

these fixtures to ornamentation, so that installations are made in decorating buildings without interfering with the general effect.—*Eng.*

THE SMITH VENTILATOR FAN.

We present herewith a number of illustrations, or diagrams representing the various uses etc., to which a ventilator fan can be adapted.

The particular fan we describe is known as the Smith Ventilator Fan, which is coming largely into use, and is gaining rapidly in reputation. In its construction there are some novel features which in connection with the claims made in respect to its performance, entitle it to especial attention from users of this class of machinery.

The weak point of all ventilators is encountered when it is attempted to move air *against any pressure*, however, slight. In such cases a portion of the air will slip back through the centre of the wheel, the area and amount of slip increasing with the increase of pressure. This result is expected when we consider that the thrust or propelling power of a screw fan (for such all these devices are) is greatest when (1st) the angle of the blade is the least, (2d) the velocity and area are the greatest. That is to say, the efficiency of such a wheel is greatest at its circumference, and reduces to nothing at the center. If there were no back pressure, nearly the whole surface of the blade would act, but as pressure must always exist in some degree, there is always a portion of the wheel near the centre which cannot create a velocity equal to the resisting pressure, and as a consequence the air flows back through that portion of the wheel. As a consequence the wheel falls short of its capacity. The obvious remedy is to stop off the centre of the wheel by a plate, which is precisely the construction of the Smith wheel. The area stopped off is so proportioned that the wheel will blow without back-lash against a four ounce pressure. It is claimed that this or anything near it is not possible with any other wheel. Constructively, the centre plate adds to the strength of the wheel.

This Ventilator Fan can be used for delivering fresh air in, or removing foul air, gas, steam, smoke, etc., from factories, basements, holds of vessels, hospitals, theaters, hotels, public buildings, prison wards, mines, paper mills, glue works, chemical works, engine rooms, etc. For creating a draft or current of air in malt kilns, wool and tobacco dryers, or for use in refrigerators, cold storage, cooling workmen at smith fires, furnace room, reducing the temperature in the holds of vessels, removing dust from flouring mills, elevators, and holds of vessels, etc., and the manufacturers claim for it that it is of the best design and finish, and strongest throughout. It can be placed and operated in any position—horizontal, perpendicular or otherwise. It can be piped to conduct the air to any desired place, by simply slipping the air conducting pipe over the outside of the shell or case of the fan. It will draw air from or push air to any desired place through same pipes by simply reversing the belt, delivery being as positive either way. When piped to "dry kilns" or any place where considerable pressure, friction or resistance to the passage of the air occurs, it will push forward the air against a back pressure of four ounces to the square inch, without any loss by back-lash through center of wheel. The wheel is enclosed by a case which acts in combination with the wheel; it also prevents accidents which often occur with wheels not protected by casing. It is comparatively noiseless in operation.

Figure 1 gives a general perspective view of a 24-inch fan, which, by the way, has a capacity of 10,000 cubic feet of air per minute.

Figure 2 shows the use of the fan in a malt drying house.

Figures 3 and 4 give sectional views of the application of the fan to drying-kilns, etc.

Figures 5 and 6 need no explanation, the adaptation of the fan is evident.

Figure 7 shows the fan adapted to mine ventilation, and fans up to a capacity of 1,000,000 cubic feet of air per minute can be made.

Figure 8 is another use to which the ventilator may be applied with success either as forced draught, or to supply the necessary amount of air to boilers and furnaces.—*Am. Eng.*

TUNING FORKS and grindstones are now made of glass. Rails and sleepers are manufactured from the same transparent material. The new process is a simple one, and produces hard glass castings at a low cost.

A SUNKEN CONTINENT IN THE PACIFIC.

The fact is quite generally conceded among scientists that the probabilities are strongly in favour of the supposition that there formerly existed a large island, of continental dimensions, between the West Indies and the western coast of Africa. This continent is supposed to be the "Atlantis" of the ancients, whose recent discoveries point to the further probability that there also once existed a similar continental area of land in the Pacific ocean, between the west coast of South America and the present Australian continent; as it is sometimes called.

At a recent meeting of the Academy of Sciences of San Francisco, Capt. Churchill read a very interesting paper in relation to this matter. His paper referred especially to the gigantic sculptured figures still to be seen upon Easter island, and evidently the work of a different race than that which now inhabits the island, and one much more numerous, since the works referred to are on too large a scale to have been constructed except by many hands. He argued that a vast continent once existed where there is now nothing but a waste of ocean, dotted with countless isles and inlets of varying size and character, the majority showing in their formation the traces of that former volcanic action, which either upheaved them from the depths of the sea or shattered and sunk the continent of which they are now the only vestige. Easter island, it is believed, was once the home of a population numbering many thousands, of whom scarcely any now remain. Besides dwelling upon the sculptured figures to be found there, Capt. Churchill laid much stress upon the hieroglyphic tablets of wood discovered upon Easter island, and which are the only instance of a written language in Oceania. He thought sufficient attention had not been given them.

From other sources we learn that a German Government vessel recently visited that island and made a large collection of prehistoric remains, and made copious notes of other matters of scientific interest. The German Government, it is understood, are making preparations to send another expedition to Easter island with a corps of scientists and engineers to sketch the island, surveying the ground, and to make plans and sections of the prehistoric buildings and ruins.

Our own Government has also taken steps to secure some of these valuable remains representing the prehistoric and known races of this hemisphere. Instructions have already been sent to Admiral Upshur, in command of the South Pacific squadron, to send one of his vessels on a cruise in the direction of Easter island and to make such explorations, collections and reports as he may think important in the interests of the Government. The Government of France is also turning its attention to this island with a view to the establishment of a protectorate.

It is reported in the accounts given by the German vessel that the island, which is small, is strewn with large stone images and sculptured tablets. The inhabitants of the island know nothing about the remains, and even tradition gives no account of a people living there when their ancestors arrived.

HOW MACHINERY IS RUINED.

We have again beheld the results of "smart Aleck" engineers, those \$10 per week men, who are expected to attend to their employer's horses, sweep up the shop, and what spare time they have attend to their boilers and engines. During the past week we were in one of the southern cities. The elegant hotel where we picked our teeth was lighted by electricity. One day the "thing" (I cannot bring myself down so low as to disgrace my loved profession by calling him an engineer) had keyed up his engine without letting the electrician know of it. About an hour after it started, somehow it got tired and stopped. Imagine the effect—house in mourning. Had melted linings of brasses; electrician mad; saw us and asked assistance; given; brasses changed in a few moments; engine started; enjoyed an evening with electrician; were chums eighteen years ago on a western railroad; expressed our mind plainly regarding "thing"; no good; employer believes that if a man can throw coal he is as good as can be. We have seen engineers around hotels who were porters and wood sawyers, and the only wonder is that we don't hear of more "Galveston" accidents. For "Contented's" benefit, allow us to inform him that we are not tramping in search of employment. We choose that cognomen because our work calls us all over the country, and because we are so situated as to be directly opposite the tramp. From that hypothesis we argue that he sails under the "contented" flag because he is "uncontented."—*Boston Journal of Commerce.* TRAMP.