

Scientific American.

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

VOLUME 5.]

NEW YORK JANUARY 19, 1850.

[NUMBER 18.

THE Scientific American,

THE
BEST MECHANICAL PAPER IN THE WORLD.
CIRCULATION 14,000.
PUBLISHED WEEKLY.
At 128 Fulton Street, New York, (Sun Building,) and
13 Court Street, Boston, Mass.
BY MUNN & COMPANY.
The Principal Office being at New York.
Barlow & Payne, Agents, 89 Chancery Lane, London
TERMS—\$2 a year—\$1 in advance, and
the remainder in 6 months.

Rail Road News.

Effect of the N. Y. and Erie R. R. on the Butter and Poultry Markets.

Fifty thousand dollars' worth of butter has been shipped on one boat from Newburg, at one time; while twenty to thirty thousand dollars' as a common freight, used to be frequent before the New York and Erie railroad was completed. The road somewhat lessened the freighting business of Newburg, and added immense amounts to the New York market of almost everything that is eatable. A few years ago, turkeys, ducks, and chickens were hawked about the streets of Oswego, begging for buyers. But now they are carried to this city, and we have to pay pretty well for them with all our railroad conveniences. Our farmers on the line of railroad, are perhaps more benefitted by them than any other class.

Charcoal Roads.

Suppose your road is thirty feet wide; the timber on the space which your road occupies is all cut, and the trees all laid lengthways upon a space say ten feet wide. The pile of trees and bush extending the distance required, is then covered with turf and a fire set at each end, and it will burn and settle as handsomely and even as can be, and is just hard enough so as not to hurt the horses' feet. The rain that falls upon the road will run off without soaking into it.

Obstructions on Railways.

A correspondent from Georgia, writing us about those scoundrels who put obstructions on railways, causing fearful accidents sometimes; says that it would be a good plan to keep a well trained dog in every train of cars to scent out the guilty persons. He says that "the very idea of dogs being kept for such a purpose would terrify those whose hearts would prompt them to such acts, for fear of detection."

Railroads.

A reduction of fare has taken place on the Harrisburg and Philadelphia Railroad. The ratio is now 3 cents per mile.

The opening of the Newburg Railroad was celebrated on the 9th inst., and among the eatables was a whole ox, hogs, sheep and what not. A great number got fat on the occasion, at the expense of the stockholders, but what of that.

The Madison and Indianapolis Railroad has declared a semi-annual dividend of four and a half per cent.

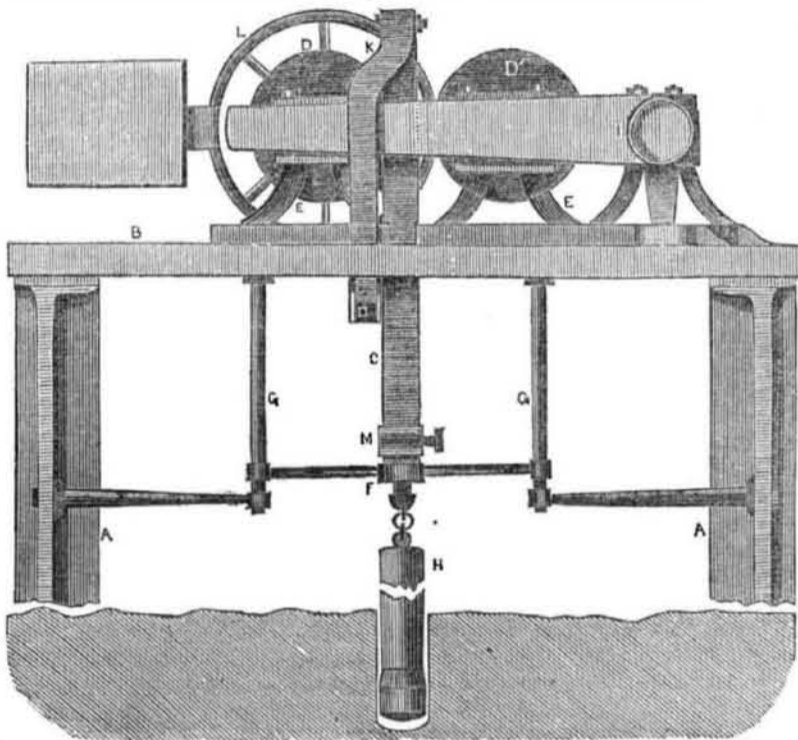
\$150,000 of the stock of the Hudson River Railroad was sold in our city last week.

The Harlem Railroad has reduced its commuting fares to Morristown and Harlem to \$15 for the first 6 months, and \$10 for the second.

Nova Scotia Wood.

Seven years ago a single cargo of 20 cords of wood was brought from Nova Scotia to Newburyport, (Mass.) and sold. Since then the trade has steadily increased, and during the year past it amounted to 4000 cords, valued at about \$20,000.

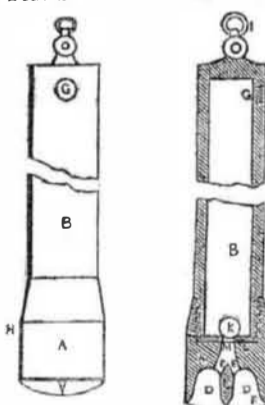
MACHINERY FOR BORING AND SINKING ARTESIAN WELLS, &c.—Figure 1.



This is an invention of W. G. Gard, of Cornwall, Eng., patented in that country and first described by Barlow & Payne, in the Patent Journal. The principal object of the invention is for deep boring. Fig. 1 is a side elevation of the machinery for operating the boring tool. A A are two standards; B is an entablature; C C is a parallel sliding bar passing freely through B, and between two broad pulleys D D1, fitted on small standards, E E. The one which carries the pulley D is fixed, the other which carries D 1, is fitted to advance and recede from the sliding bar, C, to grip and release the same alternately. The lower end of the sliding bar, C, is furnished with a cross bar, F, having an eye at either end, fitted at the vertical rods, G G. These rods form guides for the sliding bar, C, to keep it in its position. H is the boring bit, attached to the bar, C, by means of a rope, or it may

FIG. 2.

FIG. 3.



be a series of jointed metal rods. I is a strong lever, which works on a fulcrum at one end, the other supporting a heavy weight, which, along with a spring catch, K, impels the movable pulley, D 1, towards the fixed one, exerting pressure on the sliding bar, C. L is a drum whereby motion from any power, crank or band, is communicated to the pulley, D. M is a cam, fitted to the sliding bar, C, and can be adjusted by a screw, which has the effect of regulating the height to which the boring bit is elevated for each stroke. This cam, as it rises with the weighted lever, I, relieves the sliding bar, C, from the pressure of the friction pulleys, and it then falls. The weighted lever is sustained by the spring catch after being raised,

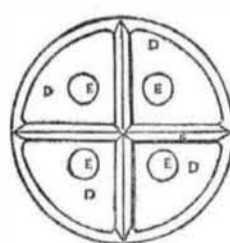
allowing time for the fall of the boring tool; but simultaneously therewith, the supporting catch is struck from under the weighted lever by a cam fixed on the upper end of the sliding bar, when it again produces a repetition of the stroke. The upper cam also serves as a stop to the sliding bar, keeping it from descending too far.

This way of operating the tool does not present so much novelty worthy of consideration as the tools themselves, but from it some good ideas can be gathered.

Fig. 2; is a side view of the hollow shaft. Fig. 3 is a vertical section of it, and fig. 4 is a plan view of the tool as combined and constructed. The same letters refer to like parts.

The borers hitherto employed for this purpose have been liable to objections, as they are sometimes made like the nose bits used in carpentry, and have to be raised up as often as the hollow fluted parts are filled up. At other times they are made of a chisel form, with a hollow handle, and which also is apt to get encumbered with the outbored material. The form of the boring tool, in this invention, consists in making the cutting ends or bits of an inverted cap-like form divided by a cross into

FIG. 4.



four segments with apertures leading from them into a hollow shaft, screwed into a neck of the bit, whereby the outbored materials are at once removed from the cutting edges. A is the part which forms the cutter and is screwed to the hollow shaft. The cutting face, A, is of a hollow form, divided by a cross, C, into four sections, D D D D, each separated hollow terminating in a hole, E, above, leading to a main opening. The cutter is enlarged to the line, H, then it tapers to where it joins the hollow shaft, to allow it always to pass freely after the cutter. The cutting edge is bevelled only on the inside, to project the parts of the rock cut, inwards and upwards, leaving the outside

free from obstruction in working. The pieces of rock detached by the cross cutting edges are also projected upwards, and conveyed by the concave channels, E, to the main channel, M. L is a valve seat secured in its place by screwing down the shaft, B, on its surface, and it has an opening in its centre corresponding with the channel, M, on which is fitted a ball valve, K. There is a pin (not seen) extending across the inside of the hollow shaft, to prevent the ball, K, from rising too high.—When the bored matter, therefore, is forced into the hollow shaft, lifting the ball valve, it immediately closes to prevent it from returning. In this way the boring can be continued until the entire capacity of the hollow shaft is filled, when it is to be withdrawn from the boring and the contents removed, which may be effected by turning the bit upside down, when they will pass out of the aperture, G. I is a link to unite the hollow tool shaft with a rope to the bar C, fig. 1, and the rope may have its upper end out of the mouth of the bore, to raise up the hollow shaft and boring tool for any purpose.

Useful Receipts.

On the Manufacture of the Celebrated Damascus Blades.

Nicolo Milonas, for some time consul in the East, in endeavouring to discover the processes employed by the Kourdes in the manufacture of their sword blades, observed:—1. That the manufactories in which these blades were made were situated at the declivity of the mountains, near cascades, the water of which, falling from rock to rock, arrived in the most limpid state in the reservoirs constructed for its reception, in which reservoirs the blades are tempered. These reservoirs are themselves placed in situations where the air is very pure. These conditions of purity of air and water are considered necessary for the success of the operation.

2.—Iron of the purest quality is selected.—Submitted to a very high temperature, the first tempering is commenced when the iron is at a white heat; the metal is exposed before fusion, the fuel employed being placed on each side of it; the red hot iron is then covered as quickly as possible with fatty and oily matters paste made from bones, wax, &c. This operation tends, according to the manufacturers, to render the blade flexible. The second tempering is performed by the same process, with this difference, that the heated iron, after having thrown off considerable quantities of sparks and having been exposed, is covered with a paste composed of powdered bones, and purified mutton suet. The third tempering is effected, by disposing the metal in such a manner, that it may be seized by a man on horseback, who rides at full gallop in order that the blade which he keeps in an elevated position may receive the impression of the air.

3.—The fuel employed is anthracite and turf. In order to obtain favourable results, it is necessary to use fuel entirely free from sulphur, and combine, as much as possible, the heating of animal, vegetable, and mineral substances.

Languages.

There are three thousand six hundred and sixty-four known languages now in use in the world. Of these, nine hundred and thirty-seven are Asiatic, five hundred and eighty-seven European; two hundred and seventy-six African; and one thousand six hundred and twenty-four American dialect.

The Cherokee arrived in this city on last Sunday from Chagres, with \$650,000.