New Inventions.

Discoveries in the Manufacture of Sugar.

Some time ago, we published an extract from *Galignani* relating to an alleged discovery by a young Belgian chemist, in which it was stated, that simply by the introduction of *some kind* of powder into the beet or cane juice, all the sugar soon was separated and deposited into beautiful white crystals without much more trouble. Since that period we have had many enquiries from gentlemen in the south, about it. In the Transactions of the British Association, published on another page, there will be found something new for our sugar makers, and the following is all that we have been able to gather respecting the alleged discovery of Melsen. :—

A quantity of cane juice was extracted from crushing the cane, to which was added some hyposulphate of lime in a powder. The juice was then boiled and passed through a cloth, then boiled, and passed through a cloth the second time, after which it was left to slow crystalization, which resulted in crystals of great beauty without any molasses. This experiment was performed in Paris, and it is stated that if the refuse canes, after being crushed, are washed with water, good sugar, with little boiling, will be deposited by the hyposulphate of lime, and no fears of fermentation.

Experiments in respect to this alledged discovery can easily be made by our sugar manufacturers. The hyposulphate of lime is added to the juice or sugar liquor, after which it is boiled to a syrup, when it is left to cool and crystalize, without applying any bone black, &c.—the substances now used for that purpose. We should like to hear the results of experiments made by those who may try Melsen's process, and those who may try the process of sulphurous acid, as described on page 59 of this paper.

Yerger's Artificial Leg, and Ankle Supporter.

Two gentlemen called at our office yesterday for the purpose of enabling us to examine the operation of these truly useful and ingenious contrivances. One of them, about 11 years since, had his left leg torn off just below the knee, while he was engaged in a machine shop. He was incapacitated from walking for about three months, and then resorted to crutches. He found them very inconvenient and then resorted to what is called a straight peg leg.

This was fastened on his bended knee, and he hobled through the streets after a fashion. A short time since he heard of the invention of Mr. George W. Yerger, and he immediately obtained one of M. Yerger's "Metallic Skeleton Artificial Legs," which he has ever since used and with complete satisfaction. He is now able to stand and work at a lathe all day, and to use either feet while so engaged. The other gentleman about five years since, had his left ankle crushed by an immense piece of iron falling upon it. The accident was a shocking one, and he was compelled to use crutches for about two years. He then resorted to Mr. Yerger's Ankle Supporter, and he is now able to walk so well by means of this instrument, that a spectator unacquainted with the fact would not discover the slightest imperfection in his gait. Mr. Yerger, the inventor of these truly valuable articles, is a Philadelphian, and has established himself at the S. W. corner of Second and Dock streets. All who are short of a leg, or who have weak ankles, are recommended to call, examine and decide for themselves.

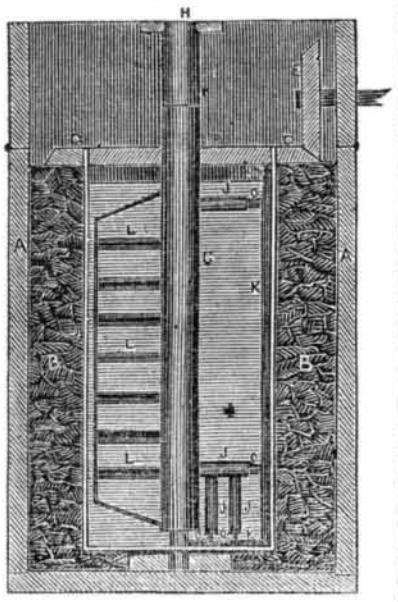
[The above is from the Philadelphia Inquirer and is unqualified commendation of a useful invention. Full engravings and description of it will be found of Page 309, Vol. 4. Sci. Am., the most popular vehicle for spreading abroad a knowledge of all good inventions.

Improvement in Oatmeal.

In No. 5, page 36, we directed attention to a new manufacture of oat meal, which had been highly spoken of by some of our foreign exchanges. Since that time we have been informed that the improvement merely consists in making oatmeal—which is generally somewhat coarse—into fine flour, and baking it in the same way that wheat flour is baked. A patent is taken out for the process by a Mr. Craig. The claim of the inventor, is the making of flour from oats applicable to the making of bread, biscuit, or pastry. This claim would be fully sustained by the courts there, but if presented to our Patent Office, it would in all likelihood be *rejected*. We have no doubt but the manufacture of oat flour is a good invention, and we see it stated that Professor Johnson considers it to be, on the whole, as nutritive for diet as wheat flour. This was also the opinion of old Buchan, but our opinion is in favor of the wheat flour.

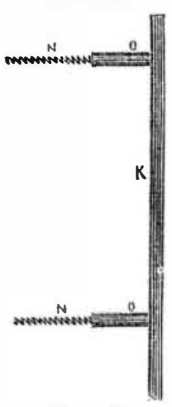
Masser's Patent Ice Cream Freezer.

FIG. 1.



This is an *Ice Cream Freezer*, invented and patented by Mr. H, B. Masser, Editor of the Sunbury American, Pa. Figure 1 is a vertical section, and figure 2 is a section of the scraper. The same letters refer to like parts. A is an outside box, B is the ice ; C is a fixed shaft passing through the centre of the ice cream vessel. It runs in a bearing at the foot, and one in the cross-piece, H, above ; J J are small tubes fixed on this shaft, and N N, fig. 2, are coiled springs inserted into these tubes on the arms, O O, of the scraper, K. L L are arms or beaters, fixed on the shaft, C, also ; E is a pinion on the driving handle which meshes into the bevel wheel, D, and is secured on the top of the ice cream vessel, therefore the vessel revolves, while the dashers are stationary. As the ice first forms on the inside surface of the cream vessel, the scraper, K, is kept in contact with the surface the by springs, N, and thus the mixing of the frozen with the unfrozen portion, is admirably performed. The same arrangement is used for scraping the bottom, as indicated by the same letters. Mr. Masser has another arrangement (not seen here) to produce a compound motion in the cream vessel, viz., by gearing to give the beaters, L L, a motion co ntrary to the cream vessel, but it is not required, as this arrangement seems to meet every point desired for a perfect machine of this nature. A fly wheel and the compound motion may with advantage be applied on large freezers. By the joints above, at the sides, is represented the cover, which is formed of two parts that fold over on hinges. The scraping of the cream from the sides, as soon as it is frozen, is a scientific idea, not only to facilitate the operation, but to make a smooth and completely mixed article.

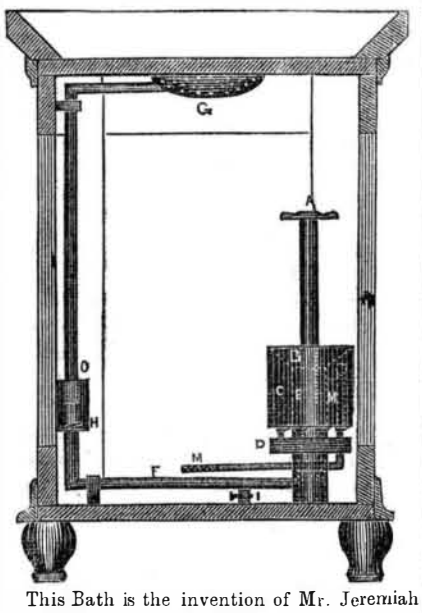
FIG. 2.



The advantages of this Freezer are, that cream can be frozen in less time, with much less labor, and with greater uniformity than by any other method. The whole labor can be performed by a child of twelve years of age. Its uniformity of motion prevents its churning any of the cream into butter, and the cream will invariably turn out good, if good materials are used. Everything being closed up it makes no dirt and the cream may be churned in a parlor. With a little practice, an eight quart freezer of cream can be frozen and ready for use in thirty minutes. After the box is re-filled with ice the cream can be kept frozen 24 hours.

Communications (*p.p.*) addressed to the Editor of the American, Sunbury, Pa., about rights &c., will meet with prompt attention.

Cold Shower, Warm Shower, and Vapor Combined Bath.



This Bath is the invention of Mr. Jeremiah Essex, of Bennington, Vt., and was patented on the 28th of last September. Its utility, as will be observed by the description, is beyond all question. This is an inside elevation, showing the whole arrangement. By it a person can take a cold or warm shower, or a vapor bath, at pleasure.

The outside casing is the box of the bath, which may have screen sides like the common kind, and the tubes below, as they are small and lying on the floor (the one, F, may run below the floor,) can be of no inconvenience. C is a small circular vessel of water surrounding the tube, E, seen in section, and communicates with it by a small opening inside, near its bottom. When the tube, E, is nearly filled, the vessel or chamber, C, contains water to the same height. F is a conducting pipe extending up into the tube, E ; and A is the handle of a piston, which extends down into E, having its lower end made to force the water up through the pipe, F, past the valve, H, into the shower vessel, G. This gives a cold shower bath. To make a warm bath, D is a lamp placed under the vessel, E, which heats the water, when it may be forced up as in the cold shower.

To make it a vapor bath, the pipe, M, seen partly in section, is attached near the top of the vessel, C, and it has holes at its lower end to let the vapor escape into the chamber.—When used for a vapor bath, the piston should be withdrawn, and the inside hole in the vessel, C, closed up, when the lamp will generate the steam in a short time. The top of the vessel, C, to the tube, E, is made of a funnel shape, as represented by B, to allow the water to be easily poured in. I is a faucett to drain off the water that may be in the pipe, and there is an attachment to the outside of the valve case, O, to lift the valve, H, to drain off the water above.

The different parts of this bath are very simple, to accomplish its triple object. Many persons, for some diseases, require warm and cold baths in succession. This is just the apparatus for them. The lamp burns spirits, is always clean, and gives out a great heat, to do its work rapidly. More information may be obtained by letter (*p. p.*) to the patentee.

If chalk gets upon iron, by using a little sand when the iron is a red heat, it will weld perfectly well, as the sand and chalk forms a glass which assists in welding.

The Oxide of Zinc as a Paint.

A correspondent of the United States Gazette, in commenting upon the value of zinc-white as a substitute for white lead, and combatting some objections that have been urged against its use, says that the principal obstacle to its employment has been the difficulty of working the material which arises from the fact, that workmen who are acustomed to a certain routine of practice, are at fault when a new article is set before them, and after attempting to use it according to the method with which they are acquainted, and not finding it to succeed, condemn it as useless. Although persuaded of the beneficial results which would follow from the use of zinc white, the masters will not take the trouble to look into the matter themselves, but rely upon their workmen, and thus the public is persuaded that the application is impracticable.

The first thing is to procure oil as nearly white as possible ; this is essential, if a bright color be required, for as the zinc white possesses less body than white lead, colored oil imparts a color to it which tarnishes its brightness ; if, however, a yellow color be required, there is no occasion to be so particular about the whiteness of the oil. The most suitable oil—which is generally white enough—is the oil of the black poppy, which may be procured from Flanders and Alsace, where it is in common use. In default of this, any other siccative oil may be used, provided itbe white.

The zinc white may be ground, while dry, into a powder, with the mullet ; it must then be scraped with a painter's knife into a heap, in the middle of which a hollow is to be made to receive a small quantity of oil ; the whole is then to be mixed with a knife, so as to bring it to the consistence of thick mortar, or paste, and rather dry than otherwise. This paste is then spread upon a separate pallet, from which a small quantity is taken and put under the mullet and ground. It is scraped up with the knife, and placed in heaps on the stone, where it is again ground, the mullet being carefully placed upon the centre of the heaps. When, by this means, the color is spread over the whole surface of the stone, three or four times, from one end of the stone to the other, the whole must then be scraped off with a knife. This operation soon becomes easy of performance, as zinc white has a fine and easily separated grain. If it be too liquid, it will be necessary to add a sufficient quantity of powder to give it the required consistency, and again grind it. It is then to be put into a clean vessel, containing clean water.

When large surfaces are to be painted, the brushes used must be very soft and not too close in order that the color may be laid equally.

As a substitute for white lead, zinc was first used in France, and the above is a too highly colored picture of its merits taken from a French journal. It will never come into use in this country, for common white, if we have to go to Flanders for poppy oil, nor can it (the zinc) be profitably applied, except mixed with the only oil that should be used, viz., goodlinseed.

The following is Mons. Rochaz's method of using the white of zinc, as recently patented in England, viz.:

The patentee makes a durable white paint or pigment by taking twenty parts of the oxide of zinc, four parts of resin, two parts turpentine, and one part drying oil. This forms a very speedily drying paint. He also employs the coarser portions of the oxide, which are scraped from the passages and other parts of the apparatus for mixing with lime, and when so employed as mortar, the compound forms a very hard and durable cement.

Another mode of using white oxide of zinc is this :

Instead of litharge as a dryer, take three-quarters of a pound free oxide of manganese and 20 lbs. linseed oil to every 100 lbs. of oxide ; boil the oil and manganese together for 6 or 8 hours, beginning with a small quantity of oil at first, and increasing gradually until the whole of it is poured into the vessels, stirring the mixture all the time. When boiled allow the same to cool and settle. Draw off the oil and mix it with the oxide in the usual way. For fine work mix it on a marble slab.