# Scientific Museum.

### Gilding---No. 2.

(Continued from page 80.)

2nd. In 1836, J. Elkington, of Birmingham, Eng., obtained a patent for gilding copper, brass, &c., by means of soda combined with carbonic acid, and a solution of gold.—Five ounces of fine gold were dissolved in 52 ozs. avoirdupois of water and nitro muriatic acid in the proportions of 21 ozs. pure nitric acid, 17 ozs. of pure muriatic, and 14 ozs. of pure water. The 5 ozs. of gold are put into this compound acid in a strong glass vessel and submitted to a low heat, by placing the said glass vessel in a heap of sand kept warm beside a stove. The gold gradually dissolves while the acids give off a dense yellow vapor. If the gold is feathered it dissolves much faster. After allowing the acidulous gold to stand for one day, until it becomes perfectly clear, it is poured off into a suitable stoneware vessel. Four gallons of distilled water, and 20 lbs. of bicarbonate of potash, are then added, and the whole made to boil moderately on a stove, for about two hours; it is then ready for use.

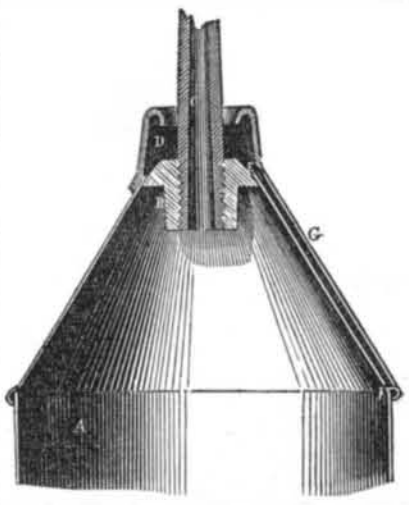
The articles to be gilded after being perfectly cleaned from scale or grease, are suspended on wires to be convenient for the workmen to dip them into the liquid, which is kept boiling. The time required for gilding any particular article will depend on circumstances, partly on the quantity of gold in the liquid, and partly on the size and weight of the article, but a little practice will enable the workman to operate correctly. Supposing the articles to be gilded, are brass or copper buttons, or small articles for gilt toys, earings, bracelets, &c.—a considerable number of which may be strung on a bent copper wire—they are dipped into the boiling gold solution, and moved gently therein for a few minutes, when they are taken out and washed well in clean water.

Considerable practice is required to manage the boiling liquid, as it is evident that the first batch of articles which are gilt will leave the liquor minus a portion of its gold; it is therefore necessary to add a small portion of fresh gold solution for every new quantity of articles to be gilded. The progress of the gilding must be noted from time to time by the workman, and care must be exercised not to expose them to the air, until they are properly covered with the gold. This method of gilding is no doubt due to an electric action. Large articles require longer boiling than small ones. If the articles gilt in this manner are required to be deadened, this can be done afterwards by dipping them in a solution of aquafortis greatly diluted with water, then washing them in clean water, and dipping them again into a warm solution of ammonia, out of which they are taken, washed well in clean water, and then dried in warm dry saw dust or bran. The deadening may also be produced by dipping the articles to be gilded (before they are boiled in the gold solution) in a very weak solution of the nitrate of mercury as described in No. 1. Or after the articles are gilded as now described, they can be deadened by dipping them in a weak solution of the nitrate of mercury, which is afterwards expelled by heat as in fire gilding.

The brightening solution employed by gilders and goldsmiths to bring out a rich color upon the surface of their trinkets, is made by dissolving one part (by weight) of common salt, one part of alum, two parts of nitre, and three parts of water. This pickle takes up both a portion of the copper and the gold of the article. The articles which are dipped into this solution, must be at once plunged into pure soft water and well washed; they are then wiped with a soft cloth and finally dried in warm bran.—Upon every occasion, articles to be gilt, and when gilding, should be plunged at once into clean water, when lifted out of any solution containing acid. The reason for doing this is that a black oxyde forms very suddenly on the surface of the article when exposed to the air, especially if lifted out of a hot solution. Pure gold is not oxydized by exposure to the atmosphere, but it must not be forgotten that the articles are made of copper or brass, metals which are easily affected with oxygen.

### Oil Dripper.

This engraving is a vertical section of Draper & Scott's patent Oil Dripper. A is the body of the can; B is a socket into which the tube, C, made of steel, is secured. D is a reservoir around the tube, into which the drippings will run and pass down the channel, E, into the body of the can. It is filled by unscrewing the tube. The oiler in common use has a tin tube for delivering the oil, which is liable to become battered and its aperture enlarged. Leakage

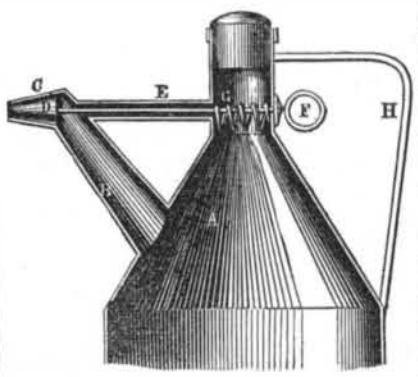



also frequently takes place at the side tube used for filling. The tin tube being soldered to the cap, when any sediment from the oil gets into the tube and stops its running, it has to be forced back into the can by means of a wire, and of course is liable to trouble again. The tin tubed cans and all others however constructed, except this, are frequently covered with oil, dripping down on the outside, rendering them dirty, and wasting much oil.

All the disadvantages of the stopper are obviated in these cans, by unscrewing the tube to fill them. The tubes are made of cast steel and hardened so that the delivery is uniform, as the hole cannot be enlarged at the pleasure of the operative. In case these tubes get obstructed, they may be unscrewed and the sediment cleaned out. The oil that runs down the outside of the tube is conveyed back into the can, thus saving much oil, and rendering it neat to handle.

Address E. D. & G. Draper, Hopedale, Milford, Mass.

### Nichol's Patent Safety Can.




The annexed engraving is a perspective view of the ordinary decanting vessel, with a sectional view of the tube, showing Nichol's improvements attached.

A is the body of the can; B is the tube with the decanting orifice; E is a metallic tube through which passes a wire connecting with the valve C. G is the replenishing tube, closed by a cork; D is the vent orifice closed by a valve at the same time with the decanting orifice. F is a ring for pulling the wire and opening the valve, C, which is closed as soon as released by the coiled spring in G.

It is well known that many serious accidents have occurred in the use of the ordinary decanting vessels, from their accidentally falling or upsetting, thus spilling the fluid and filling the room with explosive vapors. The design of this invention is to remove these dangers by the use of the self-acting valves, which keep all the orifices closed when the vessel is not in use.

It will be seen that should the fluid or the vapor of the fluid ignite at either of the orifices of the ordinary can, while filling a lamp, and from alarm the holder should allow the vessel to fall, the fluid, in a state of ignition, would be thrown upon the clothing and around the apartment, and thus an imminent danger would be incurred. With these improvements attached, such results are impossible, inasmuch as the orifices of the vessel are closed as soon as the hold is relinquished by the person using it, and should it fall no fluid can escape and no injury can result.

It will be seen also, that however careless servants and others may be, they cannot leave the vessel exposed to danger or loss by evaporation, as the valves are by their own action continued closed. It is to be understood that wire-gauze protectors against explosions are in all cases to be used in this decanting vessel.

Dr. Nichols is also the inventor of a safety fluid lamp, which we have very carefully examined. It possesses excellent qualities, and is among the very best of its class. In some respects we prefer it to any other brought to our notice. The body of the lamp is made of metal and covered with glass, which frees it from the objection usually made to the use of metal lamps, and should it fall it could not break, and there is no chance for the flame to communicate with the fluid.

Address J. R. Nichols, Haverhill, Mass., or to Peet & Nichols, corner of Broadway and John streets, N. Y.

### Curiosities of Sleep.

In Turkey, if a person happens to fall asleep in the neighborhood of a poppy field, and the wind blows over towards him, he becomes gradually narcotised, and would die, if the country people, who are well acquainted with the circumstance, did not bring him to the next well or stream, and empty pitcher after pitcher on his face and body. Dr. Oppenheim, during his residence in Turkey, owed his life to this simple and efficacious treatment. Dr. Graves, from whom this anecdote is quoted, also reports the case of a gentleman, thirty years of age, who, from long continued sleepiness, was reduced to a complete living skeleton, unable to stand on his legs. It was partly owing to disease, but chiefly to the abuse of mercury and opium, until at last unable to pursue his business, he sank into abject poverty and woe. Dr. Reid mentions a friend of his who, whenever anything occurred to distress him, soon become drowsy and fell asleep. A fellow student also, at Edinburgh, upon hearing suddenly the unexpected death of a near relative, threw himself on his bed, and almost instantaneously, amid the glare of noon-day, sunk into a profound slumber.—Another person, reading aloud to one of his dearest friends stretched on his death-bed, fell fast asleep, and, with the book still in his hand, went on reading utterly unconcious of what he was uttering. A woman at Hainault slept seventeen or eighteen hours a day for fifteen years. Another is recorded to have slept once for forty days. Dr. Macnish mentions a woman who spent three-fourths of her life in sleep, and Dr. Elliotson quotes the case of a young lady who slept for six weeks and recovered.—The venerable St. Augustine, of Hippo, prudently divided his hours into three parts, eight to be devoted to sleep, eight to recreation, and eight to converse with the world.

Maniacs are reported, particularly in the eastern hemisphere, to become furiously vigilant during the full of the moon, more especially when the deteriorating rays of its polarized light is permitted to fall into their apartment; hence the name lunatics. There certainly is a greater proneness to disease during sleep than in the waking state; for those who pass the night in the Campagna di Roma, inevitably become infected with its noxious air, while travellers who go through without stopping escape the miasmi. Intense cold induces sleep, and those who perish in the snow, sleep on till they sleep the sleep of death.

### Mechanic's Institute.

The first of the winter course of lectures before the Mechanic's Institute of this city, was delivered on Tuesday evening of last week, by Prof. Rainey, of this city. The lecture was tolerably well written, but we think that the mechanics, of whom it is fair to presume the audience were chiefly composed, would have liked it better if it had been more thoroughly practical. The subject was "Genius—its Aptitudes, Aims, and Ends." We hope our readers in this city are all patrons of this institution. We know of no way in which they can spend four dollars a year more profitably than by taking the "Scientific American," and becoming members of the "Mechanic's Institute." Money expended in gaining useful information is always earning a compound interest at a large rate per cent.

### Premium for Prize Cotton.

The merchants of Memphis, Tenn., have presented Colonel John Pope, of that county, with a silver salver, two silver candlesticks, and a beautiful mantel clock and vase, costing in all $100, being the amount of a prize they had offered for the best bale of Memphis cotton exhibited at the Crystall Palace Fair.

### Erratum.

The description annexed to Booth's patent grain winnower, in our Crystal Palace article of last week, referred to G. B. Salmon's machine, and should have appeared under his name.—The machines so closely resemble each other, that the mistake is not a singular one.

### LITERARY NOTICES.

CHEMISTRY OF DYING—This is a new work published by H. C. Baird, of Philadelphia, Pa., and forms one of the best of that practical class of works devoted to the arts, for which he is distinguished as a publisher. Its author is James Napier, F. C. S., an excellent chemist and practical dyer. He was in this country a few years ago, and was for a number of years the principal analytic chemist in the laboratory of Dr. Griffiths, of London. We personally know its author, and have the utmost confidence in his abilities and knowledge. Excepting the Essays of Crum, on Dyeing, it is the only work of the kind in existence which treats of the art as a science, in the light of modern chemistry.

ANNUAL OF ELECTRO METALLURGY.—This a neat volume, by the same author and the same publisher. It is as ably written as the work on Dyeing, but does not contain so much that is fresh and instructive; it is, however, an excellent work.

A HOME FOR ALL—Is the title of a new book, by O. S. Fowler, published by Fowlers & Wells, of this city: it is intended to describe the "gravel wall" mode of building adopted by the author; he also advocates the octagon form. The gravel wall is certainly by far the cheapest mode of building hitherto devised, but time must test its durability. We do not like the octagon form for private buildings. The book is published in popular style, and is very readable.

We have received the third number of Vol. 2, of the "Book of the World," a beautiful periodical, published by Weik & Wieck, 195 Chestnut street Philadelphia. It is beautifully illustrated, and sold at 25 cents a number.

"Dickens' Household Words," for November, is a capital number—brim-full of good things. McElrath & Baker, 17 Spruce st., N. Y., publishers.