Roofing Cements.

The following are other patents granted for roofing cements, alluded to by us in our last number:—

First.—This is the substance of a patent granted to Bradley L. Prime, of Hamilton, Ohio, March 23, 1858:

Coal tar, 1½ gallons.
Vegetable tar, ½ gallon.
Brimstone, 12 ounces.
Asphaltum, 6 oz.
India rubber, 24 oz.
Gutta percha, 1 oz.
Gum copal, 2 oz.
Red oxyd lead, 8 oz.
Red lead, 8 oz.
Umber, 8 oz.
Whiting (Spanish), 16 oz.
Hydraulic cement, 4 oz.
Japan varnish, ½ pint.

The india rubber is dissolved in camphene, and the gutta percha in linseed oil. The coal tar is heated to about 150° Fah., and the oxyd of lead, red lead, umber, whiting, hydraulic cement, rubber, and gutta percha stirred therein. The vegetable tar—previously melted with the sulphur, asphaltum, and gum copal—is then added, and the mass well stirred, until all the ingredients are incorporated. The composition is then allowed to cool, and is ready for use. It may be applied in successive coats with a brush, or by any other convenient mode. The roof of the house, to receive the cement, is first covered with canvas, strong paper, or felt. After the first coat of this cement is put on, its surface, while soft, is covered with sand, and it is then allowed to harden for about a week. Another coat is then put on and covered with sand, as before, and several successive coats may be applied in the same manner, but for common purposes, two will answer. This cement indurates, and becomes firm and durable.

The following are the functions ascribed to the ingredients in the specification:—

The coal and vegetable tars make a durable body with which to incorporate the other parts of the composition. Sulphur is a hardener and drier, is not affected by heat or cold, and it preserves the composition against atmospheric influences. Asphaltum is to harden the tar, and make it thicker and much stronger. The india rubber and gutta percha give elasticity to the composition; gum copal imparts toughness, and resists atmospheric influence; the oxyds of lead harden and dry the composition; and the umber dries, hardens, and prevents the cement "flowing." The Spanish whiting is a toughener and hardener; so is the hydraulic cement; and the Japan varnish is a drier, imparts a gloss, and prevents the cement running while being laid upon paper.

Claim: "I do not claim, broadly, the employment of such substances in roofing compositions.

"I claim the combination of the substances described, in substantially the proportions set forth, for the manufacture of a roofing composition."

Second.—The following is the substance of the patent granted to Robert Glennon, of New Orleans, La., on the same date as the one preceding:—

Ingredients: First, 3 gallons of turpentine, mixed with 5 pounds of Vandyke brown; stir well, and keep until the other mixtures are prepared. Second, 3 gallons of alcohol, and 5 pounds of gum shellac stirred until dissolved. Third, 5 gallons of boiled linseed oil, 1 pound of oil of amber, one gallon of Japan varnish, 6 pounds of sulphate of zinc, and 46 gallons of coal tar, all mixed together. These three compositions described are now thoroughly incorporated together, making the fluid or soft portion of the cement.

The drier is made as follows:—Half a bushel of fresh slacked lime, 4 quarts of plaster of Paris, 4 of red ochre, and 4 of Spanish whiting. These are mixed together, dried in an oven, and kept ready for use in a dry place, free from atmospheric influences.

Before applying the cement to a roof, one pint of the solid ingredients is added to each gallon of the soft or fluid composition, and the whole thoroughly incorporated. This cement is put on like paint, and each coat is allowed to dry before the next is applied. No sand is sprinkled on the surface of the first coat, but it is on the surface of the second and each succeeding one, as in the previous described patent.

The following shows the extent of the claim:—

"I claim the composition of the ingredients described, in substantially the proportions and in the manner set forth.

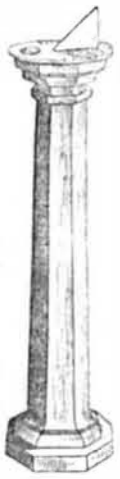
"I disclaim the compositions of R. H. Smith and C. R. Milks, patented 1857."

These were the patents published by us last week. There was no necessity for disclaiming them, that we can discern. None of the principal ingredients in any of them is new; the claims are all based on the distinct proportions of the ingredients, and these certainly differ from one another.

Any one of these cements, we think, will make a very good and cheap roofing for outhouses. Care must be exercised to have the surface of each thoroughly covered with sand, or some equally good non-conducting agent. The various functions ascribed to the ingredients of the first patent are highly amusing; but they afford a sufficient commentary upon themselves without criticism from us.

Sundials.

The sundial, the oldest method of ascertaining the solar time, is always an ornament, as well as useful in a garden or on a lawn, and we are often asked by correspondents how one can be made. It is simply a circular plate having a piece rising from it, as seen in the accompanying illustration, and the hours marked on the dial. A mirror should also be inserted, to reflect and show the direction of the clouds.



The sun, in passing from east to west, or rather, as we pass it in the opposite direction, casts a varying shadow of the triangular piece upon the dial, and as this change is regular, the shadow can be made to mark the hours. To make one is slightly troublesome to one not accustomed to the graduation of circles and surfaces, and therefore we are glad to inform those of our readers who want one for the coming summer, that we have discovered an excellent manufacturer—W. W. Wilson, of Pittsburg, Pa.—who for $15 furnishes one with a copper dial plated with silver, a mirror for the reflection of passing clouds, and on a cast iron Doric column painted like stone. The engraving is taken from one of these, and, as will be seen, it forms at once a classic and useful ornament.

Newspaper Statistics.

There are 104 papers published in New York city, having an aggregate annual circulation of 78,000,000, and 51 in Philadelphia, having a circulation of 40,000,000. In Albany the number of papers annually printed is 16,050,460, which gives a proportion of 321 to each individual, or more than one to each person every week day in the year. The people of the United States spend $15,000,000 in a year for newspapers. The origin of newspapers is traced to Italy. The first one in England appeared during the reign of Queen Elizabeth, at the time of the Spanish Armada, and was called "*Ye English Mercurie.*" The Boston *News-letter*, commenced in 1704, was the first in America. One hundred years ago there was not more than twenty-five newspapers in this country; but at this period, if all the newspapers annually printed here were put together in a continuous string they would reach more than ten times around the world, and their weight would amount to seventy million pounds.

Can there be a Great Scarcity of Timber in the United States?

ARTICLE 2.

MESSRS. EDITORS—Bertholdi, the authority I have mentioned in my former communication, gives more glaring illustrations as to the high importance to every civilized nation of a systematic cultivation of trees. Holland, he remarks, is a country naturally poor in the growth of timber, therefore it has to be supplied with wood for building houses and ships by the neighboring countries, namely, Wurtemberg, Baden, and Bavaria, from whence an enormous quantity is annually imported at an almost fabulous cost. Were it not that Holland possesses rich fields of peat, it would be a poor country, notwithstanding its highly productive foreign colonies and its great commerce. This is the case with the peasantry on the shores of the Rhine, where a most fertile soil for the cultivation of vines and grain of every description exists, and yet comparative poverty is produced on account of the large amount of money required to be annually expended on wood.

France is next taken up, and it is said that its geographical position and its climate are extremely favorable for a rich production of timber, but the government of *la grande nation* keeps employed ignorant, arrogant and utterly corrupt foresters, and instead of a rich revenue from this large natural source, the government has a great surplus in the expenditures every year. Although stringent laws are in existence, and severe punishment is inflicted on every poor peasant who violates them, to prevent any illegal destruction, the yield in general throughout France is not one quarter of what it would be from a rational management. The contrast between Germany and France is most remarkable. It is shown by the relative states of two forests, the one on the boundary of Germany, and the other on the adjoining boundary of France, where there is no difference of climate and soil. One is in the Department de Bas Rhin, the other in Bavaria. The French forest is five times as large as that of Bavaria, and while the latter government draws a net revenue of 46,000 francs annually, the former has a surplus expenditure of 10,000 francs in the same period.

Such facts are sufficient, I believe, to convince the most sceptical on the doctrine of a systematic cultivation of trees.

L. R. BREISACH.

Spiritual Alchemy.

Dr. S. A. Peters, writing to the *Spiritual Telegraph*, states that he saw in the laboratory of Professor Hare, in Philadelphia, some copper cents which had been changed into gold by the *spirits*, and then rechanged to copper. He also saw two pieces of platina ore placed into a box, together with two sealed glass tubes, quite empty, and in a short time the spirits had reduced the ore into pieces of metallic platinum which were in the glass tubes; and other experiments equally wonderful. These changes were all performed by the agency of a young man, a *medium*, through whom the spirits announced their magical power.

We must confess that we are surprised that in this age, men of intelligence and learning, as many spiritualists undoubtedly are, can be deceived by such tricks, which are only worthy the booth of a traveling conjurer; and we are disposed to believe that the box into which all these articles have to be placed for the change to be performed, is one of those mechanical devices which aid the magic of a Robert Houdin or Professor Anderson. At any rate, from our knowledge of what spirit life is, deduced from logical inference, we confidently assert that no disembodied spirit ever condescended from a higher sphere, or ascended from a lower one, to amuse the world with the tricks of an itinerant magician. If the spirits can, and are willing to change copper cents into gold, which is made to appear in the above statement, California gold mines are of no value. We have only to get copper from Lake Superior, and get the spirits to transform it into gold.

The whole statement bears the seal of trickery upon its very face.

Where Musquitos Come From.

These pests of summer proceed from the animalcules commonly termed the "wiggle tail." If a bowl of water is placed in the summer's sun for a few days, a number of "wiggle tails" will be visible, and they will continue in size till they reach three-sixteenths of an inch in length, remaining longer at the surface as they approach maturity, as if seeming to live on influences derived from the two elements of air and water; finally they will assume a chrysalis form, and by an increased specific gravity sink to the bottom of the bowl. A few hours only will elapse when a short black furze or hair will grow out on every side of each, till it assumes the form of a minute caterpillar. Its specific gravity being thus counteracted, it will readily float to the surface, and be wafted to the side of the bowl by the slightest breath of air. In a short time a fly will be hatched and escape, leaving its tiny house upon the surface of the water.

Any one who has had a cistern in the yard has doubtless observed the same effect, every summer, although he may be ignorant of the beautiful and simple process of development. If a pitcher of cistern or other water containing these animalcules is placed in a close room over night, from which all musquitos have been previously excluded, enough musquitos will breed from it during the night to give any satisfactory amount of trouble. In fact, standing by a shallow, half stagnant pool on a midsummer's day, the full development of any number of "wiggle tails" to the musquito state can be witnessed, and the origin of these disturbers of night's slumbers thus fully ascertained.

Artificial Propagation of Fish.

The London *Athenæum* says the experiment made by the Emperor of the French to stock the waters of St. Cloud with trout hatched artificially, has met with complete success. Trout twelve months old are eight inches long, and weigh from two and a-half to three and a-half ounces. Their value in the Paris market would be from twenty to twenty-five cents. The trout thirty-three months old are from nineteen to twenty inches long, and weigh from twenty-four to forty-one ounces, and would sell at from sixty cents to a dollar and twenty cents. It is further stated that the waters at St. Cloud were never before inhabited by any species of *salmynniæ*. The trout are extremely numerous, and promise to yield highly productive returns, in a commercial point of view. The principal object of the Emperor is to ascertain whether the production of fish by artificial means is more profitable than the cultivation of the land, taking the same superficial area in both cases.

Telling the Age of a Horse.

It is generally believed that the age of a horse can be determined by the number of wrinkles over his eye; but a correspondent writing from Monterey, Ala., informs us that this is not a reliable rule. He says, "There is a horse in this section of country which is thirty years old, and has no sign of a wrinkle over his eye; while there are others not over five years old that have wrinkles."

A GENTLE HINT.—We often wonder why so many inventors who send models to us neglect to put their names and Post Office address upon them. We are often exceedingly bothered in this way, and if those negligent ones could only get a view of our anxious faces, and know the trouble and pains we are at to find out upon whom we can justly fix the paternity of these apparently fathomless cases, we are sure that in all coming time no gentle hint of this kind will be needed.