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CABLE OPERATING MEANS FOR RIDGE VENTILATOR

Filed July 3, 1963

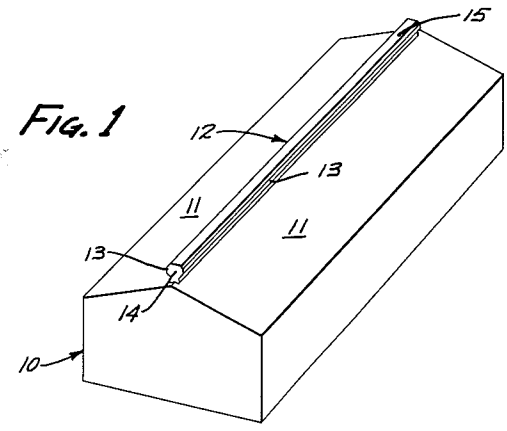


FIG. 1

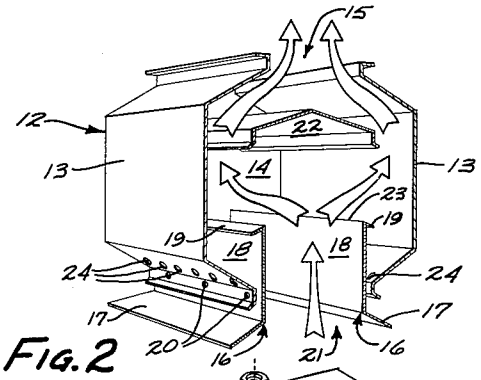


FIG. 2

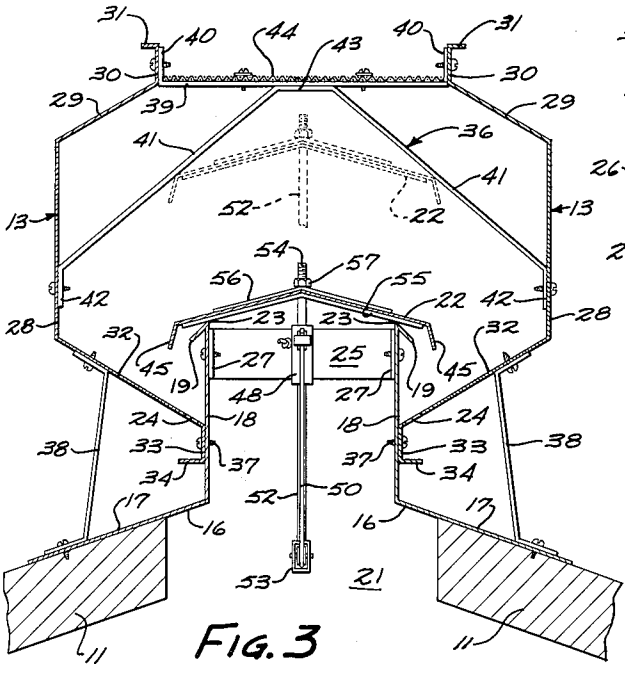


FIG. 3

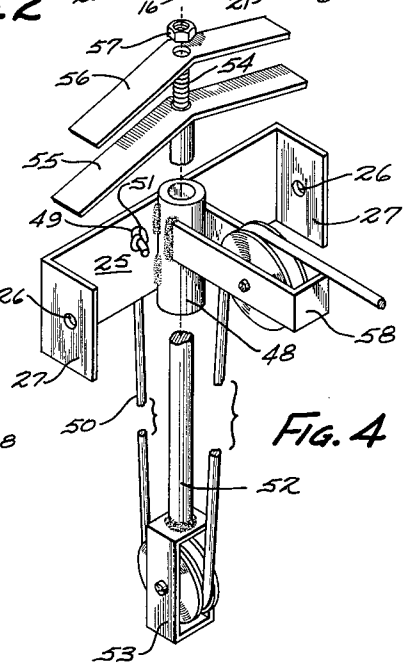


FIG. 4

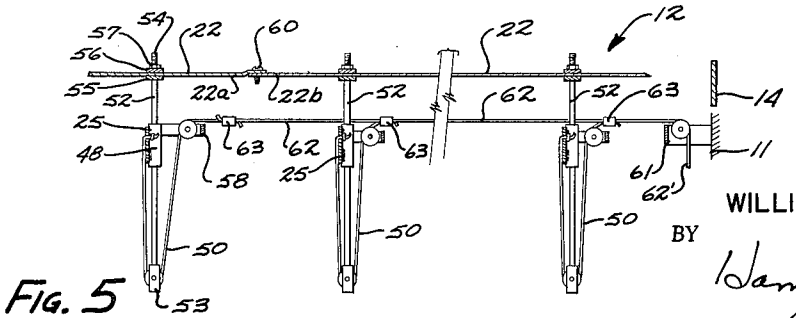


FIG. 5

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CABLE OPERATING MEANS FOR RIDGE VENTILATOR

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1 Claim. (Cl. 98—42)

This invention concerns an improved ridge ventilator having cable operating means for opennig, closing and positioning the movable components.

Ridge ventilators are well known in the building industry. They are provided along the ridge of a pitched roof and provide adjustable openings for the escape of gases and fumes from the interior of a building. Typical ridge ventilators are described in the following U.S. patents: 2,072,461; 2,096,123; 2,096,124; 2,122,530; and 2,266,261. All of the foregoing U.S. patents illustrate ridge ventilators which include a ridge cap member and a vertically rising damper element which is positioned beneath the ridge cap.

In U.S. Patent 2,231,557, there is illustrated a ridge ventilator which utilizes a single member to serve as the ridge cap and also as the vertically rising damper. The present invention concerns such ridge ventilators wherein a single element serves as both a ridge cap and a vertically rising damper element.

Statement of invention

This invention concerns ridge ventilators having a casing formed from longitudinal side walls and opposed end walls. A chimney or throat is provided between the side walls. A generally horizontal ventilator opening is provided above the chimney between the side walls. A cap member is adapted to move between a lowermost position which is substantially in contact with the upper rim of the chimney to an uppermost position between the chimney rim and the ventilator opening. When the cap member is spaced above its lowermost position, a gas flow passageway is provided upwardly from the interior of the building through the chimney, around the side edges of the cap member and thereupon upwardly through the ventilator opening. At all times the gas passageway is between the longitudinal side walls of the ventilator.

Such ventilators heretofore have been provided with elaborate mechanical structures for controlling the vertical location of and movement of the cap member. Such ventilators moreover have been difficult to maintain because of relative inaccessibility of the component elements. Major dismantling has been required to accomplish repair work on the ventilators.

The present invention provides a relatively simple cable operator means for controlling the vertical location of and movement of the cap member. In addition the present cap member is readily removable for access to the cable operator means in the event repairs are required.

Objects

The principal object of this invention is to provide a relatively simple cable operating means for a ridge ventilator.

A further object is to provide a ridge ventilator which has a readily removable cap member for access to the cable operator means.

These and other objects of this invention will become apparent from the following detailed description by reference to the accompanying drawings in which:

FIGURE 1 is a schematic perspective illustration of a typical building having a pitched roof and a ridge ventilator;

FIGURE 2 is a perspective illustration of a sectional fragment of a typical ridge ventilator;

FIGURE 3 is a cross-section illustration of a ridge ventilator having a cable operating means according to the present invention;

FIGURE 4 is a perspective illustration of operating elements of the present cable operating means; and

FIGURE 5 is a fragmentary side elevation view of a plurality of the operating elements along with a longitudinal cap member.

Referring to FIGURE 1 there is illustrated a typical building **10** having a pitched roof **11**. A ridge ventilator **12** is shown in position along the ridge of the pitched roof **11**. The ridge ventilator **12** has a casing formed from longitudinal side walls **13**, end walls **14**. A generally horizontal ventilator opening **15** is defined by the upper edges of the opposed side walls **13** which serve as a suction band for the ventilator.

A typical ridge ventilator is presented in FIGURE 2 wherein the ridge ventilator **12** has side walls **13** and end walls **14** which are preferably fabricated from corrosion-resistant coated metal sheets. The ventilator **12** includes a pair of chimney plates **16**, each of which has a flashing flange **17** adapted to overlie a pitched roof, a vertical chimney wall **18** and an outwardly directed stiffening flange **19**. The side walls **13** are normally secured to the chimney plates **16** by means of metal screws **20**, rivets, or similar fastening means. A ridge opening (also called a throat or chimney) in the building roof **11** is designated by the numeral **21**. The vertical chimney plates **18** represent an upward continuation of the ridge opening **21**.

A ridge cap damper **22** has a ridged cross-section and is adapted for vertical movement between the side walls **13** from (a) a lowermost position wherein the ridge cap member **22** is in substantial contact with the upper rims **23** of vertical chimney walls **18** to (b) an uppermost position substantially as illustrated in FIGURE 2 approximately midway between the upper rims **23** and the horizontal ventilator opening **15**. When the ridge cap member **22** is in the position shown in FIGURE 2 (i.e., the uppermost position), a gas flow passageway as indicated by the large arrows is provided from the interior of the building through the ridge opening **22**, between the vertical chimney walls **18** around the outer edges of ridge cap member **22** and outwardly through the generally horizontal ventilator opening **15**. The ridge cap member **22** serves at all times as a baffle to prevent atmospheric moisture and debris from entering into the interior of the building through the ridge opening **21**, regardless of whether the ridge cap member **22** is in its uppermost or lowermost position or any intermediate position. A plurality of drain holes **24** is provided in the side wall **13** adjacent to the vertical chimney plates **16** to permit drainage of accumulated moisture and debris from the interior of the ventilator onto the outer surface of the pitched roof of the building.

The present invention concerns cable operating means for raising and lowering and for holding at a selected elevation the ridge cap member **22**. The present invention will be described by reference to FIGURES 3, 4 and 5.

The present invention

The present ridge ventilator includes chimney plates **16** having a flashing flange **17** which is secured to a pitched roof **11** above a ridge opening **21**. The chimney plates **16** have a vertical chimney wall **18** and a stiffening flange **19** extended outwardly from an upper rim **23**. A plurality of chimney braces **25** extend between the vertical chimney walls **18** and are secured thereto preferably by means of bolts passing through

apertures **26** in the ears **27** of the chimney braces **25**. Side walls **13** may be formed as illustrated with a vertical central portion **28**, an inwardly sloping upper portion **29**, a vertical ventilator opening portion **30** and an outwardly extended stiffener flange **31**, an inwardly sloping lower portion **32**, a vertical chimney portion **33** and a stiffener flange **34**. Thus the casing is wider in its central portion than at its upper end (ventilator opening) or at its lower end (ridge opening). The opposed side walls **13** are secured to each other by means of a brace member **36**. The side walls **13** are secured to the vertical chimney walls **18** by means of threaded fasteners **37** which extend through the vertical chimney portions **33**. The side walls **13** are secured to the roof **11** by means of external struts **38**. The brace members **36** and the struts **38** preferably are formed from steel bars. The brace member **36** includes a horizontal strut **39** having apertured ears **40** and a depending brace **41** having aperture flanges **42** and a central base **43** which is preferably welded to the horizontal strut **39**.

A screen **44** preferably is secured to the horizontal struts **39** and extends across the entire ventilator opening **15** to prevent ingress of birds, debris, etc.

The ridge cap member **22** has a width greater than the distance between the vertical chimney walls **18** and has terminal flanges **45** which extend below the upper rim **23** when the cap member **22** is in its lowermost position as shown in FIGURE 3. The uppermost position of the cap member **22** is shown in phantom outline in FIGURE. 3.

Cable operating means

Two or more of the chimney braces **25** are provided with a vertical tube **48** which is centrally welded to the horizontal brace **25**. An aperture **49** is provided in the horizontal brace **25** to receive a cable length **50** which is terminated by a knot **51** or a clamp or similar fastening means.

Slideably mounted within the vertical tube **48** is a generally vertical shaft **52** having a cable pulley **53** welded at its bottom end and terminating at its upper end in a threaded stud end position **54**. A ridge brace **55** is centrally apertured to slip over the threaded stud portion **54**. A ridge cap **56** is likewise centrally apertured to fit over the threaded stud **54** and finally a nut **57** is provided to be threadedly engaged on the stud portion **54**. The cable pulley **53** and the shaft **52** comprise a unitary subassembly which is vertically reciprocable in the tube **48**.

From FIGURE 3 it will be seen that the ridge brace **55** fits beneath the ridge cap member **22** and the cap member **56** lies above the cap member **22**. When the nut **57** is threaded onto the stud **54**, the cap member **22** and the vertical shaft **52** comprise an integral suhassembly.

A fixed pulley **58** is welded to the vertical tube **48** or to the chimney brace **25** and is adapted to receive the cable length **50**.

In FIGURE 5, there is illustrated an overall integral subassembly of the ridge cap member **22** and the plurality of generally vertical shafts **52**. It will be seen that the ridge cap member **22** is comprised of a number of generally rectangular sheets which are lapped and joined by means of screws **60**, for example, which joins the sheets **22***a*, **22***b*. The ventilator also includes a fixed pulley **61** which is secured to the casing of the ventilator or to the building **10** adjacent to an end wall **14** of the ventilator as seen in FIGURE 5. A lengthwise cable **62** passes over the pulley **61** and extends generally horizontally lengthwise of the ventilator **12** and also depends from the pulley **61** into the interior of the building **10**. Each of the cable lengths **50** is secured to the lengthwise cable **62** by means of a suitable cable connector **63**. The lengthwise cable **62** extends horizontally parallel with the ridge to the connecter **63** of the cable length **50** which is associated with the brace members **25** which is most remote from the cable pulley **61**.

Thus it will be seen that a vertical downward pull on the depending end **62'** of the lengthwise cable **62** will pull all of the cable connectors **63** towards the right in FIGURE 5 thereby shortening the length of each cable length **50** by the same amount. Shortened cable lengths **50** raise the vertical shafts **52** and the cap member **22** which is integral with the vertical shafts **52**.

The depending cable end **62'** may be anchored at any position whereby the ridge cap **22** may be maintained at its uppermost position, its lowermost position or any desired intermediate position. A single lengthwise cable will successfully operate a ridge ventilator according to this invention in lengths of 100 feet of ridge or more. Motorized winding, unwinding and fastening of the pepending end **62'** of the lengthwise cable can be conveniently arranged.

An outstanding feature of this invention is the ready accessibility of the moving components in contrast to the relative inaccessibility of components of prior art ridge ventilators. A workman desiring access to the working elements can gain access by removing the selected length of screen **44**, and thereafter selectively removing the nuts **57**, ridge caps **56**, and screws **60** which secure the particular section of the ridge cap member **22** which requires maintenance, repair or removal.

In ventilators of this invention, the ridge openings **21** may vary from about four inches width to about two feet width. A highly efficient ridge ventilator as herein described had a ridge opening **21** of six inches width and a length of fifty feet. A single cable (three-eighths-inch diameter steel cable) operated the entire length of the ridge cap. The side walls **13**, end walls **14** and the ridge cap **22** were fabricated from zinc-coated steel sheets which had been protected with bituminous coated asbestos covering. The ridge cap weighed about 78 pounds. The ridge cap could be raised by a pull of about fifty pounds on the cable end.

I claim:

In a ridge ventilator for a building comprising an elongated casing adapted to be mounted upon a roof ridge and to form the suction band of the ventilator, said casing being provided with an outlet at its upper end and with an inlet at its lower end, said inlet communicating with the interior of the building and being defined by a pair of spaced-apart horizontal lips parallel with the said ridge, said casing being wider in its central portion than at its upper end of its lower end, a cap member movably mounted within the casing and being wider than the said inlet and wider than said outlet and being adapted in its lowermost position to close the said inlet by overlying the said horizontal lips, and operating means supported by the said casing for moving the cap member vertically from said lowermost position to various positions wherein an air passageway is provided within the said casing sequentially through the said inlet, around the side edges of said cap member and through the said outlet, the said cap member being an obstacle to straight-line flow of air from the interior of said building through said inlet and then through said outlet, the improvement in said operating means which comprises:

a plurality of brace members extended transversely across the said inlet, a fixed pulley secured to each of said brace members, separate support shafts each vertically reciprocably mounted to each of said brace members, the upper end of each shaft being secured to the said cap member above the said inlet, a reciprocating pulley rigidly secured the bottom of each support shaft,

a cable pulley for an operating cable secured to one end of the said casing,

a separate cable length connected to each of the brace members at one end and extended downwardly there-

from through the said reciprocable pulley and thence upwardly through the said fixed pulley and thence to a cable connector,

an operating cable extending from the interior of the building over the said cable pulley and thence generally horizontally below the said lips and parallel with the said ridge to the connector of the cable length associated with the brace member most remote from the said cable pulley,

all of the said connectors being secured to the said operating cable whereby lengthwise movement of the said operating cable creates tension in each cable length, thereby raising each of the said support shafts

and also raising the said cap member vertically above the said inlet.

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