

Scientific Museum.

Scientific Memoranda.

NEW STEAM CARRIAGE FOR THE STREET.—In the *Avenir Republicain*, of St. Etienne, France, is given an account of the appearance in that town of a new steam-carriage for ordinary roads, invented by M. Verpilleux, of Vive-de-Gier, who represented the Loire in the Constituent Assembly. The carriage in question went through all the streets of the town with the greatest facility, under the most perfect control of the man sitting in front, turning it to the right or left, or sending it backwards or forwards as he pleased. Two cabriolets, filled with some of the friends of the inventor, were attached to the carriage; as was, afterwards, a heavy cart of coals, which it carried from La Croix de l'Horne to the lime kilns of Mr. Jackson. The carriage weighs two tons, and is of four-horse power. It runs on three wheels, and its speed is ten miles an hour. Its consumption of coke is exceedingly small. A new vehicle on the same principle, but of twelve horse power, is now in course of construction; it will be able, it is said, to move four coal-wagons with a weight of 12,000 kilogrammes (24,000 lbs.) It is intended shortly to employ this mode of locomotion for carrying the coals of Bessege to the Rhone and those of Firminy to the Lyons railway.

[Steam carriages for common roads are not new by any means. They have been tried in England a number of times, but never could be made to pay.

ARSENIC IN BREAD.—In a recent lecture on muriatic acid, at the Glasgow Mechanics' Institution, Dr. Penny stated that nearly all the muriatic acid sold in Glasgow is contaminated with arsenic. The doctor said he had examined very carefully numerous samples obtained from different makers and retail shops, in all of which, with one exception, he had discovered, by Reinsche's test, the presence of an appreciable proportion of this poisonous substance. Now, it is well known that muriatic acid, with other chemical articles, is used very frequently as a substitute for yeast in the making of bread. It therefore really becomes a very serious question whether the employment of an impure acid, like that mentioned, for making such an essential article of food as bread, may not be attended with highly injurious consequences.

In America, we need have no fears of arsenic in our bread, because the yeast is home-made, hops forming the principal ingredient. In Scotland we believe the common people do not bake their own flour bread, the same as our people. There are no ovens in the houses of common people, oatmeal bread is the common kind, all flour bread is made by professional bakers. It would be well if some of our domestic customs were introduced into that country.

A NEW OMNIBUS.—A new omnibus has been introduced into London, so arranged that every passenger has a door, a seat and a window for himself, with a gutta percha tube through which to convey orders to the cad. The arrangement is most ingenious. The only difficulty is, that friends getting in have no opportunity of saying a word to each other until the journey is performed. Connected with every seat, or cell, or box, whichever it may be called, is a self-acting machine for registering the daily number of passengers.

For the Scientific American.

Depilatory Powder and Manipulating the Eyes.

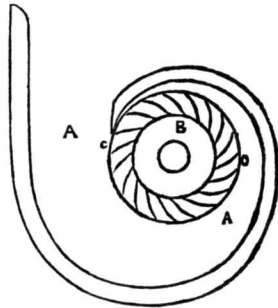
In a late number you gave a copy of a foreign receipt for a depilatory powder. I will here say that I am curious and inquisitive about such matters, and tried it several times to no purpose, or without it taking the least effect. Your correspondent, "H. P. H." is perhaps in the same situation. If he is very anxious I will give him a receipt which I tried some years and found to answer the purpose. Take equal parts of king's yellow, orpiment, or yellow arsenic, and quick lime, mixed and moistened, and apply it to the parts you wish to clear of hair, and in a few minutes the hair will disappear, and if it would be any advan-

tage to him, I doubt not but he could soon remove the skin as well, by the same application. I agree with you in not recommending the constant use of lime. Last September a shopmate and myself commenced to manipulate the eyes several times a day, according to the direction of J. Q. Adams, to see if we could thereby restore decayed sight, from age, and read without the use of spectacles; I am sorry to say, however, that although we continued the process for several months very regularly and faithfully, yet we derived no benefit, and so discontinued it entirely.

JOHN ADAMS.

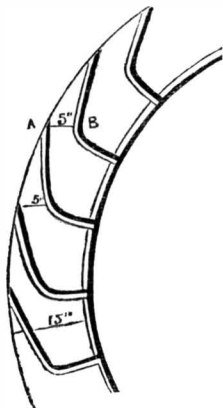
Rochester, N. Y., 17th March, 1851.

For the Scientific American.
Hydraulics.
(Continued from page 216.)
FIG. 37.



The accompanying figure 37 is a plan view of a Centre-vent Wheel, and is named Rich's, after its inventor and patentee, Reuben Rich, Salmon River, Oswego Co., N. Y. The water is conducted by a circular guide or shute on to the wheel, in the direction of its motion. This may appear contrary to the idea of those who are unacquainted with such things. The water passes from the outside through the curved buckets, and the projection of the water—its discharge at the centre—gives it the motion contrary to the discharge, but in the direction of the water. A is the spiral shute; C is the bucket rim of the wheel, and B is the plate of it. The singular feature of a centre discharge wheel, is, that they do not consume water in proportion as the velocity is increased, consequently there must be a nullifying of useful action by centrifugal action. The curve of the buckets is nearly of an S form. This wheel has been highly spoken of by a great number who have used and are now using it.

FIG. 38.



As we have collected and arranged more information upon this subject than has ever been presented or is to be found in any work, and as our aim has been to notice American hydraulic motors particularly, especially the Reacting Water Wheels, we must be excused if the whole of the information has not been arranged in such regular order as we could have wished. We have no hesitation in saying, however, that when these articles are completed they will be found to embrace much to be found no where else.

We will treat this week, and perhaps two weeks, on Ventilation of Buckets, after which we will resume the subject of the Turbine Wheels.

From a work entitled "Mecaniques et Inventions approuves par l'Academie Royale des Sciences," published at Paris in 1735, it appears, that previous to the commencement of the last century, neither the breast nor the overshot water-wheels were much in use, if at all known; and at what period, and by whom they were introduced, is probably equally uncertain. The overshot wheel was a great improvement, and its introduction was an im-

portant step in the perfecting of hydraulic machines; but the breast-wheel, as now generally made, is a still further improvement, and is probably better calculated for effective duty under the circumstances of a variable supply of water, to which almost every description of water-wheel is subjected. Improvements have taken place during the last and the present centuries. The breast-wheel has taken precedence of the over-shot wheel, not so much from any advantage gained by an increase of power on a given fall, as from the increased facilities which a wheel of this description, having a larger diameter than the height of the fall, affords for the reception of the water into the chamber of the bucket, and also for its final exit at the bottom.

Another advantage of the increased diameter is the comparative ease with which the wheel overcomes the obstruction of back-water. The breast-wheel is not only less injured from the effects of floods, but the retarding force is overcome with greater ease, and the wheel works for a longer time and to a much greater depth in back-water.

The late Dr. Robinson, Professor of Natural Philosophy in the university of Edinburgh, in treating of water-wheels, says, "There frequently occurs a difficulty in the making of bucket-wheels, when the half-taught millwright attempts to retain the water a long time in the buckets. The water gets into them with a difficulty which he cannot account for, and spills all about, even when the buckets are not moving away from the spout. This arises from the air, which must find its way out to admit the water, but is obstructed by the entering water, and occasions a great sputtering at the entry. This may be entirely prevented by making the spout considerably narrower than the wheel: it will leave room at the two ends of the buckets for the escape of the air. This obstruction is vastly greater than one would imagine; for the water drags along with it a great quantity of air, as is evident in the water-blast, as described by many authors."

In the construction of wheels for high falls, the best proportion of the opening of the bucket is found to be nearly as five to twenty-four; that is, the contents of the bucket being 24 cubic feet, the area of the opening, or entrance for the water, would be five square feet. In breast wheels which receive the water at the height of 10° to 12° above the horizontal centre, the ratio should be nearly as eight to twenty-four, or as one to three. With these proportions, the depth of the shrouding is assumed to be about three times the width of the opening, or three times the distance from the lip to the back of the bucket, as from A to B, fig. 38, the opening being 5 inches, and the depth of the shroud 15 inches.

For lower falls, or in those wheels which receive the water below the horizontal centre, a larger opening becomes necessary for the reception of a large body of water, and its final discharge.

In the construction of water wheels, it is requisite, in order to attain the maximum effect, to have the opening of the bucket sufficiently large to allow an easy entrance and an equally free escape for the water, as its retention in the bucket must evidently be injurious, when carried beyond the vertical centre.

Western Texas.

CORPUS CHRISTI SALT.—The N. O. Picune says the evidences of the great resources of Western Texas are every day increasing. Yesterday a specimen of natural salt, found eight miles from Corpus Christi, was handed us, which appeared perfectly pure, while it is stated the supply is inexhaustible. Carts are sent out, and the salt is shovelled in with little labor and expense. What gives it increased value is the fact that the beef, which is raised so extensively in that section can be much more easily cured with this salt than any other, as it takes or absorbs the salt with the greatest facility. It is further thought that this article, when ground, will make a fine salt for the table, and for all cooking purposes.

Geographical Discovery.

Prince Galitzin has announced, that, in the centre of the Sea of Aral, a group of islands

have been discovered, to the principal of which the names of Nicholas I., Constantine and Lazareff have been given.

LITERARY NOTICES.

THE INTERNATIONAL MAGAZINE, for March, published by Messrs. Stringer & Townsend, 222 Broadway, contains a well arranged summary of the most prominent events which transpire throughout the world, besides the richest variety of literary labor from the most distinguished sources. It is one of the most readable and interesting magazines ever issued. \$3 per annum: pp. 144.

THE LAW MAGAZINE.—The March number of this magazine contains voluminous articles on "Slavery and Commerce," "Recent American Decisions," and "Digest of Recent Cases." This magazine is very ably conducted, and contains matter of the deepest interest to every citizen in our land. It is not only a work for lawyers, but tradesmen and merchants. Every man should be acquainted with the laws under which he lives. Published by J. Livingston, 54 Wall street.

WESTERN HORTICULTURAL REVIEW.—A monthly magazine devoted to the cause of a peculiar branch of Agriculture, and bearing the above title, has visited our "sanctum" for a few months past; it is edited by John A. Warder, M. D., Cincinnati. It is a very able work, and is devoted to a very interesting science. Trees, flowers, fruits, and herbs of all kinds, form the leading subjects of the articles. To every man who enjoys a cabbage plot, and every female who cultivates a rose, there is something in this magazine to instruct and please.

OVERMAN'S PRACTICAL MINERALOGY, ASSAYING, AND MINING.—This is the title of a most able and useful book, by Mr. Overman, author of "The Manufacture of Iron," and is published by Lindsay & Blackiston, of Philadelphia. It treats of every mineral of any importance, and we have not noticed one that is neglected. It is a most useful book. The articles Slate, Soapstone, Sulphur, and Tripoli, in another column, are selected from it, and these will give some idea of this useful book. It is for sale by O. A. Rooback, 155 Broadway.

THE DOLLAR MAGAZINE appears for April in place of "Holden's," under the management of E. A. & G. L. Duyckinck. It is very neatly got up and contains several articles of merit and interest, all of which are entirely original from our first authors. This magazine merits a large subscription, and we have no doubt but that, under the new regime, it will make its way into popular favor. The terms are indicated by the title.

ICONOGRAPHIC ENCYCLOPEDIA.—Part 17 of this useful and beautiful work is now published and ready for sale by Mr. Rudolph Garrigue, No. 2 Barclay st., this city; it contains 20 plates, exhibiting various branches of nautical architecture, navigation, and the management of ships. There are more than 300 figures in the plates, and these of themselves are worth more than the price of the work, to purchase separately. This is a work which we can candidly recommend, as being the best illustrated Encyclopedia ever published.

ENGINEERS', MILLWRIGHTS', AND MACHINISTS' TABLES.—This is the title of a little work by Sereno Newton, and sold by George Carvill, No. 86 Cedar st., N. Y., for 50 cts. It contains tables of the proportional Radii of Wheels, from 10 to 400 teeth, with other tables and rules applicable to the construction of mill work and machinery; also rules for making wheel patterns. It is a very useful book. The tables are very carefully arranged and the information practical.

MECHANICS

INVENTORS AND MANUFACTURERS.

The Best Mechanical Paper IN THE WORLD! SIXTH VOLUME OF THE SCIENTIFIC AMERICAN.

The Publishers of the SCIENTIFIC AMERICAN respectfully give notice that the SIXTH VOLUME of this valuable journal, commenced on the 21st of September last. The character of the SCIENTIFIC AMERICAN is too well known throughout the country to require a detailed account of the various subjects discussed through its columns.

It enjoys a more extensive and influential circulation than any other journal of its class in America.

It is published weekly, as heretofore, in *Quarter Form*, on fine paper, affording, at the end of the year, an *ILLUSTRATED ENCYCLOPEDIA*, of over FOUR HUNDRED PAGES, with an Index, and from FIVE to SIX HUNDRED ORIGINAL ENGRAVINGS, described by letters of reference; besides a vast amount of practical information concerning the progress of SCIENTIFIC and MECHANICAL IMPROVEMENTS, CHEMISTRY, CIVIL ENGINEERING, MANUFACTURING in its various branches, ARCHITECTURE, MASONRY, BOTANY,—in short, it embraces the entire range of the Arts and Sciences.

It also possesses an original feature not found in any other weekly journal in the country, viz., an *Official List of PATENT CLAIMS*, prepared expressly for its columns at the Patent Office,—thus constituting it the "AMERICAN REPERTORY OF INVENTIONS."

TERMS—\$2 a-year; \$1 for six months. All Letters must be Post Paid and directed to MUNN & CO., Publishers of the Scientific American, 128 Fulton street, New York.

INDUCEMENTS FOR CLUBBING.

Any person who will send us four subscribers for six months, at our regular rates, shall be entitled to one copy for the same length of time; or we will furnish—
10 copies for 6 mos., \$8 | 15 copies for 12 mos., \$22
10 " 12 " \$15 | 20 " 12 " \$28
Southern and Western Money taken at par for subscriptions; or Post Office Stamp taken at their full value.

PREMIUM.

Any person sending us three subscribers will be entitled to a copy of the "History of Propellers and Steam Navigation," re-published in book form—having first appeared in a series of articles published in the fifth Volume of the Scientific American. It is one of the most complete works upon the subject ever issued, and contains about ninety engravings—price 75 cents.