

QUESTIONS AND ANSWERS.

Subscriber writes: "Can you give me a recipe for a cement which will cement leather to an iron pulley. I want to increase the diameter of it slightly?"

The following information may be of use to you, in connection with the method to be employed for cementing leather to an iron surface: Clean the surface of the pulley with naphtha; roughen sand-paper the surface of the leather which is to be cemented to the pulley; apply a thin coat of best rubber cement to the surface of the pulley and to the rough surface of the leather.

Allow the cement to dry (not in the sun for an hour or more, then repeat the coats until the cement to dry as before; then cement the cemented surface of the leather to the cemented surface of the pulley. Care must be taken to keep dust, moisture, and the leather from the cemented surfaces. The cement should be applied so as to prevent air being enclosed between the cement coats; this can be done by rolling the leather onto the pulley.

When the leather is on the pulley, run it well with a hard roller, or pound the surface of the leather with a hammer or mallet. The edges of the leather should be scarfed and so they will firmly unite together, the lap in the leather should be made so that the joining of the pulley will not start it, but, on the contrary, will press it down when the roller or other device comes in contact with the leather.

A good quality of coach body varnish, and glue is frequently used to apply leather to the surface of iron pulleys. Coat the surface of the pulley and the rough surface of the leather with the glue, and apply the leather while the varnish and glue is in a soft state. The glue will be hot when applied. An excellent cement can be made of one (1) part best fine rubber, washed and well seasoned, three parts best purified gutta percha, dissolved in benzene. This is an expensive cement, and takes some time to make it properly. Apply the cement as varnish or glue, that is, do not allow it to dry as in the case of rubber.

R. F.: What is the difference between priming and foaming?

Ans.—Priming is the name given to that condition of the boiler when the water is picked up, in the form of spray, by the steam, and carried to the engine or other machinery in which the steam is being used. It is caused by too great a demand being made on the boiler for steam, or by the steam spaces and channels being too small for the amount of steam required to be passed through them, and may be prevented in a boiler supplied with the cleanest water, whereas foaming is due to dirty water which consists of a violent agitation of the water in the boiler, due to the presence of impurities, such as grease and salt. Both are dangerous to the engine, because they are likely to result in water getting into the cylinders, with all its attendant disastrous results; and to the boiler, because they are likely to result in low water level and overheating of the boiler plates.

W. J. & Kelsey, of North Tonawanda, N.Y., recently purchased 1,000,000 ft. of white pine at Ashland,

JUST A FEW SHINGLE FIGURES.

How many lumbermen actually realize the enormous quantities of red cedar shingles that are annually shipped from the Pacific Coast into this and Eastern territory? asks the Mississippi Valley Lumberman. This is an age of large figures, and familiarity with newspaper reports of billion-dollar trusts and other undertakings on an unheard-of scale are apt to cause one to smile indulgently on an annual shipment of from 20,000 to 25,000 cars.

It is estimated by competent authorities that 30,000 cars of shingles will this year find a market east of the Rockies. Let us see what this means. Taking 170,000 as a basis for a carload, we have for 30,000 cars, 5,100,000,000 shingles. As each shingle is four inches wide, if laid side by side this mass would extend 20,400,000,000 inches, or 1,700,000,000 feet, or 321,969 miles; in other words, a pathway to the moon and one-third back could be made. Laid end to end, using sixteen inches as an average length, and many run as high as twenty-four inches, we would have a line of 1,287,876 miles, or five times the distance of the moon from the earth. Placed on the equator, it would circle the earth 5½ times, or make a walk 17 feet wide and 25,000 miles long. Packed in bunches and piled one on another, we would have a column extending 17,000,000 feet into the air, or nearly 1,000 times higher than the highest mountain. At the present market prices these shingles would represent a value of about \$13,500,000.

A few figures will do wonders in awakening people to an appreciation of a thing of this kind. Thirty thousand cars can be expressed in three words and one is apt to estimate accordingly, but five minutes' work with a pencil will astonish him.

PRESERVATION OF RAILWAY SLEEPERS.

In years gone by, says Engineering, little attention was paid by railway engineers in the United States to the preservation of sleepers by creosoting, burnettising and the like. The small interest taken in the matter was in part due to the very ample supplies of cheap timber then available; but there were also other reasons. With the light rails then used the useful life of a sleeper was not closed by decay, but rather by the fact that serious abrasion under the rail-seats necessitated their replacement, even if comparatively sound as a whole. With the stiffer rails now in use but little abrasion takes place, and even when light rails are still used, the adoption of tie-plates has become general and protects the timber immediately under the rail, so that but few sleepers are now removed for any reason but general decay. In combination with the higher price of timber, this has led to greater attention being directed to the matter of preserving the sleepers, but creosoting seems still to be generally regarded as too expensive, particularly in the West, where the chloride of zinc process seems to be the most in favour. As western lines run, to a large extent, through somewhat arid country, this process seems to give satisfaction on the whole, in spite of the readiness with which the zinc salt can be washed out of the timber.

Mr. Robert Fulton, of the firm of Fulton Bros., saw millers, Fingal, Ont., died early last month.

NEW PROCESS OF REMOVING SCALE.

Patents have recently been granted to Mr. E. D. Hopcroft, Kidderminster, England, for a process of removing scale from the interior surfaces of boilers, which lacks nothing in novelty, judged from a practical standpoint. The prevailing idea among engineers is that boiler scale must be removed by either solvents, oil or muscle and frequently by a judicious combination of the three, which idea may still continue uppermost in the minds of practical engineers for some time to come. The method referred to contemplates the removal of scale by subjecting the boiler to a very low temperature. The apparatus consists of a combined steam and belt driven ammonia compressor, of portable design, together with the usual form of condenser and expansion coils. The boiler is first emptied and the scale covered interior surfaces allowed to become thoroughly dry. The pipes conveying the expanding ammonia gas are then connected to the boiler and the temperature of the latter reduced to 20-25 degrees below the freezing point. The rapid contraction of the plates and tubes causes the scale, which has become extremely brittle under the low temperature, to flake off very rapidly, and the rise in the temperature which soon follows completes the operation, removing by the expansion of the plates the remainder of the scale. The operation is said to be quick and effective, which, if proved to be true by a more thorough trial of the process, offers an easy solution of the scale problem, especially for those operating ice and refrigerating machinery.

It is not unlikely that, should such a simple process fulfill the requirements from a practical standpoint, a new enterprise, that of professional boiler cleaning, will find a substantial backing and a lot of needy customers to cater to.

It must be noted, however, that expansion and contraction of the boiler plates have not proved specially beneficial, and it will be difficult to convince engineers that it is good practice to deliberately stimulate an operation that they have sought by every means to retard.

CEDAR POLE SPECIFICATIONS.

With the increased demand for and use of cedar poles in the erection of telegraph and telephone lines, there should be some uniform basis on which contracts could be made and inspections had of these poles. As the business is now conducted a contract for cedar poles, unless every dimension is specified, means the delivery of almost any old pole. T. E. Mitten, general superintendent of the International Traction Company, of Buffalo, suggests the following specifications for cedar poles:

All poles to be cut of white live cedar, peeled, sound at top and not more than 15 per. cent. rot at butt; base area to taper gradually and be free from large knots; a crook of ¼ inch to five feet in length will be allowed.

Poles must be free from wind twists and large cracks, and measure as follows:

Length.	At Top	6 feet from butt.
12 ft.....	4 in.....	8 in.
20 ft.....	5 in.....	8 in.
25 ft.....	6 in.....	10 in.
30 ft.....	8 in.....	14 in.
35 ft.....	7 in.....	14 in.
40 ft.....	7 in.....	15 in.
45 ft.....	7 in.....	16 in.
50 ft.....	7 in.....	17 in.
55 ft.....	7 in.....	18 in.
60 ft.....	7 in.....	20 in.
65 ft.....	7 in.....	20 in.
70 ft.....	7 in.....	21 in.

Mr. L. Sapery, of the Syracuse Smelting Works, Montreal, has recently returned from an extended trip to Europe.

Mr. H. Walcot, of London, Eng., expects to pay his annual visit to Canada as usual about the middle of November, to call on his different shippers at Quebec, Montreal and the west.

Mr. George Harris, who by the way is a Canadian, is the affable and energetic travelling representative of Messrs. Geo. T. Houston & Co., the well-known hardwood manufacturers and dealers of Chicago. Mr. Harris frequently takes a run through Canada, and has succeeded in working up quite a considerable trade in this country.