Home-made Perfumes.

There has been some discussion between two contributors of the *Druggists' Circular* regarding the practicability of druggists making their own perfumes at a profit. One says it cannot be done, the other says it can, and adds: "There is still something to be done in bottled perfumes, and when the make-them-yourself idea is applied also to those, it will give even better results" than the mere manufacture of the articles. "The druggist of average intelligence is already practically a perfumer, and the compounding of certain perfumes presents no difficulties greater than are met with in a new prescription. Moreover, in making such compounds the druggist will not only find a delightful occupation, but one which will yield him a handsome pecuniary return." The following are some of the formulæ which this writer recommends, the cost of production in no case exceeding 6d. per ounce:

White Rose.

Rose spirit	4 ounces.
Violet essence	2 "
Jasmine essence	1 ounce.
Patchouly extract	½ "

Essence Bouquet.

Rose spirit	4 ounces.
Ambergris tincture	1 ounce.
Orris	2 ounces.
Bergamot oil	¼ ounce.
Lemon oil	⅛ "

New Mown Hay.

Tonka tincture	4 ounces.
Musk "	1 ounce.
Benzoin "	1 "
Rose spirit	1 "
" geranium oil	40 m.
Bergamot oil	40 "
Alcohol (S. V. R.)	1 ounce.

West End.

Rose spirit	6 ounces.
Verbena extract	1 ounce.
Benzoin tincture	2 ounces.
Civet "	1 ounce.
Musk "	2 ounces.
Sandal oil	20 m.

Verbena.

Lemon grass oil	⅜ ounce.
Lemon oil	½ "
Alcohol (S. V. R.)	1 pint.

Heliotrope.

Vanilla tincture	8 ounces.
Rose essence	4 "
Orange flower essence	2 "
Ambergris tincture	2 "
Civet "	½ ounce.
Bitter almond oil	10 m.
Alcohol (S. V. R.)	ounce.

Microscopic Examination of Paper.

Mr. Herzberg, who has charge of the examinations of paper at Charlottenburg, has just published a very exhaustive work upon the subject, with numerous reproductions of microscopic preparations. He brings especially into prominence the peculiarities of certain fibers for rendering them easily distinguished.

The author uses a solution of iodine for recognizing the various fibers, which, according to their origin, assume various colors: (1) Wood wool and jute are colored yellow; (2) straw, "cellulose," and alfa do not change; (3) cotton, flax, and hemp are colored brown.

For disintegrating the paper, Mr. Herzberg does not employ the processes in common use. Mechanical appliances, either needles or a mortar, do not remove the size, starch, and weighing substances which in part conceal the structure of the fibers and render the examination of them difficult. He recommends that a small quantity of the paper to be examined be submitted to ebullition for a quarter of an hour in a 1 to 2 per cent solution of soda. In this way the foreign substances are got rid of and the fibers set free. The presence of wood wool will be ascertained, during the boiling, by the paper becoming yellow.

After this treatment, the whole is poured upon a brass strainer with fine meshes and is washed with pure water. The washed residuum is reduced to a homogeneous paste in a porcelain mortar.

In the case of colored paper, the coloring matter must be removed, if the boiling does not effect the removal. To this end, hydrochloric acid, chloride of lime, etc., is used, according to the chemical nature of the coloring matter. When the paper is not sized, nothing but water is used for the boiling. If the presence of wool in the paper is suspected, an alcoholic solution, instead of an alkaline one, is used, as the latter would dissolve the wool.

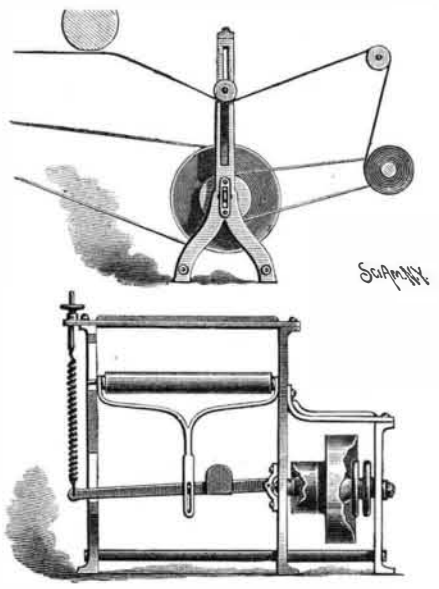
The solution of iodine in iodide of potassium may be more or less concentrated. The color produced varies in depth according to the concentration. The author generally uses the following formula:

Iodine	18 grains.
Iodide of potassium	30 grains.
Water	5 drachms.

For spreading the paste upon the object holder of the microscope he employs two platinum needles. The object holder is placed upon a white ground, so that the fibers will stand in relief more prominently. The paste is covered with a glass, and the excess of water is removed with blotting paper. For the determination of the fibers, a magnifying power of 300 diameters is best adapted; but, for ascertaining the relative proportion of the fibers, one of 120 diameters, that permits of taking in a wider surface, is preferable.—*Gutenberg Journal.*

AN IMPROVED AUTOMATIC CLUTCH AND TENSION MACHINE.

The illustration herewith represents a device primarily designed for use in printing labels or other matter in long lengths, where a web or strip is moved intermittently, and wound into a roll, the web being constantly taut. The invention forms the subject of a patent issued to Mr. Jeremiah C. Bill, of Willimantic, Conn. Upon the working shaft is a small, loose pulley, adapted to turn the winding drum by means of a belt, this pulley being adapted to be clutched to a larger fixed one on the shaft by friction or otherwise, each pulley having preferably, on the opposing faces, rubber or leather. The tension bar or roller under which the strip from the press passes has its shaft or gudgeons in slots of the main frame, the bar being mainly supported from a lever whose outer end is sustained by a coiled spring, while its inner end is pivoted in a bracket attached to the frame, in line with the operating shaft. The inner end of this shaft is slotted, and in the slot is a pointed plate, the point impinging against the end of the lever below its pivot, so that vertical movement of the tension bar or roller will impart a horizontal movement to the plate in the shaft slot. This plate is connected to a sleeve or ring placed loosely upon the shaft, and impinges against the boss of the



BILL'S AUTOMATIC CLUTCH AND TENSION MACHINE.

small, loose pulley, so that the outward movement of the plate forces the pulley in contact with the operating pulley. With this construction, between each impression of the press the strip is free, but it is otherwise kept constantly taut, and wound into a perfect roll upon the drum, the machine being entirely automatic. This machine is also equally applicable to the winding of paper from the paper machine, cloth from the loom, and other similar uses. By simply inserting the lever and bracket it will as well discharge from a roll, its action being governed entirely by the tension.

Injury to One of the Pneumatic Guns of the Vesuvius.

The guns of the new torpedo boat Vesuvius were tried near Philadelphia on April 24. The adjustments of the firing valve, which have caused considerable delay, had been satisfactorily made, and it only remained to prove that a two hundred pound shell could be thrown to all ranges inside of one mile and at the rate of one in two minutes.

Three dummy shells were fired successfully, the range being a little less than one mile. The fourth shell was different from those first fired, being a ten inch sub-caliber hollow cast iron shell, weighing 500 lb. It was placed in the middle gun, and when that gun was fired, the hollow cast shell immediately went to pieces in the gun. The breech section of the gun was badly wrecked and considerable damage was done to the mechanism. No one injured.

Photographing Patterns.

Sterling Elliott sends to the *American Machinist* the following plan for keeping track of patterns:

Spread a white paper on the floor, lay patterns on it in proper order, place on each pattern a small square of white paper on which is painted a black plain figure beginning with one, two, three, etc.; these may be cut from an old calendar, or painted purposely. Directly over the patterns suspend by any suitable means a photographic camera, and you have it. From the negative thus obtained, make two blue prints; send one to the foundry, and the old problem of marking patterns is not only solved, but lost patterns are much more easily found; for a pattern, unlike an actress, resembles its photograph every time.

Purification of Coal Gas by Oxygen.

The manufacture of cheap oxygen by the Brin process has rendered it possible to use this gas for destroying the sulphureted hydrogen present in crude coal gas. Mr. Vernon Harcourt, one of the gas referees for the metropolitan district, suggested some two or three year ago that oxygen gas would probably be found valuable for revivifying and keeping in an active condition the oxide of iron in the gas purifiers. When air is used for this purpose, it is necessary to remove the oxide of iron from the purifiers, or cause a lowering of the illuminating power of the gas; but if pure oxygen be employed, it can be introduced directly into the purifiers *in situ*, which can then be kept in constant use.

Mr. Ogden, the engineer of the Blackburn Gas Works, acting upon these views, found the process to work well in practice, and after an extended trial showed that this continual revivification of the oxide of iron had many advantages over the older method. The nuisance caused by opening the purifiers, and the loss of gas consequent on doing so, were prevented, and the labor of cleaning and recharging the purifiers saved. After these satisfactory results had been obtained at Blackburn, Mr. Valon conducted a series of experiments at the Westgate-on-Sea Gas Works. Mr. Valon found that by introducing pure oxygen into the purifier without removing the oxide of iron, a slight increase in the luminosity of the gas was produced, and the revivification of the oxide proceeded more regularly than in the former process. From the increase of luminosity of the gas, he was led to study the effect of mixing a limited amount of oxygen with the crude coal gas without the use of any oxide of iron purifiers, and found that under these conditions the lime purifiers alone were sufficient to efficiently remove the sulphur compounds present in the gas.

The proportion of oxygen which gives the best results appears to be 0·1 per cent of the volume of the gas for every 100 grains of sulphur per 100 cubic feet of crude gas. The sulphur remains fixed in the lime purifiers partly as free sulphur. The sulphur did not move forward when the lime became saturated with carbonic acid, as is the case where air is employed, and the lime could be used for about twice the usual length of time. The spent lime forms an almost odorless and dry substance, and has none of the objectionable characters of "blue billy." Permanent oxygen plant has recently been put down at the Ramsgate Corporation Gas Works, and it occupies only one-half the space which would be required for the purifying plant if oxide of iron were employed.

The chemist to Brin's Oxygen Company, Dr. L. T. Thorne, has not given any explanation of the chemical changes involved in the process, but it is obvious that the sulphureted hydrogen is partially burnt into oxidized sulphur compounds, which are subsequently absorbed by the lime. He states, however, that there is some free sulphur in the lime, and it would be interesting to know what proportion of the sulphur removed from the gas is in this condition. If the free sulphur forms a large percentage of the total fixed sulphur it may be possible that the process will resolve itself into a modification of the "Claus" sulphur recovery process, now at work at the Belfast Corporation Gas Works, and that the lime merely acts as a strainer or filter, and could therefore be replaced by coke or other material. If, on the other hand, the greater proportion of the sulphureted hydrogen is burnt by the oxygen into sulphur acids, which are absorbed by the lime, oxygen purification is not likely to be found as economical as the Claus process.

In the former, the gas manufacturer will have to buy both oxygen and lime, and sell a comparatively valueless sulphate of lime, while in the latter practically no lime is required, and the sulphur is recovered in a form which commands a good market for the manufacture of arsenic-free sulphuric acid. The slight increase in the luminosity of the coal gas is, however, an important factor in the problem. Many gas engineers would be glad to avail themselves of a process which would insure the luminosity of their gas being raised even a few tenths of a candle, and if a small quantity of free oxygen can be guaranteed to produce this effect, it should be a useful adjunct for rapidly improving the illuminating power of the gas.

We understand, says *Industries*, that the difficulties at first encountered in the manufacture of large quantities of the gas are now surmounted to such an extent that it is possible to produce oxygen by the Brin process in London at a price not exceeding 7s. 6d. per 1,000 cubic feet. In manufacturing districts, where fuel and labor cost less than in London, 1,000 cubic feet should not cost more than 5s., and in gas works and other large works where special facilities exist, a further reduction in price is possible.

Patents, Partnership, Property.

In a case where an invention is put in as part of the capital stock of a partnership, a patent granted on the invention becomes partnership property, according to the decision of the Supreme Court of California in the case of Hill *vs.* Miller.

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