Sept. 4, 1945. A. S. GRETH 2,384,249

CHIMNEY DAMPER FOR OPEN FIRE PLACES

Filed March 21, 1944

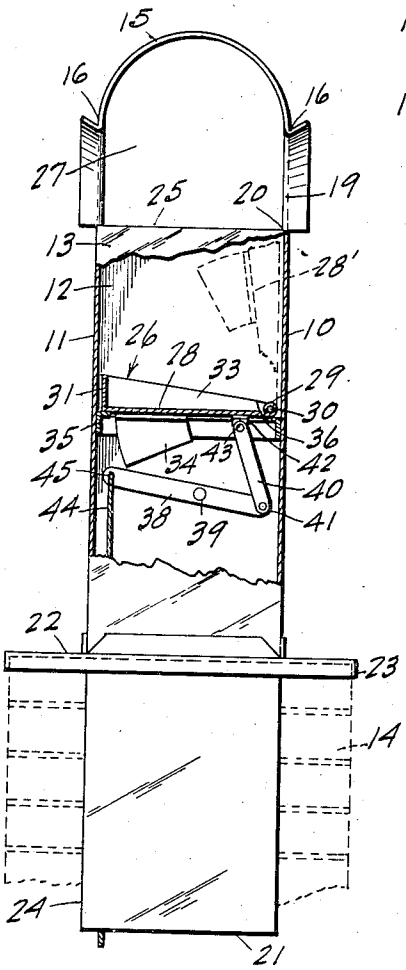


Fig. 1.

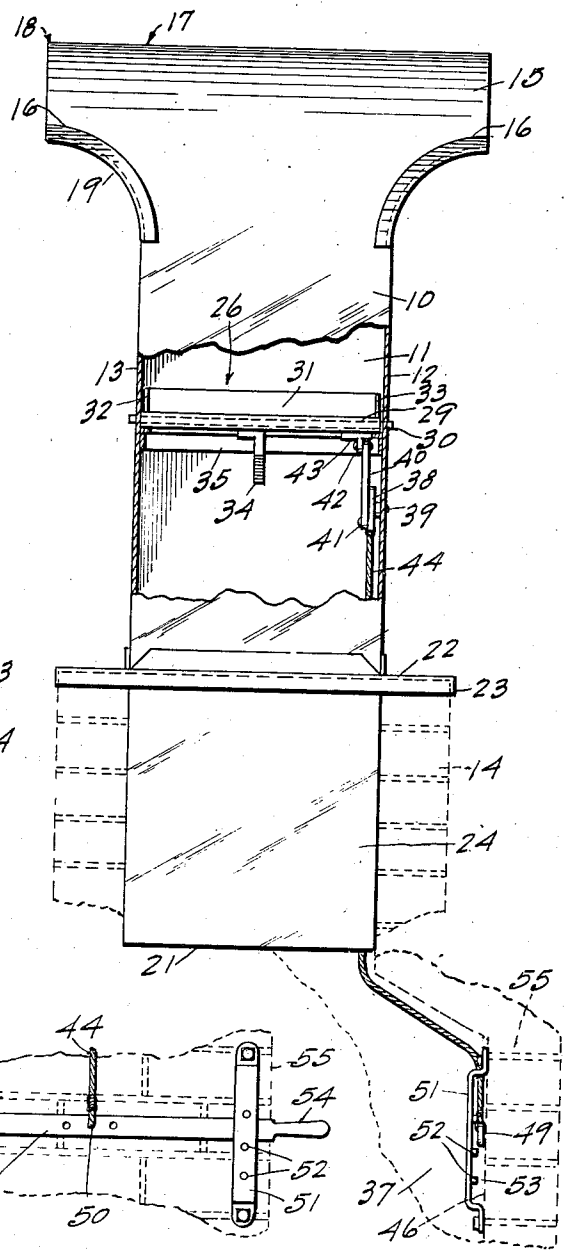


Fig. 2.

Fig. 3.

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Patented Sept. 4, 1945

2,384,249

UNITED STATES PATENT OFFICE

2,384,249

CHIMNEY DAMPER FOR OPEN FIREPLACES

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Application March 21, 1944, Serial No. 527,429

9 Claims. (Cl. 98—85)

This invention is an improvement over conventional chimney extensions and damper arrangements due to the special design of the apparatus and the fact that it is a self-supporting unit which requires no stay or guy wires or props of any kind for support against wind pressure, and that no bolting or other means of fastening is required; that it is simply placed in position, and when so placed is fully supported by the main chimney and immovably secured thereby.

In addition, the damper mounted within the extension is adjustable to any desired opening and controlled by a lever which extends out from the front of the fireplace so that it will not become sooted to soil the hands, and will not become too warm for convenient and comfortable handling. The damper is so situated that it is easily removed or replaced through the top of the extension, and is so constructed that when closed it will shed any rain or snow that may collect along one or two corners of the chimney proper to keep the greater portion of the inside of the chimney dry, thereby increasing the initial draft when a fire is started several times as great and develop full draft in about one-quarter of the time required with an ordinary chimney extension and damper which permits the entire inside walls of the chimney to get wet.

Other objects and advantages of the invention will become apparent as the following description is read on the drawing accompanying this specification, and in which:

Fig. 1 is a side elevation of the invention with the fireplace control lever omitted, and with a portion of the side wall removed to show the construction and arrangement of the damper.

Fig. 2 is a front elevation of the invention, including the control lever for the damper as it would be mounted on the side wall of a fireplace, and with a portion of the front wall removed to show the damper construction.

Fig. 3 is a side elevation of the damper control lever and latching mechanism.

The invention consists of a flue having front, back, and side walls, **10**, **11**, **12** and **13**, the cross-sectional dimensions of which are made to fit snugly inside a main chimney **14**, and the front and back walls **10** and **11** terminate at the upper end in a bonnet **15** which extends beyond the side walls to form hoods and which bonnet is provided with gutters **16** which extend from the ends inwardly and to the lower end of the bonnet and terminate on the outside of the front and back walls. These gutters divert water which drains down the end portions of the bonnet, directly to the front and back walls, and prevent the drainage of any water along an edge of the bonnet to trail inside the chimney directly or through capillary attraction.

Without these gutters which constitute one of the essential features of this invention, water draining over the bonnet between the points **17** and **18** would trail along the curved edge **19** and pass into the chimney at the point **20**, and which is well known to be the case with conventional chimney bonnets of that form, and which is now eliminated by these gutters.

Located at a distance preferably about equal to the width of the flue, from the bottom **21**, is a shield and support **22** which rests on top of the main chimney and therefore functions as a support for the auxiliary chimney or chimney extension. This shield peripherally terminates in an apron **23** to encompass the crown of the chimney. This shield therefore has a second function, that of draining all water away from the sides of the extension and top of the main chimney, directly to the outside where none can drain or creep back into the main chimney.

As will be noted, when the support portion **24** of the extension or flue is snugly fitted inside the main chimney and the apron **23** rests on top, the extension is rigidly secured to withstand any wind pressure which the main chimney is capable of resisting, and that no bolts, screws, props or guy lines are required or could offer any advantage.

The side walls terminate at **25** to leave an opening at each end with areas at least equal to one-half of the cross-sectional area of the inside of the flue.

The damper **26** is located at a point where it can be reached conveniently through either of the openings **27** in the event that removal or replacement is desired, and consists of a main damper member or plate **28** which fits close to the walls of the flue and terminates at one end in a curl **29** to receive a removable pin **30** which has bearings in the side walls **12** and **13**, though if desired, the damper can instead be hinged through the front and back walls **10** and **11**.

A flange **31** is formed up at the other end of the member as shown, and the sides are also flanged up to form a receptacle between the respective flanges and the curl, the side flanges being tapered from the other end to the curl as indicated at **32** and **33**, so that when the damper is raised to the dotted position **28'**, the front flange will prevent the main damper portion **28** from swinging past center, while the tapered side flanges allow the

top edge of the front flange to contact the wall of the flue.

Secured to the underside of the member **28** is a counterweight **34** which is formed of a piece of flat stock depending at right angles to the bottom of the damper and at right angles to the axis of the pivot **30**, with the counterweight edgewise to the flow of gases for minimum obstruction. A shelf **35** supports the front end of the damper, and similar narrow shelves may be provided for the sides, and for the back below the curl to form a complete seal should such be desirable, as shown.

It will be noted that when this damper is closed, or partly closed, that if rain or snow blows through the openings **27** in the bonnet, it will be collected by the damper and will then drain through the recesses **36** at one or both ends of the curl **29** and thus can only drain down the inside of the chimney along those two corners, with the rest of the inside of the chimney **14** remaining dry or substantially so. Then, when a fire is started in the fireplace **37**, the gases will travel through a chimney which is dry throughout the greater portion of its inner surface, and the draft will be substantially that of a cold, dry chimney the draft of which increases very rapidly in comparison to that of a wet chimney which must be completely dried and completely heated before maximum draft can be expected, while with a dry chimney, only heating of the inside of the chimney is necessary to develop full draft. Not only is it possible to get a fire started and a good fire developed quicker, but the dispersal of smoke or gas into the room is maintained at an absolute minimum. The dryness of the chimney is further insured by the gutters **16** which prevent drainage down the four corners of the chimney.

The control mechanism for the damper consists of a lever **38** which is shown pivoted intermediate its length to the back wall **12** at **39**. A link **40** is pivotally connected at one end to one end of the lever as indicated at **41**, and at the other end to an ear **42** mounted on the underside of the damper as indicated at **43**. A flexible member **44** such as a chain or cable is connected to the other end of the lever as indicated at **45**.

Mounted on one side wall **46** of a fireplace **37** is a bracket **47** to provide a pivot bearing **48** for the hand-operable lever **49** which has the flexible member **44** attached intermediate its length as indicated at **50**. Mounted on the side wall **46** is another member **51** which has a plurality of spaced lugs or pins **52**, spaced to admit the lever **49** therebetween, and with the inner ends **53** spaced from the wall **46** to clear the lever **49** to permit the lever to be moved to any desired position and then be swung away from the wall and between two of the lugs or pins **52** to secure the damper in any adjusted position.

It will be noted that the handle **54** of lever **49** extends out from the front **55** of the fireplace so that it will not be exposed to the flame or heat within the fireplace and will remain free of soot and will remain substantially cool.

This extension can be made to fit any chimney and is self-supporting because the anchor portion **24** which extends below the skirt **22**, projects down into the main chimney and closely fits therein, and its length is sufficient to firmly secure the extension and prevent any side sway because of wind pressure.

The weight of the extension is supported by the skirt **22** which sheds all water which drains down the outside of the flue as also any which normally would be intercepted by the top or crown of the main chimney, and the peripheral apron prevents creepage of any water thereunder. The gutters **16** prevent rain from creeping into the corners of the flue at the openings **27**; the damper is adjustable to any desired opening so that the draft can be controlled when there is a fire in the fireplace, and when there is no fire it can be kept closed under severe cold atmospheric conditions and opened to any desired degree under other atmospheric conditions. It therefore has three functions; that of a draft damper, a ventilation control, and a moisture segregator to keep the chimney as dry as possible inside.

The damper will concentrate the collected moisture over very small areas in the chimney instead of allowing it to disperse throughout the entire inner surface of the chimney, thereby assuring a quick build-up of the draft, and requiring only the heating of the walls to develop maximum draft instead of first requiring the drying out of the walls which requires a great deal of heat and time. The damper cannot become locked in an open position through overbalancing, and it, including its counterweight, offers a minimum obstruction in the chimney relative to the advantages gained. Furthermore, if the full area of the main chimney must be maintained, the flue can be made larger above the skirt **22** to compensate for the space taken up by the damper.

I claim:

1. In combination with a flue, a damper located within said flue and pivoted at one end through the side walls of the flue and having a curl formed upwardly for said pivot at said one end and flanged up at the other end and both sides to form a receptacle for moisture entering the top of the flue and having a single outlet to divert all collected moisture to one corner of the flue to maintain the major portion of the inside of the flue dry.

2. A chimney extension comprising: a flue rectangular in cross-section for mounting on a main chimney; a damper curled up at one end to coincidently form a bearing and a receptacle wall and fitting in said flue and a removable pivot supported by the walls of said flue and passing through said curl; an upstanding flange along the other end and both sides of said damper to form in connection with said bearing and receptacle wall a receptacle for moisture and a stop against excessive opening of the damper, and a weight suspended from the underside of said damper for urging said damper to close; a lever pivoted intermediately to one side wall of said flue and having an operative connection at one end to said damper, and a suspended flexible connection at the other end; a control lever for pivotal mounting at one end to the side wall of a fireplace and having said flexible connection attached thereto, and having a handle to extend beyond the front of the fireplace to prevent excessive heating of the handle, and means attachable to the side wall of the fireplace for securing said control lever in any of several adjusted positions at will.

3. A rectangular flue; a damper comprising a plate having upturned peripheral walls to form a receptacle for moisture falling within said flue and pivotally supported at one end by the side walls of said flue, and means for adjusting said damper to its open and closed positions, and means for supporting said damper in closed posi-

tion and simultaneously sealing the clearance between the damper and the walls of the flue.

4. A structure as defined in claim 3; said damper having an opening adjacent one corner to discharge moisture collected by said receptacle down one corner of the flue to maintain the rest of the flue other than the immediate area of said one corner of said flue below said damper substantially dry.

5. A structure as defined in claim 3; a weight rigidly attached to and projecting from the underside of said plate to form an over-balancing weight when the damper is open to urge closing of the damper.

6. A structure as defined in claim 3; said means for adjusting said damper to various open and closed positions comprising; a lever intermediately pivoted to one side wall of said flue; a link having its opposite ends respectively connected to one end of said lever and to said damper, and a flexible connection having one end connected to the other end of said lever, and the other end extending down through said flue, and a weight fixed to and projecting from the underside of said damper to function as an over-balancing weight when the damper is open to urge closure of the damper.

7. A damper for a flue having side walls and a rear wall, said damper comprising a flat plate formed upwardly entirely about its periphery to form a receptacle when the damper is closed for moisture falling within the flue, and being pivotally supported at its rearward end by said side walls and having a passage adjacent to one corner to drain collected moisture from said receptacle down one corner of the flue to maintain the rest of the inside of the flue below the damper substantially dry; and means manually operable for adjusting said damper to various open and closed positions at will.

8. A structure as defined in claim 7; said flat plate formed upwardly including flanges formed upwardly at the front and both sides and a pintle sleeve formed upwardly along the rearward edge, and the pivotal support comprising a pintle within said sleeve and having its ends supported in said side walls; said means manually operable comprising a lever intermediately pivoted to one side wall and having a link connection at one end to said damper and a flexible connection at the other end and extending through the lower end of said flue, and a weight fixed to and projecting from the underside of said plate to urge closure of said damper.

9. A structure as defined in claim 7; said means manually operable comprising; a first lever intermediately pivoted to one side wall and having a link connection at one end to said damper and a flexible connection to the other end and extending through the lower end of said flue, and a weight fixed to and projecting from the underside of said plate to urge closure of said damper; a second lever pivoted to the side wall of a fireplace and having a handle extending outwardly beyond the front of the fireplace to prevent excessive heating of the handle, and having said flexible connection connected thereto, means for releasably securing said second lever selectively in various adjusted positions for adjusting said damper to various degrees of opening.

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