

first two requirements; for the last one, hand regulation is depended upon. For this purpose either a butterfly damper is provided in the throat of the ventilator, or, in some of the rotary types, louvres are sometimes arranged at the discharge opening of the ventilator. The damper or louvres may be operated by chains from the floor of the building, or the butterfly damper electrically controlled by push button. The louvres with their operating device have the disadvantage of restricting the free area of discharge, even when open wide. In some designs, this results in a serious reduction of capacity. Ice can interfere with their operation. The dampers may be made to close automatically in case of fire, by use of a weight and fusible link arrangement. The dampers should be so located that ice cannot freeze them tight so that adjustment is impossible.

Regulation may also be accomplished, just as effectively, by restricting the flow of air into the building (closing the windows or doors), although this is quite inconvenient in many cases.

It is generally considered best practice to have the area to be ventilated between the intake and the exhaust. Also to have the intake 15 per cent greater in area than the exhaust.

The efficient ventilator uses every bit of wind energy striking it, to the fullest possible extent.

The ideal ventilator is then the one using all the forces at hand, to the greatest possible advantage. Such a ventilator must first be correctly designed to use all these forces—proportioned to use them efficiently—be strongly and practically built to last—needing no care or attention—as they are usually placed in inaccessible places.

#### APPLICATION OF VENTILATORS

The use of ventilators on factory and mill buildings is too well known to require comment. For pickling rooms, etc., where noxious fumes are produced, they are practically indispensable.

Ventilators for houses are becoming quite common, especially for the ventilation of bathrooms, which has been much neglected in the past. A frequent use for ventilators is on the top of chimneys, to prevent down drafts and to increase the updraft by means of wind action.

For use on houses, several requirements must be kept in mind. Good appearance and noiseless operation are very important. The motion of the ventilator, if of the revolving type, must not shake the building or cause knocks or thumps; and the construction must be such that in the winter the movable part does not freeze to the fixed portion of the ventilator and thus stop the rotation.

On account of the increasing danger of carbon monoxide poisoning, it is becoming regular practice to equip garages with ventilators to carry off the waste gases coming from motor exhausts.

Another application of ventilators is found in connection with power ventilating systems on the outlet or discharge opening.

A very important application for ventilators is on schools, where recirculation of air is used.

Farm buildings use ventilators to a large extent and the duty required, necessitates careful selection.

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