

TURBINE WATER WHEELS—ATTENTION.

On another page of the present issue is an illustration of Stevenson's Jonval turbine wheel, which gave the greatest per-centage of power during the experiments conducted at Philadelphia. On page 297 of the last volume of the *SCIENTIFIC AMERICAN*, we gave the results of those experiments in a clear tabular form; and on page 22 of the present volume we published the report of Chief Engineer Birkenbine on the subject. These experiments have attracted a great deal of attention; every reliable item of information respecting them, therefore, is of value to hydraulic engineers and manufacturers who use water power. In connection with the description of this wheel, a very minute account of the apparatus employed, and the mode of conducting the experiments is also given, so as to present a complete history of the operations.

The builders of turbine water wheels in the United States were officially invited, through the columns of the *SCIENTIFIC AMERICAN*, on June 4, 1859, by the Chief Engineer of the Water-works, to come to Fairmont and test the comparative value of their different wheels. We inferred—and so did the public—that this invitation conveyed an implied pledge that the wheel which would give the best results in the trial would be adopted by the city of Philadelphia. Such has not been the case. The majority of the Water Committee have instructed the Chief Engineer to enter into a contract with E. Geyelin, of Philadelphia, for two wheels; although, upon the trials, his wheel gave $6\frac{1}{2}$ per cent less power than the one shown in our illustration. A minority of the Water Committee in Philadelphia—namely, W. Neal, Alex. J. Harper and J. D. Enyard—have protested against this treatment of the successful wheel. We have given a plain statement of the case as it now stands, so that the public may have a correct understanding of the whole question and thereby be enabled to form an unbiassed opinion of all the transactions. Mr. Stevenson has removed to the Novelty Works, this city, where he is now building two large turbines.

EXPERIENCE OF INGENUOUS INVENTORS.

MESSRS. MUNN & Co.—Noticing from time to time, in the columns of the *SCIENTIFIC AMERICAN*, extracts of letters from parties for whom you have acted as attorneys, complimentary to you, I beg to state my own experience in obtaining patents through your agency, as a testimonial of my appreciation of your ability in preparing patent papers and conducting cases before the Patent Office. Since 1855, I have made, through your office, eight applications for Letters Patent; six have been granted (not one of which was even temporarily rejected) and two are now pending before the Patent Office, on which I expect, an equally good result. These facts you are at liberty to publish for the benefit of inventors who are about to apply for patents, and who are undecided as to whom to employ to do their business.

WILLIAM FUZZARD.

Charlestown, Mass., August 25, 1860.

MESSRS. MUNN & Co.—I was extremely gratified to receive, on the 25th inst., my Letters Patent for a Belt Coupling. I must say that, in my opinion, they are the handsomest looking documents I ever saw; and I cannot refrain from expressing to you my sincere thanks for the manner in which you have conducted the case throughout.

CHAS. FAIRFAX, JR.

Cincinnati, Ohio, August 26, 1860.

MESSRS. MUNN & Co.—My Letters Patent for an improvement in Beehives (for which an application was made through your agency) came to hand on the 23d inst. I can say I am truly gratified with the result, and with the promptness and efficiency manifested by you in its procurement; and I shall, with pleasure, recommend your agency to all who may desire assistance in obtaining patents, or who may wish for information on that subject.

DANIEL ARNDT.

Zanesville, Ohio, August 25, 1860.

STATUES OF EMINENT AMERICAN INVENTORS.—The Commissioner of Patents has given his hearty concurrence in a proposition for the erection of statues to the memory of great American inventors; the expense to be defrayed by private subscription. Niches will probably be prepared in the Patent Office building for the reception of such statues.—*New York Herald*.

LITERARY AND SCIENTIFIC NOTICES.

APPLETON'S CYCLOPEDIA.

We have received from the publishers—D. Appleton & Co., No. 443 and 445 Broadway, this city—the tenth volume of the "New American Cyclopædia." The number of competent writers in this country is so large that the publishers are able to push through this great work with unexampled rapidity. We gave our opinion of the new cyclopædia so fully on the appearance of the ninth volume, that it is unnecessary to repeat it here. The tenth volume is of the same high character as those which have preceded it. Professor Parsons continues to furnish the law articles, and articles are contributed by Hon. William Kent and Pres. Charles King, LL.D., of Columbia College, New York. In science and the mechanic arts, however, we do not recognize the eminent names that we should be pleased to see among the contributors of this great national work. As a fair specimen of the articles, we extract the following one on litmus:—

"Litmus, a blue coloring substance, obtained from the lichen *rocella tinctoria*, which is collected on the Canary and Cape Verd islands and the coasts of northern Africa, and brought to Holland. The plants, being cleaned from earthy matters, are coarsely powdered and macerated for several weeks, with occasional agitation, in a mixture of urine, lime, carbonate of ammonia, and carbonate of potash. By the reaction of these substances upon the acid properties of the plants, which are themselves without color, their peculiar coloring matters are developed. The mass as it ferments is first red, and then becomes intensely blue. After this change it is mixed with chalk or other earthy substance to give it consistence, and the preparation is completed by molding it into little rectangular cakes. In this state it is the commercial litmus. The cakes are of indigo blue or deep violet color. The coloring matter is extracted by alkalies, partially by water and alcohol. The aqueous infusion is used to prepare the slips of litmus paper, which are employed by chemists as a test of acids and alkalies. Un-sized paper is either dipped into the liquid, or this is brushed over its surface; and when the paper has been dried it is carefully preserved in well stopped vials. A bit of it moistened and exposed to acid vapors, or to any liquid having the slightest acid reaction, is immediately changed from blue to red; and thus changed, it becomes a test of alkalies, the effect of which is to restore its former color. It differs from most other vegetable blues, which, by the reaction of alkalies, are generally rendered green."

RECENT AMERICAN INVENTIONS.

The following inventions are among the most useful improvements patented this week. For the claims to these inventions the reader is referred to the official list on another page:—

ROLLING BLANKS FOR GOLD PENS.

In rolling blanks for the manufacture of gold pens, one pair of rolls only have heretofore been employed, and the blanks have necessarily been subjected to successive pressures by adjusting one pair of rolls. In the rolling-out and attenuating of the blanks, great precision and exactness are required in order to produce perfect work; and the use of only one pair of rolls involves the necessity of various adjustments which lead to inaccuracies of workmanship, and a general lack of uniformity in the production of the work. In addition to this, the employment of only one set of rolls precludes the obtaining of a differential pressure, that is to say, the gradual and successive varying of the belt of the rolls from the diamond or point of the blank, in order to obtain a gradual taper or attenuation from point to back, as may be required. The object of this invention is to obviate these difficulties, expedite the rolling process, produce perfect work with unskilled labor, and at the same time economize in stock. The invention consists in the use of a train of rolls, so arranged as to be capable of rolling out or attenuating the blanks by a series of consecutive operations without changing the set of the rolls. The invention also consists in a novel way of connecting the axes of said rolls to compensate for any imperfections in the driving gear, and also in a peculiar relative formation of the eccentric rolls one with another to obtain a differential pressure. The invention further consists in the use of guide rests for the purpose of insuring the proper presentation of the blanks to the bite of the rolls, and keeping them at right angles to the rolls while passing through or between them. The credit of this contrivance is due to Alexander Morton, of this city.

TERRESTRIAL TIME GLOBE.

The object of this invention is to illustrate the position of our globe in relation to the sun, and all its variations, during the 24 hours of a day, and during the

course of a year, and this object is obtained in a simple and ingenious manner by the combination with a clock movement of a terrestrial globe which revolves once in 24 hours, on an axis placed at an angle of $66\frac{1}{2}$ degrees towards the horizon, which latter represents the plane of the earth's orbit, and from which rises a vertical bow encircling the globe, and made to represent the spheres of light and shade, or day and night, on the revolving globe in such a manner, that the time of the day, the length of the days, and the time when the sun rises and sets in any place on the globe, can be determined at a glance. F. S. Barnard, of this city, is the inventor.

FEEDING SAWDUST TO FURNACES.

The object of this invention is to obtain a device for feeding sawdust to the furnace direct from the saw, and to distribute the sawdust in the furnace in the most favorable way to insure a perfect combustion of the former. The invention is designed to be applied to the furnaces of the boilers of steam saw-mills and to afford an automatic feeding device which will cause the sawdust to be consumed as fast as it is produced during the sawing operation. The invention consists in the use of a reciprocating plunger fitted within a cylinder which communicates with a box containing a rotary scatterer, the box in communication with the furnace, and all arranged to affect the desired end. The inventor of this improvement is Samuel Kennedy, of Hibbets, Ohio.

REGISTER FOR STREET CARS.

This invention consists in combining with a style gate, placed on the platform of a car, and surrounded by a suitable railing so that an entrance or exit can only be affected through the gate, a set of strikers which act on a spring bar, so constructed to contain wheel work pawls, stops, &c., that each passenger entering the car will be registered by an index hand, the registering apparatus being so arranged that the gates will operate the registering apparatus only once for each passenger, either in entering or leaving the car. This improvement was designed by Lewis H. French, of Philadelphia, Pa.

AXLE-BOX.

This invention has for its object the prevention of lateral motion of the car body on its axles, in order to avoid the wear and tear of the steps or bearings of the axle and the box, and concussions attending the same. The invention also has for its object the perfect lubrication of the journals without affording an opportunity for the oil or lubricating material to escape from the box, and also in a peculiar manner to prevent the ingress of mud or dust within the box. The invention is designed more especially for city railroad cars, for which none of the improved or patented boxes have been especially designed, and which have been adapted by certain modifications to answer rather imperfectly. This device has been patented to Montgomery Queen, of Brooklyn, N. Y.

HAMMER.

Reinhold Boeklen, of Brooklyn, N. Y., has just obtained a patent for an exceedingly ingenious and very useful invention, which consists in so magnetizing or applying magnetism in connection with a hammer, that it shall be capable of picking up tacks or nails and enabling them, when so picked up, to be knocked into wood or other material, without the necessity of handling them; thereby affording great convenience for the application of tacks or nails in laying down carpets or in upholstery, joinery or other kinds of work. These valuable hammers will be manufactured by Messrs. Bennett & Boeklen, at the Harlem Railroad Freight Depot, in Center-street, this city.

SEWING MACHINE.

This invention consists in a certain construction of the bed or work-table of a sewing machine, whereby it is adapted to do certain kinds of work which cannot be conveniently done by the machines previously constructed, more especially to the sewing of those parts of boots and shoes, and other articles of stiff material, in the performance of which it is desirable that a portion of the article should hang over the bed on one or more sides of the needle. The patentee of this invention is David Haskell, of Georgetown, Mass.

SINECAL QUADRANT.

This is a very ingenious instrument by which all arithmetical calculations may be made, and all problems in plane and spherical trigonometry may be solved. It is especially useful in navigation and land surveying. The credit of this invention is due to A. M. Chisholm, of Antigonish, N. S.