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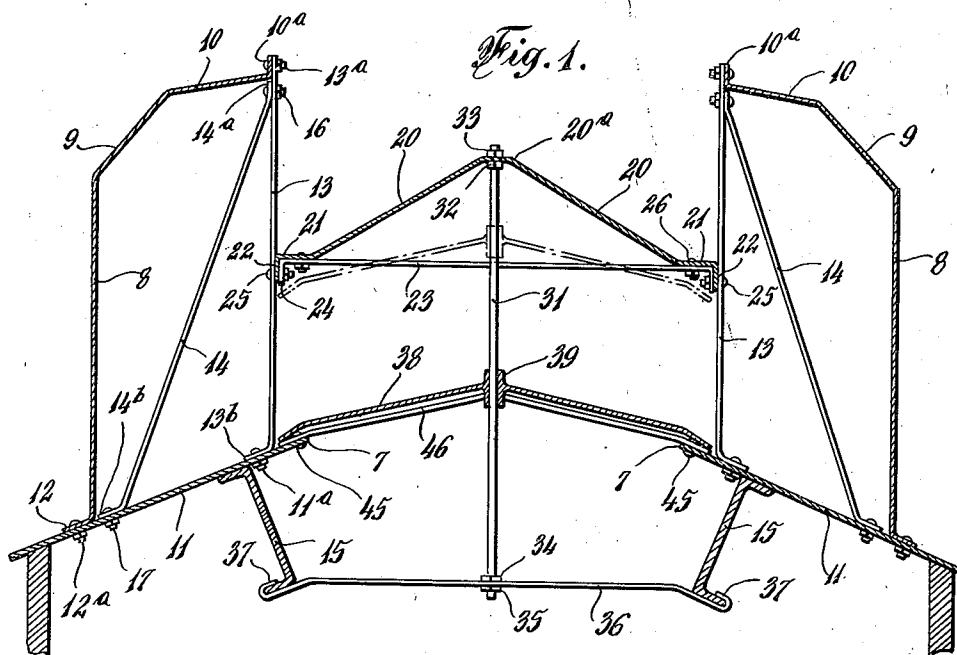
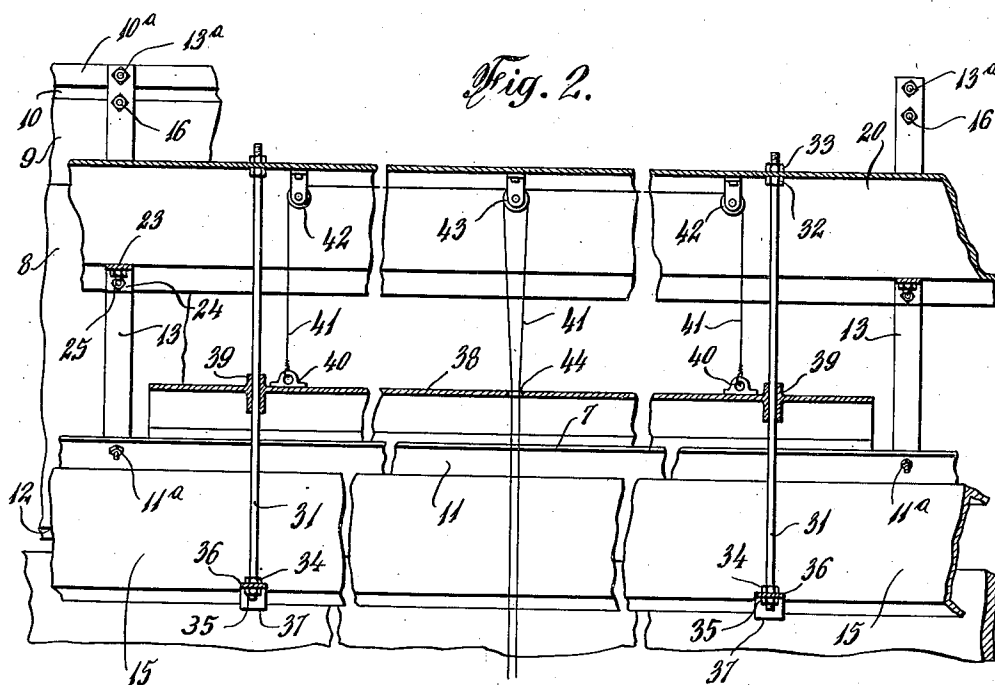
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2,266,261

VENTILATING APPARATUS

Filed May 20, 1939

2 Sheets-Sheet 1



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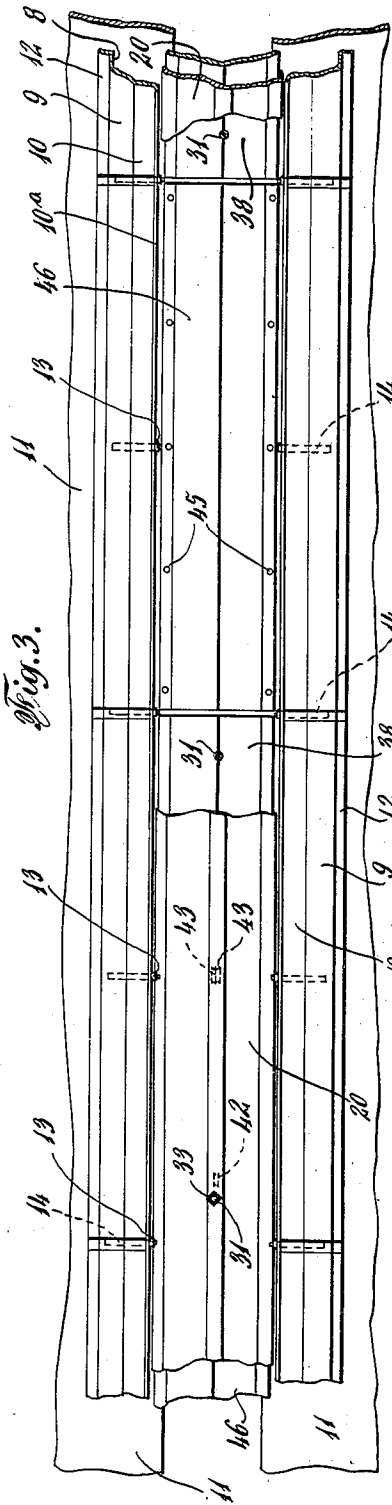
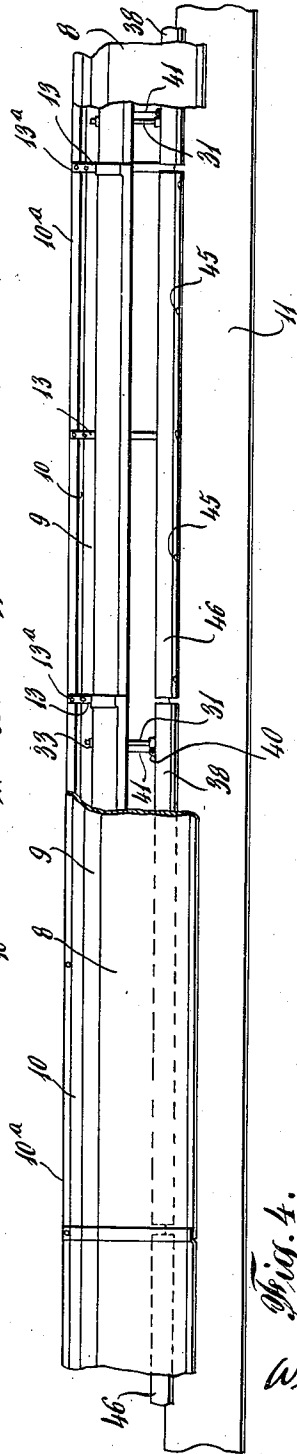
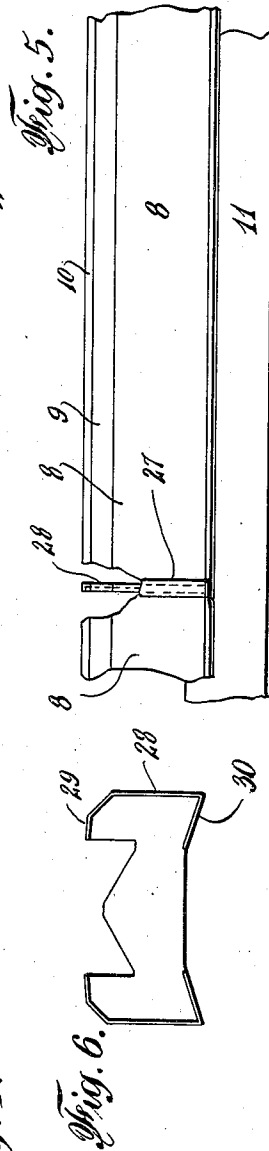


Fig. 6.

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VENTILATING APPARATUS

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2 Claims. (Cl. 98—42)

This invention relates generally to building construction and is more particularly directed to improvements in the means for ventilating buildings of various types, especially those of the so-called all metal construction, in which the walls and roof are formed of sheet metal, usually corrugated.

As is well known, in various types of building construction, especially those which are used for industrial purposes, as shops, warehouses and the like it is customary to provide means for ventilating the interior through the roof. These ventilating means, commonly called ridge ventilators, take various forms and, usually, are of a prefabricated construction adapted for installation only by skilled artisans.

In certain instances, the ventilators are of a special form, designed to be associated with an opening in the roof of the building extending from end to end thereof, as, for example, one which may be provided along the ridge of a pitch roof. These ventilators function with varying degrees of efficiency but where the efficiency is fairly high, their use is found to be disadvantageous, particularly in low-price building construction, as those of sheet metal, because of the relatively high cost of production and installation of the ventilating means. In the case of sheet metal constructions, which are extensively used in the tropics, for example, it is not only essential that the ventilating apparatus possess a high degree of efficiency in the performance of its intended functions, but that it must be of a character which will permit economical production and transportation to the site of installation. Further, and of equal if not greater importance, such ventilating apparatus should be of a standard and flexible design and so constituted that it may be readily installed or erected by unskilled labor.

None of the existing types of ventilating means now available for incorporation in a roof construction of the so-called open type, satisfactorily responds to the requirements of the building erectors and operators for a high degree of efficiency, combined with durability, at a low cost of production and installation, the latter, of course, including the expense of transportation to the site of erection, pre-erection assembly work and the erection of the ventilating means on the roof of the building.

Therefore, it is the primary object of this invention to provide a ventilating means or apparatus whereby those disadvantages which are a concomitant of existing constructions of the

so-called ridge type, as hereinbefore set forth, will be eliminated, so as to extend the field of utility of such apparatus or means and, especially to admit of the attainment of the recognized advantages of ventilating means of such type in sheet-metal and other low cost structures.

More specifically, it is an important object of this invention to provide a ventilating means for buildings and the like, of the type known as continuous ventilators, the components being capable of standardization for expeditious production and the assembly and erection of a ventilator of any required length.

Another object of my invention is to provide a ventilating means in which a high degree of ventilating efficiency will be attained, the co-operating elements of the ventilator being so conformed and associated that eddying in the air currents passing therethrough and the formation of so-called air pockets will be eliminated.

A further important object of my invention is the simplification of the problem of assembly of the components of my structure and their erection in association with the ridge aperture or opening so that this work may be speedily and accurately performed by unskilled labor, without the use of special tools or other equipment.

It is also an object of my invention to provide a ventilating apparatus having the characteristics and advantages, aforesaid, which will embody means for closing the ridge aperture with which the ventilator is associated, or otherwise controlling the effective area of the ventilator, as a so-called damper, which may be readily adjusted to the desired position, in a single continuing operation.

Other objects and advantages flowing from the practicing of my invention will become manifest as the description proceeds and I would have it clearly understood that I reserve unto myself all rights to the full range of equivalents, both in structure and avenues of use, to which I may be entitled under my invention in its broadest aspect.

For the purposes of this disclosure I have elected to show and describe a preferred and practical commercial embodiment of my invention, as it may be utilized in conjunction with a sheet metal building construction. This is merely illustrative however, and is not to be construed, in any sense, as limiting my invention to the specific construction shown or to the particular use set forth, my invention being

susceptible of structural variations and applicable to other types of construction, within the scope of this disclosure and the appended claims.

In the accompanying drawings, wherein a practical commercial form of my invention is shown, as aforesaid,

Figure 1 is a sectional elevation of what may be termed a unit of my improved type of ridge ventilator.

Figure 2 is a side elevation partly in section, 10 of the structure shown in Figure 1.

Figure 3 is a top plan view of my invention, showing a plurality of units, associated to form a continuous ventilator, a part of the hood being broken away to disclose the damper.

Figure 4 is a side elevation of an assembly similar to that shown in Figure 3, with portions of the side walls removed.

Figure 5 is an elevational view of the side walls of the ventilator, showing the manner in which contiguous sections of the walls are overlapped, portions of said walls being broken away to expose the vertical bracing elements, and

Figure 6 is a view in elevation of a partition 25 which, in some installations, may be associated with the construction.

Referring now to the drawings in detail, in which like characters of reference are employed to designate similar parts in the several views, the ventilator may comprise one or more units aligned to extend from end to end of the ridge aperture 7, each unit including the laterally spaced side members and a hood mounted therebetween, as shown in Figure 1, with their connecting and supporting elements, as hereinafter described. The length of each unit is approximately eight feet, which is the standard length of the corrugated sheet metal employed in the formation of the aforesaid side members and the hood. Obviously, the length of the units may be greater or less than eight feet, but by conforming my construction to standard sheet dimensions, I am enabled to maintain production costs at a minimum.

Each of the aforesaid side members of a unit, as will be noted, includes a vertical wall 8 and the integral relatively offset surfaces 9 and 10, the latter lying in a plane approximately parallel to the roof sheeting which it overlies adjacent the ridge aperture, when the side member is located in functioning position and fixed to the roof through the medium of a base flange 12 integral with said member, and the cooperating vertical and diagonal bracing members 13 and 14. The vertical supporting or bracing member 13, as will be observed, is adapted to be bolted to an upstanding terminal flange 10a integral with the surface 10 of the side member, as at 13a, the lower end of said vertical brace being flanged, as at 13b, for bolting to the roof sheeting 11, as shown at 11a, adjacent to the roof supporting purlin 15, while the diagonal bracing element 14 is flanged, as at 14a and 14b to abut upon the vertical bracing member 13 and the roof sheeting respectively, to be anchored thereto by the bolts 16 and 17.

Between the laterally spaced side-forming members of my ventilator, I locate the aforesaid hood which is preferably of the cross-sectional configuration shown in Figure 1, the ridge of the hood being flattened, as at 20a and the inclined surfaces 20 merging into horizontal portions 21 which terminate in depending flanges 22. This hood is supported from the oppositely

located vertical bracing elements 13 of the side-forming members, in cooperation with a tie rod or the line 23, flanged at each end, as at 24, said flanges being apertured to register with holes in the hood flanges 22 and in the bracing elements 13, for the reception of bolts 25, whereby the hood and the tie rod may be rigidly secured to said bracing members, the interconnection of the hood and tie rod being reinforced by bolting the horizontal surfaces 21 of the hood to said rod, as shown at 26.

Assuming that the ventilator comprises a single unit in which the side members and the hood are eight feet in length, a bracing element 13 would be located at or in proximity to each end of the side-forming sheeting and one intermediate thereof, a diagonal brace, of course, being associated with each vertical element. Thus, the bracing elements are approximately four feet apart and this spacing is preserved where two or more are employed and this is also true with respect to the tie rods 23; one being located at each brace station, so that the structure is rigidly supported, it being evident that the base flange 12 of the side-forming sheeting may be bolted to the roof sheeting 11, as indicate at 12a, at a plurality of points intermediate the bracing stations, if required, to enhance the rigidity of the structure.

Where two or more units are utilized to provide a ventilator of a given length, the side members may be made virtually continuous by the simple expedient of overlapping the ends of the contiguous units at certain of the bracing stations, as indicated at 27, in Figures 3, 4 and 5, the apertures in the overlapped flanges 10a and 12 of the adjoining units registering for fixation to the vertical brace 13 and to the roof 11 in the manner previously described. The same procedure is followed in the mounting of the adjacent hoods, one overlapping the other for connection to the tie-rod 23, through the medium of their horizontal surfaces 21 and depending flanges 22.

At its ends, the ventilator may be closed by facing pieces of the requisite dimensions and of the general contour shown in Figure 6. These pieces may be flanged, as at 28, 29 and 30, the flanges being disposed to mate with the vertical wall 8 and the angular portions 9 and 10 of the side members and with the roof surface 11 respectively, to which they may be bolted. The pitch portion of the facing pieces, likewise, may be flanged for fastening to the hood, although, in many instances, this may not be necessary.

If desired, partitions of the same general shape as the facing pieces shown in Figure 6, may be located at intervals longitudinally of the ventilator, preferably at the bracing stations, to function as baffles or deflectors, in which event, the partitions may be fixed to the side-forming members as are the facing pieces, or they may be bolted to the bracing elements, or otherwise secured in functioning position.

The ridge 20a of the hood of each unit is apertured adjacent its respective ends to receive one threaded end of a rod 31 adapted to be rigidly interlocked therewith by the internally and externally applied nuts 32 and 33, the other end of said rod being similarly locked, by the nuts 34 and 35, to the transverse member 36, the ends of the latter being of a hook-like formation, as at 37, to engage the lower flanges of the purlins 15. These rods 31 are preferably located at bracing stations and serve as guides on which draft

regulators or dampers 38 are vertically adjustable, as hereinafter described. The aforesaid dampers, similarly to the side-forming members and the hoods of my ventilator are approximately eight feet in length and are preferably of the cross-sectional configuration shown in Figure 1, each being of a width to span the ridge opening 7 and embodying a suitable sleeve or bearing 39 adjacent each of its ends, conformed to travel upon the rods 31. In juxtaposition to each bearing 39, the damper section is provided with an eye 40, or other suitable means, for securing a cable 41 thereto which passes through the pulleys 42 and 43, the latter of which is of the double type to receive two oppositely movable cables passing therethrough, the cables depending through a suitable opening 44 in the damper for convenient manipulation in the execution of a damper raising or lowering operation, it being evident that the damper may be adjusted to either of the extreme positions shown in dotted and full lines in Figure 1, and to any desired position therebetween. In lieu of extending the cables through the damper, they may terminate adjacent the pulley 43, their ends being fixed to a rod reciprocable within the aforesaid opening 44.

In utilizing the draft regulator or damper, as just described, in conjunction with my ventilator, I prefer to alternate the dampers 38 with sections of sheeting spanning and closing the ridge opening 7 riveted or bolted to the roof sheeting, as shown in Figure 4, for example, one of these stationary sections being visible in end elevation, as indicated at 46, to the rear of the adjustable damper 38, the rivets or bolts for securing it to the roofing being shown at 45. As preferred the ends of each movable damper section 38 may overlap the contiguous edges of the adjoining stationary sections 46, or may be in spaced relation thereto, as shown in Figure 4, depending upon requirements in erection and use.

From the foregoing it will be manifest that I have provided a ventilator of the so-called ridge type, which may be used with or without the draft regulating means described, that is of a most simple design and economical to produce and install. At the same time, it is highly efficient in the performance of its intended function, the air travel through the ventilator being upward in a path which is free of deflecting and friction-producing surfaces. Further, as will be evident, the configuration of the side-forming members and of the hood and dampers, admits of the nesting of these components in shipment, while the bracing

elements may be readily bundled, so that a large installation may be transported from the point of manufacture to that of installation at a fraction of the cost of a smaller installation that does not lend itself to compact packing.

While my invention is primarily designed for use in conjunction with sheet metal constructions, corrugated or flat, it may also be used advantageously in other types of constructions, as will be evident; also, the side-forming members, the hoods and the dampers, if the latter are used, may be of any desired length, instead of the standard sheeting length herein referred to for illustrative purposes, the dampers preferably being of a relatively heavy plate, although they may be of a braced sheet metal or other construction, impart to them the requisite rigidity to facilitate their movement in adjusting operations.

I claim:

1. A ridge ventilator for buildings and the like, having side-forming members, each including a vertical wall and offset inclined portions constituting the top thereof, means, including vertical and diagonal bracing members, for anchoring said side-forming members to the roof of a building in juxtaposition to a ridge opening therein, a hood mounted between said side-forming members in fixed vertically spaced relation to such opening and below the plane of the tops of said side-forming members, said hood having a width greater than that of the ridge opening, guide rods fixed to said hood and dependent therefrom, a closure for the ridge opening slidably mounted on said rods and means for moving said closure along said rods between said hood and the ridge opening to any of a plurality of positions.

2. A ridge ventilator for buildings and the like, having side-forming members embodying vertical walls and relatively angularly offset portions forming the tops thereof, means, including vertical and diagonal bracing members, for anchoring said side-forming members to the roof of a building, in juxtaposition to a ridge opening therein, a hood having a width greater than that of the ridge opening mounted between said side-forming members in fixed vertically spaced relation to such opening and the tops of said side-forming members, a plurality of rods depending from said hood through said ridge opening, means below said opening for restraining said rods against movement and a closure mounted on said rods for movement longitudinally thereof between said hood and the ridge opening.

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