

(13) J. W. writes: I have need of a composition similar to that used on the parlor match, and as nearly tasteless and odorless as possible. What shall I use? A. Igniting compositions are generally manufactured of some form of phosphorus mixed with oxidizing agents, with which it will readily inflame by friction. The following is a practical receipt:

- Phosphorus..... 1/2 part.
Potassium chlorate..... 4 "
Glue..... 2 "
Whiting..... 1 "
Finely powdered glass..... 4 "
Water..... 11 "

Also see formula given in answer to query No. 19 in SCIENTIFIC AMERICAN for April 14, 1882. We do not know of a compound of this kind that would be tasteless. Neither can we recommend tasting of such mixtures.

(14) U. H. P. asks how to make a tank for cyanide plating solution for silver, made with wood bottom and ends, and plate glass sides, what is best cement for joints? Would water glass be good to paint inside of tank for above purpose? Give best process for putting a heavy plate of tin on knives and forks by dipping or otherwise, so as to be smooth? A. Use a cement made of—

- Resin..... 6 pounds.
Dried red ochre..... 1 "
Calcined plaster of Paris..... 1/2 "
Linseed oil..... 1/4 "

Water glass is soluble in water, and therefore we do not think it adapted for this purpose. The best method of tinning is by dipping. First thoroughly clean the articles by dipping in a solution of sulphuric acid and water, then scour with sand, and finally wash well with water. Heat the articles and sprinkle sal ammoniac over them and then dip. When a thick enough coat has been obtained, wipe the articles off cleanly with a piece of tow. See the article on Electro-metallurgy in SCIENTIFIC AMERICAN SUPPLEMENT, No. 310.

(15) F. H.—1. To prepare sheepskins for mats. Make a strong lather with hot water and let it stand till cold; wash the fresh skin in it, carefully squeezing out all the dirt from the wool; wash it in cold water till all the soap is taken out. Dissolve a pound each of salt and alum in 2 gallons of hot water and put the skin into a tub sufficient to cover it; let it soak for 12 hours, and hang it over a pole to drain. When well drained stretch it carefully on a board to dry, and stretch several times while drying. Before it is quite dry, sprinkle on the flesh side 1 oz. each of finely pulverized alum and saltpeter, rubbing it in well. Try if the wool be firm on the skin; if not, let it remain a day or two, then rub again with alum; fold the flesh sides together and hang in the shade for two or three days, turning them over each day till quite dry. Scrape the flesh side with a blunt knife and rub it with pumice or rotten stone.

2. Fur skins are tanned by first removing all of the useless parts and softening the skin by soaking, then remove the fatty matter from the inside and soak it in warm water for an hour. Next mix equal parts of borax, saltpeter, and sulphate of soda in the proportion of about 1/4 oz. of each for each skin, with sufficient water to make a thin paste; spread this with a brush over the inside of the skin, applying more on the thicker parts than on the thinner; double the skin together, flesh side inwards, and place it in a cool place. After standing 24 hours wash the skin clean, and apply in the same manner as before a mixture of 1 oz. sal soda, 1/2 oz. borax and 2 ozs. hard white soap, melted slowly together with other being allowed to boil; fold together and put away in a warm place for 24 hours. After this, dissolve 4 ozs. alum, 8 ozs. salt, and 2 ozs. saleratus in sufficient hot rain water to saturate the skin; when cool enough not to scald the hands, soak the skin in it for 12 hours; then wring out and hang it up to dry. When dry repeat the soaking and drying two or three times till the skin is sufficiently soft. Lastly smooth the inside with fine sandpaper and pumice stone.

(16) C. E. B. writes: 1. I am making a 2'x4' horizontal engine. What size and kind of boiler should I use for it—not too expensive? Also what size pump should I use for it? A. A vertical tubular boiler having 20 to 25 feet heating surface. 2. Can I rig the above size engine so as to develop a one horse power with it by not using too high steam pressure? Some say it will not develop one-half a horse power under 30 pounds pressure per square inch, running 300 revolutions per minute. What power do you calculate it? A. With 30 pounds pressure and 300 revolutions it would be but about one-half of one horse power. If you double the pressure, it would be one horse power. 3. Would the manufacture of the above size engine be profitable? A. There would probably be some sales, but the demand is not large.

(17) T. E. O. asks: 1. What can I use to polish brass faucets and keep them bright? A. Rotten stone and kerosene oil. 2. How can I clean brass shells for breech-loading guns? A. Clean with oxalic acid and polish with rotten stone and oil. 3. What is a "leadad" gun, and how remedied? A. A leaded gun is one in which lead becomes attached to the inner surface of the barrel. The remedy is to keep the gun clean. 4. Will boiling water remove impurities from it such as decayed animal matter; if not, what will? A. Boiling water tends to purify it, but it does not entirely remedy the evil. 5. How can I keep frogs from going into my well and dying there? The well is curbed to the ground. A. Better clean out your well, and then stop all avenues of access to small animals.

MINERALS, ETC.—Specimens have been received from the following correspondents, and examined, with the results stated:

E. L. H.—The mineral or whitish powder appears to be the mineral kainite, or alum, a sulphate of potassium and aluminum of but very little commercial value.—H. S. T.—No. 1 is a carboniferous slate. No. 2. Pyrite (iron sulphide) in quartz. No. 3 is a slate containing pyrite.

COMMUNICATIONS RECEIVED.

On Sun Spots. By Cap. J. M.
On the Position of Science and Scientists. By W. N. L.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

August 14, 1883.

AND EACH BEARING THAT DATE.

[See note at end of list about copies of these patents.]

Table listing inventions and their patent numbers, including items like Amalgamating the gold and silver in pulverized ores, Angle iron, Animal trap, Auger bit, Auger bits, machine for twisting, W. Tucker, Auger, post, J. E. Miles, Auger, post hole, Romine & Lee, etc.

Table listing inventions and their patent numbers, including items like Elastic or cord fabric, Green Jr., & Smith, Electric battery, C. P. Orne, Electric circuit track instrument, C. A. Scott, Electric commutator or switch, E. Thomson, etc.

Table listing inventions and their patent numbers, including items like Lead to impart to it the property of adhering to other metals, treating, F. J. Clamer, Leather rounding machine, C. W. Rogers, Leather, seam for uniting pieces of, Q. Kai, etc.

