

Dec. 16, 1930.

G. E. BLACK

1,785,540

VENTILATOR

Filed April 13, 1928

2 Sheets-Sheet 1

Fig. 1

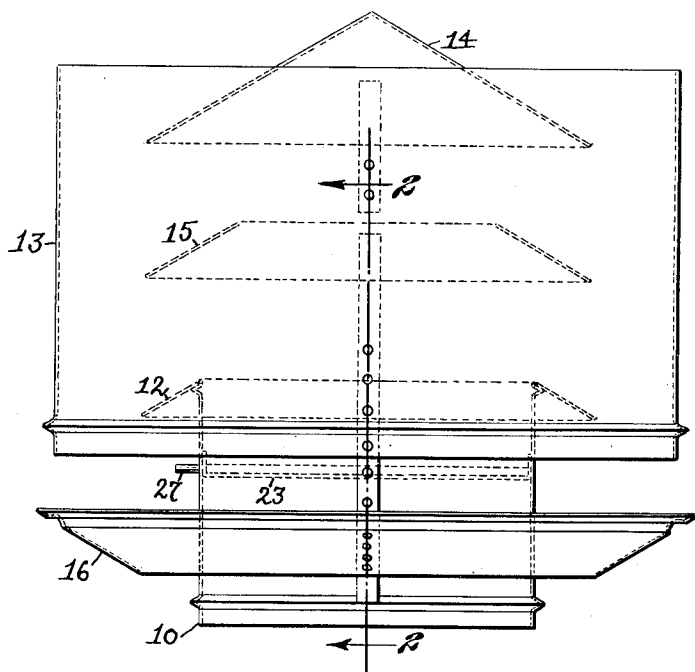
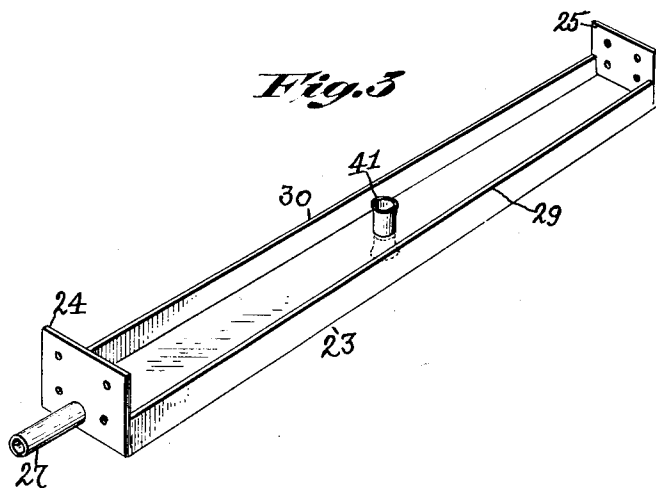


Fig. 3



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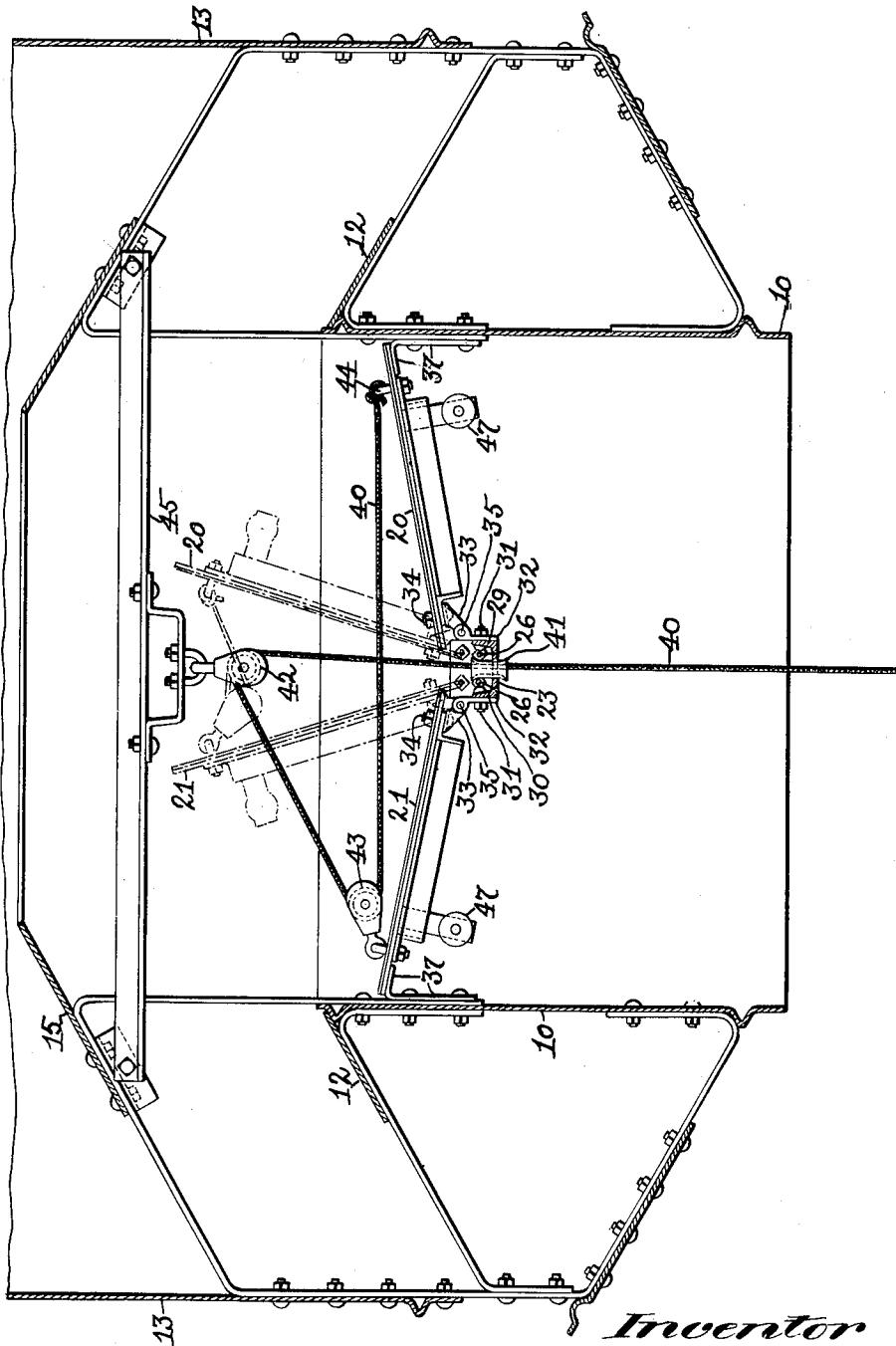
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2 Sheets-Sheet 2

Fig. 2



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UNITED STATES PATENT OFFICE

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VENTILATOR

Application filed April 13, 1928. Serial No. 269,691.

This invention relates to ventilators for buildings and like structures having an air eduction pipe which communicates with the interior of the building.

5 The present invention has for its object to provide ventilators of the character described with a valve and with a gutter which co-operate with the eduction pipe, as will be described, so as to prevent water produced by
10 the melting of snow accumulated on the valve when closed; from entering the building through the eduction pipe when the valve is opened and the snow thereon melts.

The invention is especially adapted to be
15 embodied in ventilators for use on mills, such as silk mills and like places where goods are being produced which are capable of being damaged by water.

In the present instance I have illustrated
20 one embodiment of the invention, in which the valve is shown as a butterfly valve located in the eduction pipe, and having its wings pivoted to a gutter secured within the eduction pipe below the valve and provided with
25 an outlet pipe leading to the outside of the eduction pipe.

Provision is made for moving the butterfly valve into its open position by means of a single operating mechanism from within
30 the building.

These and other features of this invention will be pointed out in the claims at the end of this specification.

Fig. 1 is an elevation of one construction
35 of ventilator embodying the invention;

Fig. 2, an enlarged view in vertical section on the line 2—2 of a portion of the ventilator shown in Fig. 1, and

Fig. 3, a perspective of the gutter shown in
40 Figs. 1 and 2.

The present invention is herein shown as embodied in a ventilator of the construction shown and described in United States Patent No. 1,589,581 dated June 22, 1926, and
45 comprising an eduction pipe 10 provided at its upper end with an outwardly extended lip 12, a storm band 13 surrounding the upper end of the eduction pipe, a cap member 14 located in the upper end of the storm band and
50 separated from the eduction pipe by a sub-

stantial space, a baffle plate 15 between the cap member and the eduction pipe, and a deflecting member 16 surrounding the eduction pipe below the storm band.

The ventilator is mounted upon the roof
55 of the building with the eduction pipe 10 communicating with the interior of the building, and provision is made for closing the eduction pipe in stormy weather and particularly in the winter time to prevent snow from
60 passing into the building through the eduction pipe.

To this end, the ventilator is provided with a valve, herein shown as a butterfly valve, comprising two wings 20, 21, which are arranged preferably within the eduction pipe
65 as herein shown.

In the winter time and especially in a snow-storm, snow accumulates on the upper surface of the valve when the latter is closed,
70 and when the valve is opened after the snow-storm, the snow melts and drips down into the building through the eduction pipe and is liable to damage the contents of the building.
75 This is especially true when the building contains materials which are capable of being damaged by water, as, for instance, when the building is a mill producing silk and like goods.

Provision is made for preventing water
80 produced by the melting of the snow on the upper surface of the valve from passing into the building through the eduction pipe.

To this end, the valve has co-operating
85 with it a gutter for receiving the snow-water and conveying it to the outside of the eduction pipe.

In the present instance, the gutter is shown as a trough or box 23 (see Fig. 3) of a length
90 substantially equal to the diameter of the eduction pipe 10 and provided with end plates 24, 25 which are secured to the eduction pipe by suitable bolts 26.

The gutter 23 is provided with a water
95 outlet pipe 27 supported by one of the end plates, as, for instance, the end plate 24, and said water outlet pipe is extended through the eduction pipe 10 to the outside thereof, (see Fig. 1) so as to discharge the snow-water
100

outside of the eduction pipe, as said water accumulates in the gutter.

Provision is made for pivoting the wings 20, 21 of the butterfly valve to the gutter. To this end, the sides 29, 30 of the gutter have fastened to them as by bolts 31, brackets or ears 32 which form one member of a hinge, the other member of which is formed by brackets or lugs 33 attached to the wings 20, 21 by bolts 34 or otherwise, said members being connected by pivot pins 35.

The wings 20, 21 are made substantially semi-circular in form when the eduction pipe 10 is circular in form, and in their closed position, said wings are supported at their outer edges by brackets 37 secured to the eduction pipe 10. The inner ends of the wings 20, 21 extend over the sides of the gutter, and the brackets 37 are arranged so that the wings are inclined downward toward the gutter as shown in Fig. 2, so that when the valve is closed any water on the upper surface of the valve will flow down into the gutter and as it accumulates therein will be conducted through the outlet pipe 27 to the outside of the eduction pipe. The gutter is especially serviceable in taking care of snow-water when the valve is opened after a snow-storm.

By reference to Fig. 2, it will be observed that when the valve is closed as represented by the full lines, snow may accumulate on the wings of said valve, and when the valve is opened after the snow-storm is over, the wings are raised into substantially the position represented by dotted lines, and carry with them the snow thereon, which, as it melts, descends into the gutter and is discharged therefrom through the outlet pipe 27, thereby preventing this snow-water from entering the building through the eduction pipe and thus avoiding the damage which might result if said snow-water was permitted to enter the building.

Provision is made for moving both wings of the valve from their closed into their open position by a single mechanism from within the building.

To this end, a cord, rope, cable or like flexible member 40 is passed through a hollow guide or tubular member 41 extended through and secured to the bottom of the gutter, and is then passed about a pulley 42 supported above and substantially in alignment with said guiding member 41, and then is passed about a pulley 43 connected with the wing 21, and is then carried across the eduction pipe and fastened to an eyebolt 44 secured to the wing 20.

The pulley 42 is suitably supported from a cross bar or member 45 fastened at its ends to the baffle plate 15, and the pulley 43 is suitably secured to the wing 21.

By reference to Fig. 2, it will be observed that when an operator within the building pulls down upon the cord or rope 40, both

wings 20, 21 are turned upwardly toward each other and into substantially the position represented by dotted lines in Fig. 2. The wings 20, 21 are returned to their closed position by counterweights 47 attached to the wings, when the cord or rope 40 is released by the operator.

The tubular guiding member 41 is extended up into the gutter a sufficient distance to avoid water in the gutter overflowing into the tubular guiding member.

From the above description, it will be seen that any water upon the upper surface of the valve is taken care of by the gutter and prevented from entering into the building through the eduction pipe.

It may be preferred to arrange the valve and gutter within the eduction pipe, but it is not desired to limit the invention in this respect.

One embodiment of the invention is herein shown, but it is not desired to limit the invention to the particular construction shown.

What is claimed is:

1. The combination with a ventilator provided with an eduction pipe, of a valve co-operating with said pipe to close and open the same, and a gutter below said valve open at its top and provided with side and end walls, and having a water outlet pipe extended from one of said end walls through said eduction pipe to the outside thereof.
2. The combination with a ventilator provided with an eduction pipe, of a gutter located in said eduction pipe and open at its top and provided with side and end walls, a water-outlet pipe leading from one of said end walls to the outside of said eduction pipe, a hollow guiding member extended through the bottom of said gutter, and above said bottom for a substantial distance, a butterfly valve having wings pivotally mounted on the sides of said gutter, a flexible member extended through said hollow guiding member and connected with said wings to elevate the same, and counterweights attached to said wings to close them.
3. The combination with a ventilator provided with an eduction pipe, of a gutter open at its top and provided with side and end walls, means for securing said end walls to said eduction pipe, a water outlet pipe for said gutter extended from an end wall of the gutter and leading to the outside of said eduction pipe, and a butterfly valve provided with wings pivotally mounted on the side walls of said gutter and having their inner ends extended over the gutter from opposite sides thereof, and means for moving said wings into a substantially vertical position above said gutter.
4. The combination with a ventilator provided with an eduction pipe, of a trough located in said eduction pipe and provided with a bottom, and with side and end walls

extended upwardly from said bottom, means
for detachably securing said end walls to said
eduction pipe, a butterfly valve located in
said eduction pipe and having wings pivotal-
ly secured to the side walls of said trough
to have their inner sides project over said
trough, means on the inside of said eduction
pipe co-operating with the outer edges of
said wings for supporting the latter in a
position in which they incline downward to-
ward said trough when said wings are in
their closed position, an outlet pipe for said
trough supported by an end wall thereof
and extended through said eduction pipe to
the outside thereof, and means for elevating
said wings into their open position.

In testimony whereof, I have signed my
name to this specification.

GEORGE E. BLACK.