

a tool as that is the son and offspring of steam, either in smelting the ore from which it was made or in forging it. Upon the banks of busy streams, and in the solitudes of the primeval forests, the song and chirp of this agent, steam, is loudly heard. Even the water wheel, which disputes a little part in the list of motors, owes its increased efficiency and its greater power to the better facilities for manufacturing through the employment of steam.

There is no corner or quarter of the globe, known to man, where it has not penetrated. The icebergs of the Pole have overlooked its toil, and cast their shadows athwart its funnel, whitened by the salt air and furnace heat; the waters of the northern seas have lent their drops and globules to be evaporated and aid man in penetrating into unknown solitudes; and the fierce heat of the tropics has heated the bearings and dried out the oil from the steam engine until they have screamed again. Everywhere—in all lands and habitable places—its wreaths are seen twining and coiling in the air, and finally disappearing entirely; and lately, in Japan, through the exertions of Commodore Perry, a little locomotive carried upon a circular railroad a throng of wondering and pleased Japanese. It is an assertion that cannot be disputed, to say that it is the very emblem and symbol of peace and prosperity. When the steam engines are the most rapid in their revolutions, and when their number and sum increase in quick succession, then do the papers teem with joyous accounts of prosperous harvests, groaning warehouses, and full freights; then are all men busy, and the voice of complaint and the piteous cry of want are unknown in the land. In all its various operations, whether in swinging the ponderous beam of the steamer slowly and steadily to-and-fro, whether heaving the piston regularly up-and-down through all the writh and tumult of the elements, urging the vessel on, and trampling even the might of the seas beneath its resolute beat and stroke, it is still the object of unflagging and never-ceasing interest. In careful and experienced hands—careful, beyond every other consideration—there is no limit nor bound to its range, and man need not enumerate the catalogue of its operations to praise it; the results are enough. The fires of sacrifice that burned of old on altars and hill tops no longer gleam and startle the terrified people with the victims' shrieks and cries; but, through all the night, and through the summer's heat and winter's cold, the genial furnace-fires flame and burn, and render good return to man.

DEFALCATION OF THE POSTMASTER OF NEW YORK.

On Saturday, May 12th, it was discovered that Isaac V. Fowler, Postmaster of New York, was in arrears in his payments to the department to a large amount, variously stated at from \$155,000 to \$176,000. This is particularly startling as being the first considerable defalcation (except one or two in California during the confusion of its early settlement) which has occurred among the officers of the United States government since the passage of the Sub-treasury Bill. Previously to the adoption of that measure it was customary for these officers to use the government moneys in their hands temporarily for their own benefit, paying them over punctually at the stated periods of settlement. But numerous defalcations having occurred in consequence of the government funds having been invested in enterprises which proved unprofitable, a provision was embraced in the sub-treasury law making it felony for any custodian of the public money to use it for any period, however short, for his own benefit. The wisdom of that enactment, so manifest in itself, has been abundantly proved by its operation in practice, having almost wholly prevented the occurrence of defalcations. It seems even that Mr. Fowler's would not have taken place, had he not been allowed to violate this provision of the law. It is said that most of the large sums which he has used and is unable to repay have been lost in unprofitable speculations. The *Tribune* says—"The following appear to be some of the speculations in which he has failed: real estate operations; shares in Pennsylvania coal companies; shares in the Empire City Bank, by which he lost \$20,000. The only profitable investment seems to have been in a patent right for manufacturing wire sofa and other springs."

LITERARY AND SCIENTIFIC NOTICES.

NEW AMERICAN CYCLOPEDIA, VOL. IX.

It has been well said that the possession of a good cyclopædia has more influence in elevating the social position of a man and his family than the investment of an equal amount in any other form of property. And it may be added that there is no other portion of a man's possessions from which he can derive so large a measure of the noblest and most durable enjoyment and satisfaction. Next to our schools and newspapers, we believe that the old "Encyclopædia Americana" has been the most valuable boon that has yet been bestowed upon the mind of this country. But in the swift progress of science, arts and events, that publication has nearly lost its value, and the Messrs. Appleton judged rightly that there was a demand in the community for another work of a similar character. We rejoice that the enterprise of supplying this demand has been undertaken by such competent hands, and we congratulate the editors on the ability, the learning and the capacity for the kind of writing required, which they have been able to marshal for the composition of this great work.

The new cyclopædia is to consist of 15 or 16 volumes, each containing 700 or 800 pages, and costing three dollars. It will thus be a very cheap work in proportion to the amount of matter which it contains, and will constitute a complete library in itself, with the several subjects arranged in alphabetical order, so as to be readily found as attention is called to them by either reading, conversation or reflection. The ninth volume contains more than 1,300 articles, and the following list will give an idea of the immense variety of the subjects:—Heart, Heat, Herod, Hessian Fly, Henbane, Hippopotamus, Holy Alliance, Holy Water, Holy Week, Homer, Homestead, Honey, Robin Hood, Hop, Horse-breaking, Horsepower, Hot-bed, Hour Circles, Henry Hudson, Howitzer, Alexander Humboldt, David Hume, Husband and Wife, Hustings, Hydraulic Ram, Hydrogen, Hydrophobia, Hymen, Immaculate Conception, Inquisition, Language of Ireland, Itch, Andrew Jackson, Japan, Language of Japan, Japanning, Jaundice, Jersey City, Jelly and Sir Jamsetjee Jejeebhoy.

All of these articles are written by persons familiar with the subjects of which they treat, and some single articles are really worth the cost of the whole volume. For instance, the plain treatise on the legal relations of husband and wife, by the learned Professor Parsons, not only gives the common law principles which govern these relations, but adds a summary of the modifications of the common law on the subject which have been made by the statutes of the several States; showing, in the briefest space, the rights of women in regard to person and property in the several parts of the country. We have examined several of the articles in this volume on subjects with which we are familiar, and find them, like those in previous volumes, admirably written. The "New American Cyclopædia" is exactly adapted to the perpetually recurring intellectual needs of the great mass of educated families throughout the country.

THE EDINBURGH REVIEW. Re-published by Leonard Scott & Co., this city.

The number of this periodical for the present quarter contains several very able essays, among which the best is, perhaps, one on "Education in England," and the other a scientific criticism of Professor Darwin's work on "The Origin of Species." This periodical is the oldest in Great Britain; but although many of its old contributors are dead, they are well represented by the vigor, ability and independence of their successors.

THE MATHEMATICAL MONTHLY. Published by Ivison, Phinney & Co., this city.

The May number of this magazine continues the discussion of the problem of probabilities. There is occasionally something in this purely intellectual periodical which is applicable to real life; for instance, the note on co-factors, by Pliny Earle Chase, of Philadelphia, in this number, might be sometimes used for reckoning dollars and cents.

THE WESTMINSTER REVIEW. Re-published by Leonard Scott & Co., this city.

The April number of the Westminster has a timely article on Japan, which moves through the subject in the methodical, clear, thorough and able manner characteristic of the great English reviews.

DINSMORE'S RAILROAD AND STREAM NAVIGATION GUIDE. Published by Dinsmore & Co., No. 9 Spruce-street, this city.

This guide, which is out in a new dress, and is the nearest and cheapest work of the kind published. It contains tables of the distance between the stations of all our railroads, the time of starting the trains, fares, &c.; also the time of sailing and routes of steamboats. It is a necessary hand-book to every traveler.

REVUE UNIVERSELLE. E. Noblet, editeur, Paris et Liège.

We have received the first number of the fourth volume of this work. It is devoted to mines, metallurgy, public works, sciences and arts applied to industry, and appears to be very ably edited. We shall transfer to our columns such of its articles as we think will interest our readers.

THE QUARTERLY JOURNAL OF AGRICULTURE. Published by the United States Agricultural Society, at Washington, D. C.; edited by Benj. Perley Poore, secretary of the society.

The first number of the eighth volume of this standard work is almost entirely filled with lectures and articles by men eminent in agricultural science.

AMERICAN INVENTIONS IN EUROPE.

The following useful inventions made by our countrymen have recently been introduced in England and patented through the foreign office connected with the Scientific American Patent Agency:—

American Steam-heating Apparatus.—The *Rhadanantus* steam frigate has been ordered by the British Admiralty to be fitted with the Wethered steam arrangement for her engines. This consists in using combined saturated and superheated steam. The system in this case is an experimental one; £900 being appropriated for the purpose. Before receiving the apparatus, she is to be fairly tested as to speed and consumption of fuel by her present arrangements, so as to judge fairly of the gain which may be secured under the use of the improvement. An increase of speed, with a saving of 40 per cent of fuel, is promised.

Sewing Machine.—Invented by H. W. Hayden, of Waterbury, Conn. It relates to the formation of the lock stitch, an improved device for taking up the slack of the thread, and a new contrivance for feeding the cloth.

Weighing Machine.—Patented by John Howe, Jr. and Frank E. Howe, both of this city. The invention relates to improvements in the supports, joists and levers of platform balances. This is a very excellent scale and it is having an extensive sale in this country.

Fire-arm.—Patented by Charles T. Pierson, of this city. This invention consists in encompassing the cone or nipple of the fire-arm with a cup, and attaching a collar packed with india-rubber to the hammer, to protect the percussion powder from moisture and prevent accidental discharge of the gun.

Apparatus for Blowing-off Water from Steam Boilers.—Patented by James H. Washington, of Baltimore, Md. The blow-off pipe has a hinged joint and float so as to keep the opening in the same position in relation to the surface.

Tailors' and other Shears.—Patented by James H. Roome, of this city. This invention consists in combining one limb of a pair of shears with a handle forming part of a separate lever, and of combining the said limb and handle with the other limb of the shears, whereby the leverage exerted by the thumb or hand, in cutting, is gradually increased as the shears close, and a drawing cut is produced.

Variable Cut-off Gear for Producing Expansion in Steam and other Motive Engines.—Patented by Foster, Sutton and Stephens, of Harlem, N. Y. A compound cam, composed of two parts yoked together, is applied to the main shaft and controlled either by a governor or by the engineer.

Machinery for Cutting Corks.—Patented by Edward Conroy, of Boston, Mass. This machine was described and illustrated on page 345, Vol. I. (new series) of the SCIENTIFIC AMERICAN, and was alluded to, favorably, in an extract from a British cotemporary, published on page 250 of the present volume.

Revolvers and Bullets for the same.—Patented by John Walch, of this city. Two charges are placed in each chamber, one forward of the other; both being fired before the breech revolves.

Salinometer Case for Steam Boilers.—Patented by Joseph Grice, of this city. A vessel is interposed between the boiler and the salinometer case, for the passage of the steam, to prevent ebullition in the salinometer case.

FOREIGN NEWS AND MARKETS.

Steam Frigates.—Steam was introduced into the Royal Navy of England in 1822, and now two-thirds of all the war ships are steamers. The screw was introduced as the propelling agent in place of paddle wheels, in 1842; now there are 345 screw sloops and frigates, and 48 line-of-battle ships, having a power capable of moving them in a calm at the rate of from 10 to 15 knots an hour. The activity lately displayed in the British dockyards has led to such an increase of war steamers that the fleet is now equal to the fleets of France and Russia combined.

Miscellaneous Matters.—The wages of the operatives in the cotton factories of Bolton have been advanced 5 per cent, which brings them up to the Manchester standard. The steamship *Great Britain* (once wrecked in Dundrum Bay) made a recent voyage from Liverpool to Melbourne in 55 days and 16 hours—the quickest time on record between the two places; the total length of