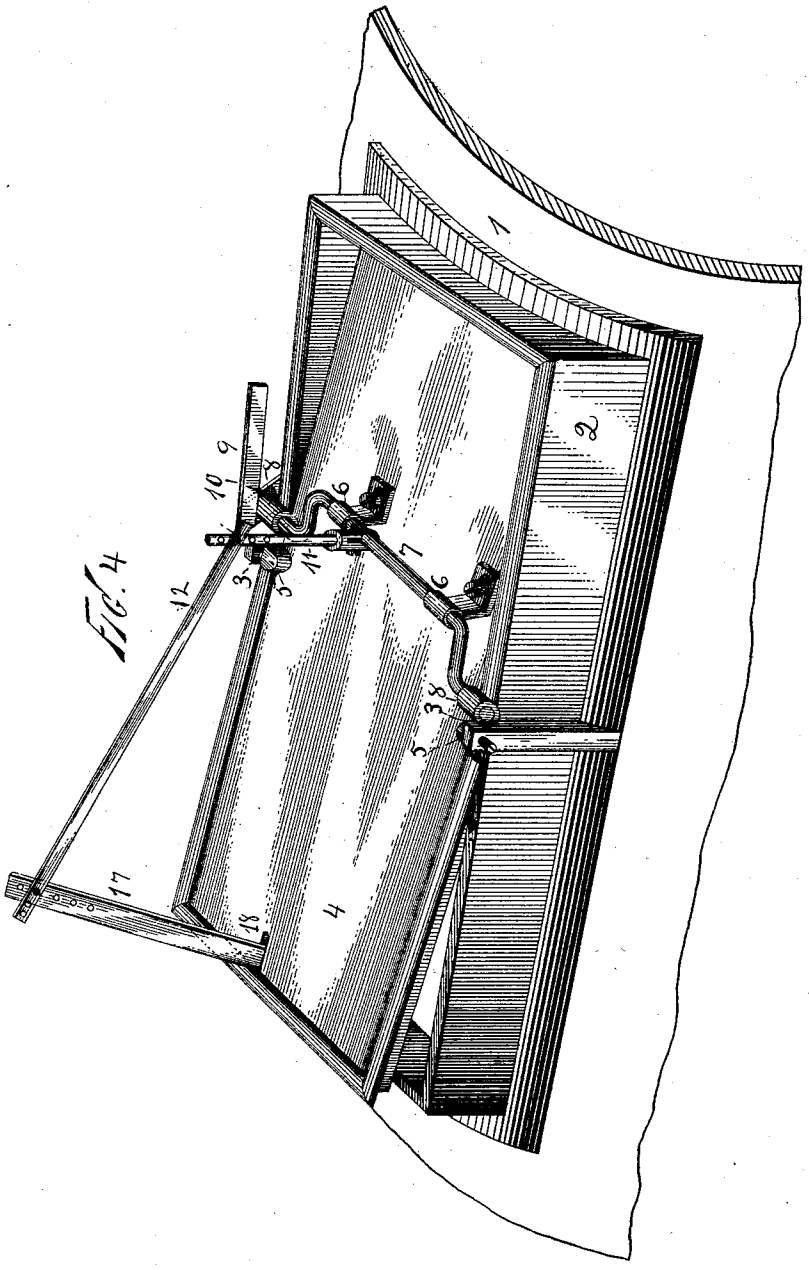
Inventor
Leon Bellamy.
By his Attorney
A. M. Pierce

(No Model.) 2 Sheets—Sheet 2.

L. BELLAMY.

DAMPER REGULATOR.

No. 484,529. Patented Oct. 18, 1892.



WITNESSES:

John Buckler

Isabel Chester

INVENTOR

Leon Bellamy.

BY A. M. Pierce

ATTORNEY

UNITED STATES PATENT OFFICE.

LEON BELLAMY, OF ARLINGTON, NEW JERSEY.

DAMPER-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 484,529, dated October 18, 1892.

Application filed October 17, 1891. Serial No. 409,025. (No model.)

To all whom it may concern:

Be it known that I, LEON BELLAMY, a citizen of the United States, residing at Arlington, in the county of Hudson and State of New Jersey, have invented new and useful Improvements in Damper-Regulators, of which the following is a specification.

My invention relates especially to means and mechanism for regulating dampers for use in the smoke pipes or flues of stoves or furnaces, and has for its object the provision of a cheap, simple, and effective regulator, which may be readily applied to any pipe conducting products of combustion.

To attain the desired end, my invention consists, essentially, in a damper-plate pivoted in a supporting-frame, said damper-plate being provided with mechanism whereby a series of levers are caused to move in accordance with the heat carried by the pipe with which the damper is employed, opening or closing the damper, as required, the entire mechanism for accomplishing this result being supported upon and moving with the damper-plate; and my invention also involves certain other novel and useful combinations or arrangements of parts and peculiarities of construction and operation, all of which will be hereinafter first fully described, and then pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view of my improved damper-regulator shown in place upon the damper-plate. Fig. 2 is a side elevation of the device, looking from the left of Fig. 1. Fig. 3 is a side elevation and partial section, looking from the upper side of Fig. 1. Fig. 4 is an enlarged perspective view of my damper-regulator, showing the damper as partially open.

Similar numerals of reference, wherever they occur, indicate corresponding parts in all the figures.

1 is a fragment of a pipe for conducting products of combustion, used in connection with any kind of a stove, heater, or furnace.

2 is a frame arranged to be secured around an opening in the pipe.

3 3 are perforated ears at each side of the frame 2, near the center thereof.

4 is a damper-plate provided at each side with pins or trunnions 5, which are pivoted in the ears 3 of frame 2.

6 6 are perforated lugs mounted upon or formed with plate 4.

7 is a crank-rod mounted in lugs 6 and carrying at each extremity a friction-roller 8.

9 is a horizontal bearing-arm secured to the frame 2 by means of a foot 10. I have shown such bearing-bar as upon one side only of the frame, as a single arm is found sufficient; but these arms may be placed upon each side, if desired.

Extending upward at an angle from rod 7 is an arm 11, wherewith engages a rod 12, made adjustable by means of a set-screw 13, mounted in a yoke 14, formed by the bar 12, said bar terminating in a pointer 15.

16 is a spring, which holds bar 12 in place upon the arm 11. The head of screw 13 is marked with degrees—such as "70," "80," "90," &c.—and the degree of heat within the conductor for the products of combustion at which it is desired the damper shall move is thus prescribed by setting the screw so that the pointer will be at the degree required. Bar 12 is connected to a second bar 17, which passes through a perforation 18 in plate 2 and is pivoted at 19.

20 is an expansible tube of any preferred material, secured to the inside of the damper-plate, and 21 is a metallic rod secured within tube 20, the end 22 of said rod 21 engaging with a solid head 23 of tube 20 and the opposite extremity of the rod being pivoted at 24 to bar 17 in close proximity to the pivot 19, where said tube is also rigidly fixed to a ring 25, secured to the damper-plate. The projecting lip 26 upon frame 2 extends over the edge of the damper-plate 4, as particularly shown at the left of Fig. 3, but is cut away from the center of said plate to the right, so as to permit the plate to swing outward from the right of its center, but is free to move at the other extremity.

When my improved damper-regulator is constructed and arranged as above set forth and mounted for use, the operation is as follows: When the parts mounted within the damper-plate become heated from the passing products of combustion, the expansion acts upon bar 17, which has a very short fulcrum. Said bar will be forced to the left and through the medium of the bar 12 will act upon the arm 11, mounted upon the crank-

rod 7, turning the same slightly toward the left, and the arm bearing the friction-wheel 8, which comes in contact with the bearing-arm 9, will cause the right extremity of the damper-plate to move outward, thus leaving an opening between the said plate and its frame for the passage of air. As the heat in the conducting-pipe 1 diminishes the expanded operating mechanism will contract, reversing the movements of the parts, thus closing or restricting the opening for the admission of air.

Having now fully described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

1. A damper-regulator in which is comprised a damper-plate pivoted in a surrounding frame, arranged to be fixed to a smoke pipe or flue, a tube of one metal secured at one of its ends to the interior of the damper-plate, as set forth, and a rod of another metal inclosed in said tube and being fixed to the free end thereof, and a series of levers connected to said rod and to a fulcrum for moving the plate, the whole being combined and arranged to move together, substantially as shown and described.

2. In a device of the character herein specified, a damper-plate pivoted in a surrounding frame, an expansible medium fixed upon the inner side of the damper-plate, a series of levers connected with said expansible medium and a crank-rod connected to the damper, a crank, and a fixed bearing for the extremity of the crank-rod at the side of the surrounding frame, the whole combined and arranged to operate substantially as shown and described.

LEON BELLAMY.

Witnesses:
A. M. PIERCE,
ISABEL CHESTER.