

## MISCELLANEOUS INVENTIONS.

An improved apparatus for cooling cube sugar has been patented by Mr. John V. V. Booraem, of Brooklyn, N. Y. The object of this invention is to furnish an apparatus for cooling cube sugar after it has been dried, so constructed that the sugar may be thoroughly cooled quickly and before the cubes have had time to stick together.

Mr. Peter C. Freese, of Cayuga, N. Y., has patented an improvement in vehicle springs, which consists of two triangular frames, upon which the body of the carriage or wagon rests, and each of the frames has a ring at the point, and through these rings a stirrup passes, this stirrup being at the end of a rod adjustably secured to the under side of the seat, which rests on springs, so that the seat rests entirely upon the springs.

Mr. Herrmann Wojan, of Golden's Bridge, N. Y., has patented an improved ox-bow fastener which is simple and convenient. The fastener is formed of two annular plates, between which an adjustable lever is pivoted eccentrically. It is acted upon by a cam lever, also pivoted between the two plates.

An improved hame tug, patented by Mr. Samuel R. Cope-land, of Armstrong, Ill., consists in a novel construction and combination with the trace, or tug of a metallic skeleton frame or keeper, provided with means for holding the trace securely in place and for adjusting it at pleasure to suit different animals.

An improved apparatus for drying fruit and vegetables by heated air, which has for its object to perform the drying rapidly, uniformly, and conveniently, has been patented by Mr. Jesse H. Burks, of San Luis Obispo, Cal.

Mr. Luke Davis, of Boston, Mass., has patented a fan attachment for elevators, which consists of a fan fixed in an elevator car having on one end a sheave, around which a turn is made of a rope that is stretched taut from the top to the bottom of the elevator shaft or well, so that as the car moves up or down the fan is revolved and creates a current of air to ventilate the car or shaft.

Mr. John F. McCoy, of Beverly, N. J., has patented a tire-upsetter, so constructed that it may be used upon an anvil. It is simple in construction and convenient and effective.

An improved cigar bunching machine has been patented by Mr. Moses Greensfelder, of Baltimore, Md. The invention is embodied in organized mechanism for laying a binder, filling in, rolling up the filler, depositing the bunch in the mould, and shifting the mould automatically. The details of construction and operation of parts cannot be clearly described without the aid of engravings.

## ELECTRIC BRAKE FOR RAILWAY CARS.

In view of the tremendous speed attained by railway trains, it is a matter of the greatest importance to procure safe, reliable, and powerful brakes, which can be controlled from the engine or any other part of the train. Mr. Achard has invented a new and very ingenious electric brake, which is illustrated in the annexed cut taken from *La Nature*. Two Planté secondary batteries, each charged by three Daniell elements, are arranged on the first car, and two like batteries are provided in the last car. In the engraving the four secondary piles are united, but that does not affect the working of the device.

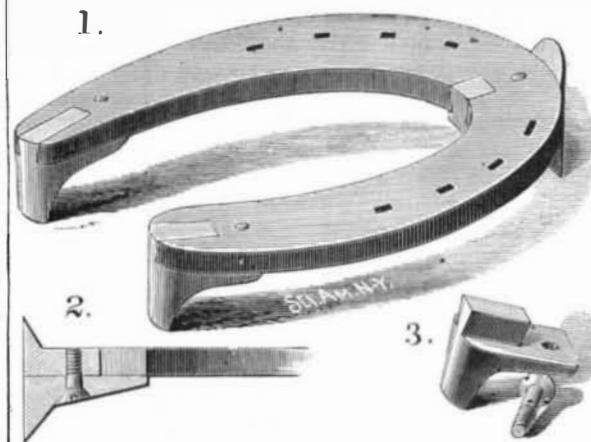
The current of the secondary batteries is conducted to the brakes of each wheel, the two wires running parallel with the train, with which wires the electro-magnets of the brakes are connected in such a manner that the brake operates when the circuit is closed. The electro-magnet, A, is rigidly mounted on a shaft suspended opposite the axle, B. If the current passes through the electro-magnet it with great force drawn toward a sleeve, rigidly mounted on the axle, B, and is held against it with sufficient force to cause it to rotate with the axle, thereby winding the brake chains upon the shaft of the electro-magnet. The long arms of the articulated levers, C C, are raised by the winding up of the brake chains, and the brake shoes, D D, connected with the short

arms of the levers, C C, are pressed against the tires of the wheels with great force. A brake shoe is provided on each side of the wheel so as not to break the journal box by undue pressure. To release the brakes it is sufficient to break the circuit, upon which the electro-magnet is released from the axle, B, and the chains are unwound. The commutator, H, is used to close or break the circuit, and may be located in the caboose of the engineer, in the last car or at any other convenient part of the train. The brake operates instantaneously, and sometimes produces such shocks that Mr. Achard has found it necessary to interpose resistances in the circuit to weaken the current proportionately. During the

experiments made with this brake, on the Northern Railway of France, a train of thirteen cars, with a speed of forty-five and a half miles per hour, was stopped in twenty-one seconds and within a distance of seven hundred and five feet.

## IMPROVEMENT IN HORSESHOES.

Our engraving represents an improvement in horseshoes recently patented by Mr. Gelos L. Potvin, of Alpena, Mich. Lumbermen, contractors, horse-railway companies, and others who, in the prosecution of their various enterprises, employ large numbers of horses, are only too well aware of the great expense attending keeping their horses well shod under the present system of farriery, not



POTVIN'S IMPROVED HORSESHOE.

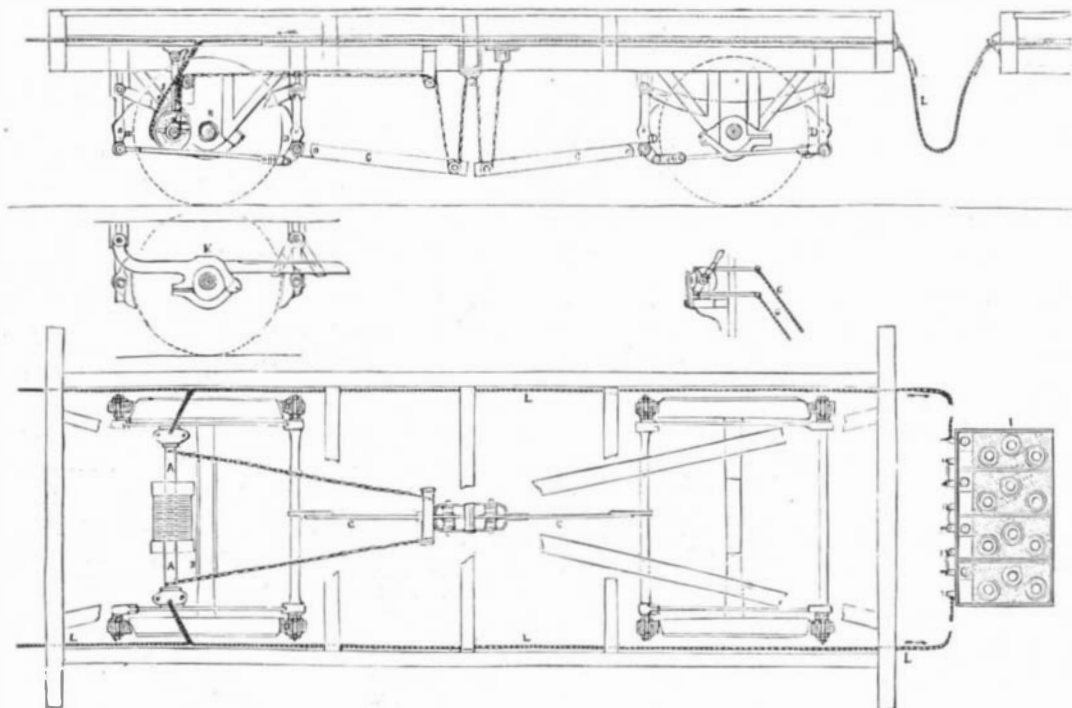
only in the amount of shoes used and the labor to reset them, but in the valuable time lost in having the animals shod, and the loss by laming many valuable animals caused by the necessity of taking off the shoes every time a calk becomes worn out or broken, thus requiring the hoof to be pared down till scarcely anything remains to nail the shoe to.

This invention is designed to obviate the necessity of taking the shoe from the horse's foot when it needs recalking. It will be admitted that if a teamster can recalk a set of shoes in ten minutes on the road, in the woods, or in the barn, he will have made a saving for his employer.

Fig. 1, which is a perspective of the shoe, shows the extreme simplicity of the improvement. In the heels of the shoe there are slots in which the dovetail studs of the heel calks fit snugly; the toe calk is set in a similar manner, and each calk is secured by a screw, as shown.

Fig. 2 and Fig. 3 represent the calks in detail, and the screw used in fastening is shown in Fig. 3.

These shoes can be manufactured as cheaply as the ordinary ones, as the calks can be made of malleable iron and



ELECTRIC BRAKE FOR RAILWAY CARS.

case-hardened. The plate will outwear a dozen shoes of the ordinary make, being almost entirely protected by the new calks that are put in from time to time.

The inventor states that a set of shoes can easily be recalked in ten minutes, and claims that it will save over fifty per cent of the horseshoeing bill to the owner every year.

For further particulars apply to Gelos L. Potvin, patentee and inventor, Alpena, Alpena county, Mich.

## The Preservation of Fruit by Burial.

Last January a California fruit dealer took two hundred fresh lemons fresh from the tree and buried them in the

ground, to see how they would keep. Four months after he dug them up and found them in perfect preservation, as sound and fresh and nice as the day they were buried. Every one knows how well potatoes keep when properly covered by earth. Apples would doubtless do equally well; and possibly the same method may answer for grapes and other more perishable fruit. It would not cost much to try a few experiments in this direction, and success could not fail to be advantageous.

## Silvering by Cold Rubbing.

Make paste by thoroughly grinding in a porcelain mortar, out of the light,

Water.....	3 to 5 oz.
Chloride of silver.....	7 oz.
Potassium oxalate.....	10½ oz.
Salt (common table).....	15 oz.
Sal ammoniac.....	¾ oz.

Or,

Chloride of silver.....	¾ oz.
Cream of tartar.....	7 oz.
Salt (common).....	10½ oz.
Water, to form a paste.	

Keep in a covered vessel away from the light. Apply with a cork or brush to the clean metallic (copper) surface, and allow the paste to dry. When rinsed in cold water the silver presents a fine frosted appearance, the brightness of which may be increased by a few seconds immersion in dilute sulphuric acid or solution of potassium cyanide. The silvering bears the action of the wire brush and of the burnishing tool very well, and may also be "oxidized." Should a first silvering not be found sufficiently durable after scratch brushing, a second or third coat may be applied. This silvering is not so adhering or white on pure copper as upon a gilt surface.

For the reflectors of lanterns the paste is rubbed upon the reflector with a fine linen pad; then, with another rag, a thin paste of Spanish white or similar substance is spread over the reflector and left to dry. Rubbing with a fine clean linen rag restores the luster and whiteness of the silvered surface.

The paste is sometimes mixed directly with the whiting and left to dry, or until nearly dry, then rubbed down as described.

## Transplanting American Oysters.

Recently 1,250,000 American oysters were laid down on the coast of Little Celt, from Graveshovod to Polkboved, and a company has been formed to lay down 15,000,000 more on the Schleswig Holstein coast. There have been several attempts to restock the exhausted British oyster beds with American oysters, but they have invariably failed through improper placing or bad handling. The Dutch oystermen may do better.

## The Purification of Rivers.

The prize offered by the King of Saxony for the best practical scheme for rendering harmless to fish in rivers and lakes the refuse from factories and sewage of towns has brought before the public two precipitation processes, among others, in which lime is the chief agent. One of the schemes is that of Herr Wilhelm Knauer, in which the sewage is heated and then saturated with lime water, and precipitation being thus effected, the water enters another tank with chlorate of magnesia, and is ultimately filtered through gravel and earth. A remarkable scheme is that of Brigadier General W. Heine. Under this process the water, also sufficiently saturated with slaked lime, has to pass through several tanks and canals until it is pumped up to a tower, from which it descends in the form of rain, the sulphuric steam with which the interior of the tower is filled occasioning a crust of ammonia on the walls. This plan, it is said, is now being tried under the authority of the Saxon Minister of the Interior on the Elster, a river very much polluted by various factories on the Saxon frontier. The objection urged against these processes are that lime has a tendency hurtful to fish life, and leaves an offensive and worthless deposit, while the effluent water, being in an

alkaline condition, is liable to putrefaction upon its introduction into the river. The effluent from the A B C process, as carried out at Aylesbury, with the help of sulphate of alumina, is, on the other hand, acid, and, therefore, not open to the same objection as the alkaline processes, while the deposit is a valuable and inoffensive manure.

An alloy of rhodium and lead, lately exhibited before the French Academy of Sciences, has the curious property of exploding on exposure to heat, as in being held before a gas flame. Its composition is one-third rhodium and two-thirds lead, fused together in a crucible, at a high temperature.