No. 631,753. Patented Aug. 22, 1899.

C. W. ROGERS.

AUTOMATIC DAMPER FOR HEATING AND VENTILATING SYSTEMS.

(Application filed Mar. 16, 1899.)

(No Model.)

Fig. 1.

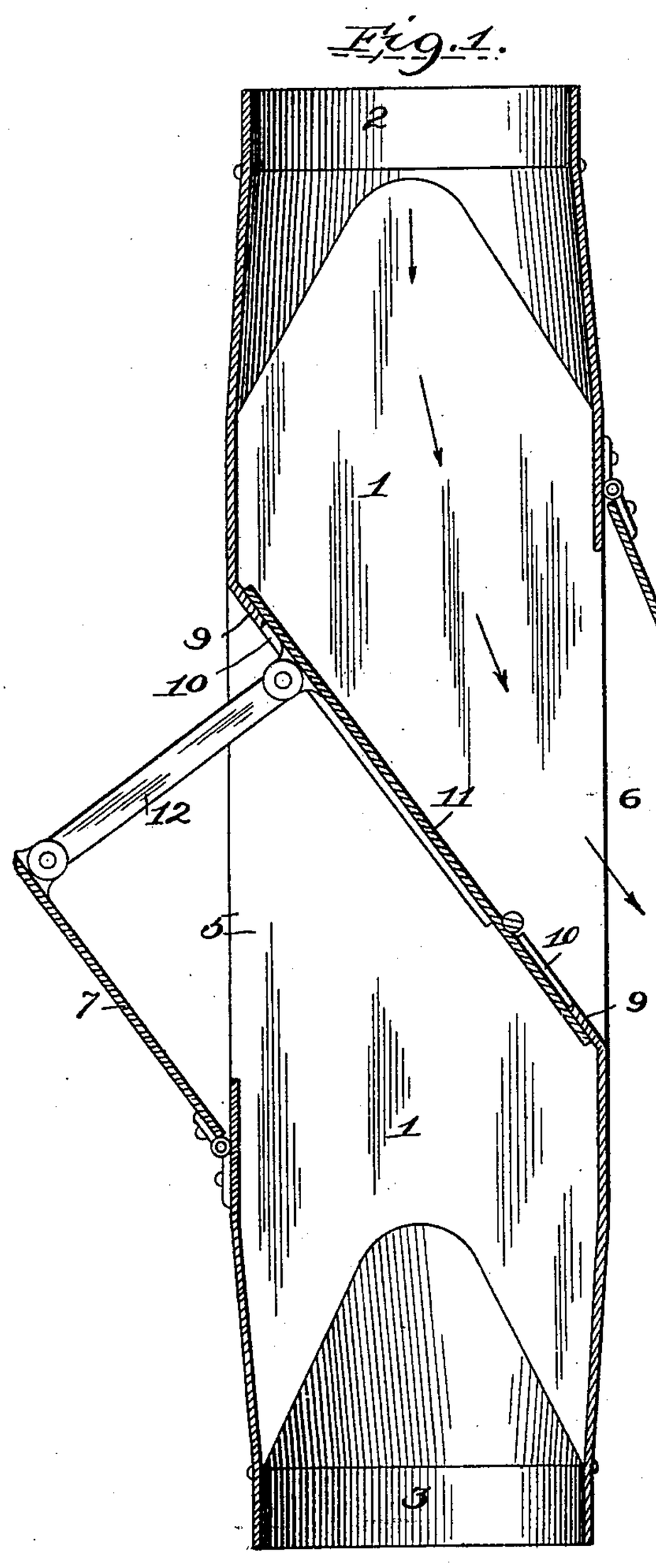
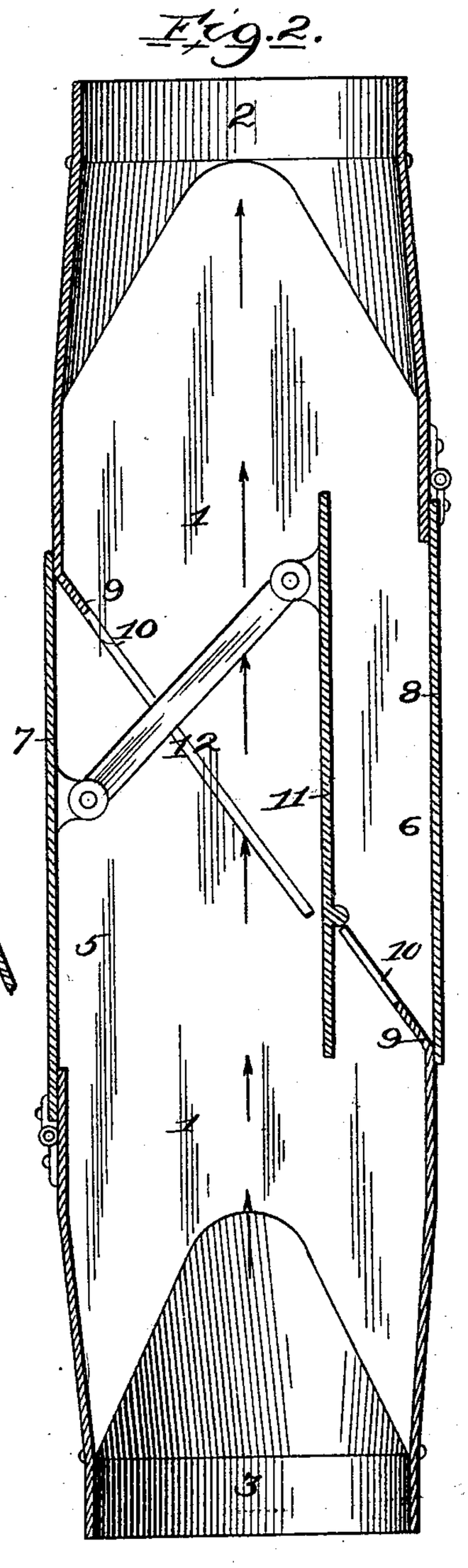


Fig. 2.



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UNITED STATES PATENT OFFICE.

CHARLES W. ROGERS, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO JULIEN W. MATHIS AND AUGUST MATHIS, OF SAME PLACE.

AUTOMATIC DAMPER FOR HEATING AND VENTILATING SYSTEMS.

SPECIFICATION forming part of Letters Patent No. 631,753, dated August 22, 1899.

Application filed March 16, 1899. Serial No. 709,354. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. ROGERS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Automatic Dampers for Heating and Ventilating Systems; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification.

The present invention relates to automatically-operating reversible dampers for use in connection with the heating and ventilating apparatus of factory forge-rooms and the like, in which during different seasons or periods it is intended that the fan or blower shall be run at one time in exhaust to remove the smoke and gases from the different forge-fires and at another time to run in pressure or blast to introduce heated air from any suitable source into the forge-room at points adjacent to the various forges in the room; and the present improvement has for its objects to provide a simple and efficient damper mechanism for use in connection with the ventilating and heating ducts of a factory-forge, to automatically connect such ducts with the hoods of the different forges, to remove the smoke and products of combustion therefrom when the fan or blower of the system is running in exhaust, and which damper mechanism is adapted to automatically reverse and shut off connection with such forge-hoods when the fan or blower is reversed by hand to run in pressure or blast, and to discharge heated air from any suitable source into the various parts of the forge-room in proximity to the different forges, all as will hereinafter more fully appear and be more particularly pointed out in the claims. I attain such objects by the construction and arrangement of parts illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section of a reversible damper constructed in accordance with the present invention, the parts being shown in the position occupied when a pressure-blast is passing through the damper-casing. Fig. 2 is a similar view showing the parts in the position occupied when an exhaust-draft is passing through the damper-casing.

Similar numerals of reference indicate like parts in both views.

Referring to the drawings, 1 represents the main body of the damper-casing, preferably rectangular in cross-section and provided with upper and lower attaching-necks 2 and 3, as shown, the upper one of which is adapted for connection to a branch duct of the ordinary heating and ventilating system for factory-forges, while the lower end of such casing is adapted for connection to the apex of the hood of the individual forge to which the branch duct aforesaid extends.

5 and 6 are exits or discharge-openings in the opposite walls of the damper-casing 1, provided with hinge doors or dampers 7 and 8, the damper 7 being hinged at its lower end and closing against gravity, while the damper 8 is hinged at its top to close by gravity.

9 is a diagonal diaphragm within the damper-casing 1, provided with an opening 10, through which communication is had between the upper and lower portions of the damper-casing.

11 is a hinge damper or shutter controlling the opening 10 of diagonal diaphragm 9 and adapted when closed to shut off communication between the upper and lower portion of the damper-casing and when open to allow free communication between the two. This damper 11 is preferably hinged near its lower end, so as to tend to assume a closed condition by gravity.

12 is a link connecting the dampers 7 and 11 together, so that they will operate in unison, the one being closed while the other is open, and vice versa.

In some cases the diaphragm 9 may be dispensed with and dependence placed upon the damper 11 finding its seat upon the opposite walls of the damper-casing 1.

The operation of the present automatic damper in connection with a heating and ventilating system, as heretofore described, is as follows: With a pressure or blast within the ducts of the system the dampers of the present invention will automatically assume the positions illustrated in Fig. 1 of the drawings,

with the damper 7 open to allow the products of combustion from the forge to escape into the forge-room, the damper 11 closed to cut off the branch duct of the system from communication with the hood of the forge, and the damper 8 open to permit the escape of heated air from such branch duct into the forge-room. With a reversal of the operating-fan of the system to cause an exhaust or suction within the ducts of the system the dampers aforesaid will automatically assume the positions illustrated in Fig. 2 of the drawings, with the damper 7 closed to prevent the escape into the room of the products of combustion from the forge, the damper 11 open to admit of communication between the hood of the forge and the branch duct of the system, and the damper 8 closed to prevent ingress of air from the forge-room into said branch duct.

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

1. In a ventilating and heating system for factory forge-rooms and the like, an automatically-operating reversible damper, comprising in combination a damper-casing having openings in its opposite walls, outwardly-opening dampers controlling said openings, and a pivoted damper arranged within said casing and adapted to control communication between the upper and lower portions of said casing, and means operated by said pivoted damper for controlling one of the outwardly-opening dampers whereby when said pivoted damper is open the outwardly-opening damper is closed and vice versa, substantially as set forth.

2. In a ventilating and heating system for factory forge-rooms and the like, an automatically-operating reversible damper, comprising in combination a damper-casing having openings in its opposite walls, hinged dampers controlling said openings, a pivoted damper arranged within said casing and adapted to control communication between the upper and lower portions of such casing, and a link connection between such pivoted damper and one of the dampers controlling an opening in the wall of the casing, substantially as set forth.

In testimony whereof witness my hand this 9th day of March, 1899.

C. W. ROGERS.

In presence of—
ROBERT BURNS,
J. F. SPRAGUE.