N. OLSON.

DAMPER.

APPLICATION FILED DEC. 13, 1915.

1,185,928.

Patented June 6, 1916.

Fig. 1

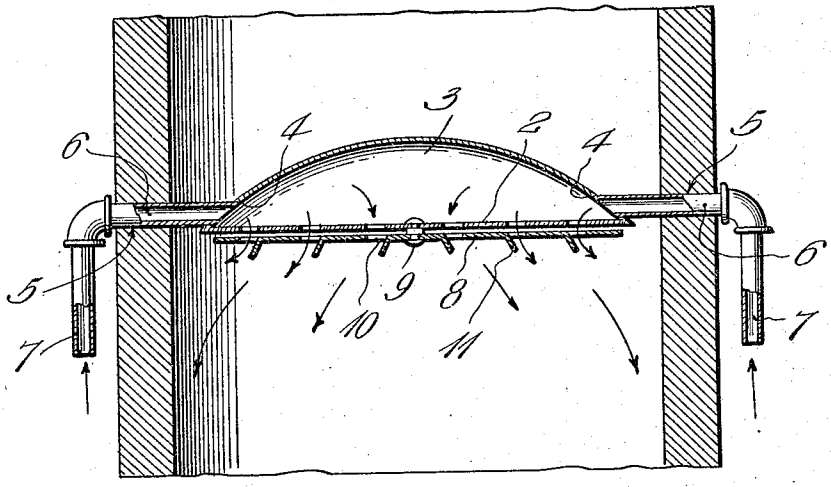


Fig. 3

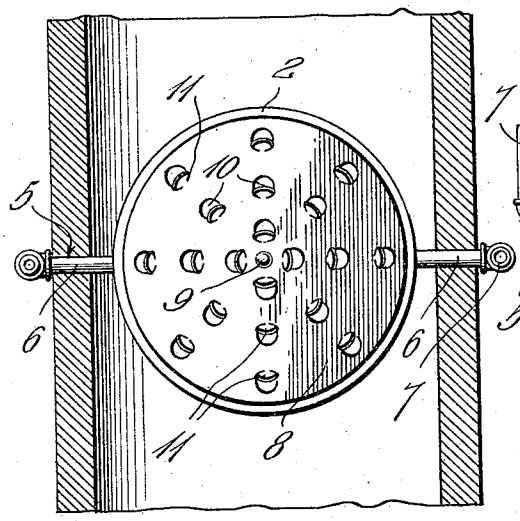
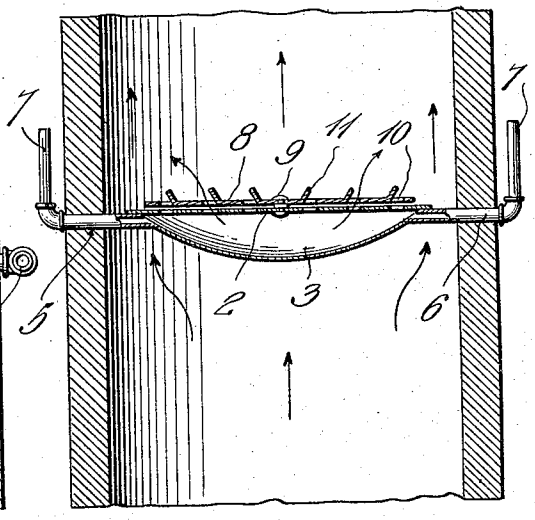


Fig. 2



Inventor

Witnesses

Edwin B. Hunt.

Nels Olson

by H. B. Williamson & Co

Attorneys

UNITED STATES PATENT OFFICE.

NELS OLSON, OF SUPERIOR, WISCONSIN.

DAMPER.

1,185,928. Specification of Letters Patent. Patented June 6, 1916.

Application filed December 13, 1915. Serial No. 66,579.

To all whom it may concern:

Be it known that I, NELS OLSON, a citizen of the United States, residing at Superior, in the county of Douglas and State of Wisconsin, have invented certain new and useful Improvements in Dampers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention is an improved draft promoting and smoke preventing damper which can be readily applied to any flue conveying the smoke and gases from any type of furnace or stove.

One of the objects of this invention is to provide a practical and effective device for supplying fresh air to the combustion chamber of the stove or furnace in order that the gases may be more effectively consumed, thus preventing loss of energy and also providing means for consuming the smoke.

An additional object of the invention is to provide a device which will greatly increase the draft and thus also more effectively consume the unburned products of combustion which ordinarily leave the fire box before they are consumed.

With these and many other objects in view, my invention resides in certain novel features of construction, combination and arrangement of parts which will hereinafter be more particularly described and claimed and shown in the drawings wherein:

Figure 1 represents a central vertical longitudinal section through a portion of a flue showing my improved damper in operative position; Fig. 2 is a similar view but showing the damper in inoperative position. Fig. 3 shows still another position into which the damper may be moved.

In the accompanying drawing, I have shown my damper as circular in form for application to an ordinary cylindrical flue, but it is obvious that the damper can be readily made into any desired shape according to the shape of the flue without changing the principles involved in the structure shown in the drawing.

The damper 1 comprises a perforated flat plate 2 and an imperforate dome-shaped plate 3 which has its periphery soldered or otherwise connected to the periphery of the flat plate 2. While I have shown the plate 2 as flat and the plate 3 as dome-shaped, any other preferred form would probably work equally well. The imperforate side of the damper has a pair of openings 4 formed therein adjacent its periphery, said openings being arranged diametrically opposite each other and are adapted to aline with similar openings 5 in the wall of the flue. These openings 4 are adapted to receive the short sections of pipe 6 which form hollow trunnions upon which the damper rotates. These pipes 6 forming the trunnions project through the openings 5 in the wall of the flue and are provided on their outer ends with laterally projecting extensions 7, preferably extending at right angles from said trunnion pipes 6. As the pipes 6 and 7 communicate with the interior of the damper 1, air can readily be drawn in from outside of the flue into the damper from where it is discharged through the perforations in the plate 2 onto the fire, or to a suitable part of the stove where it will be most effective in promoting combustion. It is assumed that when the air is being discharged from the damper into the combustion chamber onto the fire, the perforated plate is disposed next to the fire. When, however, the damper is rotated on the trunnions 6 and the imperforate plate 3 is disposed next to the fire, no air is discharged from the damper into the fire box. This arrangement permits a greater draft through the flue, inasmuch as the heated air in the damper tends to suck the smoke from the stove around the periphery of the damper, since the heated air rising from the damper creates a vacuum in the flue adjacent said damper. It will be understood that the damper is somewhat smaller than the diameter of the flue in order to allow the smoke and other gases to escape without being blown out into the room in which the hollow trunnions open.

In order to direct the movement of the heated air from the hollow damper, I provide an additional flat plate 8 and preferably pivotally mount the same on the plate 2 by means of the pivot pin 9. This plate 8 is provided with a plurality of openings 10 which are adapted to aline with the perforations in said plate when the movable plate 8 is in operative position. The metal struck from the openings 10 is bent at an angle to the plate 8 in order to provide deflectors 11

so arranged that they will guide the heated air from the damper toward the walls of the flue, they being extended outwardly from the edges of the openings nearest the center of the plate. This is true whether the plate 2 is disposed next to the fire or so arranged that the air is being directed up the chimney. When in the last mentioned position, the heated air is directed into the path of the smoke rising from the stove or furnace, thereby increasing the draft.

From the preceding description taken in connection with the accompanying drawing, it will be obvious that I have produced an extremely simple yet very efficient means for not only providing increased air for combustion purposes within the fire box, but also means for increasing the draft when it is not desired to direct the air into the fire box or onto the fire.

I claim:

1. In a device of the class described, a rotary hollow damper, one side thereof being perforated from its center outwardly and the other imperforate, trunnions connected therewith and adapted to extend through the walls of a flue, one of said trunnions being hollow to form an air inlet to conduct the air thereinto, said damper being rotatable on said trunnions to dispose either the perforated or imperforate side next to the fire, and deflectors disposed adjacent the innermost edges of said perforations and inclined outwardly to deflect the heated air outward toward the edges of the damper.

2. In a device of the class described, a rotary hollow damper, one side thereof being perforated and the other imperforate, trunnions connected therewith and adapted to extend through the walls of a flue, one of said trunnions being hollow to form an air inlet to conduct the air thereinto, said damper being rotatable on said trunnions to dispose either the perforated or imperforate side next to the fire, a rotary plate having perforations therein registering with the perforations in the damper, a pivot stud projecting from the center of the perforated side of said damper, said plate being rotatable on said stud to throw the openings therein out of registration with the peripheries in the damper to control the discharge of air therefrom, and deflectors on the plate, one being disposed adjacent the innermost edge of each of the perforations in the plate to deflect the heated air outwardly toward the edges of the damper.

3. In a device of the class described, a disk like hollow damper comprising a flat perforated plate and a dome-shaped imperforate plate, said plates being connected together at their peripheries, hollow trunnions connected to and opening through said imperforate plate, said trunnions being adapted to extend through the walls of a flue to rotatably mount the damper therein and to form air inlets to conduct air thereinto, said damper being rotatable to bring either the perforate or imperforate plate next the fire, a plate pivotally mounted on said flat perforated plate and having openings therein adapted to aline with said perforations, and deflectors carried by the last mentioned plate, said deflectors being formed of the metal struck from said openings.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

NELS OLSON.

Witnesses:
R. I. TIPTON,
SELMA ERICKSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."