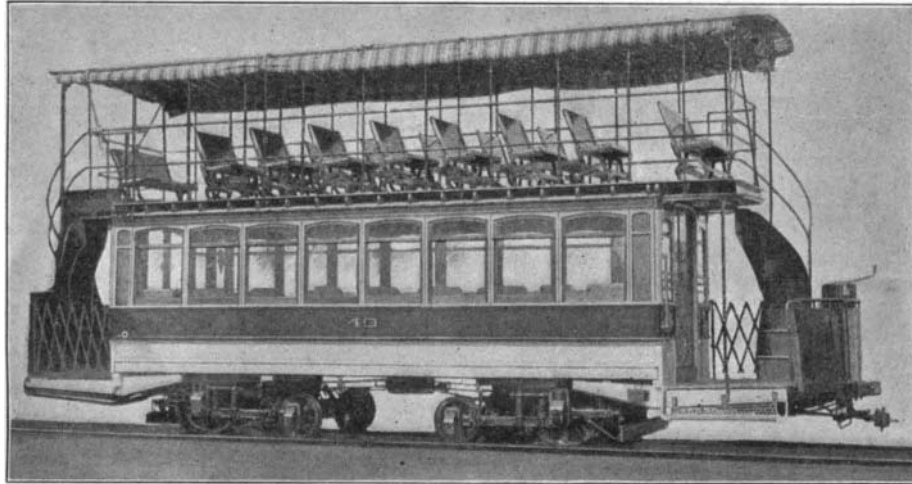


**DOUBLE DECK CARS.**

It was suggested in a recent issue of the SCIENTIFIC AMERICAN that the congestion of traffic on important lines of travel, such as the Broadway cable line, New York, might be relieved by the introduction of a certain number of double deck cars. There is an objection to the use of trailers on the ground of obstruction to traffic on the intersecting streets, which would not obtain against this form of car. It provides, upon a single wheel base, the same passenger accommodation as two ordinary cars. Its introduction on a line running through a crowded thoroughfare would double its carrying capacity without adding to the bulk of the vehicular traffic. The accompanying engraving shows the general appearance of a number of twenty-two foot double deck electric cars, built by the J. G. Brill Company, for the new electric railway in Cape Town, South Africa. They have a seating capacity of sixty-four passengers, thirty-two above and thirty-two below. The seats on both decks are arranged transversely, with a central aisle.

It will be seen that the increase of 100 per cent in the seating capacity is obtained at the cost of comparatively little extra dead weight in the car itself, which, in its essential features, is similar to the ordinary single deck car. The increased accommodation is obtained by the addition of a roof carried on light iron rods, two end stairways, and the seats, together with such increase in the strength of the car body and frame as may be necessary. The platforms are specially commodious, and accommodation is provided for the motorman, controller and brake apparatus on the outside of the step landing. The cars are mounted on Eureka maximum traction pivotal trucks, and are equipped with Westinghouse No. 38 50 horse power motors. We are indebted for illustration and details to the Street Railway Journal.



**DOUBLE DECK CARS.**

**THE DOUBLE DOVETAIL AND BLIND MORTISE.**

BY EMERY LEVERETT WILLIAMS.

There are many peculiarly ingenious devices used by cabinet makers in the nicer parts of their work.

Often these tricks serve the purpose of making a finer finish or a better construction, and are frequently invented by some clever mechanic.

I remember when a boy, and interested as most boys are in the possibilities of a jackknife and a small set of carpenter's tools, seeing my father construct a double dovetail, which to me appeared an impossible feat. That it could be put together so as to be dovetailed in both directions, might well surprise many better acquainted with woodwork than I.

Like all things apparently intricate, its secret is simplicity; but when both pieces are glued tightly together, as shown in the drawing, it is a puzzle.

It is constructed like a simple wedge, the cut in the wood where the dovetail is inserted being entirely hidden when the pieces are together.

Inserting the dovetail at the wide cut on the side, it is pressed into place, wedging itself easily and nicely into the position showing a double dovetail.

I am not sure that this particular dovetail has any practical value, otherwise than making a nice finish, as its strength is only in one direction.

At another time my father was engaged in repairing some antique furniture, among which were some old English chairs. The gentleman who owned these called my father's attention to one, the legs of which were braced by rungs, still tight and secure as when made. Under each rung, in the leg of the chair, was a wooden plug, its grain running exactly as that of the leg. It seemed as if a mistake had been made by the one who built the chair, he having evidently made the mortise cut too low and had tried to hide his error by filling it with this wooden plug. After a moment's inspection, my father saw that this was not a mistake, but an old English trick, called a blind dovetail.

A cut is made in the leg of the chair twice as long as the width of the rung, the lower half of which is as wide again as the upper. The end of the rung

is a half dovetail. This is inserted into the wide lower cut and pushed upward into place, in the upper half, which is cut to fit the dovetail closely. When this is glued, the plug is driven into the lower part, filling it and holding in place the rung, which cannot become loosened and drop out, as modern chair rungs so frequently do. This, although not so clever in construction as the one previously described, is nevertheless ingenious and of great service practically. To those woodworkers who care to put so much work

into building a chair or other piece of furniture, this would be of especial value.

**Making Petroleum-tight Joints.**

The following useful notes have been communicated by Mr. Hiram S. Maxim to the Engineer on the materials and methods for making tight joints in petroleum pipes and vessels: "Many have supposed it to be quite impossible to make a petroleum joint that would not leak, especially with the light varieties, such as naphtha and gasoline, when subjected to both heat and pressure. However, as a matter of fact, it is no more difficult to make a petroleum-proof joint than a waterproof joint. In making up steam or water joints we naturally employ something which is insoluble in water. If an ordinary steam or gas fitter is asked to make a petroleum-tight connection, he is sure to employ red lead and oil, and for a gasket or washer he is equally sure to use India rubber, both oil and India rubber being quite soluble in petroleum. In my experience I find that a joint which is screwed together dry is less apt to leak petroleum than a joint made up of the orthodox red lead and oil. To make a good petroleum joint with common iron pipes, a very good system is to heat both the male and female threads sufficiently to dissipate every trace of oil; then make the joint up with thick shellac varnish, which may be combined with ordinary dry vermilion or even Venetian red. A joint of this kind I have found to stand well. A very good joint can also be made with ordinary yellow bar soap rubbed into the threads of the

made petroleum-tight by saturating or varnishing with this compound. As a rule, all substances which are soluble in water are quite insoluble in petroleum. For stuffing boxes for withstanding both water and petroleum, castor oil may be employed, as this peculiar oil seems quite insoluble in either water or petroleum."

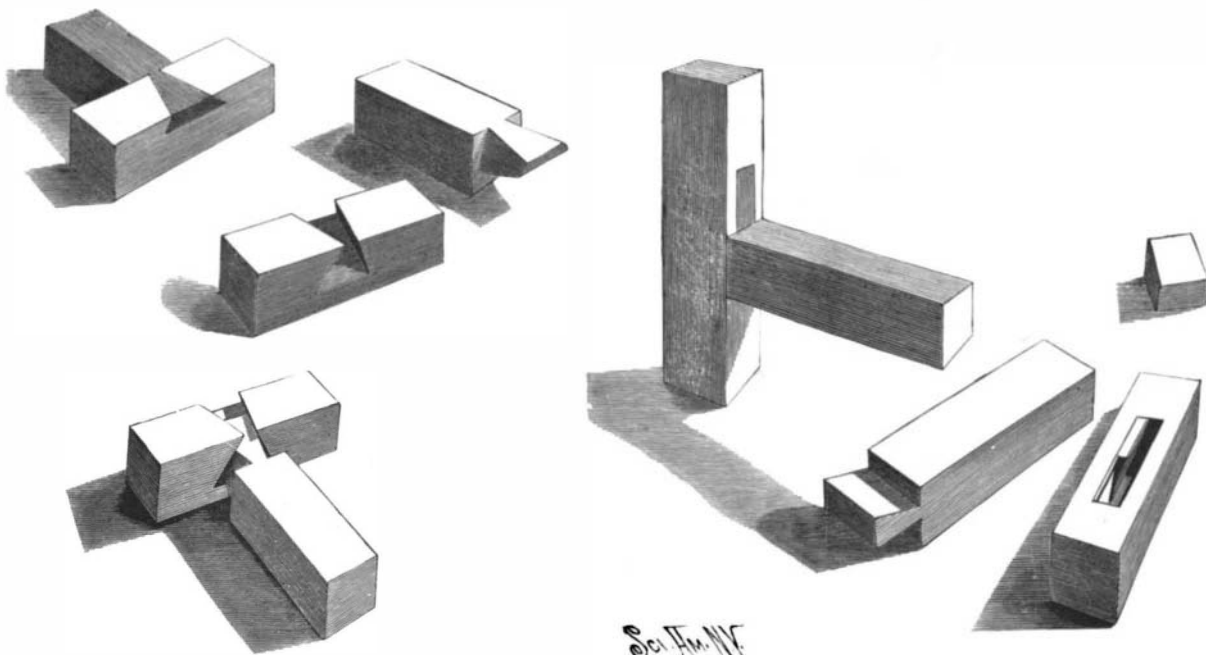
**Injuries by Electricity.**

The use of electricity has become so general and accidents are so frequent that everybody should be advised how to extend aid to a person injured by an electrical current. A German medical publication gives the following suggestions: (1) The current should be shut off at once if the means are at hand and the person called upon understands how to do it. (2) If this cannot be done, be careful not to touch the injured person's body with the hand. If no India rubber gloves are at hand, the body should be dragged away from the wires by the coat tails, or the coat should be taken off and folded (a dry cloth may be used for the purpose), when the injured person may be grasped through it and dragged away. (3) When it is not possible to remove the injured person from the wires, raise that part of the body that is in contact with the earth or the wire from it, using the covered hand. This will break the current, and it will generally be possible then to get the body away. (4) If this cannot be done, take a dry cloth and place it between the body and the ground, and then disentangle the body from the wires. (5) If the body is freed from the wires, remove all the clothing from the neck and treat the injured person as one drowned. Open the mouth and grasp the tongue, which should be covered with a cloth; then pull the tongue forward and gradually allow it to fall back; this movement should be repeated sixteen times a minute. Take care that the root of the tongue is thoroughly moved. (6) The bystanders should not be allowed to give the injured person wine or liquors.

**How Colds Are Taken.**

A person in good health, with fair play, says the Lancet, easily resists cold. But when the health flags a little, and liberties are taken with the stomach, or the nervous system, a chill is easily taken, and according to the weak spot of the individual, assumes the form of a cold or pneumonia, or, it may be, jaundice. Of all causes of "cold" probably fatigue is one of the most efficient. A jaded man coming home at night from a long day's work, a growing youth losing two hours' sleep over evening parties two or three times a week, or a young lady heavily "doing the season," young children over-fed and with short allowance of sleep, are common instances of the victims of "cold." Luxury is favorable to chill-taking; very hot rooms, feather beds, soft chairs, create a sensitiveness that leads to catarrhs. It is not, after all, the "cold" that is so much to be feared as the antecedent conditions that give the attack a chance of doing harm. Some of the worst "colds" happen to those who do not leave their house or even their beds, and those who are most invulnerable are often those who are most exposed to changes of temperature, and who by good sleep, cold bathing and regular habits preserve the tone of their nervous system and circulation. Probably many chills are contracted at night or at the fag end of the day, when tired people get the equilibrium of their circulation disturbed by either overheated sitting rooms or underheated bedrooms and beds. This is specially the case with elderly people. In such cases the mischief is not always done instantaneously, or in a single night. It often takes place insidiously, extending over days or even weeks.

A MASTODON'S skull, in a fine state of preservation, was dug up at Buchanan, Mich., near the Indiana boundary, a few days ago. It measures 2½ feet in width and has four perfect teeth. The teeth measure about 4 inches by 6½ inches.



**THE DOUBLE DOVETAIL AND BLIND MORTISE.**

pipe, the grease being first removed. Molasses, honey, glue, mucilage, or glycerine are quite petroleum-proof. For a stuffing box, ordinary wicking saturated with common yellow bar soap may be safely employed. Canvas saturated with shellac varnish makes a good washer, but soft metallic washers are better. A very good flexible diaphragm for a regulator may be made of closely woven cotton fabric varnished on both sides with a compound of gelatine and glycerine. About equal parts by weight make a very tough and elastic compound. Wooden vessels, bags, etc., may also be