New Inventions.

A Hot Air Locomotive.

The hot air locomotive built at the Novelty Works, this city, for P. Bennet—as recently noticed by us on page 181—was tried on the 4th inst. on the Paterson Railroad, N. J., and accomplished the feat of running off the track. It is stated that when this happened it was running at the extraordinary speed of eighty miles per hour. This locomotive has cost $40,000, and weighs about 40 tuns. The hot air employed in it is moistened with steam generated in a small boiler. The hot air to be used in the cylinder passes directly through the fire and is mixed with carbonic acid gas.—Any engine impelled by such a motive agent, or rather agents, must soon destroy itself. In their very nature the hot air and gas (although somewhat mollified by steam) will act injuriously upon the metal.

Canal Across the Isthmus of Suez.

This great enterprise, which, for many years, has seemed a visionary project, is likely to be realized. The commission of engineers and scientific men whom the Viceroy of Egypt appointed to examine and determine upon the practicability of it, have made a report, in which they declare that the canal could be built on nearly a direct route from Suez to the Gulf of Pelusium, with a branch to the Nile. The estimated cost is $8,000,000, and the construction will take six years. It is estimated that this canal will effect a saving in distance between the respective places and Bombay, as follows: Constantinople, 12,900; Havre, 8,928; London, 8,550; Liverpool, 8,550; New York, 7,317; New Orleans, 8,178 miles. More than one half the distance is abridged between the principal ports of Europe and Asia, by the proposed canal. This single fact shows its immense utility to all nations, as well as to Egypt and Turkey.

The Steamer New Jersey.

It will be recollected by our readers that on the night of the 15th ult., the steamboat *New Jersey*—running as a ferry boat between Philadelphia and Camden, N. J., was consumed by fire, by which calamity 36 persons lost their lives. The citizens of Philadelphia have given this case a most thorough examination, and the Coroner's Jury have returned a verdict which places the whole blame of it upon the owners, and some of those employed on the steamboat—the captain, pilot, engineer, and fireman; also the Inspector. The boiler was worn out, leaky, and defective; the boat was inadequately manned, had no life-boats, life preservers, buckets, nor means of escape, from collisions or fire. We hope that those who have been blameable in this case, and whose bad conduct has been fully proved before the Coroner's Jury, will meet with the punishment they so justly deserve.

The Rensselaer Polytechnic Institute.

In our notice of the Pennsylvania Polytechnic Institute, a few weeks ago, we forgot to mention the above-named excellent Institute in Troy, N. Y., which was established in 1825 by the old Patroon, Hon. Stephen Van Rensselaer, and in which have been educated some of our most distinguished men in the walks of science. This institution is designed for the education of Architects, Civil, Mining, and Topographical Engineers, upon an enlarged basis, and with a liberal developement of mental and physical culture.

New Measuring Instrument.

Our engravings illustrate a convenient and ornamental little pocket instrument, for measuring surfaces of all descriptions, the invention of Mr. Louis Young, No. 1 Whitehall st., New York City, by whom it was patented Nov. 20, 1855.

One end of the instrument is held in the hand; the other end is furnished with a measuring wheel, which is rolled over the surface of the object to be measured, the distance traversed by the wheel being accurately indicated in feet, inches, and parts of inches on graduated disks. Fig. 1 shows an exterior view of the improvement, A being the measuring wheel; B is a pointer, which shows the inches and fractions, while the number of feet are seen through the aperture at C. Referring to fig. 2—which exhibits the interior construction—it will be seen that wheel A is furnished at its center with a cam, D; the latter has a connecting rod, E, extending to the slide, F; this slide has a pawl, G, which moves the ratchet wheel, H; the numbered disk, I, moves with H. At every revolution of wheel A, the pawl, G, will push against the teeth of ratchet wheel, H, move it one cog, and thus exhibit a different figure at the aperture in the handle C. To take the measure of any surface, therefore, it is only necessary to roll the wheel, A, over the same, when a correct answer will be seen on the instrument, mechanically figured up. The saving of time and trouble over the ordinary method of measurement by tape or rule is obvious.

IMPROVED MEASURING INSTRUMENT.

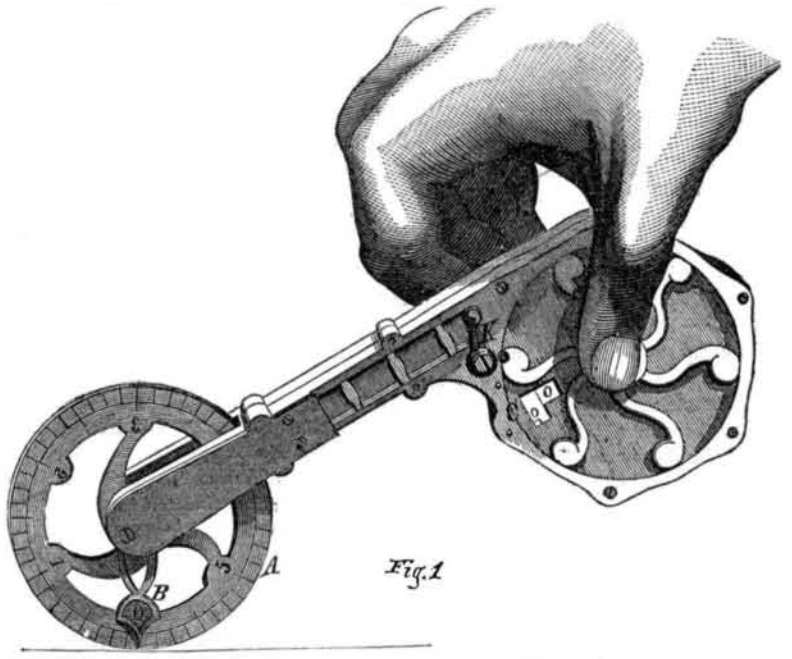


Fig. 1

In the center of disk I there is a coil spring J, which returns the disk to zero, ready for a new measurement. The spring is brought into operation by touching the button, K, on the handle.

The instrument may be so made as to measure from one up to one thousand feet or more continuously. The expense of manufacture is quite small. The disks, which require mathematical accuracy in their construction are all produced by unerring machinery. Surveyors' instruments and many other varieties of measures can be constructed on this plan. It is a very excellent and useful improvement. Apply to the patentee for further information.

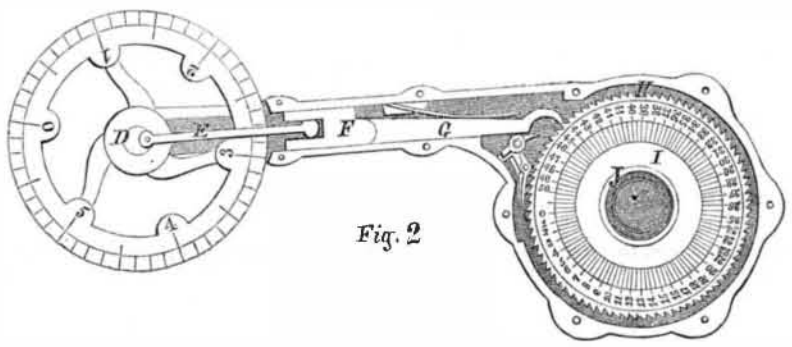
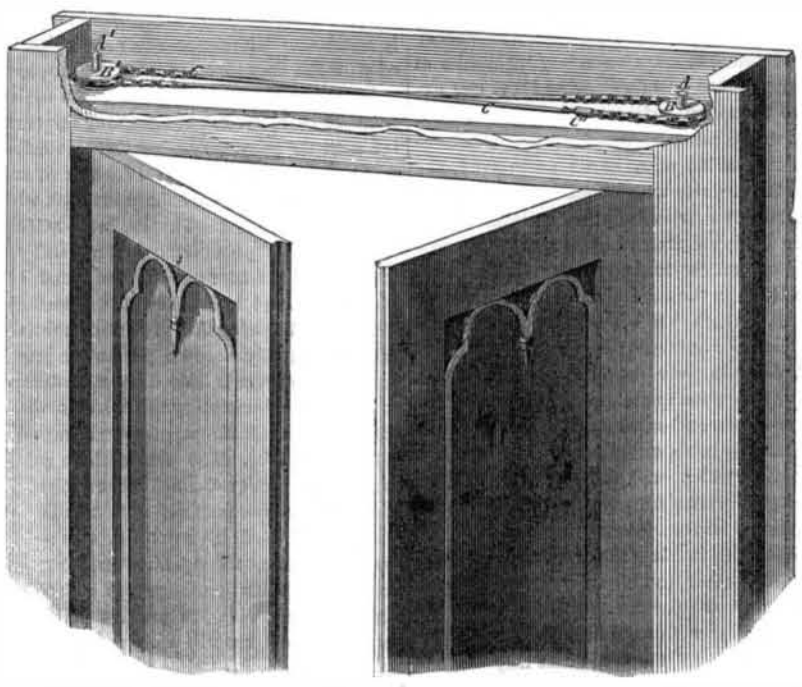


Fig. 2

NEW METHOD OF CONNECTING DOORS.



Improved Method of Connecting Doors.

This improvement consists in providing double doors with spindles, A A′, which extend up through the jamb into the casing; pulleys, B B′, are attached to the spindles; a chain belt and connecting rods, C, unite the two pulleys, so that when one door is opened, the other will also be moved; the inconvenience of having to open both doors by hand is thus avoided. The rods have an adjusting nut, C′.

In our engraving the belt is crossed, so that both doors will open in the same direction By changing the belt, so that it will work in direct lines, the doors will open in different directions. If desired, a spring may be attached to the spindles above the pulleys, which will, at all times, close the doors.

The parts are simple, strong, and wholly concealed in the casing from view.

For offices, stores, shops, cabins, staterooms, and all situations where double doors are required, this invention presents special advantages. Its cheapness and simplicity are strong recommendations.

Mr. Charles E. Brown, formerly of New York City, now of East Cambridge, Mass., is the inventor. His patent bears date January 8, 1856. For further information apply to Mr. D. M. Devoe, 178 Wooster street, New York City.

Launch of the Steamship Adriatic.

This noble vessel was launched from the ship yard of her builder, George Steers, on the forenoon of the 7th inst., amid a vast concourse of persons who had assembled to witness the scene. At half-past eleven o'clock the booming gun told the hour for the last wedge to be struck away, when instantly the leviathan hull began to move on her ways, and quicker and quicker, onward she bounded majestically into the "briny deep." The impetus she received carried her to the other side of the river, and led to the demolishing of one of the piers, but the *Adriatic* sustained no injury.

The model of this steamer is the same as that of the *Niagara*. Her entrance is sharp and beautiful, and all her lines very graceful and fine. Her length is 354 feet, breadth 50, depth 33, tunnage 5250 tuns. Her engines are to be oscillators, the largest of this character ever constructed. Their bore is to be 96 inches, their stroke 144 inches. They are now in course of construction at the Novelty Works of Messrs. Stillman & Allen. They are to be fitted up with Mr. Allen's new valve arrangement, and are to be splendid specimens of engineering. The hull is divided into a number of water-tight compartments, and no expense will be spared to make her the finest and as safe a steamer as plows the deep. Her interior arrangements will be on a grand and costly scale, and her whole cost, it is estimated, will not be much less than $850,000.

The *Persia*—the latest built ship of the Cunard line—is 360 feet long, or six feet more than the *Adriatic*, but she is five feet less in width, and in burden is less by 600 tuns.

The *Vanderbilt*, the *Persia*, and the *Adriatic*, the new great Atlantic steamers, will be representatives of different classes of engine propulsion. The *Persia* is fitted with side levers, the *Vanderbilt* is getting in over-head beam engines, and the *Adriatic* will have oscillators. The latter kind of engines are the most simple and compact, but hitherto they have been objected to for large vessels on account of their steam heated trunnions. The engines of the *Vanderbilt* are now being rapidly fitted up at the dock of the Allaire Works. Her cylinders are of 90 inches bore, with a stroke 144 inches; the estimated power of them is less than those designed for the *Adriatic*. The *Persia's* cylinders are 100 inches in diameter; their stroke is ten feet.

The fitting up of these large vessels with steam engines so different in their construction and arrangement affords us much satisfaction, inasmuch as their experience will be a great addition to the science of marine engineering.

Mechanics Festival.

We learn by the *Weekly Banner*, of Hamilton, C. W., that the mechanics of that place belonging to the Mechanics Institute, held their Annual Festival on the 2nd inst., and had a fine time of it, between eating and speechifying. The President, Nehemiah Ford, stated that the success of the Institute during the past year, had been unparalleled. There had been an increase of 200 members, and its financial affairs were in a flattering conditon. The success of the Institute does honor to the mechanics of Hamilton. It has a good library, owes no debt, and has a large list of members, who are careful readers of the Scientific American.

To Major Raines and Lieutenant Churchill we are indebted for courtesies tendered us, while spending a few hours on Governor's Island last week.