

Roofing Cements.

Having had a number of inquiries recently regarding cements for the roofs of buildings, we publish the following, being the substance of two specifications of patents for such compositions:—

First.—This patent was granted to R. H. Smith, of Cincinnati, on the 20th of January, 1857. The object of this invention is to prepare a cement suitable for roofing and other purposes that will not require the aid of fire in its preparation, and which will expand and contract under atmospheric influences without rupturing, and which will also speedily lose the offensive smell of coal tar, which is part of its composition.

It is formed by mixing the following ingredients in a cold state:—

To 21 parts of coal tar add one part of india-rubber dissolved in turpentine.

To 28 parts of coal tar add one part of gum shellac dissolved in alcohol.

To 21 parts of coal tar add one part of boiled linseed oil.

To 28 parts of coal tar add one part of common molasses.

These four solutions are prepared in separate vessels, each being well stirred until a thorough incorporation takes place. They are then left to stand for thirty-six hours, then all mixed together, and thoroughly incorporated, when, as a compound, it is ready to receive the substances employed as a drier. These are prepared as follows:—

To six parts of pulverized quick lime add one part of pulverized gypsum.

To 24 parts of pulverized quick lime add one part of litharge.

To 30 parts of powder quick lime add one part of yellow ochre.

Each of these dual parts is mixed together first, then the whole are thoroughly incorporated. To every four gallons of the former compound of tar, &c., one quart of this drying compound is added, and thoroughly stirred, when it is ready to put on a roof by spreading it in a thin layer, and pressing fine sand into it with a trowel or other instrument, or it may be put on with a brush like paint.

The coal tar is employed to give this cement body, the india-rubber to give it elasticity, the shellac strength, the linseed oil to repel moisture, and the molasses to act as a deodorizer. It is stated that in the course of two or three weeks after this cement is put on, the offensive smell of the coal tar is all gone, whereas, without the molasses, it will emit a disagreeable odor for about eighteen months, and this is a most serious objection to the use of such tar for roofing. The drier described is employed for the purpose of solidifying the cement.

Neither of the foregoing ingredients when used by themselves, or when combined with each other, is claimed broadly, but "the cement formed of the materials described, prepared in the manner and in the proportions set forth, to be made and applied to roofing, &c., without the aid of fire, and by which the offensive smell of coal tar is neutralized."

Second.—This patent was issued to Charles R. Milks, of Detroit, Mich., March 3, 1857. The nature of this invention consists in a composition for roofing, containing about double the quantity of rubber heretofore used, and which from long experience in the business, Mr. Milks found necessary to prevent its cracking, he uses ingredients, which have before been used in such cements, but they are employed by him in greatly increased proportions.

Take twenty gallons of naphtha or coal tar and place it in a large kettle. To this are added two gallons of asphaltum, dissolved in purified spirits of turpentine at a moderate heat (the turpentine must be fully saturated with the asphaltum); two gallons of gum shellac varnish (shellac dissolved in alcohol); two gallons of rubber dissolved in turpentine, and one and a half gallons of boiled linseed oil. These are then subjected to a moderate heat, and ten pounds of soapstone dust, five pounds of sugar of lead, and one peck of plas-

ter of Paris are added and thoroughly incorporated by stirring, when the whole is fit for use.

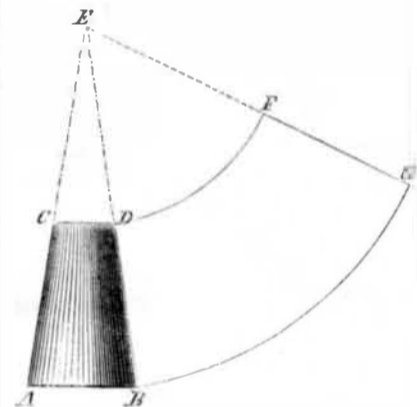
This patentee asserts that it is a wrong practice to employ cements for roofing purposes without heating all the ingredients. The asphaltum and an increased quantity of shellac are necessary to give the cement a compact character; the rubber and linseed oil make it elastic, the soapstone gives it body, and is a non-conductor. This cement is stated to be durable, and not liable to crack. The claim is for this roofing cement, "made up of the ingredients, in the proportions, and in the manner set forth."

In preparing the first cement, there is not the least necessity for mixing the drier ingredients in three separate parts first. They can all be mixed together at once, and answer as good a purpose. We also cannot see the least necessity for mixing the ingredients of the primary solution separately, before they are all incorporated together. If all be mixed together as in the second specification, under the influence of heat, they will be more perfectly united. Excepting the molasses employed in these cements, all the other ingredients have been previously used in cements.

In our next number, we shall publish two other specifications of recent patents for roofing cements.

How to Cut a Piece of Leather which will Exactly fit a Cone Drum.

A correspondent writes and asks us the above question, and as it is one of general interest to machinists, we give a diagram to illustrate our answer:—



Make the line, A B, in the accompanying diagram equal to the diameter of the base of the drum, and C D equal to the diameter of the smaller end of the cone; draw the lines, A C and B D, and prolong these lines until they meet at the point, E, strike two arcs, D F and B G, the first with E D, and the second with E B for radius, make the arc, D F, equal to the circumference of the smaller end, and B G equal to the circumference of the base of the cone, draw the line, F G, which will pass through the point, E, and the piece D B G F, if cut out, will exactly cover the cone drum.

In order to find the lengths of the arcs, D F and B G, it is only necessary to know the angle, D E F, which will correspond to these arcs, and the number of degrees of this angle can be found by multiplying 360 with the length of one half of the line, C D, taken in inches, and dividing the product by the length of the line, D E.

How to obtain Dry Boiled Potatoes.

MESSRS. EDITORS—On page 253 of the present volume of the SCIENTIFIC AMERICAN, I notice your plan for cooking soggy potatoes. Permit me to give you my method of effecting the same object. I pare the potatoes about an hour before boiling, and then soak them in cold water until they are to be cooked. The water must be boiling before they are put in, and a little salt is added. When fully cooked the water is poured off, then the kettle or pot is placed on the stove, with the lid removed, to allow the moisture to evaporate. By this method of cooking potatoes, I have never failed to render them dry and mealy.

Mrs. H. N. W.

Freeport, Ill., April, 1858.

United States Circuit Court.
Before Hon. Charles J. Ingersoll, New Haven, Conn.
THE GREAT HAT BODY CASE.

This is a case involving great value, and which has excited much interest. It is one of several suits involving a controversy between re-issues of an original patent granted to Henry A. Wells, and owned by H. A. Burr & Co., and subsequent patents granted to Alva B. Taylor. It was a suit in equity in the United States Circuit Court in the district of Connecticut, on two patents, one for machinery, and the other for a process, and both of which were re-issues of original patents granted to Henry A. Wells on the 25th of April, 1846, one of the re-issues being for improvements in making hat bodies, consisting of the combination of a feeding apparatus to feed the fur to the rotating picker, to be received and thrown by the picker into a guiding and distributing race-way, having a peculiar delivery aperture, to distribute the disintegrated fur upon a revolving perforated conical vessel or former, having the air exhausted from within it, so as to cause the fur so distributed to adhere by the pressure of the air to its surface; and the other re-issue being for hardening the hat while on the cone where so deposited, by covering the same with an outer cone also perforated, and immersing the whole into hot water, so as to remove it from the cone without injury, and thus form a fur hat of a conical shape, suitable for being made into a hat body.

The suit was brought by H. A. Burr & Co., the proprietors of the Wells' patent, against George E. Cowperthwaite, engaged in the manufacture of hat bodies in Danbury, Conn., and whom it was claimed, worked according to Letters Patent granted to Alva B. Taylor, and which the complainants claimed was an infringement upon their patent, both in the machinery and in the process employed.

The cause was argued last fall in New York at great length, before Justice Nelson and Judge Ingersoll, sitting as chancellors, by Charles M. Keller for the plaintiffs, and by George Gifford and George Harding for the defendant. The case was then held under advisement by the judges, and on Tuesday the 27th inst., at the opening of the court in New Haven, was decided in favor of the defendant by a lengthy and able opinion from Judge Ingersoll, in which he announced that Judge Nelson concurred.

Gilding and Plating Silk Thread.

A patent has recently been taken out in England by F. Burot for a process of gilding silk thread, as follows:—The silk is first immersed in a solution of acetate of silver, to which is added some ammonia. After two hours' immersion in this liquid it is taken out and dried, then submitted to the action of a current of hydrogen gas, which reduces the silver in the thread to a metallic state, fit to conduct a current of electricity. The silk is then gilded by any of the processes employed in gilding metal plates or objects, namely, by placing it in a bath with a gold solution in connection with a galvanic battery.

Another Great Telegraph Enterprise.

The London *Observer* states that a new company has been formed in that city for the purpose of laying a submarine cable through the Atlantic, between Europe and America, with an intermediate mid-way station at the Azore islands. This is a very plausible project, but we trust this new company, before contracting for its submarine cable, will wait until the old company makes its second grand effort next month.

Senator Evans, of South Carolina, Chairman of the Committee on Patents, expired very suddenly in Washington on the evening of the 7th inst. Mr. Evans was a very highly respectable man, and much esteemed in the Senate. But a few weeks since he reported a Patent Bill published in No. 28.

The third new comet of 1858 was discovered at Harvard College Observatory by Horace P. Tuttle, on the 2nd inst., at 10 P. M.

Scraps for the Museum of Science.

The study of the natural sciences is a never-failing source of delightful occupation, and has a direct and positive tendency to create and keep alive both religious and moral sentiment. No one who opens, in a proper spirit, the great book of nature, can ever fail to turn from its contemplation with a more devout and reverential acknowledgment of the Divine Author's infinite wisdom, goodness, and power.

INSECTS.—The number of distinct species of insects already known and described cannot be estimated at less than two hundred thousand—there being nearly twenty thousand different beetles alone, known at the present time—and every day is adding to the catalogue.

CLOTHING OF THE EARTH.—The globe is a mass of vegetable life. Plants are the universal covering—the dress of the naked earth. They perform vast functions, reclaiming, extending, and improving it. They are the basis of animal life and existence; their very beauty, their social and benevolent language, render even this troubled scene a place of delight. He who communes and meditates among trees and flowers shall find his Maker there to teach his listening heart.

CELLS OF BEES.—The shape which bees give to their cell is a regular hexagon. They could not have chosen a figure which would have afforded them a greater number of cells in the space contained in the hive. The property of this figure is that many united together completely fill up a space round a certain point, without leaving any void whatever.

AIR BLADDERS.—Fish possess the power of rising or sinking, by means of an air bladder; when distended with air, the fish is buoyed up, and remains on the surface of the water without any effort of its own. On compressing the bladder by the action of the surrounding muscles, the included air is condensed, and the fish sinks to the bottom. On relaxing the same muscles, the air recovers its former dimensions, and the fish is again rendered buoyant.

PERUVIAN BARK.—This is the bark of a tree found in South America, which contains in it the powerful bitter and tonic *quinia*. The sulphate of quinine is obtained by treating the bark with sulphuric acid, when the compound crystallizes out. It is much used in medicine, in doses of from one to six grains, according to the age and condition of the patient.

THE LABORATORY.—The four interesting articles which have recently appeared in the SCIENTIFIC AMERICAN upon this subject were prepared by Mr. Septimus Piesse—our esteemed London correspondent. He wields the pen of a ready writer upon any topic that stands related to the laboratory. His information is gathered out of a large experience in the preparation of all the choicest articles for the toilet. Among the most fragrant scents we have ever met with is the "Frangipanni, an eternal perfume," prepared by Mr. Piesse. It can be obtained of Inger & Co., Broadway, New York.

THE AGE OF OYSTERS.—The process by which oysters make their shells is one of the most singular phenomena in natural science, and from the successive layers or plates overlapping each other, found on them, their age can be ascertained. Each layer makes a year's growth, so that by counting them, the year the bivalve came into the world can at once be determined. Up to the time of their maturity the layers are regular and successive, but after that time they are piled one over the other, and give a more thick and bulky appearance to the oyster.

A composition made of roasted starch, salts of soda, and magnesia has been patented in England by F. G. Calvert and C. Lowe, as a substitute for glue and other animal size employed in dressing textile fabrics.

The illuminating power of the electric light is to the best wax candle, as 1444 is to 1.