

Improved Stove Ventilator.

The ventilator illustrated herewith is of a peculiar character and is specially intended for schools, theaters, public buildings, etc. The inventor claims that it is very economical of fuel, or that it effects a saving by warming the air in a much shorter time than it could be done by a stove without this arrangement. This effect is obtained by passing the heated gases or products of combustion through a pipe directly into the room instead of up the chimney, said gases being purified so that they do not vitiate the air or unfit it for respiration. In Fig. 1 the ventilator is shown setting upon legs independent of the stove itself; it may be thus constructed, or in cases where space is an object, as in railway cars, set directly over the stove itself. The case, A, is made of sheet-iron and has a conical bottom, B, set in it; this connects by the flues, C, with the other end, which is open to the chimney. At D a cold-air pipe provided with a valve, *a*, enters the case; this conducts a current of fresh air from the outside of the room into the case, A. The central flue, E, extends upward through the case, A, and has an arm, F, at the top, which is furnished with a sponge, G. The urn, has also a perforated center at H, open to the air. The top, I, of the urn is filled with water and contains a faucet which allows water to drip down on a perforated bottom, in such a manner that it is equally distributed over the surface of the sponge placed therein. It will be seen, says the inventor, in his description, that as the smoke and hot air rises through the flues, a portion of it goes upward to the chimney to maintain the draught, while another portion goes through the central flue, permeates the damp sponge, and issues into the apartment through the network opening. In this way a genial and pleasant heat is given off, and the room rendered much more safe, in a sanitary point of view, than with a dry atmosphere. The ends of the heater are made to be taken off, so that the flues and interior may be cleaned out. The whole apparatus need not exceed three feet in height. This invention was patented Feb. 21, 1863, through the Scientific American Patent Agency, by E. C. Gillette, of San Francisco, Cal. For further information address the inventor at that place, or Henry Lyon, 119 Nassau street, New York.

A Sugar Refiner's Opinion of Sorghum.

Mr. Belcher, of the well-known firm of Belcher & Bros., St. Louis, Mo., recently gave the following interesting facts in relation to sorghum to the editor of the *Wisconsin State Journal* :—

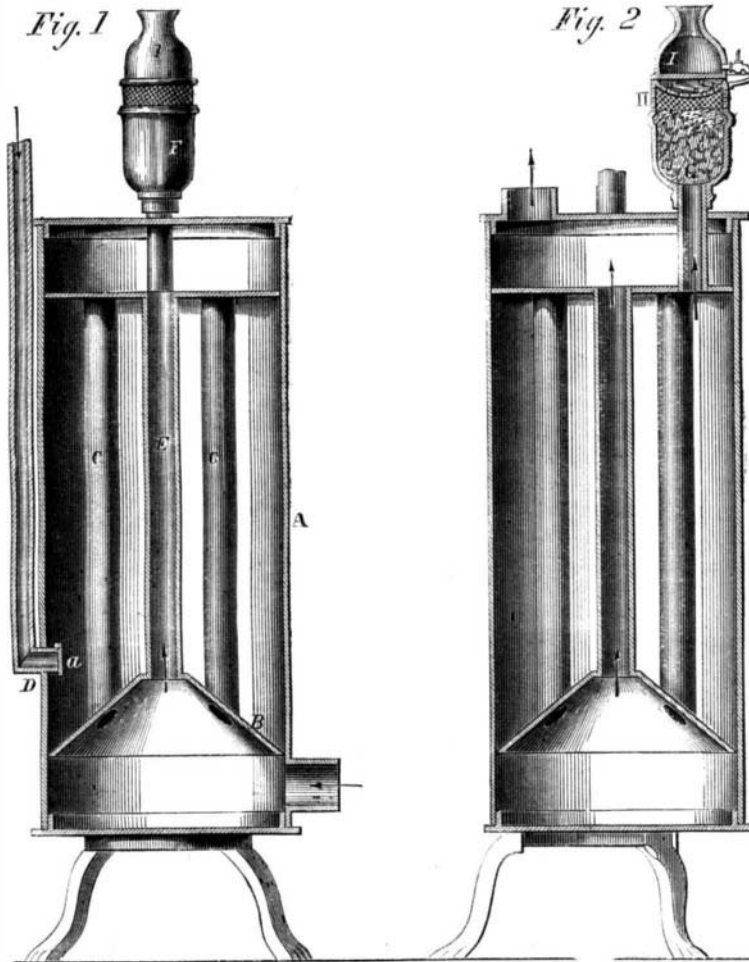
"He says that in the fall and winter of 1862, they refined at their Chicago refinery many thousands of gallons of sorghum sirup, and made of it an elegant article of *golden sirup*, that easily sold in the market at good prices under various fancy names, not being understood to be sorghum sirup at all. They sold it as golden sirup rather than sorghum because it was really a good article, and because golden sirup had already an established reputation, and sorghum had not.

"Mr. Belcher said there is no trouble in making a first rate article of golden sirup of any good light colored sorghum, and without much diminution or expense. That from ten to fifteen cents per gallon would cover the cost and shrinkage and make an article that would sell in any market of the world for a good price, and no one could tell what it was made of. He said that he had no doubt but what good sorghum sirup would be worth 75 cents per gallon at wholesale next fall in any quantity that may be offered, and that probably no country in the world would, at least for a long time, be able to produce a good sirup cheaper than the rich prairies of the West. He thought the farmers ought to and would grow it extensively as a commercial crop, just as

soon as they come to realize its great value and profitableness as a farm crop, not merely for sirup, but for many other important purposes and uses to which it would be put.

"It occurred to us that the foregoing opinions of one

The principle involved is exceedingly simple and is akin to the toggle, or, as commonly called, the "elbow joint." The disconnecting arrangement, or that part which permits the fork to open so as to release the hay, is positive in its motion, and requires so slight an impulse to open both the forks, that a child is quite strong enough to perform the operation. The mechanical construction of the parts alluded to will be understood from the following description :—The shank of the fork, A, is all in one piece and is heart-shaped; to this shank the jaws, B, of the fork, C, are jointed so as to work easily. On the shank of this latter fork there is a link, D, which connects to the slotted handle, E, working on the center, F. This handle is not part of the shank of the fork, A, but is an entirely separate detail. There is also a tripping arm, G, attached to one side of the shank, working on the same center as the handle, E. This link, and the handle just mentioned, form a toggle joint, and their centers are all in line when the fork is loaded or closed, as shown in the engraving. When the tripping arm is pulled down slightly by the cord attached to it, the centers which join the link and handle are thrown out of line with each other and lets them open instantly to their full width, permitting the load to fall out, which it must do inevitably, because there is nothing to retain it. The movement of the tripping arm is very slight and is shown by the dotted lines, while the opening of the two forks is very large. The handle is merely for the purpose of inserting the forks into the load again, when the first is discharged. Should any part break, a common blacksmith can readily repair it; the hay is dropped from the fork upon the mow in the same way as by the hand fork, and always instantaneously, as explained previously;

GILLETTE'S VENTILATOR FOR STOVES.

so well known and so well posted upon the subject, might perhaps strengthen the faith of those who wish to see something even more than a certainty before they can believe. It did not in the least change our views, already believing as we do that sorghum is just as safe and vastly more profitable as a farm crop than corn."

THE "UNION" HAY-FORK.

We herewith illustrate a new hay-fork which, in its several details, is one of the most convenient and

efficient ones we have ever seen. There are no springs about this fork, and it is certain to operate at all times, when it is properly used and taken care of.



efficient ones we have ever seen. There are no springs about this fork, and it is certain to operate at all times, when it is properly used and taken care of.

Coal Dust for Fuel.

In the coal mines of Charleroi, in Belgium, 800,000 tons of coal dust have accumulated, impairing the working of the mines, and M. Dehaynin, Jr., and another company are working on this coal dust. After having it pulverized and freed of all strange matter, by machinery, this dust receives the forms and dimensions the best adapted for heating locomotives, by agglomerating eight parts of coal tar to ninety-two parts of coal dust. This mixture heated to 300 to 350 degrees, with superheated steam, becomes a paste, which is mechanically and powerfully pressed into cylindrical or rectangular forms, and, after having been cooled, solid, compact cylinders, of about five inches diameter, and weighing eighteen pounds, or prismatic blocks of about five and a half by seven and twelve high, and weighing twenty pounds, are obtained. These blocks which are very nearly the same density and weight of the solid coal, and they burn without giving obstacle to the circulation of air through the grate. This new combustible is warranted not to give more than six per cent of ashes, and is now in great demand by railroad companies, on account of its greater heating power, and its being actually cheaper than the black coal. M. Dehaynin, Jr., and the other company manufacture now, annually, 255,000 tons of this agglomerate.