Scientific American.

THE ADVOCATE OF INDUSTRY, AND JOURNAL OF SCIENTIFIC, MECHANICAL AND OTHER IMPROVEMENTS.

VOLUME 6.] NEW-YORK, MAY 10, 1851. [NUMBER 34.

THE
Scientific American,
CIRCULATION 16,000.
PUBLISHED WEEKLY
At 129 Fulton, street, N. Y., (Sun Building,) and 13 Court street, Boston, Mass.

BY MUNN & COMPANY,

The Principal Office being at New York.
A. T. Hotchkiss, Boston.
Dexter & Bro., New York City.
Weld & Co., New Orleans.
Stokes & Bro., Philadelphia.
Cooke & LeCount, San Francisco, Cal.
Courtenay & Wienges, Charleston, S. C.
John Carruthers, Savannah, Ga.
Barlow, Payne & Parken, London.
M. M. Gardissal & Co. Paris.
Responsible Agents may also be found in all the principal cities and towns in the United States.

TERMS---$2 a-year---$1 in advance and the remainder in 6 months.

Rail-Road News.

Hoosic Mountain Tunnel.

This stupendous project contemplates the perforation of the Hoosic Mountain, near North Adams, Mass., for the passage of the trains of the Troy and Boston Railroad. The length of the proposed tunnel is 24,100 feet, or about four miles and three quarters, and the estimated cost $1,948,257. Such is the configuration of the mountain, that it is said no shafts can be sunk less than eight hundred feet in depth. Consequently, it will only be possible to work at two points simultaneously, and on this supposition, it is calculated that one thousand five hundred and fifty-six days, or more than four years, will be necessary for the completion of the undertaking.

The Massachusetts Senate have passed a law which is now before the House, to loan to the Troy and Boston Railroad Company, $2,000,000 of State bonds, on condition that certain amounts of money shall be expended by the company previous to the advance of the several instalments of the loan from time to time, which expenditures are to exceed the amount of said advances, until the entire railroad, with the exception of the tunnel, shall be completed; but on this event, the entire amount of stock loaned is to be advanced to the company.

[We are afraid that the cost of such a work would be so great that it never would pay the expenses.

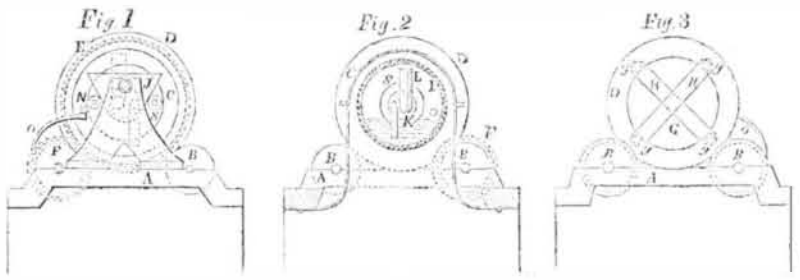
NEW YORK AND ERIE RAILROAD.—The first train passed over this important public work on Tuesday, last week, from Piermont to Dunkirk, its entire length of 395 miles.

James Watt.

While in retirement in the decline of life, he did not allow his faculties to slumber, and was jealous of any decline in his mental capacity. "At one time (says M. Arago) our associate imagined that his faculties were declining, and in keeping with the seal he had adopted (an eye surrounded with the word 'observare') he determined to satisfy his doubts by making observations on himself, and accordingly when upwards of seventy years of age, he determined to select some kind of study on which he might try his powers, and for a time he was in despair, because he could find no subject that was new to him. At length he thought upon the Anglo Saxon tongue, which is a very difficult tongue; and immediately it became the subject of the desired experiment, when the facility with which he mastered it soon convinced him that there was no ground for his apprehensions." He thus busied himself in various useful and entertaining pursuits till near the end of his lamented death in 1819.

There is project on foot for the establishment of a city railroad from 128th street to the Battery, through the Second Avenue.

ANDERSON'S REVOLVING STEAM BOILER.



The accompanying engravings represent an invention in steam boilers by Mr. Charles Anderson, of Warren, Warren Co., Pa., and for which he has taken measures to secure a patent.

Fig. 1 is a front end view of the revolving steam boiler. Fig. 2 a transverse section. Fig. 3 a back end view, and figure 4 is a longitudinal vertical section

The same letters of reference indicate like parts.

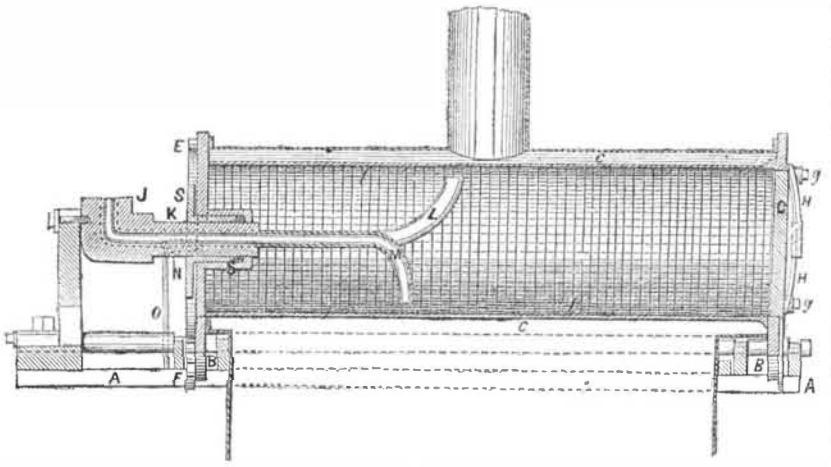
There are three specified improvements connected with this invention. One is a mode of preventing explosions by securing either the head or end of the boiler by springs which will bear a certain pressure, but when the pressure exceeds this, the end will be thrust out, and prevent the boiler from bursting to pieces.

The second improvement applicable to revolving boilers is applying a cylinder of wire gauze in the interior of the boiler for the purpose of gathering up the water on the surface, when the boiler is rotating.

The third improvement is the placing of an alarm valve on the boiler, to be opened once during every revolution by the striking of a stationary bar or other object placed in a convenient position to call the attention of the engineer to the boiler.

A is a strong metal frame supported above the furnace and carrying friction rollers, B B. C is the shell of the boiler, having a strong circular flange, D, at each end resting on the friction rollers. The front end of the boiler has a toothed wheel, E, on it, gearing into a pinion, F, which receives motion from any power, and thus gives a rotary motion to the boiler. G is the back end of the boiler, and is fitted steam tight in the shell of the boiler. H H are two bar springs pressing across it, and secured by the bolts, *g*, fitted into the flange, D. The ends of the springs are formed and fitted under the heads of the bolts in such a way as to be released by any great pressure on the end, G. These springs are made and adjusted to sustain a given amount of pressure on the end of the boiler; should the pressure of steam increase beyond the tension of these springs on the boiler, the end, G, will be thrust out, and the bursting of the boiler will be prevented.

Figure 4.



In figs. 2 and 4, I is an interior lining of fine wire gauze or copper, for the purpose mentioned above. J is a stationary head secured at any convenient distance from the front end of the boiler with a cylindrical neck, K, attached to it, passing through a stuffing box, S, into the boiler, concentric to its axis of motion. In this head, J, and through the neck, K, there are two passages leading into the boiler communicating with a pipe, L, turned upwards. This is the steam pipe, and there is another one, M, turned downwards, which is the feed pipe. N is an alarm valve or guage placed on the front end of the boiler; O is an arm standing up from the frame. Its upper end is in such a position and its point inclined, so that the escape or alarm valve, N, shall strike it once during every revolution of the boiler, so as to open and let out a small jet. If the water is too low, steam will come out, if not, water will come out, and thus it will be an *indicator alarm.* The boiler is to have the flues running under and around it in any desirable manner, and it is intended to have only ½ of it containing water. As the boiler revolves, the water is thrown upon the sides of the boiler and also upon the wire work. A large and continually changing heating surface, the inventor states, is always presented, so as to raise a great quantity of steam with the least quantity of fuel in a given time. A smaller boiler is required and a reduction of space for boiler and fuel room is thus obtained. The back end may be so guarded against, that if it should be blown out, little damage will be the result.

More information may be obtained by letter addressed to Mr. Anderson.

The Philadelphia Navy-Yard.

Preparations are about to be made for removing the big ship house, under which the ship-of-the-line Pennsylvania and the steamships Mississippi and Susquehanna were built, to a point nearer the river. In its present position it is perfectly useless, being more than 300 feet from the end of the new piers. It is to be moved about 200 feet, and placed upon the foundations already prepared. This will be an extraordinary feat, as the house is about 280 feet long and 100 feet wide, and probably weighs 700 tons. The enormous shears are to be immediately moved to the extremity of the pier, between the two houses, so as to be used in lightening the ship-of-the-line North Carolina, shortly expected there to be taken out on the sectional dock. The visit of this ship to that station will be quite an event in its history, as she was built within the Navy Yard, and launched in 1820, at which time neither of the ship houses had been constructed. Her keel was laid west of the present site of the frigate house, her bow extending near to the spot now occupied by the joiner-shop, which is not less than 700 feet from the extremity of the piers. The North Carolina when hauled on the ways, will be close alongside of the spot where her keel was originally laid, thirty odd years ago. It is thought that she will be rebuilt or require extensive repairs, as it has been many years since she was overhauled.

Metals of the United States.

Iron is the most abundant metallic mineral our country affords. Its value is ten times that of gold and silver, and one-half the value of all the metals produced in the United States. Iron is found in every State of the Union.

The most valuable mine is one in Salisbury, Ct., which yields 3,000 tons annually. The mines in Duchess and Columbia counties, in the State of New York, produce 20,000 tons of ore; Essex county, 1,500 tons; Clinton, 3,000; Franklin, 600; St. Lawrence, 2,000; amounting in all, to more than $500,000. The value of the iron produced in the United States, in 1835, was $5,000,000; in 1837, $7,700,000.

In Ohio, 1,200 square miles are underlaid with iron. A region explored in 1838 would furnish iron sixty-one miles long and six miles wide; a square would yield 3,000,000 tons of pig iron; so that this district would contain 1,000,000,000 tons. By taking from this region 400,000 tons annually (a larger quantity than England produced previous to 1829,) it would last 2,700 years—as long a distance, certainly, as any man looks ahead! In the states of Kentucky and Tennessee, 100,000 tons are annually manufactured.

The most extensive lead mines in the world are in Missouri, where the lead region is seventy miles long by fifty wide. These mines in 1826, produced 7,500,000 tons, and the whole produce of the United States was 8,322,105.

The quantity of lead manufactured in the United States, in 1828, was 12,311,730 lbs.; in 1829, 14,541,310 pounds; in 1838, 8,332,-105; and in 1832, 4,281,867.

The copper trade, until within a year or two, has not been of much importance, as the result of the efforts made were not such as to justify any great operations. But now it appears to be attracting a good deal of attention. Whether the demand of the copper stock is a fair index to the value of the copper regions remains to be seen.

The Everglades.

Gov. Brown has recently made a tour through Southern Florida. He took occasion to examine, with some attention, the Everglades, with reference to their drainage. His opinion is that thorough drainage is impracticable. If it could be effected, the deposits laid bare would be found to be purely vegetable decomposition, light enough, when dry, to be blown away, and quite as combustible as peat The waters of the Everglades, says the Tallahassee Sentinel, teem with fish of many varieties, and in such numbers that one must see to believe. With a single spear the fisherman may load his boat in a few moments. Wild fowl are there in such enormous flocks, as almost to darken the sun, and game is abundant on the islands.

© 1851 SCIENTIFIC AMERICAN, INC.