

being suspended from the top by strong ropes to perform this work. In these a strong charge of powder is placed, and every noon and night after the men quit work the blasts are fired, the object being to shatter the rock as much as possible. The next morning the loose rock is all prized down to the bottom of the quarry and the work of drilling resumed. The stone is first loaded upon dump cars, the large pieces being first broken to a proper size with sledge hammers, and the cars are permitted to roll down the track to the various bins located above the kilns, into which the stone is dumped. In this way the bins are kept full, a loaded car being left in front of each bin when work is stopped in the quarry at night, to be used first in the morning, as the kilns are kept running constantly by night and day shifts. The empty cars will be drawn back to the quarry by a cable, the same power that runs the drills being used for this purpose. This department is in charge of Mr. Harry Sanders as foreman, an experienced quarryman and blaster.

The Monitor kiln now in use, invented and patented by M. C. Pelton, differs materially from the stone one previously described. It consists of two thicknesses of fire brick and one row of red brick, all enclosed in a jacket of boiler iron, a space of two inches between the brick wall and the jacket being filled with leached ashes or small gravel, which serves both as a non-conductor of heat and to relieve the kiln from the effects of the great expansion while burning. This retains the heat generated by the fierce fire constantly maintained in the furnace so perfectly that the exterior of the kiln never becomes so warm that the hand can not be held against it comfortably. The kiln holds about thirty tons of rock, and is always full, as it is charged with new rock from the bin as fast as lime is drawn off from the bottom. It has two furnaces, one on each side. A boiler iron smokestack projects above the kiln, creating a better draft and more perfect combustion, thus increasing the heat, and, by lessening the time consumed in the process of burning,

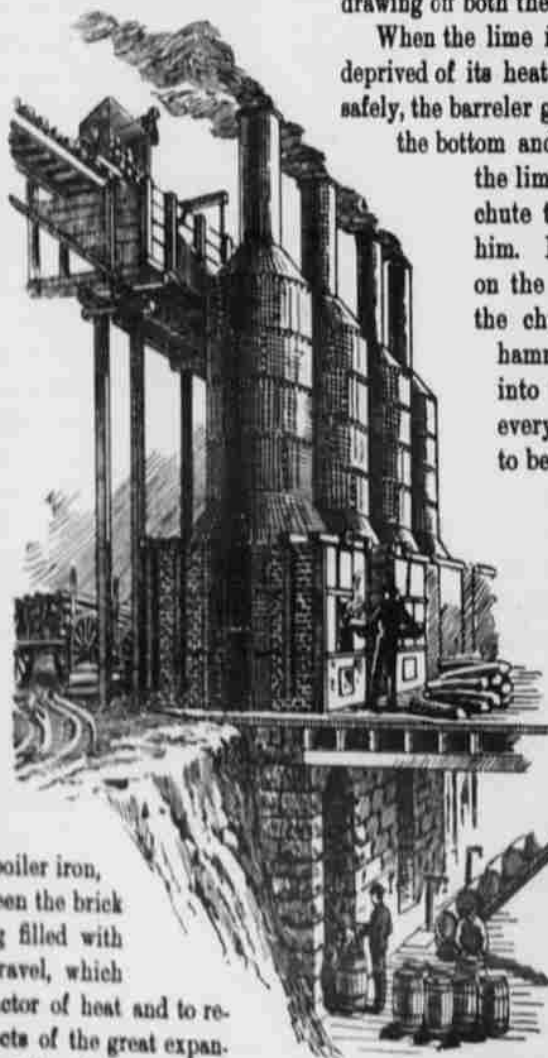
adding materially to the product. The new brick and iron kilns yield nearly fifty per cent. more lime than the old stone ones in proportion to their capacity. It takes about forty-eight hours for rock to pass through the old kilns, a drawing being made every three to four hours, while in the new ones a much larger drawing is made at shorter intervals. In the new ones, also, a system of drafts has been adjusted to the cooler so that a current of fresh air is constantly passing around the lime, thus cooling it more rapidly than formerly and facilitating the operation of barreling it, as well as adding to the comfort of the operator by drawing off both the hot air and the dust.

When the lime in the cooler is sufficiently deprived of its heat to admit of being handled safely, the barreler grasps the lever which opens the bottom and pushes it to one side, and

the lime slides out and down the chute to the opening in front of him. He then places a barrel upon the scales under the mouth of the chute, and with a combined hammer and rake draws the lime into the barrel, breaking open every suspicious looking piece to be certain that it is thoroughly calcined and contains no "core." Thus every ounce of it is carefully examined by hand, every particle of "core" is removed (it being seldom found), and the lime is put up entirely free from dirt or any other foreign substance. As fast as one barrel contains enough to indicate two hundred pounds on the scales, it is set to one side and another is taken from the bottom of the barrel chute, leading from the store room above, and placed on the scales. The barrels are then taken in

hand by the headers, who quickly and deftly lay in the heads, set the top hoop in place, nail it and brand the head "Roche Harbor Lime, San Juan." The burning department is in charge of Mr. Charles Erickson, who is also the general foreman of the entire manufacturing business.

A system of tracks runs through the lime sheds leading to the warehouse, and on this runs a long, flat car, upon which the filled barrels are loaded and hauled by horse power to the warehouse on the dock,



A SET OF LIME KILNS.