Dec. 20, 1932. L. C. LANCASTER 1,891,600

DAMPER

Filed April 28, 1931

Fig. 1

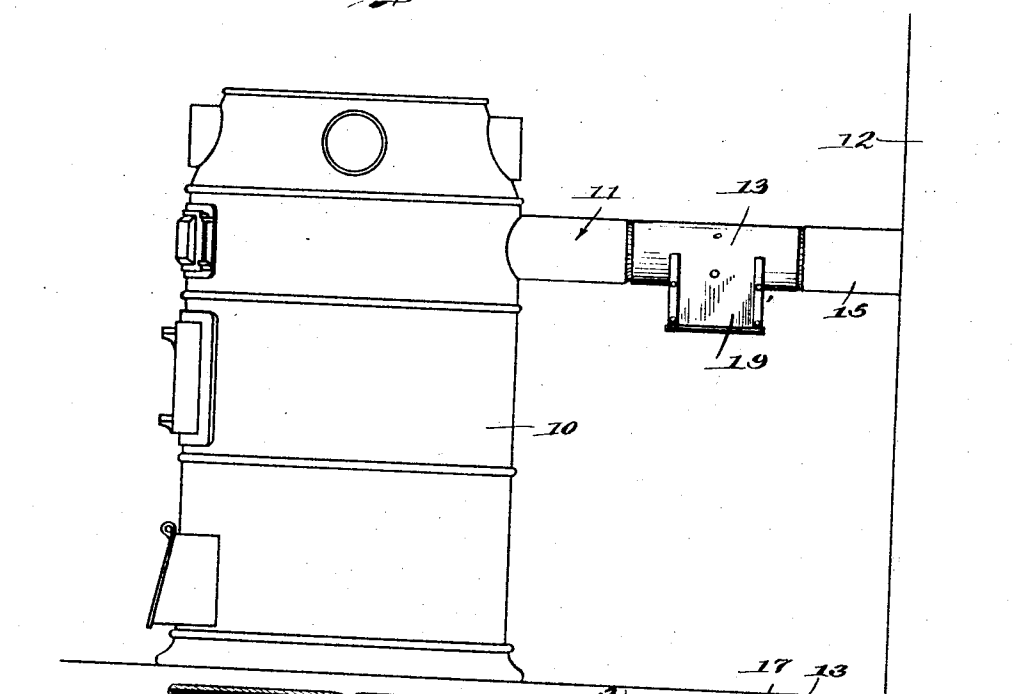


Fig. 2.

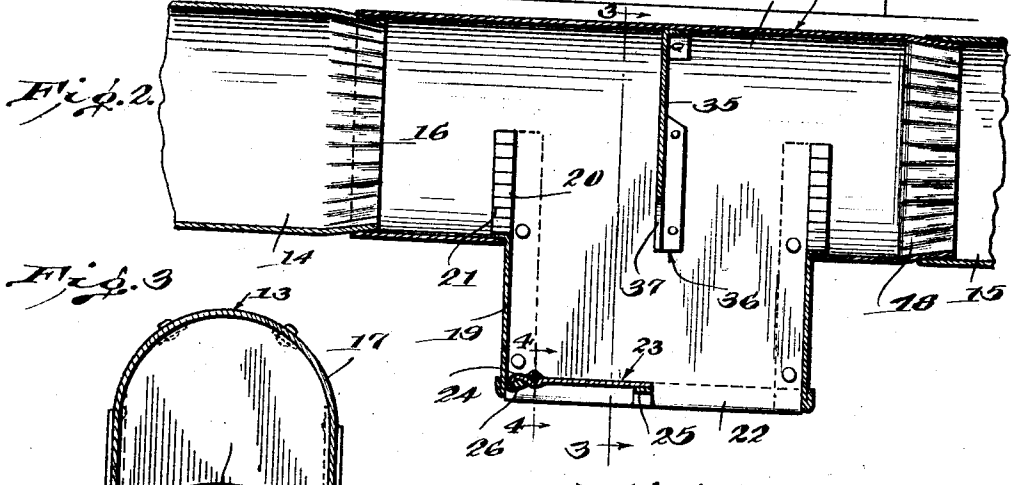


Fig. 3

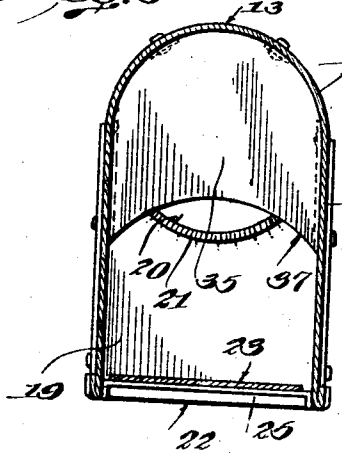
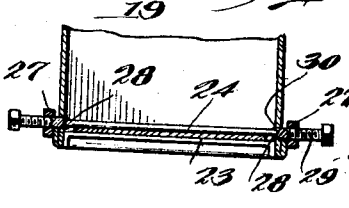


Fig. 4



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UNITED STATES PATENT OFFICE

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DAMPER

Application filed April 28, 1931. Serial No. 533,519.

This invention relates to dampers for flues of furnaces.

An object of the invention is the provision of a device adapted to be applied to the usual flue pipe of a furnace for positively checking the flow of combustion gases from the furnace in order that the products of combustion will be thoroughly consumed before being discharged into the chimney.

A further object of the invention is the provision of a device adapted to be located in the flue between the furnace and the chimney for collecting the discharge of combustion gases from the furnace in order that said gases may be thoroughly consumed before being discharged into the chamber, the device including the partially controlled opening in the pipe with the baffle adjacent said opening aiding in checking the flow of gases at this point.

This invention will be best understood from a consideration of the following detailed description, in view of the accompanying drawing forming a part of the specification; nevertheless, it is to be understood that the invention is not confined to the disclosure, being susceptible of such changes and modifications which shall define no material departure from the salient features of the invention as expressed in the appended claims.

In the drawing:

Figure 1 is a side view in elevation of a furnace showing my invention applied thereto,

Figure 2 is a longitudinal vertical section of my damper,

Figure 3 is a transverse vertical section taken along the line 3—3 of Figure 2, and

Figure 4 is a transverse vertical section taken along the line 4—4 of Figure 2.

Referring more particularly to the drawing, 10 designates a furnace of any type having a flue pipe 11 extending from the furnace to the chimney 12. The damper, generally designated by the numeral 13, is located in the pipe at a point adjacent the furnace.

The pipe 11, as shown in Fig. 2, is formed of sections, designated by the numerals 14 and 15 and the damper control forms a continuation of an auxiliary section of the pipe 11. The section 14 has a reduced end 16 received in one end of a tubular member 17 of the damper 13. The opposite end of the tubular member 17 is tapered at 18 and received within one end of the section 15 of the pipe 11.

An air intake, generally designated by the numeral 19, depends from the tubular member 17 and is in open communication therewith. The member 19 is rectangular in cross section and the upper portion of the opposite end walls, as shown at 20, are semi-circular and fitted within the tubular member 17 and these semi-circular portions are provided each with a flange 21 which is secured to the inner wall of the tubular member.

The lower end of the intake is partially open, as shown at 22. A valve or damper 23 is secured to an axle 24 and closes a portion of the opening 22. The free end of the gate rests upon a cross bar 25 which is secured to the side walls of the intake 19 and extends across the opening 22 adjacent the free edge of the gate 23. The opposite end of the gate, as shown at 26, is weighted in order to act as a counterbalance for the gate. Bosses 27 are formed on the side walls of the intake 19 and adjacent the free ends 28 of the rod 24. Bolts 29 are threaded into the bosses and are provided at their inner ends with sockets 30 to receive the pointed ends of the rod 24. These bolts may be adjusted to exert a sufficient pressure on the rod 24 in order to control the proper operation of the gate valve 23.

A baffle 35 is secured to the inner walls of the tubular member 17 and extends downwardly towards the central portion of the intake 19. The bottom 36 of said baffle is in substantially the same horizontal plane with the lowermost edges of the tubular member. This baffle at its lower end is cut away in a semi-circular manner, as shown at 37, in order to provide a restricted direct passage between the opposite ends of the tubular member 17.

The operation of my device is as follows: As the combustion gases pass from the section 14 to the section 15 of the pipe 11 they

must pass through the tubular member 17 and be deflected and retarded by the baffle 35. A portion of the gases, however, will have direct passage between the opposite ends of the tubular member 17 and past the cut away portion 37 at the lower end of the baffle 35. The baffle acts as a check for the gases in order to retain them in the furnaces so that combustion of the gases will be completed before passing to the chimney.

As the gases pass from the opposite ends of the tubular member 17 beneath the baffle 35 a suction will be created so that air will be drawn through the opening 22 into the pipe and as the suction increases the gate valve 23 will be opened more or less to admit air. It will be seen by this construction that not only a positive control of the exhaust gases will be had but the proper check will be maintained in order that the gases will be thoroughly consumed before being discharged into the chimney 12. It will be noted that the valve 23 is at all times automatic and will be controlled by the flow of gases through the tubular member 17.

I claim:

1. A flue construction comprising a flue pipe, a casing intercalated in the flue pipe and provided with an opening in the lower portion thereof, an air intake depending from said opening and open to the atmosphere, a baffle depending from the inner wall of the casing terminating adjacent the opening, and a valve pivotally mounted at the outer end of the air intake and aiding in controlling the flow of air through the intake to the casing, said valve being operated in response to a draft, and a counterbalance connected to said valve.

2. A flue construction comprising a flue pipe, a casing intercalated in the flue pipe and provided with an opening in the lower portion thereof, an air intake depending from said opening and open to the atmosphere, a baffle depending from the inner wall of the casing terminating adjacent the opening, and a valve pivotally mounted at one end to the open end of the air intake, the free end of the valve terminating adjacent the lower end of the baffle, said valve being moved automatically to open position for admitting controlled quantities of air to the casing in response to a draft, and a counterbalance for the valve.

3. A flue construction comprising a flue pipe, a casing provided with an opening in the lower portion thereof, an air intake depending from said opening and open to the atmosphere, a baffle depending from the inner wall of the casing and terminating adjacent the opening, said baffle being located in a vertical plane and midway between the ends of the casing, a valve pivotally mounted at the outer end of the air intake and aiding in controlling the flow of air through the intake to the casing, said valve being operated in response to a draft, and a counterbalance connected to said valve.

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