

SMITH'S IMPROVED WATER WHEEL.

There is no more attractive field for the study of philosophical mechanics than improvements in the horizontal water wheel. And if we are correctly informed in regard to the results of experiments at the Philadelphia Water-works, there would seem to be yet wide room for improvement in this department; the best turbines yielding only some 60 per cent of the power expended, instead of 80 or 90, as has been heretofore claimed. The annexed engravings illustrate a wheel embracing some novel features.

The wheel, A, revolves within the stationary cylinder, c; the buckets being bent at an obtuse angle, as shown. The water passes into the wheel through vertical slits in the cylinder, c, which slits are opened and closed by a very peculiar gate. This gate consists of the two rings, D and E, connected by the vertical plates, b b, which plates are slightly curved at their inner ends to fit the cylinder, c, from which arrangement it will be seen that by turning the rings, D and E, about their axes, the openings in the cylinder, c, may be either closed or opened to any desired width. Upon a portion of the periphery of the ring, D, a gear is cut which meshes into a pinion upon the shaft, d, so that by turning this shaft, by means of a hand-wheel or lever at its upper end, the gate is either opened or closed. This plan of gate causes the water to enter the wheel (whether the gate is wholly or partially opened), always in a vertical sheet of the full depth of the wheel, and consequently to act upon the whole surface of the bucket.

The patent for this invention was issued (through the Scientific Patent Agency) on June 21, 1859; and persons desiring further information in relation to it will please address the inventor, James Smith, at Westport, Conn.

FIRE-ESCAPE—SLIDING FROM THE TOP OF THE CITY HALL.

Much amusement was furnished the multitude, gratis, this forenoon, by a fire-escape, of English invention, on the Park. The apparatus consists of a long cloth tube, supported by ropes at the sides, one end of which is fastened to the top of the building, while the other end is held by the spectators on the ground. Through this bottomless bag the persons in danger are expected to slide. A number of boys and men volunteered to slide from the top of the City Hall in this manner, and several hundred people looked on, greatly enjoying the sport. The slide was apparently pleasant and safe. At one time three boys went down in a heap at once. The bundle of juvenility was a little too large for the tubs, and the trio two or three times stuck fast, to the great merriment of the spectators. They struggled through it, however, and were taken out evidently as well pleased with the adventure as the spectators.—*Evening Post, Feb. 29th.*

[Since the burning of a tenement house in Elm-street, in which so many lives were lost (as detailed in a former number of this paper), the inventors of this city have manifested a commendable degree of enterprise in getting up devices for obviating a like calamity in future. It is marvelous to see how quickly a public want is filled by our inventors. Many of the plans devised seem to be practical; and after the patents are issued we shall describe the novelty and merits of some of them. The fire-escape exhibited at the City Hall (and termed by our

cotemporary an "English invention") was illustrated and described on page 324, Vol. II. (old series), of the SCIENTIFIC AMERICAN. At that time (1847) the practical utility of the device was proved by the inventor, W. W. Van Loan, the veteran postmaster at Catskill, N. Y., who exhibited his plan upon a building in front of our

gravity. A roller, h, supports the end of the bed over the forward bolster, to diminish the friction as the axle works back and forth under the bed. The rubbers, a a, are attached to the levers, b b, by means of long slots which allow the rubbers to slide upward when the wagon is pushed backward, reversing the direction in the motion of the wheels, thus relieving the wheels from the friction of the brakes.

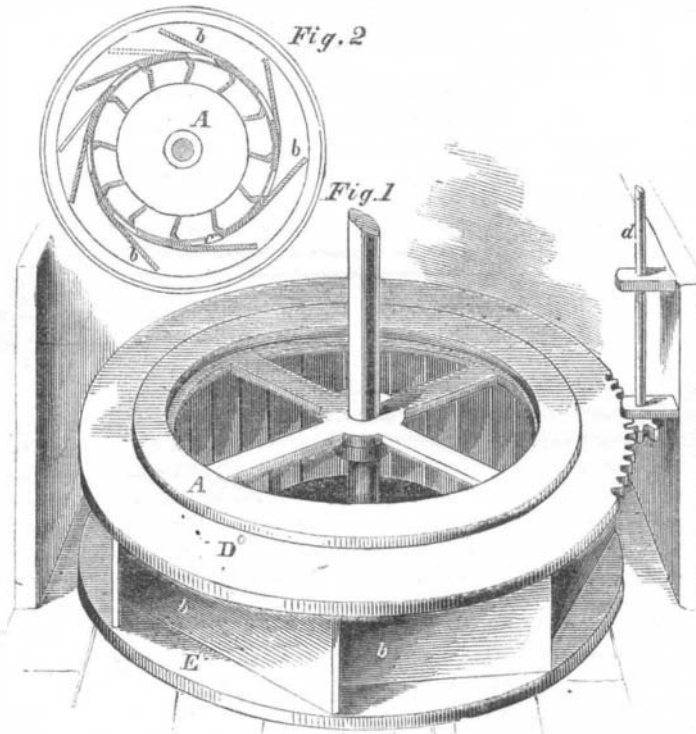
The patent for this neat and valuable invention was issued Dec. 20, 1859, and persons desiring further information in relation to it will please address the inventor, Robert D. Brown, at Prattsburgh, N. Y.

THE AMERICAN INSTITUTE.

A meeting of the American Institute was recently held at the Cooper Institute, when the newly-elected president, General Hall, delivered his inaugural address, in which he spoke of the necessity of rendering the institute much more influential throughout the country at large. He thought that it should be a benefit to the nation in a scientific and mechanical point of view. The trustees made their report, in which they recommended the name of John W. Chambers for clerk, and to perform the duties of librarian without extra compensation, his regular salary being \$1,500 a year. This caused a disorderly discussion, after which Mr. Chambers was elected clerk, and a motion to re-consider was voted down. A warm discussion then ensued, in which much acrimony was shown by the friends of the late librarian, whose services, at \$800 a year, the Finance and Library Committees regarded as unnecessary. It was urged, by those in favor of economizing, that the agent, the recording secretary and the clerk were usually in the rooms, and that the clerk, with the assistance of a messenger at \$5 per week, would be able to give all necessary attendance to the library. Mr. Chambers has long been connected with the institute, and has rendered it valuable service; but the prestige of the institute is gone, and it will need a vast deal of good conduct on the part of the managers to render it influential throughout the country, as is suggested in the president's address.

PATENT OFFICE REPORTS FOR 1858.—In answer to numerous inquiries respecting these reports, we would state that we cannot furnish them. It was with some difficulty that we could procure a supply sufficient for the purposes of our own office, which has become the rendezvous for inventors and patentees who wish to find out anything relating to patents. The Commissioner of Patents is, or ought to be, furnished with enough to supply a set to every patentee for the year. If he is able to do this, nothing more can be expected of him; since Congress, in its wisdom, has seen fit to furnish the Patent Office with, comparatively, but few copies. The bulk of the reports are given

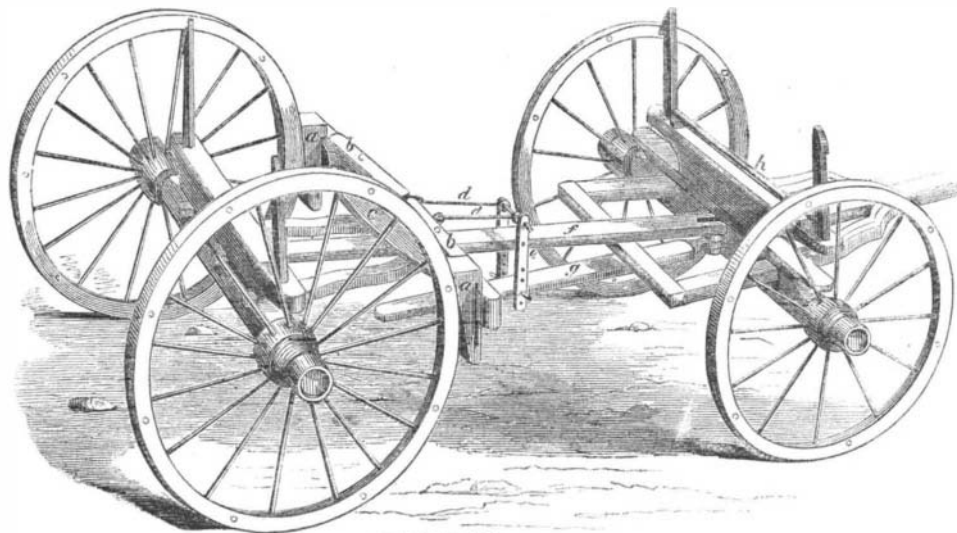
over to members of Congress; and to these functionaries we refer those of our readers who may desire to procure them. There are three volumes containing illustrations and claims of all the patents granted during the year 1858; and one volume devoted to agriculture and meteorology, with an illustration of the *Boss Grunniens* or Thibet bull—a ruminant mammal, with cylindrical horns, pendant hair and horse-like tail—one of the ugliest looking beasts we ever beheld. These reports are very useful, and are becoming more valuable each year.



SMITH'S IMPROVED WATER WHEEL.

IMPROVED WAGON BRAKE.

It is remarkable that, notwithstanding all the study which has been expended on wagon brakes, no one has before thought of the contrivance which we here illustrate. While it is apparently as simple as any brake can be, it is perfectly self-acting, coming into operation whenever the descent is sufficient to cause the wagon to run forward of its own accord, and requiring no attention whatever from the driver.



BROWN'S IMPROVED WAGON BRAKE.

The rubbers, a a, are attached to the levers, b b, which are pivoted to the crossbar, c. The inner ends of the levers, b b, are connected with the levers, e e, by means of the rods, d d. The levers, e e, are pivoted to the coupling rod, F, of the wagon, and have their lower ends secured by a bolt to the rod, G. The king-bolt secures the rod, F, to the forward axle by passing through an elongated hole or slot, which permits a motion backward and forward of the forward axle, carrying with it the rod, G, which, it will be seen, presses the brakes against the wheels whenever the wagon runs forward by its own