Interesting Experiments.

Mr. William Loughbridge, of No. 362 North Eutaw street, Baltimore, is engaged in prosecuting a series of experiments "for testing the laws of friction as they relate practically to rolling stock on railways," and, in the course of them, has developed some incidental facts which are curious and interesting. The laws governing the friction of different bodies have, as Mr. Loughbridge knows and acknowledges in his circular, been definitely settled by Morin and Coulomb. It is not proposed to controvert these broadly, but to observe more particulary the action of the friction brake on wheels of cars, with a view to the adoption of the best one for the purpose.

We extract a portion of Mr. Loughbridge's circular, which is worthy of attention:—

"I have commenced making experiments on the effect of friction on 'rolling stock,' and find them very interesting and profitable, resulting in developments which with all my former experience are new to me.

"I have tested the Dynamometer one trip to Harrisburg and return, and find that by it many of the laws of friction, as it relates practically to pulling and retarding trains, can be fully and clearly demonstrated. Its capacity is ten thousand pounds, and it can be used in pulling and backing the train. I first put it between the two last cars of eight composing the train, when it fully and clearly indicated the effect of any degree of pressure on the brakes and the power required to pull the car.

"The finger of the indicator vibrates very much when running, showing great irregularity in the tractive power, or that the lateral impingement of the wheels against the rails occasioned intermittent friction. I then put the indicator between the baggage car and the tender, when the power required to pull the train was clearly shown when running, as well as the effect of the brakes when about to stop. By this device (as well as by time and distance), 'the brake' that will show or produce the greatest retarding power or tendency to stop a train without sliding wheels can be clearly demonstrated—patents, circulars and certificates to the contrary notwithstanding.

"As I had not weighed the cars I will not give the results in this report. During the trip one of the connecting rods gave way, when the locomotive was run with one cylinder only. The irregularity of the crank was then clearly shown. In starting, when it was at right angles with the connecting rod, the indicator showed nearly the same power as when both cylinders were working, but when parallel it fell nearly back to nothing.

"When we arrived at a grade too heavy for the crippled engine, a second engine was added to the train, when the indicator showed a compromise, and that a perfect and crippled engine were at work."

SCHLEIER'S INDENTED RAIL.

Great difficulty and loss of time are now experienced in getting the wheels of vehicles over street railroads when presented obliquely to them. When the wheels are inside of the rails they are frequently strained in crossing in consequence of the barrier which the rails oppose, and often axles are sprung and springs broken in the act of crossing rail tracks—a difficulty which is fully obviated by this invention. It consists in constructing the rails with indentations in their edges, as at A, so as to form a series of short inclined planes at both sides of each rail, thus enabling the wheels of common vehicles to release themselves from the track, or pass over it when approaching the same obliquely.

Fig. 1 represents a perspective view, and Fig. 2 a plan or top view of a portion of a rail. The rails may be of the usual or any proper form, and they are provided at each side with indentations, forming inclined planes, against which the wheels of a vehicle may catch and pass upon or over the surface of the rails. These inclined planes have an oblique position with a transverse section of the rails, and the other side of the indentations are comparatively long so as to extend gradually inward from the outer surfaces of the rails to the inner ends of the inclined planes, A. These indentations are made in the edges of the rails in reverse positions consecutively, the alternate indentations, when looking over the rails in either direction, coinciding with each other in position. By this plan the wheels of vehicles will be assisted over the rails when moving in either direction.

In Fig. 1, one of the back wheels of a vehicle is represented as passing up an inclined plane, A, from the inside of the rail. For further information, address the inventor, T. M. Schleier, Nashville, Tenn., Box 609, by whom it was patented through the Scientific American Patent Agency, Dec. 20, 1864.

Fig. 1.

Fig. 2.

EGAN'S KEROSENE OIL BURNER.

As we have frequently remarked in the columns of the Scientific American, chimneys are the one great objection to the use of kerosene oil, for when they do not crack from the intense heat, they topple off from defective fastenings, are troublesome to clean, and are in other respects a plague, as all know who have ever tried them. Inventors accordingly, with a laudable desire to help the public, and themselves also, have endeavored to dispense with the chimney, and have made some alterations in the burners to effect their object. The chimney is necessary to create a draft and confine the air inside so that it will be rarified by heat and brought in contact with the vapor of the oil, so as to obtain perfect combustion and clear white light.

Fig. 1

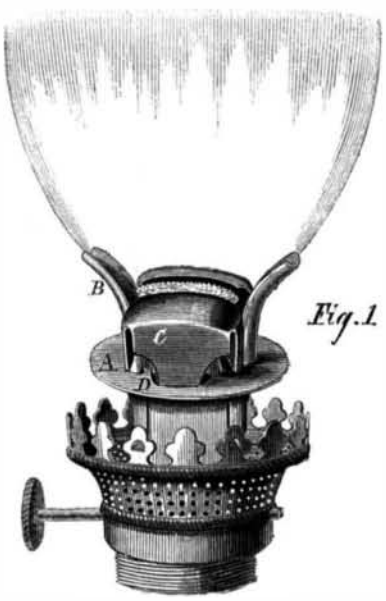

Fig. 2.

The invention here illustrated consists in providing the wick tube of a lamp with a circular plate, A. This plate has two projecting parts, B, which run up each side. On the sides of the wick are two walls of sheet metal, C, which cover apertures, D, for the supply of air to the wick. Fig. 2 shows a plan view, wherein the walls, C, are removed to disclose the air-holes, D. The air is thus forced to go directly to the flame, into which the upper currents through the openings are delivered, thus promoting combustion and performing essentially the same office as a chimney. The hight of the flame may be regulated at will as in all lamps with chimneys.

A patent was issued May 9, 1865, through the Scientific American Patent Agency, to James Egan, whom address for further information, at Zanesville, Ohio.

FARMERS' CLUB.

The Farmers' Club of the American Institute held its regular weekly meeting at its Room at the Cooper Institute on Tuesday afternoon, May 9th, the President, N. C. Ely, Esq., in the chair.

From the several subjects discussed we select the following:—

CURIOUS AFFECTION OF HENS.

The President remarked that about a year ago the *Horticulturist* published a plan for a hen-house, with boxes for the nests, so arranged that when the fowls wished to sit the boxes could be pushed through into a separate room, where the sitting hens would be protected from the encroachments of those wishing to lay, and could be provided with an ample supply of food and water. Mr. Ely said that he had a house made exactly in accordance with the directions, and it worked admirably until some of the eggs became so advanced that the chickens in them began to peep. Then the hens upon the other nests, moved by their maternal instincts, immediately left their own nests and hovered about the peeping chicks, neglecting their own eggs and allowing them to become addled.

Professor Mapes remarked that only about fifty hens can be kept in one flock with advantage. Hens may be fenced in inclosures by making a close board fence, 5½ feet high, and stretching overthis, on posts, at a hight of 15 feet, a small wire. The fowls in trying to fly out will always attempt to alight on the wire, but if it is small they will not be able to hold on upon it, and will fall back into the inclosure.

CAUSTIC SODA FOR FRUIT TREES.

Professor Mapes gave an account of a series of experiments which showed that a saturated solution of caustic soda is not injurious to the most tender living vegetable, while it dissolves all dead vegetable matter. For several years he has made extensive use of this strong solution for fruit trees, always with the best effect. It destroys great numbers of insects, and keeps the bark clean and bright. A pound to a gallon of water makes a saturated solution.

SALT AS A FERTILIZER.

Professor Mapes remarked, in the course of a discussion on this subject, that in the reign of George III., the farmers of England paid half a guinea a bushel for salt to be used as a fertilizer, and laws were passed that no turnpike should charge toll on wagons loaded with salt designed for this use. To this day these laws are in force, and even railroads are required to transport salt for manure at less than their other merchandize freight.

On the Erie canal the tolls on salt are so excessive that they are regarded by the farmers as prohibitory, and the legislature of this State could take no action better calculated to increase the prosperity, at least of all the region in proximity to the canal, than the reduction of the tolls on salt.

CURLED LEAF IN PEACH TREES.

Dr. Trimble exhibited some branches of peach trees, on which the leaves were all very much curled and blistered. He said that he had been observing them very closely, and had come to the conclusion that there are two causes of the curled leaf. One is the presence of aphides—plant lice—on the lower side of the leaf early in the season; but the lice are soon