

Our Iron Rail Products.

In 1873 the United States produced 850,000 tons of rails and imported 207,986 tons, making an aggregate consumption of 1,057,986 tons. Comparing these figures with those of 1872, there is shown a diminution of production of 91,992 tons, and of importation of 372,864 tons. From this it appears that the effect of the stoppage of railroad construction, due to the panic, must have resulted far more disastrously to foreign producers of rails than to those at home. The figures of importation for 1873 are less than those of any single year since 1867, while the aggregates of 1872 are larger than at any period during the past twenty years. Our production during the last mentioned space of time steadily increased, rising gradually from 108,016 tons in 1854 to 941,992 tons in 1872, while on the other hand importations have widely fluctuated, running as low as 10,185 tons in 1862.

The coal product for years past shows an enormous development, every year, with one exception (1867), indicating an increase. For 1873 about the usual rate of augmentation was maintained, 45,413,000 tons being produced, against 42,749,000 tons in 1872 and 22,500,000 in 1864.

The Chemical Centennial.

We have already alluded to the proposition of Dr. H. Carington Bolton, of Columbia College, of a reunion of chemists to celebrate the hundredth anniversary of the birth of modern chemistry, that event being fixed as in the year 1774, owing to the discoveries, at that time, of oxygen by Priestley, chlorine by Scheele, and other important investigations by Lavoisier having simultaneously taken place. The day set apart for the meeting, we understand from a circular, lately received, is August 1st next, and the place, Northumberland, Pa., where Priestley's remains are buried.

The programme of the celebration will include an address by Professor Joseph Henry; a sketch of the life and labors of Joseph Priestley, by Professor Henry H. Croft, of Canada; a review of the century's progress in theoretical chemistry, by Professor T. Sterry Hunt; a review of the century's progress in industrial chemistry, by Professor J. Lawrence Smith, and an essay on American contributions to chemistry, by Professor Benjamin Silliman. The books, manuscripts, etc., of Dr. Priestley will be exhibited, together with other objects of historical interest.

GANG SAW IMPROVEMENTS.

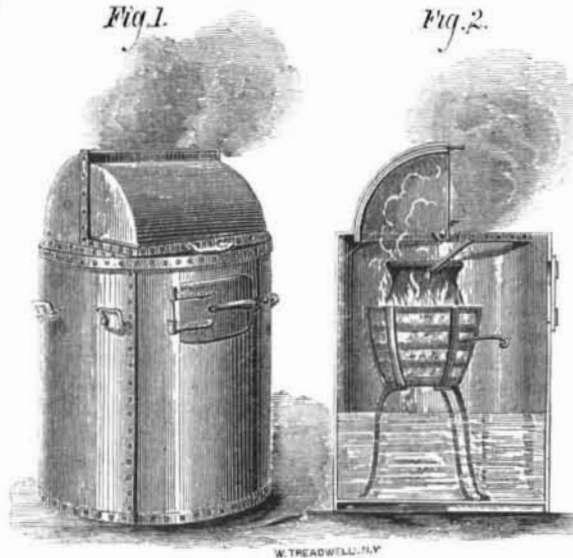
We extract from the *Moniteur Industriel Belge* the annexed engraving of a new gang saw, manufactured by M. Arbrey, of Paris. The machine, which appears to be of very simple, and doubtless effective, construction, is composed of two heavy standards of cast iron, joined above by a crosspiece and bolted below to a heavy bed of stone. Between the standards vertically travels a frame which carries the saw blades, and to which a reciprocating motion is imparted by means of two connecting rods attached to pulleys fast upon an arbor passing through the lower parts of the supports. The pulley at one end receives motion by a belt from the engine, and the other carries eccentrically a second connecting rod, which communicates with a ratchet wheel, by means of which the log is carried against the saws.

The log is dogged to the carriage by the simple contrivance shown on the left of the engraving, the arrangement of which is such that the blades are allowed to traverse the entire length of the work without necessitating the readjustment of the latter. The carriage is provided with traction

found that they will starve to death in presence of abundant vegetable food, refusing to touch it, but that they will greedily devour cutworms, earthworms, mice, and even small birds, when nearly starving in an enclosed jar. Of the birds they only devour the inside; but they devoured, indiscriminately, their own weight each day of snails, insects, larvæ, chrysalides, caterpillars, adders, slow worms, and lizards. M. Carl Vogt relates an instance of a land proprietor in France who destroyed every mole upon his property. The next season his fields were ravaged with cutworms, and his crops totally destroyed. He then purchased moles of his neighbors and preserved them as his best friends.

A SAFETY FURNACE.

We extract from the *London Building News* an illustration of a furnace for the use of plumbers in repairing roofs, an operation attended with considerable danger to the building itself, and (from the distribution of sparks by the wind) to



others in the neighborhood. It is the invention of Messrs Shand and Mason, engineers, of London; and its use would probably have saved the roof of Canterbury cathedral from the destruction recently caused by fire.

In Fig. 1 is seen the furnace when closed, the only outlet from which is the slot in the cover, through which the smoke passes. The basket containing the fire is placed some distance below and at one side of this opening, so that immunity from the escape of sparks is secured. The tripod, on which is the fire basket, stands in nine inches of water; and

a side opening, at the height of the fire, allows of the introduction and removal of ladles and soldering irons. The cowl of the furnace can easily be removed when required.

The New York Post Office.

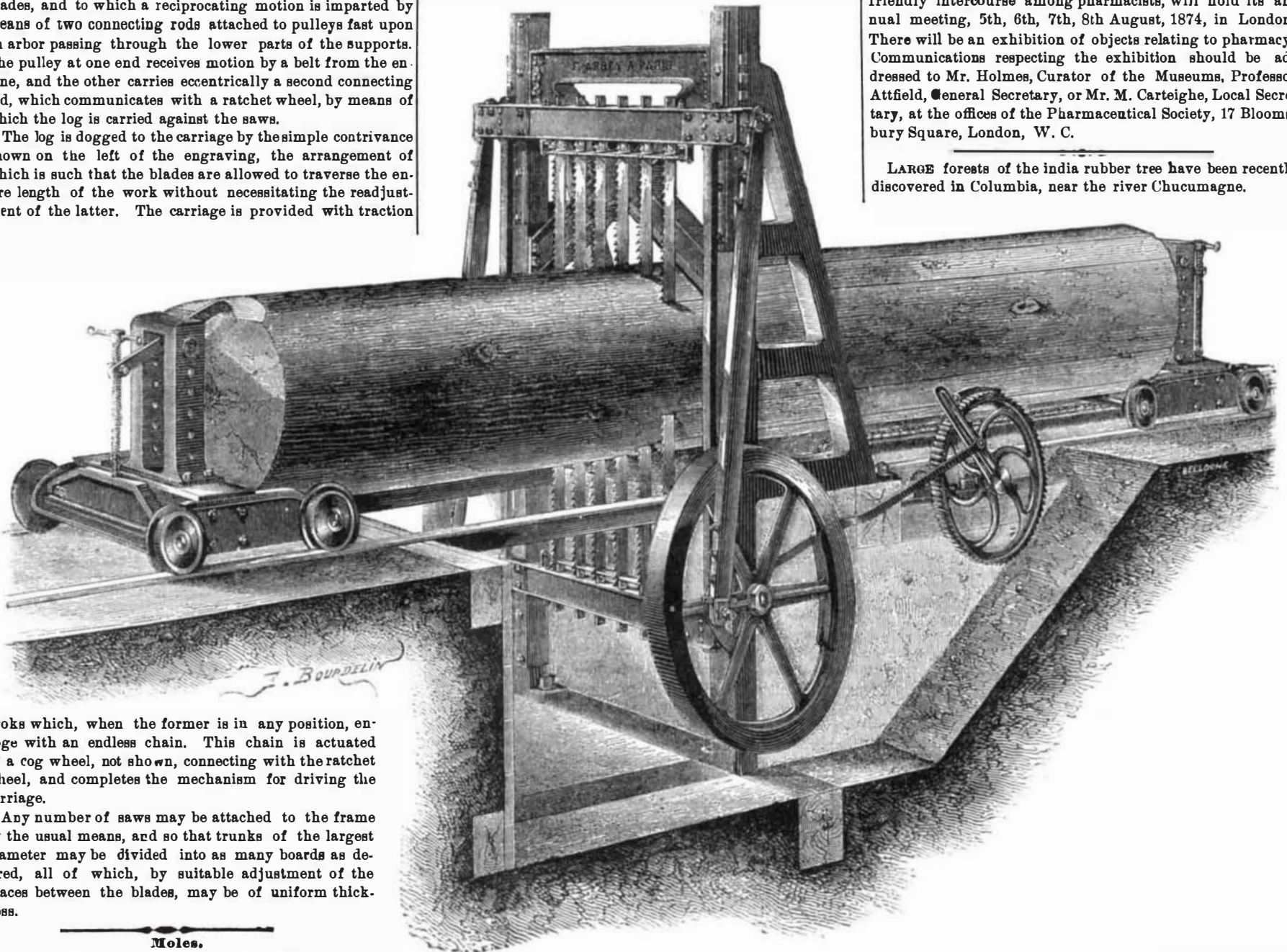
The new Post Office in this city is rapidly approaching completion, and the department will move therein during the latter part of the present year. About 100 workmen are now employed, principally upon the basement, first and second floors. In this part of the building, every improvement which invention can suggest will be utilized. Arrangements are in progress for pneumatic tubes from all the daily newspaper offices to the paper mailing room, by the use of which hardly an instant will be wasted in the dispatching of daily journals. The basement portion of the building has been arranged with special reference to the admission of railway postal cars from the tracks of the Broadway Underground Railway; and when that road is built, the mail cars will run directly down from Forty-second street into the Post Office building. The Underground Railway is to pass directly along the Broadway front of the edifice. One of these days, when the Hudson river is tunneled or bridged, the postal cars of all the railways that center in this vicinity, such as the New Jersey Central, the Pennsylvania Railway, the Erie, the Delaware and Lackawanna, will all be brought down on the Broadway Underground Railway, directly into the basement of the Post Office. This will greatly facilitate the receipt and dispatch of the mails. The new Post Office is a magnificent building, imposing in appearance, and well calculated, by its location and construction, to be the great postal center of the country. The estimated cost of the building is over five millions of dollars.

Results of Improved Weapons.

Improvements in missile weapons have, partly by keeping the combatants wider apart, tended materially to reduce the cost of victories in their most costly element—human life and suffering. The French War Office has worked out the statistics of this question and the following are some of the results: At the battle of Friedland, the French lost fourteen per cent and the Russians thirty per cent of their troops; and at Wagram, the French lost thirteen per cent and the Austrians fourteen per cent. At Moscow, the French lost thirty per cent and the Russians forty-four per cent. Again, at Waterloo, the French lost thirty-six per cent and the Allies thirty per cent of their forces engaged. Forty years later, when the new weapons were employed, the loss of the French at Magenta was seven per cent, that of the Austrians the same. At Solferino, the French and Sardinians suffered a loss of ten per cent, and the Austrians of only eight per cent.

THE British Pharmaceutical Conference, for the encouragement of pharmaceutical research and the promotion of friendly intercourse among pharmacists, will hold its annual meeting, 5th, 6th, 7th, 8th August, 1874, in London. There will be an exhibition of objects relating to pharmacy. Communications respecting the exhibition should be addressed to Mr. Holmes, Curator of the Museums, Professor Atfield, General Secretary, or Mr. M. Carteighe, Local Secretary, at the offices of the Pharmaceutical Society, 17 Bloomsbury Square, London, W. C.

LARGE forests of the india rubber tree have been recently discovered in Columbia, near the river Chucumagne.



hooks which, when the former is in any position, engage with an endless chain. This chain is actuated by a cog wheel, not shown, connecting with the ratchet wheel, and completes the mechanism for driving the carriage.

Any number of saws may be attached to the frame by the usual means, and so that trunks of the largest diameter may be divided into as many boards as desired, all of which, by suitable adjustment of the spaces between the blades, may be of uniform thickness.

Moles.

M. Flourens and other naturalists have experimented with moles to ascertain their habits. It has been

A FRENCH IMPROVEMENT IN GANG SAWS.