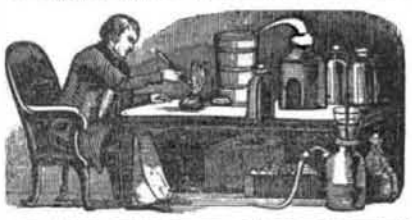


Carriage Axle Grease.

Dissolve 60 lbs. of soda in 40 gallons of water. Then introduce into a boiler 40 lbs. of palm oil and 149 lbs. of tallow and allow this mixture to boil. Then take away the fire and gradually cool down, stirring frequently, to blood heat (98°.) When cooled down to this heat it should be run through a sieve into the cooler vessel containing the dissolved soda, and stirring it during the whole time it is running off to mix the soda and oils properly. This makes a kind of soap which has been found to answer an excellent purpose as an anti-friction grease, and those companies who use a great deal of lubricating material will find it to be both cheap and good. For fine machinery where pure oil alone is desired to be used, any common oil may very easily be purified for that purpose by treating it with some soda and bringing up to a heat of 212°, then cooling off, allowing the sediment to settle, and then using the clear. The soda combines with the acid in the oil, forming a neutral salt and thus purifying the oil, making it suitable to use with the highest polished iron.

There is a kind of anti-friction grease now beginning to be extensively used in this city, and the manufacture of which is kept somewhat secret. The grease is made from rosin by a process discovered by a young man recently from the North of Ireland, who introtroduced it into this city, and has been employed by Messrs. Rogers to manufacture it.

Fusible Metal, or Metallic Pencils.

When bismuth is added to a mixture of lead and tin, it causes them to melt with a very low degree of heat. Equal quantities of these three metals may be melted in a bit of paper over a candle, without burning it; but the mixture that melts with the smallest heat, is that of 8 oz. of bismuth, 5 oz. of lead, and 3 oz. of tin, which melts at 202 deg. Fahrenheit. Hence toy spoons are made of them, which being given to children to stir very hot tea, melt while they are using them. Parkes has proposed the use of these compounds of lead and tin, with or without bismuth, in certain proportions, to form metallic baths, in which cutlery may be immersed for the purpose of tempering it always at the same precise temperature.

Another use of this fusible alloy, as it is called, is for making metallic pencils to write upon paper, prepared by having burnt hartshorn well rubbed upon it. The marks are as fine as those of black lead pencil, and not so easily rubbed out. Memorandum books of this kind are very convenient, being equally ready for use with black lead pencils, and yet as permanent as ink.

Norwegian Water Telescope.

An instrument which the people of Norway have found of so great utility, there is scarcely a single fishing boat without one, is the water Telescope or tube, of three or four feet in length, which they carry in their boats with them when they go a fishing. When they reach the fishing ground, they immerse one end of this telescope in the water, and look through the glass, which shows objects some ten or fifteen fathoms deep as distinctly as if they were within a foot of the surface; by which means when a shoal of fish comes into their bays, the Norwegians instantly prepare their nets, man their boats, and go out in pursuit. The first process is minutely to survey the ground with their glasses, and where they find the fish swarming about in great numbers, then they give the signal, and surround the fish with their large draught net, and often catch them in hundreds at a haul.—Without these telescopes their business would often prove precarious and unprofitable, as the fish, by these glasses, are as distinctly seen in the deep clear sea of Norway as gold fish, in a crystal jar. This instrument is not only used by the fishermen, but it is also found aboard the navy and coasting vessels of Norway.—When the anchors get into foul ground or their cables warped on a roadstead, they immediately apply the glass, and, guided by it, take steps to put to rights, which they could not do so well without the aid of the rude and simple instrument, which the meanest fisherman can make up with his own hands, without the aid of a craftsman. This instrument has been lately adopted by the Scotch fishermen on the Tay, and by its assistance they have been enabled to discover stones, holes, and uneven ground, over which their nets travel, and have found the telescope answer to admiration—the minutest object in twelve feet water being as clearly seen as if on the surface.

To Make Shaker Butter.

The pans or other vessels in which the milk is to be set should be made perfectly sweet. A room in the basementstory where the air will circulate freely in preferable to a cellar (when the weather will admit of it) for setting milk. Forty eight hours is a sufficient length of time to raise cream for making butter to keep through the winter season.

After this cream is taken off, the milk may stand the same length of time, but the cream that rises will not make butter so palatable as the first which rises, and should be churned separate.

When the cream is taken from the milk, it should be put into a tin pail and set into a kettle of scalding water, taking care to stir the cream often, otherwise it will turn oily on the top; it should remain in the kettle till the cream is scalding hot, being particular to place it in a tub of cold water immediately. Stir it often till it is quite cold; if it remains long after hot, it will be injured much. It will be necessary to change the water once or twice before the cream can be perfectly cold. It may then be kept three or four days before churning, without injury.

After churning, the buttermilk should be partially worked out; then add one and one half ounces of salt to one pound of butter. It may then be covered tight and stand till the following day; then work it over again, taking great care to work out every article of buttermilk, which will prevent the butter from growing rancid by age. It may then be formed into cakes or packed solid in a cask which should be perfectly sweet and well dried.

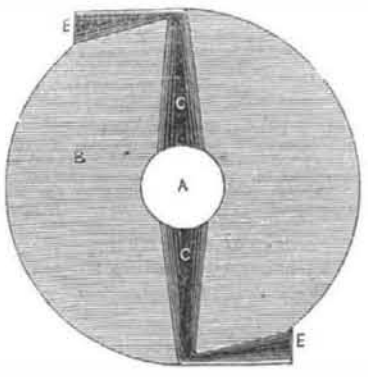
The inside should be sprinkled and a little fine salt rubbed thereon. After the cask is filled, dip a cloth in melted butter, and spread it snugly over the top—cover it over with fine salt, and fasten up the cask sufficiently tight to keep out the air; it should then be set in a cool place to remain through the winter.

History of the Rotary Engine.

Prepared expressly for the Scientific American.

MILE'S ROTARY ENGINE.

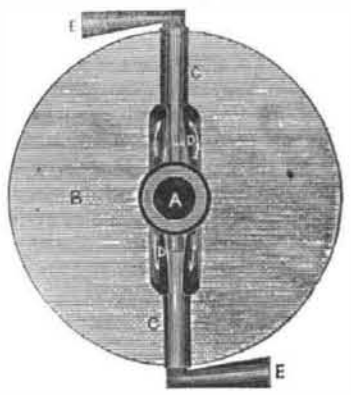
FIG. 1.



This rotary engine is the invention of C. M. Miles, of Brockwayville, Pa, and it embraces a curious mode of reversing the motion, otherwise it is upon the principle of Hero's or the Barker Rotary Mill, with the exception of having the outlet orifices very narrow at the tangential points, gradually flaring outwards.

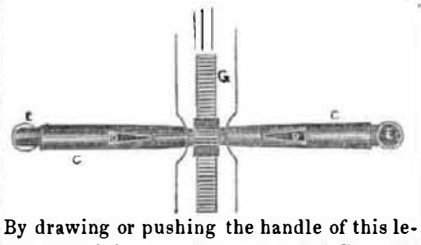
Figures 1 and 2 are vertical sections, and fig. 3 is a vertical end section. The same letters of reference indicate like parts on all the figures. A, is the hollow axle on which the wheel engine revolves and through which the steam is admitted, C C, are the tubes through which the steam passes to exhaust at E E.—The steam being admitted through A, it passes through a small space between the plates B B, into the slits D D, figs. 2 and 3, into the tube C C, and gives the reactive motion to the steam wheel, or rotary engine. The plates B B, are cast solid and their inner faces ground

FIG. 2.



smoothly so as to be perfectly air tight. There is a space drilled out for the tubes C C, which set into it like a journal box. On the centre of the tubes C C, inside of the hollow axle A, there is a small pinion forming part of it. Into this pinion there meshes a rack which is cut upon a lever the handle of which passes through the axle and extends outside.—

FIG. 3.



By drawing or pushing the handle of this lever, the pinion on the centre of C C, at the interior of the hollow axle, is turned round, and consequently the tubes C C, also, thus reversing the position of E E, the exit tubes.—Fig. 3 shows this arrangement. G, is the rack lever represented as meshing into the small tube pinion.

Effects of Poison.

Substances which are highly deleterious, and even immediately fatal to one species of animals, are frequently not so to others.

In certain cases, in fact, articles that are extremely beneficial in their effects upon one kind of animals, are medicinal to others, and to others even nutritive.

Thus Hogs are destroyed by pepper seeds, while the same substance is highly prized by man as a grateful and salutary spice. On the contrary the roots of the common henbane, which operate as a virulent and fatal poison to the human species, are a serviceable food for swine.

Aloes, also, which constitute so valuable an article in the meteriamedica of our physicians, and which is so beneficially applied in many diseases incident to the human system, proves a rank poison to the fox and dog. The horse, which is almost immediately destroyed by the phelandium aquaticum, or common water hemlock, and corrosive sublimate, even when administered in small quantities, nevertheless takes a drachm of arsenic daily, but prussic acid poisons all breathing animals.

Magnetic Power of Mineral Substances.

It appears from the researches of M. Delisse that the magnetic powers of the mineral substances which compose the crust of the globe varies according to their relative richness in iron manganese, cerium, &c, or the magnetic metals. On the other hand, it diminishes in proportion as they contain a greater quantity of silica, alumina, lime, fluor, &c.; that is to say, of substances in which the magnetic action is either null or very feeble—whilst, on the contrary, the diamagnetic action predominates. All the silicated or non-silicated minerals in which the iron is present in the state of oxide, which have a high magnetic power, contain at the same time protoxide and sesqui-oxide of iron; but the converse does not always hold good. The minerals which readily become electric by heat, such as the tourmaline, &c., which have magnetic substances combined with them, possess a very slight magnetic power, and which appears to depend only on the proportion of the magnetic substances. The electric and magnetic properties of a mineral thus appear to be independent the one of the other.

LITERARY NOTICES.

The American Locomotive.

A work worthy of American mechanical taste has at length commenced to be published.—Part 1 of a treatise on the theory of steam and its applications to the American Locomotive is now upon our table. It is designed for students, builders and working engineers and to be illustrated with 42 elegant and accurate engravings. The part before us contains three splendid engravings of the Locomotive Philadelphia constructed at the Depot of the Reading Railroad by James Mulholland. The author of this grand work—the most splendid and best of the kind that has ever been brought before the American public, is Emil Reuter, Reading, Pa. The drawings are all to scale—perfect working drawings, and are therefore of the greatest value. Every engineer in the country should have it, and no doubt will have it. The work will be issued in 16 monthly numbers for $12 complete. We bespeak for it an encouraging support. J. O. Harris, Agent for New England and New York.

Linear Perspective Drawing.

Number 2 of this really cheap, useful and able work is now issued by C. M. Saxton 121 Fulton st. N. Y. The author of it is Mr. E. Jones, an eminent draughtsman and civil engineer. The drawings are explained in a clear and able manner, so as impart a knowledge of the art in a familiar manner.

Holden's Dollar Magazine is not lacking in sterling worth, and the publisher evinces a great degree of enterprise in furnishing so meritorious a publication at such a small price. The 4th volume commences on the 1st of July, and will embrace Essays, Original Nouvelettes, Fanciful Narrations, Record of Adventures, Recitals of Life's Romance, also Biographies of distinguished American Divines, which will always be found peculiarly interesting.

Sartain's Union Magazine for June has been sent us by Messrs. Dewitt & Davenport, of this city. It is illustrated with several excellent engravings and a colored plate of Fashions. The contributors to this number are Tuckerman, Willis, Herbert, Greenleaf, Mrs. Sigourney and Mrs. Kirtland, and several others of known reputation. Sartain cannot be outdone.

Peterson's Magazine has three pretty engravings and the usual variety of choice reading. The June number completes the present volume and this is a favorable time to subscribe. The publisher promises well for the future, and his readers may depend upon being served accordingly.

Published at Philadelphia. Terms $2 per annum.