

PATENT VENTILATING AND HEATING STOVE.

The improved form of stove to which the accompanying engravings refer is claimed by its inventor to both heat and ventilate the apartment in which it is placed, to prevent gases from rising in the room, to insure an even and uniform temperature, and also to be cleanly and easy in management. The construction is such as to cause a down draft of air through the fuel, which, the cover being removed, is placed in the basket grate shown in the sectional view. The rear portion of this receptacle, it will be noticed, consists in a single plate, opposite to the smoke escape pipe. Beneath the stove is hollow, so that the ashes fall down into a drawer or box placed in the ash pit.

In kindling a fire, small coal is first put in the grate, and then the kindling wood, and paper above. On applying the match, the cover is replaced, and the draft is regulated by the apertures therein. In a few moments, it is stated, the downward current of air causes a bright clear fire, and carries away with it all gas due to combustion. The latter has no means of escape except through the apertures above, where it is driven back by the draft and through the small pipe, where it makes its exit. After the fire is well started, the cover can be removed and the coals exposed, giving all the cheerful appearance of an open grate.

Air being drawn in only from above, the cold floor drafts, drawn from under doors and other openings by ordinary forms of stoves, are prevented. Moderation of the entering current is effected both by the orifices in the cover and those in front of the ash pan, the latter allowing a counter flow of air to enter the chimney without passing through the fuel.

No shaker is needed, so that the grate is easily cleaned, and its contents pushed down into the ash pan by an ordinary poker, thus avoiding the dirt and deposit of dust caused by violently agitating the ashes. When the fire is out, the stove may be emptied without touching its interior with the hands.

For light housekeeping, it is believed that the device is well adapted, and that broiling or frying can be accomplished with great facility. In sleeping apartments, this stove will doubtless be found an excellent arrangement, as its action is to draw off the foul de-oxygenized air. Its appearance, as represented in our engravings, is both neat and handsome, and much more ornamental than the ordinary cylindrical form; and in principle it is quite a novelty.

Patented through the Scientific American Patent Agency, June 3, 1873. For further particulars address the inventor, Mr. T. H. Salmon, 180 West Baltic street, Brooklyn, N. Y.

AUTOMATIC CAR COUPLER.

Our engraving illustrates a device for coupling cars which, it is claimed, will instantly attach cars of different heights, even if the difference in level of the drawheads be as great as sixteen inches. The drawhead employed is of cast iron and of the same formation as the ordinary hand coupler, and, it is stated, can be put on old trucks without any difficulty or additional expense.

The pin, A, is of steel, flat sided, and is of greater strength than the ordinary round bolt. As it has to be raised ten inches before the link can be withdrawn, possibility of accidental uncoupling is precluded. B is a revolving tripper attached to the lower end of the pin which, when the pin is set as shown in section in Fig. 2, hangs across the opening of the drawhead. On the entrance of the link the lower extremity of the tripper is pushed to the rear, so that, in revolving on its pivot, its upper end meets the iron of the head. The effect of this is to push the bottom of the pin back, dislodging it from its rest, when, by its gravity, it falls through the link.

In uncoupling, the pin is drawn up as high as it will come, when the notch cut in its lower end catches on top of the drawhead. The tripper then hangs across the latter, and the top of the pin, as represented in the engravings, inclines slightly to the rear. In this position, it is claimed that the cars can be backed for any distance without throwing the pin. The link can then be withdrawn, the tripper breaking away to the front, leaving the coupling in position for action whenever a link enters the drawhead.

A flange, C, is made on the pin, which, when the latter is down, rests upon the link, holding it in position to enter the opposite drawhead. The pin is perforated with quadrated holes for the insertion of the small bolt, D, so that the link may be adjusted, as shown on the left of the large engraving, at proper angle to suit a higher bumper. This arrangement of the link does not interfere with its up and down play suiting it to the motion of the cars.

It is claimed that the disconnection can be effected equally as well from the ground, platform, or from the top of box cars, and that the link, having increased play, is prevented from becoming bent or broken in use by the drawhead riding it. The device will couple or run on any curve. The cars can be coupled to old hand couplers with greater ease, less danger, and more rapidity, and a whole train may be connected by a single stroke of the engine. Straight or crooked links of sufficient lengths may be employed.

This coupling is in use on the New Orleans, Jackson, and

stances, the first case of mercurial poisoning has yet to make its appearance. I have had the same men in my employ for years, and they all enjoy good health.—*Dr. Alsberg in American Chemist.*

The Condition of the Earth's Interior.

It seems now to be demonstrated by astronomical and physical arguments—arguments that are independent, it should be noted, of direct geological observation—that the interior of our globe is essentially solid.

The condition of the earth's interior here recognized is, as many readers will have observed, that suggested long ago by Professor W. Hopkins—the author who first offered (1839) a mathematical argument in favor of the earth's either having a very thick crust or being solid throughout. In a paper on "Theories of Elevation and Earthquakes," in 1847, Professor Hopkins argues that the central mass of the earth became solid in consequence of the pressure whenever the temperature within reached a limit that permitted of it; that crusting at surface from cooling commenced afterward; and that between the regions of interior and exterior solidification, there long remained a viscous layer, which, in the progress of time, was gradually contracted by the union of the solid nucleus to the thickening shell.

The possibility of solidification at center from pressure, in the face of a temperature too high for consolidation from cooling, has not been experimentally demonstrated. Yet a number of facts favor the principle. It has been urged that since the solidification of rocks is attended by contraction, that is, by increase of density, and since pressure tends to produce this greater density, therefore pressure may bring about the condition of the solid. The fact that ice, which has less density than water, changes to water under pressure, has been appealed to in support of the conclusion. The pressure to which the material within the earth is subjected is so great that experiment can never imitate it, or directly test its effects. Beneath only one hundred and fifty miles of liquid rock, it would be not less than

one million of pounds to the square inch. Less than this may have been sufficient to produce crystallization, and so give rigidity to the viscous rock material, or at least so, after the cooling the earth has undergone. The rigidity of slowly solidified rock is beyond that of glass or steel—or the degree which, according to Sir Wm. Thomson, must exist in order that the earth should be as completely free as it is from tidal movements in its mass.

According to the above, the solid part of the globe consists as regards origin, of three parts.

The central mass, consolidated by pressure; the solidification centrifugal, or from the center outward.

The crust proper, consolidated by cooling; the solidification centripetal, or from the surface inward.

The outer crust, or superficial coatings—the supercrust—made chiefly by the working over and elaborating of the material of the surface through external agencies, aided by the ever-acting lateral force from contraction, and including all terranes from the Archæan upward.—*Professor James D. Dana, American Journal of Science and Arts.*

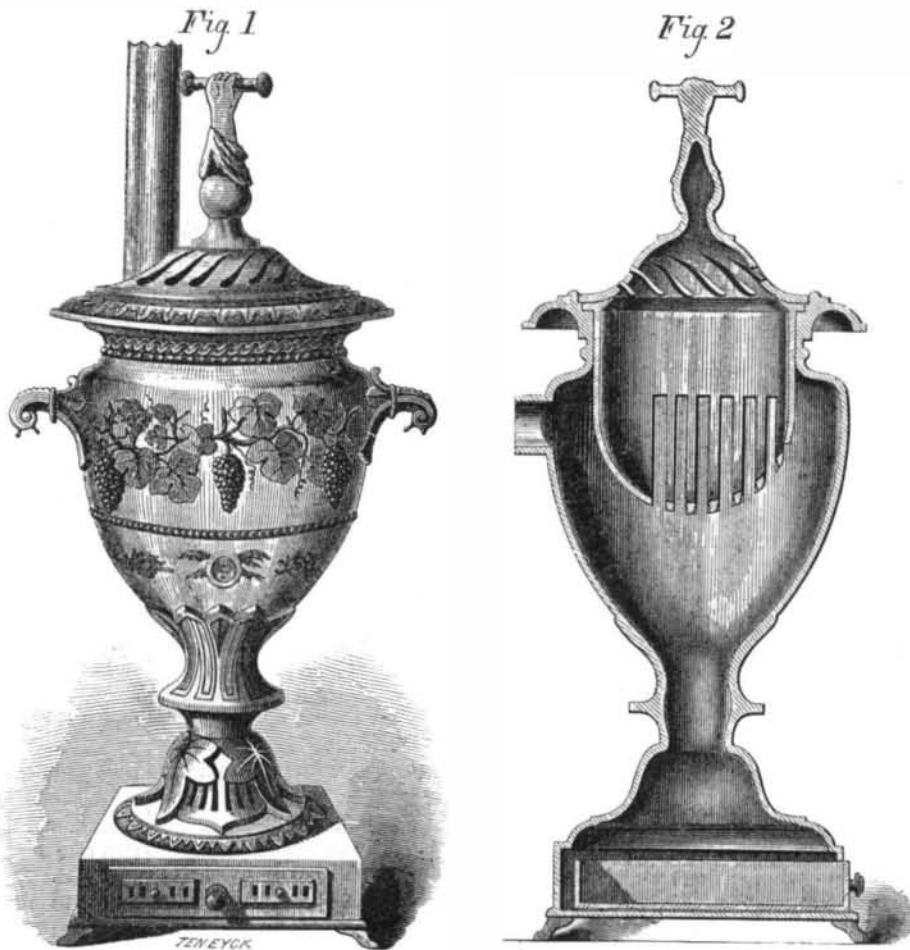
Wellesley College.

This is a new institution at Needham, Mass., endowed by Henry F. Durant, and intended for the collegiate training of young women. All the instructors are to be women. The building is in the form of a double cross, five stories high, 600 feet long, 150 feet wide, fitted with all the best modern appliances for lighting, heating, and ventilation. Very many of the studies will be elective, but the classics, chemistry, and probably moral philosophy, will be obligatory. The pupils are to be taught cooking and all the higher kinds of housework, and are themselves to do all such work, in the manner of the Mount Holyoke seminary, where experience shows that one hour a day for each girl is sufficient for household duties. The fees have not yet been fixed, but will probably not exceed \$250 a year. The college is to open next year.

THE City of Washington, a large steamer plying between Liverpool and New York, went ashore in the day time, July 5, during a dense fog, on the coast of Nova Scotia, 70 miles from Halifax, and 30 miles from the spot where the Atlantic was wrecked in April, 1873. No lives lost.

THE Cincinnati (Ohio) Industrial Exposition opens September 3, and closes October 4.

THE Louisville (Ky.) Industrial Exposition opens September 2, and closes October 11.

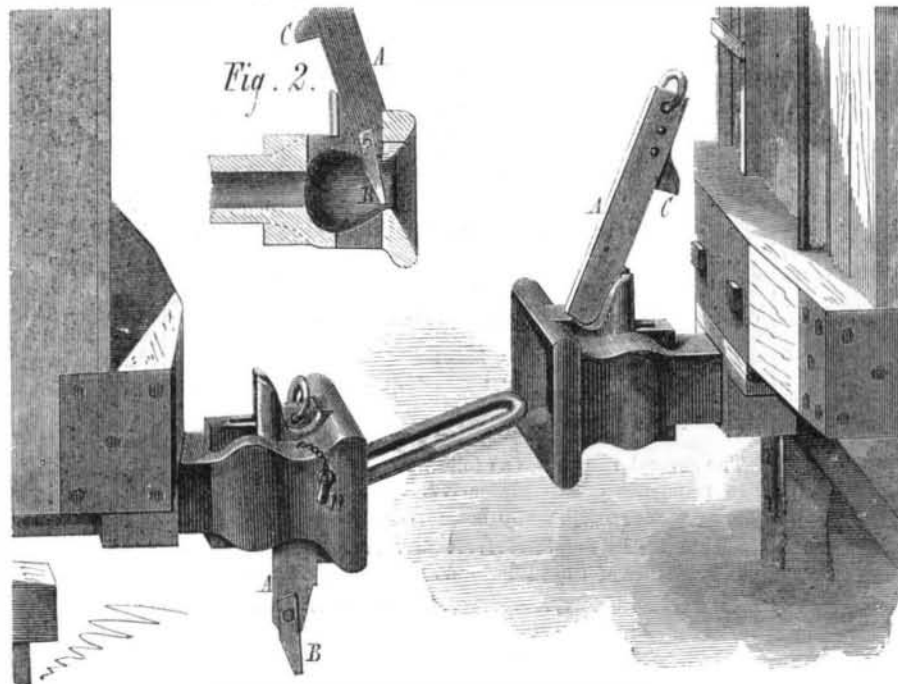
**THE SALMON PATENT VENTILATING STOVE.**

Great Northern, the Mobile and Ohio, the Pennsylvania Central, and other railroads, and we are informed that it has proved in every way successful. Other advantages claimed are simplicity, durability, and cheapness, together with complete immunity from the accidents due to the employment of hand couplers.

Patented by Inge, Wheeler & Co., May 7 and August 6, 1872. For further information address James A. Wiggs, Secretary of the Memphis Automatic Car Coupling Company, Memphis, Tenn.

Vermillion for Dental Purposes.

Having recently seen the statement, that the use of the red sulphide of mercury for artificial gums was highly objectionable, as it might produce salivation, I wish to state,

**INGE, WHEELER & CO'S AUTOMATIC CAR COUPLER.**

that this fear, in my opinion, is altogether groundless. The sulphide of mercury is very insoluble, even in concentrated acids, and not attacked by alkaline fluids; besides, in the case of gums, each particle is surrounded, so to say, by a film of india rubber, which helps to protect it from being acted upon, if such were necessary at all. I have made very large quantities of vermilion and always taken care to protect the workmen from the effects of the mercury itself, but have never been able yet to prevent them from handling the vermilion rather carelessly, or from inhaling some of the dust; but, in spite of these highly unfavorable circum-