Delicate Test for Albumen.

To Mr. Siebold belongs the credit of having introduced a modification of the heat test, which is adequate to the detection of albumen under conditions in which its presence might be completely overlooked. The following is the author's own account of the manner in which the test is to be applied:

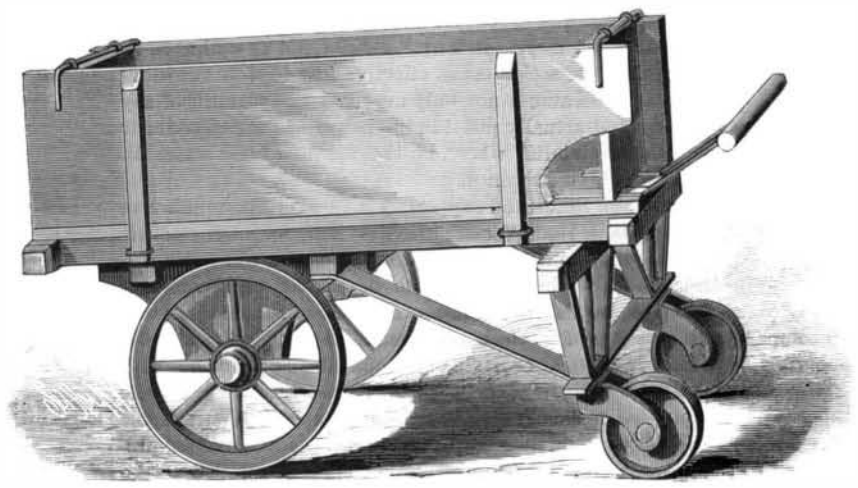
"Add solution of ammonia to the urine until just perceptibly alkaline; filter, and add diluted acetic acid very cautiously until the urine acquires a faint acid reaction, avoiding the use of a single drop more than required. Now place equal quantities of this mixture into two test tubes of equal size, heat one of them to ebullition, and compare it with the cold sample contained in the other test tube. The least turbidity is thus distinctly observed, and gives absolute proof of the presence of albumen."

A NEW WAREHOUSE TRUCK.

We give an engraving representing an improved truck for mills, warehouses, railroad depots, etc., recently patented by Mr. Montgomery A. Reynolds, of Stanton, Mich. The truck frame is mounted on two large wheels turning on an axle located a little behind the middle of the truck, and is supported in front by two caster wheels whose pintles turn in a stout iron frame hung from a crosspiece attached to the under side of the truck frame near the forward end. A handle is attached to the forward end by means of two strong iron arms.

The platform is provided with side boards and end boards, which may be used or not as occasion requires. Each end board has along its upper edge an iron rod which is bent downward at the ends so that when the end boards are in place the end of the rods may be turned down over the side boards and thus prevent them from being pressed outward when the truck is loaded. The truck, as its appearance indicates, is strongly built and intended to do good service wherever an article of this kind is required.

We are informed that these trucks will be exhibited at the Millers' Exhibition to be held in Cincinnati, Ohio, early in June.



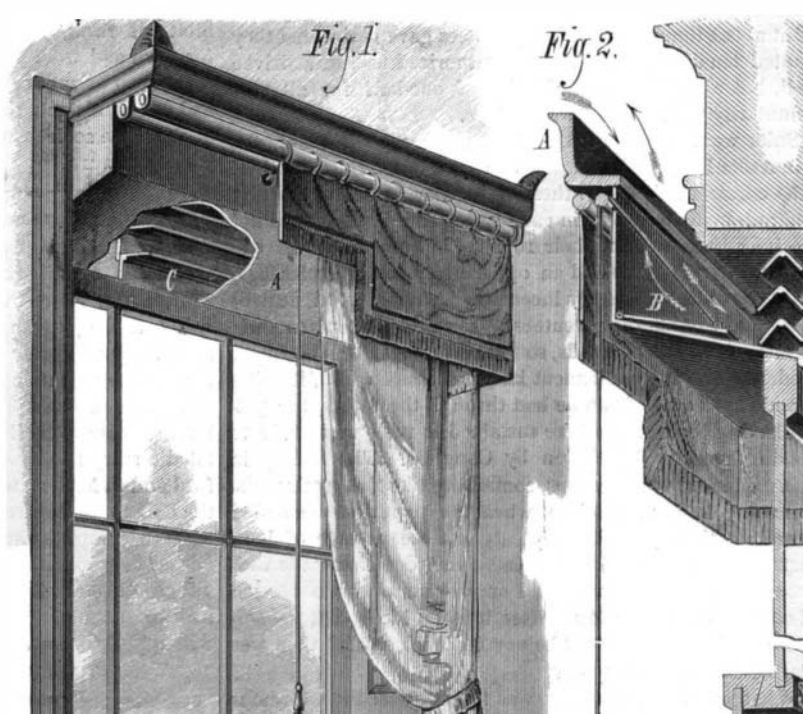
REYNOLDS' IMPROVED TRUCK.

A NEW VENTILATOR.

The accompanying engraving represents an automatic house ventilator recently patented in the United States and Canada by Mr. Walter S. Sayers, of Guelph, Ontario, Canada. This invention is intended to overcome in the simplest and most effective manner all of the difficulties which have stood in the way of ventilating from the top of windows without draughts of air on the occupants of the apartments. This ventilator is independent of either sash, and does not interfere with lowering or raising them, it does away with the necessity of hanging them with weights for the purposes of ventilation, and does not in any way interfere with hanging the curtains in the usual way. The ventilator is completely hidden from view in the interior of the room by the curtains or lambrequins, and on the exterior of the building it presents the appearance of a neat Venetian blind above the sash, and is an embellishment rather than otherwise.

For windows in public buildings, offices, etc., where curtains are not used, the ventilator affords a good ground for stucco designs or other ornamental work. This ventilator admits pure air into the room without draughts; the air entering the room at the top of the window is directed by the air duct toward the ceiling, where it is distributed, displacing the vitiated air, which escapes by the ventilator. It is entirely automatic and requires no attention; the wind, on reaching a certain velocity, closes the pivoted guards, C, and prevents very strong currents of air from entering. The guards also exclude dust, and when the pressure of the wind diminishes the guards swing open automatically. If at any time it is desired to close the ventilator—and this will happen very seldom—it may be done by closing the valve, B, which is worked by a cord hanging down at the middle of the window. The valve opens by its own weight, when the cord is released. To prevent the entrance of flies and insects a netting is placed over the cornice board, A.

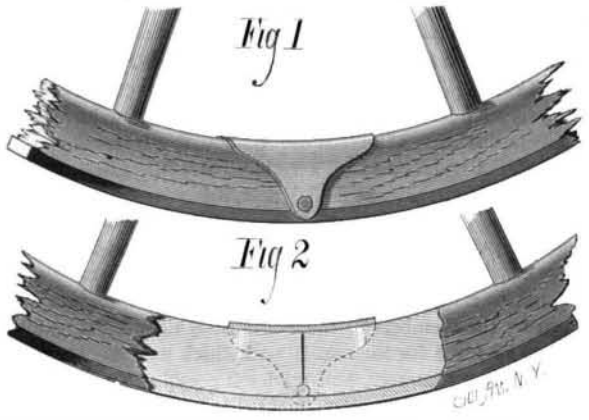
This ventilator can be used in connection with Venetian blinds or winter sash, as it does not in any way interfere with them. The inventor informs us that he has had this ventilator in use in his own residence for the last eight months, giving the most complete satisfaction. He also states that it is indorsed in the highest terms by physicians who have seen it. Further information in regard to this useful invention may be obtained by addressing the inventor and patentee.



SAYERS' AUTOMATIC VENTILATOR

IMPROVED FELLY PLATE.

The annexed engraving shows an improved attachment for vehicle wheels, which is intended to strengthen the felly joints and at the same time keep the tires in place on the wheels. The device is exceedingly simple, being nothing more than a curved plate fitted to the rounded portion of the felly over the joint and held in place by a single bolt passing through the joint near the tire. The extreme ends of the plate project over the edges of the tire and prevent it from running off should the wheel shrink.



CREMER'S FELLY PLATE.

Fig. 1 shows a portion of a wheel with the felly plate applied, and Fig. 2 is a sectional view of a felly taken through the joint, showing the position of the plate in dotted lines.

Further particulars in relation to this invention may be obtained by addressing the inventor, Mr. Charles Cremer, Cosumne, Cal.

Boracic Acid in Eye Diseases.

Dr. Saml. Theobald calls the attention of the profession, in the *Medical Record*, to the astonishingly favorable results which he has obtained from the use of boracic acid in the treatment of various affections of the eye; and, from these results, he feels constrained to say that this remedy must, ere long, obtain a position in ophthalmic therapeutics second only to that of atropia. Biborate of soda (borax), as well known, has long entered as an ingredient in popular remedies for the eye; and the use of boracic acid itself is not by any means as new as Dr. Theobald seems to suppose. It does no harm, however, to occasionally call attention to the value of old remedies, and which might otherwise be overlooked or forgotten.

Butter and Cheese by Machinery.

In our last issue we gave considerable space to the illustrations and description of the manufacture of oleomargarine. We now publish from a correspondent of the Philadelphia *Ledger* an account of the process of making butter and cheese on a large scale from fresh milk:

"The milk is brought to the creameries in the morning, and after being weighed, is run into long vats to undergo the process of raising the cream. In the center of these vats is a pipe about three inches in diameter, and in which are smaller pipes, through which cold water is forced by steam power, thus keeping the milk cold, and causing all the cream in the milk to rise to the surface in from three to four hours' time. The milk is then drawn from the vat, leaving the cream behind. The cream is then placed in churns, each holding about one hundred gallons, which are moved by steam power until the butter is formed, the time required being about thirty minutes. The churns have only two revolving wings, instead of four, as used in the ordinary hand churn. The churn is not moved at any greater speed than in the old process, but a regular and uniform motion is kept up until the work of bringing the butter is completed. The butter, after being removed from the churns, is placed upon tables and worked by hand, a round bar being used. The work can be done by machinery, but in most of the creameries the process by hand is preferred. The skimmed milk is taken to the cheese department and placed in large tin vats, and hot water, instead of cold, is forced through the milk in which rennet has been placed to make it curdle. When this process is completed, the product is put in boxes holding thirty-five pounds, and pressed. It is then stored for about thirty days, when it is ready to be sold in the market as cheese.

"The first creamery in the State, it is said, was started less than a year ago at Quakertown, Bucks County, and now some fifteen of them, and more new ones are talked of. The establishments are generally owned by companies, the capital required to start one of the capacity of 4,000 quarts daily being from $4,000 to $6,000. What effect these establishments will have upon the supply of milk to consumers in large cities, or its price to them, has yet to be seen. At all events, the experiment of making butter and cheese by the processes described above is fully under way, and it will not take long for the parties interested to ascertain how much profit there is in it. At present, the great want in the establishments is milk enough to run them to their full capacity, but this want, no doubt, will be met as the farmers gain a knowledge of the demand."

Paper Leather.

The *Paper World* describes a new kind of paper sizing which promises to be exceedingly useful. It is considerably cheaper than ordinary size, and it has the merit of making the paper waterproof without discoloration. In one experiment one hundred and eighty-five pounds of leather board were manufactured from hemp, which was made nearly fine in the engine, and then the new sizing added, mixed, precipitated, and beaten fine. The thin, endless sheets were woven around a cold cylinder, and when of sufficient thickness, cut, removed, and dried in the sun. Strips one-fourth of an inch thick, when dry and before rolling, were as pliant as most sole leather, and could be bent square over without cracking. This leather board can be made insoluble in either hot or cold water. A piece of it not perfected, and not wholly impervious to water, one-fourth of an inch wide, cut lengthwise of the fiber, held up seventy-seven pounds stone. By rendering the same board insoluble, the strength was increased from seventy-seven to two hundred and eleven pounds. Leather paper of less thickness, made in the same manner, is described as pliable, somewhat elastic, apparently durable, and suitable for the uppers of shoes.

ONE of the cars of the Edinburgh and Glasgow Railway which fell from the Tay Bridge, was picked up several weeks after the disaster by fishermen on the western coast of Norway.

Hardening Small Tools.

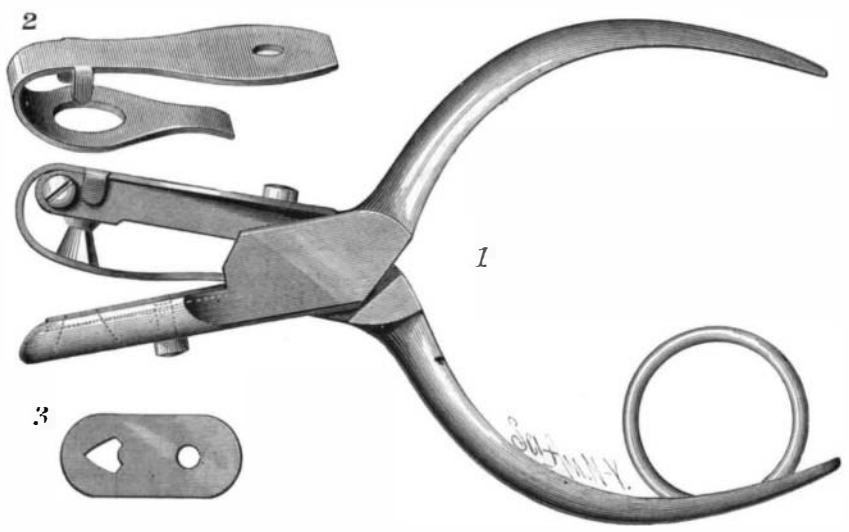
It is said that the engravers and watchmakers of Germany harden their tools in sealing wax. The tool is heated to whiteness, and plunged into the wax, withdrawn after an instant and plunged in again, the process being repeated until the steel is too cold to enter the wax. The steel is said to become, after this process, almost as hard as the diamond, and when touched with a little oil or turpentine the tools are excellent for engraving, and also for piercing the hardest metals.

NEW TICKET OR CANCELING PUNCH.

The superiority of this punch over others consists in the manner in which the dies are inserted in the punch and the interchangeability of the various parts, as illustrated in the accompanying engraving. Canceling punches are usually made with one or both dies cut out of the jaw of the punch itself, thereby necessitating the purchase of a new punch when the dies become worn, or a change in the die is required. In the punch illustrated the dies can be easily and cheaply repaired, or changed to a different design.

The uses to which the canceling punch can be applied are already very large and daily increasing. There are over three thousand railways in the United States, all using some sort of a canceling punch. Banks, counting-houses, grocers, eating houses, and all branches of trade in which canceling punches can be used to advantage, are adopting them.

All the detachable parts of the "Aiken ticket punch" are made of the finest cast steel and carefully tempered, thereby guaranteeing the longest wear that is possible to be obtained. The punches are highly finished and nickel plated. Many of the first railroads in the country have adopted them, and we are informed that all without exception pronounce them to be the best punch in use. Further information may be obtained from the patentee, Mr. J. B. Aiken, Franklin, N. H.



AIKEN'S TICKET PUNCH.

Consolation for the Bald.

Professor Fournier, in a lecture on alopecia, says of baldness: "There is nothing ridiculous or malformed about it, and it confers upon the physiognomy an expression of wisdom, experience, and venerability. It adapts itself marvelously to certain heads which would be deformed by a wig, and is the severe beauty represented in sculpture by the classic head of Æschylus."

NEW HOSE CARRIAGE.

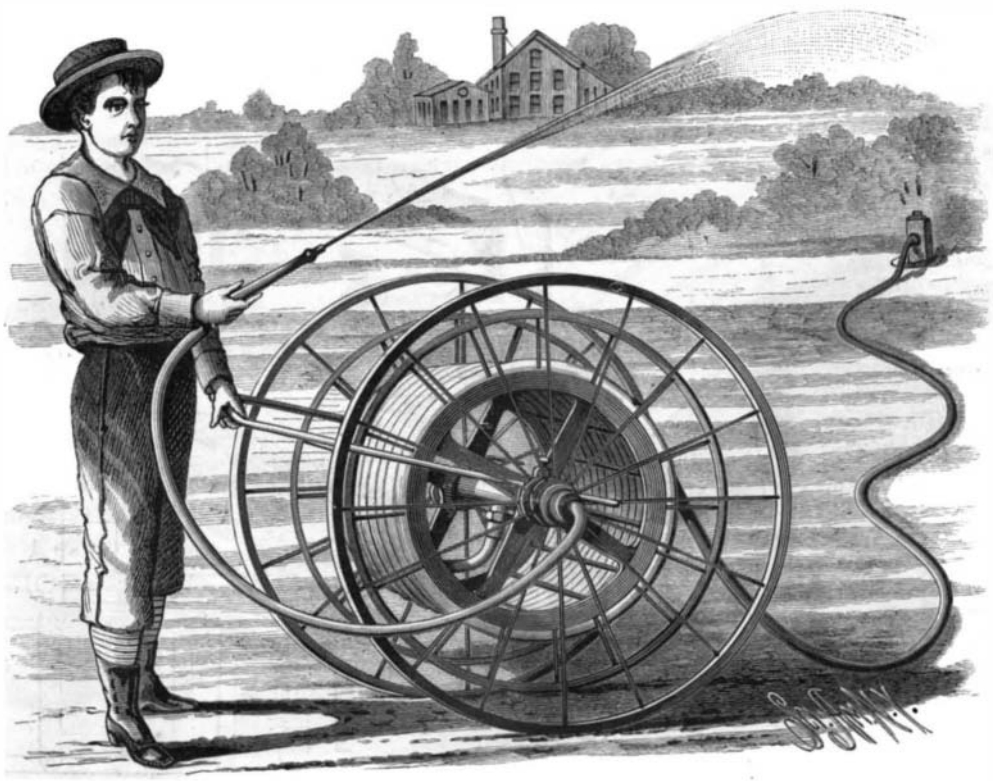
Any one fortunate enough to possess extensive grounds knows only too well the difficulties of keeping the lawns and gardens in prime condition; one of the principal troubles experienced is that of properly irrigating the grounds. The device shown in the annexed engraving fills a need that has been long felt, and supplies a means of watering grounds thoroughly and conveniently.

The novel feature of this carriage is the arrangement by which water is conveyed through the hose connected with the hydrant to the hollow axle of the carriage, and the manner in which it is distributed by means of the short service pipe held in the hand.

The reel on which the hose is wound is secured to the hollow axle of the hose carriage, and when the reel is revolved in winding up or unwinding the hose, the hollow axle turns in the hubs of the hose carriage wheels. The inner end of the hose is connected with a nipple projecting from the hollow axle. The outer end of the hose is provided with a union or coupling for connecting it with a hydrant from which the water is taken. The water passes through the hose as it is wound upon the reel, thence to the hollow axle, and out through the service pipe. The latter is connected with the axle by a swivel joint, so that the turning of the axle does not affect the service pipe. By taking the handle of the hose carriage in one hand and the service pipe in the other, one may walk along watering flowers, plants, or grass, on either side, as far as the force of the water will carry the spray. In this way one section after another may be watered without difficulty. The inventor informs us that a child ten years old is capable of using one of these carriages and taking the entire charge of it. The hose carriage has been thoroughly and practically tested, and has proved itself a complete success. A carriage of the size illustrated will hold 400 feet of three-quarter inch hose, or 300 feet of one inch hose; with these lengths a plat from 600 to 800 feet in diameter may be irrigated without disconnecting the hose from the hydrant.

Where this hose carriage is adopted dragging the hose is entirely avoided, and the hose never kinks, but is always laid smoothly, and may be taken up very easily without the usual wear and tear of the usual methods of handling.

The wheels of the hose carriage are 36 inches in diameter. The reel wheels are made somewhat smaller, so that they will not touch the ground. The entire carriage is made of steel, iron, and brass, and is practically indestructible. They are made in various sizes to suit the requirements of different users. Further information may be obtained by addressing the inventor and patentee, Mr. J.B. Aiken, Franklin, N.H.



AIKEN'S NEW HOSE CARRIAGE.

A New Compound.

A new metallic compound, applicable to many artistic and industrial purposes, has been recently announced in England. The substance belongs to the class known as the thiates or sulphur sulphides. Nearly a year ago Mr. J. Berger Spence discovered that sulphides of metals combined with molten sulphur formed a liquid. This liquid on cooling became a solid homogeneous mass, possessing great tenacity, and having a peculiarly dark gray, almost black color. It has a comparatively low melting point, namely, 320° Fahr., or rather more than 100° above the temperature of boiling water. It would thus require only a small amount of fuel to reduce or to melt it. The new compound also expands on cooling—a property not shared by the majority of other metals or metallic compounds. For such purposes as joining gas or water pipes this expansion is of great importance. It is also claimed that the new compound resists favorably atmospheric or climatic influences, as compared with bronze or marble, and that its resistance to acids is much superior to that of other metals or metallic compounds. These qualities, if sustained by further experience, would certainly render the new compound very useful in many ways.

A California Tunnel.

The longest of the series of tunnels on the South Pacific Coast Railway, in the Santa Cruz mountains, California, has just been completely pierced. The tunnel, which is over a mile in length, was begun a little over two years ago. The presence of petroleum in the formation has resulted in several disastrous explosions, involving many delays and considerable loss of life.

A New Way of Heating Railway Carriages.

French railway cars are warmed by means of hot water bottles; that is to say, cases made of iron, about three feet long, six inches wide, and four inches thick, which are filled with hot water and put on the bottom of the car for passengers to place their feet upon.

It is reported from Lyons that the Compagnie Paris-Lyon-Méditerranée is now trying a new method of heating in express trains. The method was proposed by M. Ancelin, an engineer, and consists simply in the use of acetate of soda in the foot warmers. The substance has considerable latent heat; dissolving at a certain temperature, it thus absorbs a large quantity of heat, which becomes sensible during crystallization in cooling. All that is required is to fill the ordinary cases with a sufficient quantity of the acetate, close them, and place them in a stove at about 100°. The cooling of a case thus charged and heated takes twelve to fifteen hours. The warmers are thereafter taken from the compartments and placed in a stove (where the crystals of soda acetate are re-dissolved); they are then ready for fresh use. The advantages of such a system are obvious—no necessity of changing warmers every two or three hours, or of maintaining a numerous body of men at stations to attend to them; economy in cost of heating, etc. Moreover, most of the existing foot warmers can be utilized. Acetate of soda is not very expensive, and it could easily be manufactured in much larger quantities than at present if the demand required it. The new system has been tried on the express train No. 5, leaving Paris at 7: 15 and reaching Perrache at 4:31. The compartments were each supplied at starting with two warmers containing acetate of soda. At Perrache most of the warmers were still so hot that one could not apply the back of the hand to them. From Lyons to Marseilles the train was heated on the ordinary system.

Charles T. Chester.

Charles T. Chester, inventor and electrician, died recently at his residence in Englewood, New Jersey, at the age of fifty-four. Mr. Chester was for a number of years engaged in the manufacture of electrical apparatus in this city. He is best known as the inventor of the fire-alarm telegraph and originator of the law-telegraph system. At the time of his death he was electrician to the National Electric Light Company.

Mycenæ.

With respect to Dr. Schliemann's discoveries at Mycenæ, the Russian *savant*, M. Stephani, has expressed opinions which have attracted considerable attention in Germany. The learned academician by no means disputes the great antiquity of many of the individual objects unearthed by Dr. Schliemann, but he holds that the remains include objects belonging to very different eras of history. He contends that the date of the tombs must be determined by the latest products of art or industry which have been discovered in them. The seal ring is especially important in this respect, as, according to his view, it is executed entirely in the style of the New Persian art. He is of opinion that the tombs originated with the barbarians who invaded Greece in the third century B. C., and made the citadel of Agamemnon one of the chief centers of their dominion. Here he believes they buried their chiefs, and decorated the tombs partly with such ancient relics of an earlier date as had fallen into their hands and partly with ornamental objects produced in their own times.

A Town Lighted by Electricity.

Wabash, Ind., boasts of being the first town to adopt the electric light for general illumination. A beginning was made March 31, with four Brush lamps of 3,000 candle power each suspended on the flagstaff of the court house. A seven horse-power generator supplied the electricity. The contract called for a light equal to a gas burner at a distance of 2,640 feet from the lamps. The tests were said to be satisfactory. Many visitors from adjoining towns were present to witness the first trial of the new method.

THE following is the way the newspapers in the mining regions talk to their readers:

"A man at Dutch Flat picked up a rock, the other day, to throw at a cow. The weight of it attracted his attention, and on examination it was found to contain over a hundred dollars in gold."