Scientific American.

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

VOLUME XI. NEW-YORK, FEBRUARY 2, 1856. NUMBER 21.

THE
Scientific American,
PUBLISHED WEEKLY
At 128 Fulton Street N. Y. (Sun Buildings.)
BY MUNN & COMPANY.

O. D. MUNN, S. H. WALES, A. E. BEACH.

Agents.

Federhen & Co., Boston. | Dexter & Bro., New York
A. Winch, Philadelphia. | E. E. Fuller, Halifax, N S,
A. G. Courtenay, Charleston. | S. W. Pease, Cincinnati, O.
Avery, Bellford & Co., London | MM. Gardissal & Co., Paris

Responsible Agents may also be found in all the principal cities and towns in the United States.

Single copies of the paper are on sale at all the periodical stores in this city, Brooklyn, and Jersey City.

TERMS--$2 a-year,—$1 in advance and the remainder in six months.

Railroads of the United States.

Dinsmore's excellent *Railroad Guide* for this month contains a summary of the number of miles of railroad now in operation in the United States, from which we learn that we have more railroads than all other countries put together.

The total amount of railroads is 19,664, miles. Great Britain and Ireland have only about 8500 miles in operation, while those on the continent of Europe do not amount to 6000 miles. In 1828 there were only 3 miles of railroad in our country; in 1338, 1843 miles; in 1848, 5682 miles; consequently 13,162 miles have been built during the past seven years. This is a most astonishing and rapid increase, being nearly double those that were built during the previous twenty years.

New York has the greatest number of miles in operation, namely, 2692; Ohio is next, having 2427; Illinois comes next, having 1892; Pennsylvania next, having 1627; Indiana next, having 1482; and Massachusetts has 1317. No one of the other States come up to a thousand miles, and Arkansas, California, and Iowa, have none.

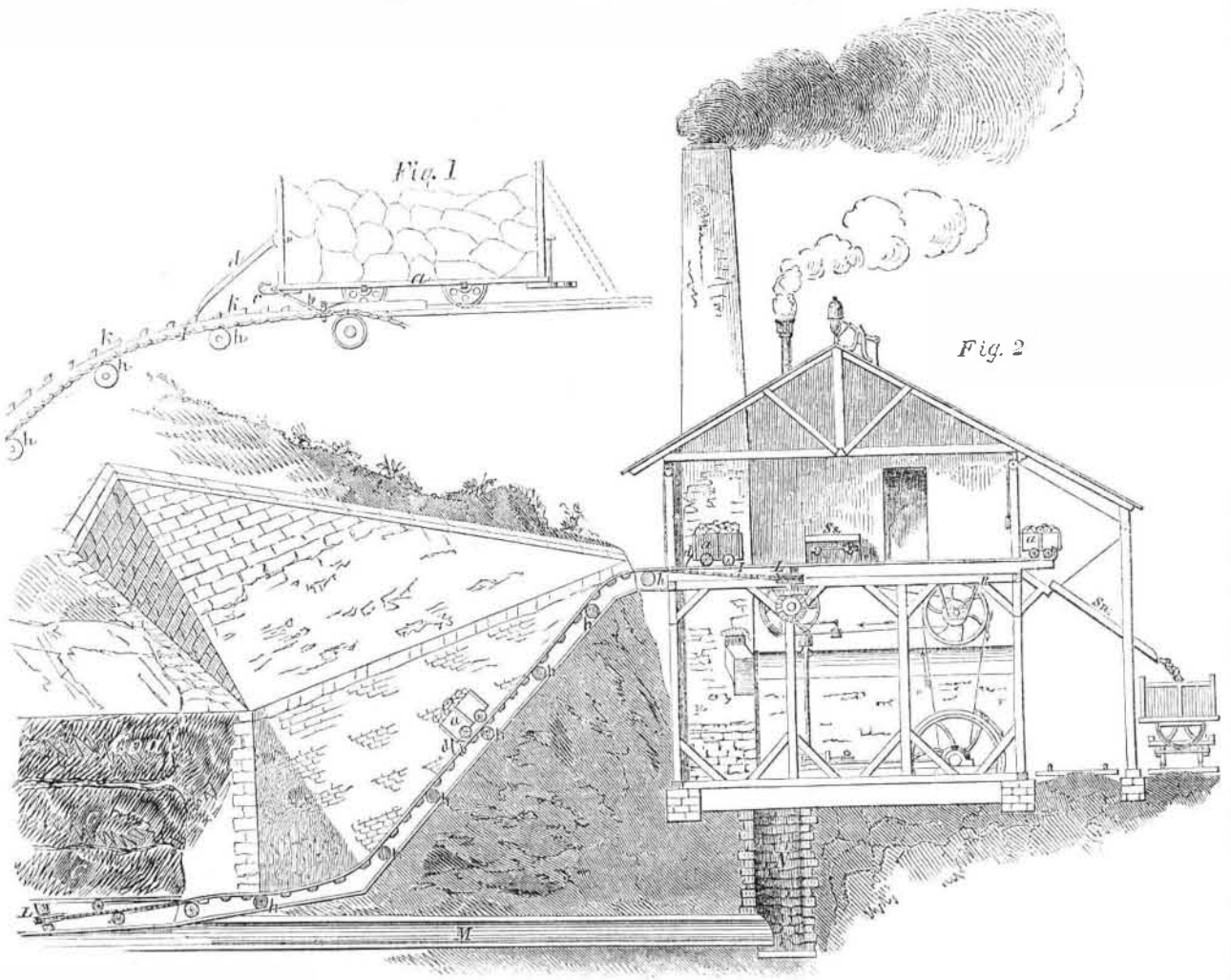
There are now 6000 miles more under construction—as much as there is in continental Europe—and these, it is calculated, will be completed and in operation in two years. The total value of completed railways at $30,000 per mile is $589,920,000. We do not know the exact cost of constructing railways per mile in Illinois and Indiana, but we have been informed that it does not amount to one-third that of Massachusetts, which cost over $40,000 per mile, owing to numerous deep cuttings, and heavy embankments being required. The western States being more level are better adapted than the Eastern States for building cheap railroads. The railroad interests are now a mighty power in the Federal Common wealth.

Dangerous Eating.

Pheasants are said to be poisonous as food during severe cold and deep snow. They are then deprived of their ordinary food, and eat the leaves of evergreen bushes, some of which are poisonous. The Philadelphia *Ledger*, on this subject, says: "During the British occupation of Philadelphia, when the officers indulged themselves in pheasant shooting on Wissahickon hights, seven persons were poisened at the supper succeeding the sport. The bird, unable, on account of the depth of the snow, to find his natural food, was compelled to feed on the buds and leaves of the laurel (kalmia latifolia.) Death ensued. A scientific friend has just exhibited to us the crop and intestines, with the body of the pheasant, weighing 1 lb. 14 3-4 oz. The crop and stomach were crammed with half decomposed laurel. One pair of such birds might render a family helpless for weeks, if not poison them to death."

N. K. Wade, of Pittsburg, Pa., has gone to Russia, in the Emperor's employ, to superintend the manufacture of cannon at St. Petersburgh. He is to receive $5000 per annum.

COAL MINING IN ILLINOIS.



The Wood River Coal Mines are located in Madison County, Illinois, eight miles from Alton and about eighteen miles from St. Louis, Mo. The mines are owned by an incorporated stock company, of which Wm. Richardson is the Resident Agent, and contain near 400 acres of coal land, which, being perfectly level—with the exception of a small portion on a branch of Wood river—contain a solid body of coal, 6 feet 6 inches average thickness, extending under the whole of the company's lands. The coal is a very superior bituminous, containing, according to a analysis by Dr. Jackson, of Boston:

Gas-making bitumen	50 50
Fixed carbon in coke	46 05
Gray ashes	3 45
Sulphur	0 00
	100 00

During the year 1853 and 1854 the Company opened several shafts, principally for ventilation, but also to test the extent and thickness of the coal. They also opened at the head of a bluff on the margin of Wood river, a drift or entry where the building and machinery which form the subject of the accompanying engraving are situated. The cut will give an idea of the manner in which coal is mined in some parts of the country, though probably few localities afford so many natural advantages and facilities for mining operations as are here combined.

The building is placed at the base of the bluff before mentioned, and contains a powerful steam engine for raising the coal from the mines, and also for pumping the water there from. The water is drawn from the floor of the mine through sewer M, which empties into the well N, whence it is pumped by steam.

The coal is elevated from the mine in small car (*a*) loads. A suitable track extends from the bed of the mine to the upper story of the building, the cars being propelled by the endless chain L, which passes over friction rollers, *h*. There is a hitch bar, *b*, attached to one end of each car, which passes into a link of the chain, and thus connects the car and chain together during the ascent and descent. For purposes of safety a rack, *k*, is laid in the center of the track, over which the pawl, *d*, trails. If the chain should happen to break, therefore, the car will not be precipitated down the incline, but will stand still.

When the cars arrive at the landing, I, they disconnect with the chain, pass along the floor to the scales, *S s*, where they are weighed, thence across the floor to the other side of the building, where they are dumped upon an inclined screen, *S n*, and fall, ready for market, into the railroad cars below, as shown. The empty cars are then pushed back to the other side of the building, connected with the downward line of chain, and so are carried back to the mine to receive new loads of coal.

The cars are propelled 168 feet in 24 seconds, and from 3000 to 3500 bushels of coal can, and several times have been raised per hour. The same chain can be extended entirely through the main entry, and thereby render further important assistance. It can also, by a slight alteration, be used for raising coal from a vertical shaft.

Nothing can be more simple, convenient, or rapid, than these arrangements for mining. Taken together with the remarkably favorable situation of the mines, as respects navigation and railroads, the Company will be enabled to supply the western markets with immense quantities of fuel.

To form a connection with Alton a railroad has been built from the mines to the Terre Haute and Alton Railroad, a distance of two miles. Since that time, however, finding that Alton did not offer a market for half of the coal capacity of the mines, another railroad has been built from the Terre Haute and Alton Railroad direct to the bank of the Mississippi river, at a point opposite the mouth of the Missouri. Here a large wharf boat of 1200 tuns capacity is moored. A truss work rests on the boat and also upon the bank, and the cars, as they arrive, are let down by means of a brake—one ascending and one descending—worked by one man on the boat. They then run on turn-tables, and thence along the whole length of the boat—some 270 feet—dumping on either side, as required, and also into flat-boats, for the St. Louis market. The Company are thus prepared to supply all the upper Mississippi, the Missouri, and Illinois river boats, which is an immense trade. The wharf boat lies in the direct channel of all boats passing, and there is ample depth of water around her. By coaling here boats save a wharfage which is charged at Alton, they also obtain their coal less than elsewhere, besides other advantages in time, &c.

The present capacity of the mines is about 10,000 bushels per day. The Company have in use their own locomotive and cars, and have arrangements made for doing a large business as soon as navigation opens in the Spring. The machinery, plans, railroads, &c., were drawn and superintended by Joseph A. Miller, Civil and Mining Engineer, St. Louis, Mo., and Alton, Ill.

Report of the New England Inventors and Mechanics Industrial Exhibition.

The Committee on Machinery (W. P. Parrott and Saml. Cooper,) submit a brief yet somewhat interesting summary of the different machines on exhibition.

In noticing a pianoforte action, they introduce the remark "that this piano felt better under the touch than any of the pianos on exhibition." This quotation has reference to the opinion of the International Jury of the Paris Exhibition, and is credited to the New York *Times*. We venture to assert that the *Times* never published the extract, and further, that it was copied from an article in the Scientific American, of Sept. 22, 1855.