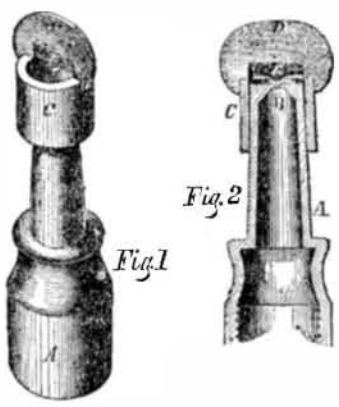
of all kinds may be bent up as fast as the straight bars from which they are forged can be placed in the machine. The apparatus is quite cheap and simple; by its use one man can bend twenty hooks where he now fashions one. When the rollers ar set to bend a given size or form of hook, all that are turned out will be exactly alike. This is an excellent in-tion.

Three-Wheeled Vehicles.—By S. French, of Binghamton, N. Y.—This invention consistsin a peculiar method of attaching and connecting the third wheel, which is placed behind an ordinary pair of wheels and shaft. It is alleged that vehicles of this kind while possessing nearly all the advantages of four-wheeled carriages, are less expensive in construction, require less space in turning, &c.

Breech-loading Cannon.—By C. C. Terrel, of Shullsburgh, Wis.—In this improvement there is a sliding breech piece which moves at right angles to the direction of the cannon barrel. This breech piece is furnished with several chambers, into which the ball and powder are placed, the arrangement being such that while one charge is brought in line with the barrel and fired, the other chambers can be reloaded and prepared. The breech piece is moved by a suitable lever, and there are other contrivances for facilitating the working of the piece. There is a small water tank and perforated pipe so arranged as to wet the exterior of the cannon barrel at each discharge, and thus prevent it from becoming unduly heated. The inventor alleges that a cannon of this description may be fired ten times faster, and will not require any more men to work it than a common piece of ordnance.

Wood's Patent Oscillator—We learn that this excellent invention, noticed and illustrated by us on page 217, last volume, has been put into operation, with great success, at Russell's Commercial Iron Works, Auburn, N. Y. Mr. Russell speaks of it in high terms, and regards it as one of the most valuable improvements in steam engines that has been made for a long time. He believes it to be admirably adapted to locomotives. Mr. Geo. F. Wood, of Ulysses, N. Y., is the inventor.

Improvement in Gas Burners—By Cummings and Douglass, New London, Ct.—This invention is designed to be used in connection with burners where the flame is produced by the combustion of two jets of gas issuing simultaneously from the top of the burner. The common "fish tail burner" is an example of this kind. The improvement consists in placing a small blade of metal on top of the burners, between the gas orifices, so as more fully to separate and spread the two jets, and cause the flame to be broader; the metallic blade is also alleged to act as a heat receiver, and by becoming itself highly heated to impart additional caloric to the gas, and thus produce better combustion.



In the engraving, fig. 1 is a perspective view. and fig. 2 a section of the same. The burner, A, is made in the usual manner, having orifices at B for the escape of the gas. The improvement comprises a ring cap, C, which is slipped on to the tip of the burner, the ring being attached to the vertical dividing blade, D. The central portion of this blade is sharpened into an edge, E, having a pointed tongue, as shown. The tongue extends down between the two apertures, and serves to assist in separating the jets. The blade, it will be observed, is quite small, and the two jets unite above it into one flame, in the common manuer, the only difference being, that the flame produced when this contrivance is applied, is larger and broader than it otherwise would be.

This invention is applicable to nearly all the burners now in use; it is alleged by the inventors to effect an important purpose, viz.: that of increasing the illuminating power of the gas, without augmenting the consumption. The contrivance costs only a few cents, and may be slipped on to any burner in a moment; it is not even necessary to unscrew the burner. The inventors and patentees are Messrs. Cummings and Douglass, New London, Ct. Patent bears date Jan. 15, 1856. Mr. N. P. B. Curtiss, No. 447 Broadway, N. Y., is the agent who furnishes the improvement in this city and Brooklyn.

Recent Foreign Inventions.

Oil Colored Paper Hangings—P. Trumble, of Huddersfield, England, has obtained a patent for an improvement in paper hangings, and in his specification he points out certain objections to the use of water colors in the manufacture of paper-hangings, such as, that the expedition with which they are obliged to be printed—the paper being necessarily wet, and each color printed separately—does not admit of the proper working and classification of the colors employed; and that though when dry they may look rich and sightly, yet when varnished the colors sink, and present a harsh appearance. The patentee, therefore, though using the ordinary paper, double coats it with composition made with a solution of india-rubber, tallow, japan, soap, and size, in certain proportions, rendering the paper impermeable, strong, elastic, and durable. The paper thus prepared and dried is then (in the manner usually practiced by grainers in wood) marbled, or otherwise ornamented with colors composed of the following ingredients:—Oxychloryd of lead or zinc, japan, turpentine, and raw linseed oil, mixed in the ordinary manner to produce the desired colors. When dry they will have a gloss almost equal to one coat of varnish. Varnish can be applied to enhance the beauty of the paper, which does not require any preparation to receive it.

Coating Sheet Iron with Varnish—Messrs. Morewood and Rogers, of Enfield, England, have taken out a patent for covering sheet iron with a varnish, so as to protect it in a superior manner from the action of the atmosphere. They first take clean sheet iron plates, and dip them in a solution of the chloride of tin, by which they become covered with a thin scale of tin. They are then washed well in warm water, and dipped into a melted composition of two-thirds resin and one-third tallow, heated to 240° Fah. They are then allowed to dry, and afterwards dipped in a hot solution composed of three-quarters of a pound of shellac and one-fourth of a pound of resin dissolved in two gallons of alcohol. Any quantity may be made from these proportions.—They are then taken out and dried in an oven. Common tin plates for roofing, exposed to sea winds, where tin is liable to rust, if coated as described, will stand exposure to the weather well.

Reverberatory Furnaces for Smelting Metals—Mr. W. H. Nevill, of Llanelly, Wales, has obtained a patent for the construction of reverberatory furnaces for the collection and condensation of volatile metals. It is well known that in submitting metals that are volatile at high temperature, such as lead, zinc, silver, &c., or minerals containing substances that are similarly volatile to heat in common reverberatory furnaces, a considerable loss of such metals or substances is experienced, in consequence of the great rapidity of the current of heated air passing through the flues and chimneys leading from such furnaces. The object of this invention is to prevent, or, as far as possible, to diminish this evil by the use of the following means:—To the fire-place of an ordinary reverberatory furnace currents of air (either cold or heated) are forced, by a blast cylinder or fan, through tuyeres placed nearly at right angles to and above the fire bars. It is found that a column of blast acting with a pressure of 1 3-4 lb. per square inch, and supplied through three pipes or tuyeres of 2 1-2 in. diameter, is quite sufficient for carrying on the operation required in the treatment of metallic ores in a furnace of 45 square feet of melting surface. The main pipe, by which the blast is supplied to the tuyeres, is provided with a proper valve or stop-cock for the purpose of regulating the quantity of air supplied to the fire grate; whereby the degree of heat in the furnace may be increased or diminished at will. It is desirable to have a layer of clinkers on the fire bars, to prevent, as far as possible, the heated air from escaping downwards through the fire bars into the ash pit. By employing artificial instead of natural currents of air for keeping up the required amount of combustion, it is only necessary to maintain a current of sufficient rapidity in the flues to clear the furnace of the fumes and gases generated during the operation; or in other words, taking care to observe this last condition, the patentee is enabled to make use of any well-known flues, dampers, or collecting chambers, in connection with water, coke, and other substances, in combination with such furnace, for the purpose of collecting the fumes that would otherwise escape. Where a number of furnaces are in operation, it would, of course, be necessary to collect the flues from each into one main culvert leading to a chimney.

The Parker Water Wheel.

A correspondent writing to us from Chillicothe, O., inquires if the patent on "Parker's Water Wheel," has expired, or is still in force, and also its peculiar features. He has received a summons to attend the U. S. Circuit Court, at Cincinnati, to answer charges for infringement of the patent, the suit being brought by a professed agent of Mr. Parker. About two years ago he received a notice of the same character, from a person also calling himself an agent of Mr. Parker, and he prepared himself to stand a trial at Columbus, O., but after being at great expense, and employing counsel for the suit, the prosecutor did not appear, and the matter then dropped. Many millers in that neighborhood who had received like notices of suits, paid large amounts to the Agent rather than stand a trial. Our correspondent states that his wheel was put in by a millwright who was not aware whether it was built on the principle of Parker's or not, and that he is ignorant himself of that principle, and wishes to get light on the subject.

The "Parker Water Wheel" obtained its name from the improvements made on the old fashioned re-action wheel, by Zebulon and Austin Parker, and for which they secured a patent Oct. 19, 1829, which patent was extended for seven years in 1843, and has therefore been on the expired list since 1850—a little over five years. The great improvement claimed in the Parker patent was "percussion and reaction," in one wheel, by producing a vortex within the reaction wheel, in other words—as we understand it—giving a whirling motion to the inlet water in the direction of the wheel's motion. This patent covered three claims, but these are now public property.

On the 27th of June, 1840, a patent was granted to Zebulon Parker and Robert McKelvey—the executor of Austin Parker—for an improvement on their water wheel, which consisted in placing a wheel or wheels within air and water tight cases, commonly called *drafts*. This patent expired in 1854. We do not know which of these patents the agent of Mr. Parker asserts has been infringed by our correspondent, but as his wheel was put up in 1852, he is not liable for damages for infringement of the first patent, and perhaps he is not for the second, which merely relates to the draft boxes.

We understand that Mr. Zebulon Parker has never obtained sufficient remuneration for the valuable improvements made by him on reaction wheels; these date back beyond those set up for Fourneyron, of France, who has been called the inventor of the *turbine*. But some of the agents of Mr. Parker, we are convinced, have done wrong by the *means* they have used to *extort* (we cannot call it by any other name) "capitation taxes," from persons using water wheels in perfect ignorance of violating any patent.

Explorations in the Western Deserts.

The St. Louis *Republican*, in discussing the practicability of the Pacific Railroad, says:—"The idea generally entertained that the immense arid plains lying between the Mississippi and the Rocky Mountains must remain forever unsettled and uncultivated, on account of the scarcity of water and fuel, is likely to undergo a change. Scientific men are now exploring these plains or prairies, and from the little we hear of their researches, the prospect appears good that an abundance of coal and water can be obtained at a small outlay of money and labor. Successful experiments have been made in testing the practicability of boring Artesian wells, and the result is most satisfactory. In one instance, near the Pecos river, at the depth of six hundred and fifty feet, the greatest abundance of perfectly pure water was obtained. Besides this, the operation developed the existence of coal beds, easily accessible, and, as far as the experiments have progressed, evidently underlying the whole of that immense country.

The expedition for making these observations and experiments on the great Western prairies, was sent out by the Government only a short time since."

The Coal Trade for 1855.

The Pottsville *Miner's Journal* publishes its annual tables of the coal operations in the Schuykill region. The total amount of coal of all kinds sent to market from the Schuykill, Lehigh, Wyoming, and the semi-anthracite and bituminous regions, during the year, was 7,587,502 tuns, an increase of 684,004 tuns over the amount the previous year. There has been an increase from every region engaged in mining, during the year, the largest from the Pittston, Wilkesbarre, and Nanticoke portion of the Wyoming coal region, lying below Scranton and the Lackawanna region. The Schuykill region is prepared to increase its production 300,000 tuns this year, should there be that demand for it. The Lehigh region is prepared to furnish a considerable increase this year, as well as the Scranton region, with the new branch of their road completed leading to New York. Both these roads now open the coal region directly to New York city. The Wyoming region will also have a new outlet with the completion of the North Branch Canal and the improvement of the Whitehaven Railroad, leading from Wilkesbarre to the Lehigh. The Shamokin region has also another outlet, via the Sunbury and Erie Railroad, leading to Williamsport, and from thence into the interior of New York.

The number of engines used for mining purposes in Schuylkill County is 315, with an aggregate power of 10,653 horses. The number of miles of railroad in the county is 430. The number of locomotives running on the lateral railroads is 42, independent of those on the Reading railroad.

Singular Railroad Accidents.

Curious railroad accidents have been occasioned by the cold this winter. The Albany and Rochester papers tell of two cases. One of the best locomotives on the Central Railroad came in with the Cincinnati Express train in charge, which was safely deposited in the depot, one of the huge driving wheels of the locomotive suddenly fell to the ground, having parted from the axle close to the hub (so to speak) of the wheel. There was no unusual strain upon either the wheel or axle, and why it should break at that time is wholly unaccounted for. So, too, with a train which arrived at Rochester from Buffalo. The train was drawn by two locomotives, and after its arrival in the depot it was discovered that the hindmost engine had lost the hind part of the forward trucks somewhere on the road, but where, it was not known, and great was the mystery how they became detached from the car. Such a circumstance never before occurred on the road, and the like has never before been heard of without the train being thrown from the track. Subsequently the wheels were found three miles west of the city. They were lying against the fence, some distance from the track. How they became detached from the car is still a mystery, as the shaft was not broken, and all was in good order, with the exception of the flange to one of the wheels, which was broken off.

Lieutenant Maury.

The merchants of Boston are circulating petitions praying Congress to reverse the action of the Naval Board, which placed Lieutenant Maury, of the U. S. Navy, on the Retired List. The petitioners ask that he may be restored to the active list in consideration of his eminen services to commerce and navigation.

A bed of anthracite coal has been discovered n the Patterson Creek Valley, Va.