

Miscellaneous Notes and Receipts.

New-Type Metal.—Instead of the current type metal consisting of lead, antimony, and tin of a specific gravity of about 11, a new alloy containing a large quantity of aluminum and possessing a specific gravity of 2.56-2.67 is said to have been invented. Besides being non-poisonous, other advantages, such as the quality of taking and giving off the ink more readily, etc., are claimed for this alloy.—*Zeitschrift fuer die Buchdrucker Kunst.*

Gilding of Glass or Porcelain.—To gild glass or porcelain, instead of the ordinary mixture a solution of gold chloride in oil of turpentine or lavender oil, to which a little bismuth nitrate and chrome soap have been added, is employed. The following mixture is said to give good results: Lavender oil, 900 grammes; gold chloride, 100 grammes; bismuth subnitrate, 5 grammes; chrome soap, 50 grammes. After the application allow the mass to dry and bake the articles in the muffle furnace. The gilt portions show a nice gloss, without any subsequent treatment.—*Neueste Erfindungen und Erfahrungen.*

Deodorization of Rubber Rings.—At the meeting of the Verein der Mineralwasser-Fabrikanten (Society of Manufacturers of Mineral Waters) the following methods of killing the smell of rubber rings were proposed, says the *Zeitschrift fuer die gesamte Kohlensäure Industrie*: Treating the rubber with solutions of caustic potash or caustic soda; treatment with potash or soda, since caustic potash and caustic soda injure the rubber; boiling with alkaline soaps; boiling with leiseive phenix—calcined soda with water glass; and lastly, after treatment with soda, leaving the rubber for some time in a solution of cooking salt (10-15 per cent).

Grease for Wooden Combs.—Take equal parts of beeswax and finely crushed graphite, pour on varnish until it well covers the first two ingredients, and melt the whole over a very weak fire. When the mass is pretty thin, add soft soap, about half as much as wax, and boil. Another lubricant consists of the following: Wax, 25 parts; tallow, 50 parts; graphite, 10 parts; molybdena, 5 parts; soft soap, 5 parts; pine oil, 5 parts. This mixture is mixed hot and applied while warm. Finally, it is recommended to grease the wooden combs simply with pure beeswax, which is put on warm and quite thin.

For iron combs which are not smooth enough, wax dissolved with a little glass flour is employed.—*Farben Zeitung.*

New Process of Cleaning Bed Linen.—In a circular, the surgeon-general of the German army, Colar, in Berlin, calls the attention of the heads of the garrison hospitals to a new cleaning method, which is to be employed in future, as thorough experiments have proved it to be of advantage. According to this method, petroleum is added to the water besides soap and soda, taking as many grammes of it as there are liters of water used; e. g., 30 grammes of petroleum to 30 liters of water. This admixture of petroleum does not only admit of an easier cleaning, as well as less tear and wear on the linen, but the wash also retains its color, is thoroughly disinfected, and the expenses are considerably reduced by a saving in soap.—*Neueste Erfindungen und Erfahrungen.*

Leather Grease.—For the production of leather grease the Seifenfabrikant gives the following receipts:

1. Melt together 4 parts of vaseline and 1 part of wax or ceresine and add a coloring matter, if desired.

2. Well warm and mix vaseline, 15 parts; fish oil, 20 parts; tallow, 12 parts; and wax, 1 part. If a black color is desired, dye the vaseline and fish oil alone with lampblack and then add the tallow and wax. The whole is stirred cold and filled in cans.

3. Melt together yellow vaseline, 1 kilogramme; olive oil, 70 grammes; ceresine, $\frac{1}{2}$ kilogramme; "lederine" yellow, 1 gramme, and stir until cooled.

4. Tallow, 71 parts; resin, 4 parts; castor oil, 38 parts. Dissolve the resin in the warm tallow, strain the whole, pour in the castor oil, and stir until, after standing some time, a light film forms on the surface of the fat. A black color is imparted with 5 parts of Frankfort black; for yellow, take only 66 parts of tallow in mixing, but add 5 parts of crude palm oil.

For perfuming the leather grease, oil of mirbane or oil of lavender is employed.

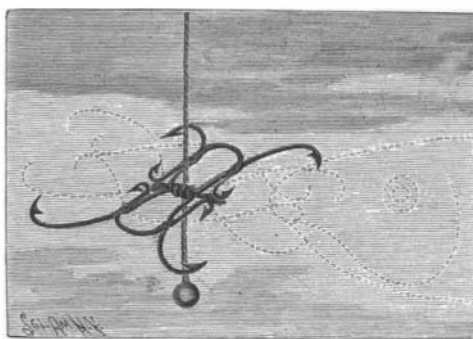
Green or Golden Color for Brass.—French articles of brass, both cast and made of sheet brass, mostly exhibit a golden color, which is produced by a copper coating. According to the *Schweizerische Industrie Zeitung*, this color is prepared as follows: Dissolve 50 grammes of caustic soda and 40 grammes of milk-sugar in 1 liter of water and boil a quarter of an hour. The solution finally acquires a dark yellow color. Now add to the mixture, which is removed from the fire, 40 grammes of concentrated cold blue vitriol solution. A red precipitate is obtained from blue vitriol, which falls to the bottom at 75° C. Next, a wooden sieve, fitting in the vessel, is put into the liquid with the polished brass articles. Toward the end of the second minute the golden color is usually dark enough. The

sieve with the articles is taken out and the latter are washed and dried in sawdust. If they remain in the copper solution they soon assume a green color, which in a short time passes into yellow and bluish green and finally into the iridescent colors. These shades must be produced slowly at a temperature of 56°-57° C.

AN AUTOMATIC SPRING FISH-HOOK.

A patent has been granted to James Y. Payton, of Waldron, Ark., for a novel spring-hook which is constructed to close and catch a fish when the bait has been seized.

The fish-hook comprises two spring grab-hooks connected at their central bends and two spring bait-hooks pivoted to the grab-hooks and arranged symmetrically with relation to each other. When set, the hooks all lie in the same horizontal plane, the bait-hooks holding the grab-hooks distended as shown by



AN AUTOMATIC SPRING FISH-HOOK.

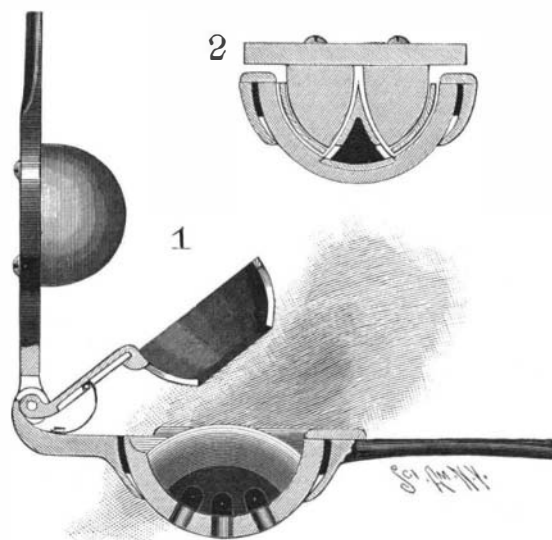
the full lines in the illustration. As each pair of hooks is maintained in unstable equilibrium, the hooks can be readily tripped by the fish, by a slight pull upon the bait-hook, by clamping or biting, or by causing a displacement of the abutting bait-hooks. The hooks' action depends upon the tendency of the springs to free themselves. Following this tendency the external grab-hooks, when the bait has been seized, approach each other, unless one of them be obstructed. But the obstruction of the one in its forward movement has no effect upon the other, since each hook acts independently by the tension of its spring. The dotted lines show the grab-hooks in the act of closing upon a fish, the bait-hooks projecting forwardly into the mouth of the fish, thus doubly securing it.

AN IMPROVED LEMON-SQUEEZER.

A lemon-squeezer has been invented by John W. Neal, Kealia, Kauai, Hawaiian Islands, in which two sections are hinged together and provided with a bowl and knife, so that, when the lemon is forced into the bowl by the movement of the sections toward each other, the knife will cut the lemon simultaneously with the squeezing.

Fig. 1 is a side elevation of the invention, with parts in section. Fig. 2 is a cross-section.

Of the two sections of the lemon-squeezer, the one



NEAL'S LEMON-SQUEEZER.

carries a bowl and the other a follower, both conforming with each other. Between the sections an ejector is mounted to swing, which is normally spring-pressed into the position shown in Fig. 1. Within the bowl of the one section a knife is secured which, as shown in Fig. 2, is adapted to enter a slot in the ejector and a slot in the follower.

In using the device, the lemon is placed in the ejector-cup. The follower-section is now thrown down, so that the follower engages the lemon and pushes it down with the ejector-cup, thus causing the fruit to be cut by the knife and simultaneously squeezed between the follower and the ejector-cup. After the lemon has been squeezed, the follower is raised; whereupon the ejector will be thrown to normal position by its spring, thus dislodging the lemon-rind.

Science Notes.

Thermometers for indicating low temperature may be filled with petroleum ether, which freezes at -190° Centigrade (-310° Fahrenheit).—*Uhland's Wochenschrift.*

Prof. J. K. Rees, Professor of Astronomy at Columbia College, has announced the gift of \$10,000, the money to be used for the measurement and discussion of astronomical photographs. The gift was made by Miss Catherine Wolfe Bruce, who has previously made important gifts for astronomical work.

Consul-General Goodnow, of Shanghai, reports the arrival at that port of the surveying party which has just completed a survey of the proposed railway from Hankau to Canton under contract to an American company. No trouble was made by the inhabitants of the region and all kindness was shown and assistance given by the local gentry and officials.

United States Consul Higgins, of Dundee, sends an account of a plowing match near that city. These matches are held for the purpose of encouraging laborers to adopt this occupation. Prizes were awarded for plowing, for harness and grooming, and for "finishing" or clearing up furrows. Quite a few American plows are in use and opinions are favorable to their adoption.

A new Arctic expedition will soon sail from St. John's, Newfoundland, under the charge of A. Barclay Walker, the well known English yachtsman. Mr. Walker intends to cruise in Arctic waters in the "Dundee," a steam whaler, during the next six months, with a party of scientists, including representatives of the Smithsonian Institution. They will probably attempt to reach the headquarters of Lieut. Peary, in Robeson Channel.

A locomotive headlight using acetylene gas has been devised by a Canadian inventor. The apparatus consists of a cylindrical cast-iron generator, five inches in diameter and twelve inches long, together with a water reservoir and condenser. The charge consists of about ten pounds of carbide, which is put in a wire basket and placed inside the generator. The water from the reservoir, dropping on the carbide, generates the gas, which is led through a small pipe in front of the reflector.

At the Rhode Island College of Agriculture and Mechanical Arts, at Kingston, a special course in poultry culture began on January 9 and continued for four weeks. Nearly forty applications for enrollment for the course were received, but, owing to limited accommodations, the class had to be kept down to about twenty in number. Several who could not take this course enrolled their names for the next one in 1900. It is a curious fact that even poultry raising has been thought worthy of a special course in an agricultural college.

Governor Roosevelt, of New York State, has signed the bill to prevent the spread of bacterial diseases and permitting witnesses to dispense with the kissing of the Bible in the administration of oaths. It is very satisfactory to note that proper sanitary regulations have now reached even the police courts, where they were badly needed. For a long time, however, many of the magistrates have not used the Bible in the court room, or have warned witnesses against using it, and great credit is due to Magistrate Pool, who inaugurated the move to do away with the kissing of the Bible in court.

McGill University, Montreal, Canada, will soon suffer a severe loss on account of the resignation of Dr. Nicholson, Professor of Mechanical Engineering, who, after eight years, has resigned to become the head of the mechanical and electrical engineering departments of the Great Municipal Technical School now being established at Manchester, England, at a cost of \$600,000. The field of work which Dr. Nicholson will have opened to him is much larger than that at McGill University, for he will attempt to encourage research work on the part of managers and foremen of engineering and other establishments where they are brought into immediate contact with practical problems.

A new method of marking glasses of spirit levels and other instruments has been devised by a Connecticut concern making levels and other instruments. The usual way of marking glasses is to scratch lines on the surface of the glass, but the skin of the glass is thus weakened and the glass itself made very liable to fracture. In the new process, by fusing the glass at the mark and incorporating with it minute particles of metal, a colored line is obtained. The metal is embedded in and inclosed by the glass, which effectually protects it. In fact, the glass at the grooves has been so strengthened that it will break first at some other point. In addition, the line is absolutely indelible and permanent, and is sharp and well defined. This is effected by bringing the spirit tube up to an iron disk rotated at a velocity of about 2,500 revolutions per minute. The frictional heat generated practically fuses the glass at the point of contact with the wheel, and in this fused portion fine particles of iron given off by the wheel are embedded. A microscopic examination of the line proves this to be true. An actual mechanical union of iron and glass is the result.