

There is a large class of well-meaning people who seem to think a gravestone without an epitaph a mere wilful waste of so much good stone, and that *with* one, or rather *by* stone, the claims of the departed to the consideration of the public are mightily strengthened, that a plain tombstone is considerably more respectable than a simple raised turf; but that a tombstone with an epitaph to boot is positively and indisputably *waste*. Our burial-places are capable of great improvement. Who without a shudder can look upon a city churchyard, "a dismal place raised a few feet above the level of the street, and parted from it by a low parapet wall and an iron railing—a rank unwholesome rotten spot, where grass and weeds seem in their frowzy growth to tell that they had sprung from paupers' bodies, and struck their roots in the graves of men sodden in steaming courts and drunken hungry dens?" How different the feeling with which we enter a churchyard in the country, how reverently we gaze around the holy pile where beneath whose roof in life they congregated to worship,

"Each in his narrow cell for ever laid,  
The rude forefathers of the hamlet sleep."

And yet knowledge and our reason tell us that to bury the dead in proximity to the living is to help to shorten the, in any case, brief space of time which divides one from the other.

#### JAPANESE VEGETABLE WAX.

The *Japan Mul* contains some further particulars respecting the preparation of the vegetable wax produced in Japan, and chiefly exported to England. This wax is obtained from the fruit, or, more correctly, berry of the wax tree. The tree, which is by no means unlike the juniper tree, flourishes more especially in the southern provinces of the empire. The fruit, which usually ripens about the month of October, is gathered when ready, and cleansed from its loose, outer husk, a process which is accomplished in large wooden vessels, with wooden malls, similar to those in use for cleaning rice. The residue product, available for the manufacture of wax, is a bean-shaped kernel of the size of a lentil, possessing an unusual degree of hardness, of a dark yellow wax colour, and offering a sapaceous exterior to the touch. The kernel is subsequently exposed in a sufficient degree to a steaming process, which deprives it of its extreme hardness, and allows of its oily properties being more easily extracted in the pressing stage. In this process, the oil is received into small earthen vessels, in which it subsequently hardens to a bluish-green mass, in the shape which it is commonly met with in home consumption.

Wax so produced is impure, and is only suitable for certain descriptions of candles and for wax-thread manufacture for home use. In order to render it merchantable for the exporter, the following refining process is resorted to:—The wax is boiled with a lye until it is brought to a perfectly fluid state, and is then drawn off into a reservoir filled with clear water, the pure wax, which floats upon the surface, being removed. The mass is then exposed to the sun's rays for a period of fifteen or sixteen days, during fine weather, for the purpose of bleaching it, at the expiration of which time the wax presents a dirty white crumbling appearance and a strong tallowy smell. The boiling and bleaching are repeated with the view of rendering the refining process still more complete, the only difference being that, instead of lye, pure water alone is employed in boiling it. The product is a clear, white powder, which, in place of its former crumbling appearance, has assumed an almost crystalline formation. The last stage of the preparation for export consists in rendering the powder a compact mass, which is effected by melting it over a fire with a little water (in order to avoid burning,) and running it off into flat vessels. The product thus obtained, and known to commerce as vegetable wax, differs exceedingly little from white bees'-wax, with which it possesses the properties of colour, brittleness, and similarity in its fan-shaped fracture in common. The only characteristic difference may be said to be in the odor, the bee's-wax giving off a refreshing aromatic scent in burning, while the tallowy smell of the Japanese wax is far from being agreeable. Vegetable wax is chiefly used in the manufacture of wax candles.

A rifle which the Evans Rifle Co. at Mechanics Falls, Me., are manufacturing, is said to be capable of discharging thirty-four shots in nineteen seconds.

#### 50-TON STEAM-HAMMER

At the present time, when the large steam hammer at the Woolwich Arsenal has just been specially exhibited to the Emperor of Russia, many of our readers will regard with interest the engravings which we this week publish of a much larger hammer which has for some time past been at work at the Alexandrowski Steel Works, St. Peterburg. This hammer (of which we give an engraving from *Engineering* on page 229) was originally constructed by Messrs. Robert Morrison and Co., of Newcastle-upon-Tyne, and it was erected by them in 1866. It was then a 35-ton hammer of Messrs. Morrison's well-known pattern, the piston rod, or hammer bar, which extended through both top and bottom cylinder covers being forged in one piece with the piston, and that portion which was above the piston being flattened on two sides. As first erected, also, the arched frames shown in our engraving sprung from the ground level, their span being 30 ft., and the height of arch to underside of cylinder 16 ft. 8 in.

After the hammer had been working a short time the hammer bar began to give way, and ultimately broke, and the great expense which would have attended replacing it led Captain Kolokoltzoff to consult Messrs. Thwaites and Carbott, of Bradford, as to the advisability of altering the hammer to one of 50 tons, and at the same time providing the hammer head with guides, the hammer bar being originally guided by its stuffing-boxes only. The result of this consultation was that Messrs. Thwaites and Carbott submitted several designs for the alteration, and eventually that which we illustrate was carried out. According to this plan the original cylinder is retained, but the arched standards instead of springing from the ground line are now mounted on the tops of massive vertical standards 12 ft. high, the clear height under the cylinder being thus increased to 28 ft. 8 in., and room being obtained for the erection of the guides for the hammer head. The cylinder, we should state, is 6 ft. 6 in. in diameter, and the length of stroke 12 ft. 6 in., so that the whole work is of a colossal character. The height of the hammer, as altered, from the ground line to the top of the cylinder is 46 ft., while the cylinder itself is a massive casting weighing 36 tons. Each of the arched standards is 34 ft. in height, and weighs 40 tons, while the column of rectangular box section, from which each arched standard springs, is made in two parts, and weighs 37 tons, the total weight of each side frame complete from the floor line being thus 77 tons.

#### RAILWAY MATTERS.

THE Burlington (Ia.) *Hawkeye* is of the opinion that when a locomotive engineer finding himself laid out on a side track for the greater part of the afternoon, wiles away the monotony of the occasion by sending his new fireman back to the next station to look after the exhaust which he claims to have lost while coming up the hill, it may be safely considered as a base attempt of a brotherhood man to put a damper on rising genius.

A LARGE wooden bridge on what is known as the Pan Handle Railway, in the United States, was recently burned down, and the promptitude with which it was reconstructed goes to prove that if a wooden bridge is easily destroyed it is easily reinstated. Immediately after the burning of the bridge the company issued an order to Messrs. Alex. McClure and Co., of Pittsburg, for the timber necessary for a new one: all the trains of the Pan Handle route were compelled to pass over the Pittsburg, Ft. Wayne and Chicago and Cleveland and Pittsburg railways as far as Steubenville, until the new bridge could be completed. Messrs. McClure and Co. immediately cleared their mills for action; and commenced on Monday morning, Sept. 21, running both saws day and night, until they had made 6½ days, in which time they cut 143,478 ft. of lumber; 129,850 ft. of this was cut and shipped in 4½ days to the scene of the burnt bridge. The railroad company erected the new bridge in 3½ days. The lumber for the bridge was all cut and loaded into cars from the 21st to the 24th; the last car load having been sent off at three o'clock on the morning of the 24th. The railroad company were highly gratified with the promptness with which the firm went to work, and with the unprecedentedly short time in which they were furnished with materials from the logs to build the entire new structure.