

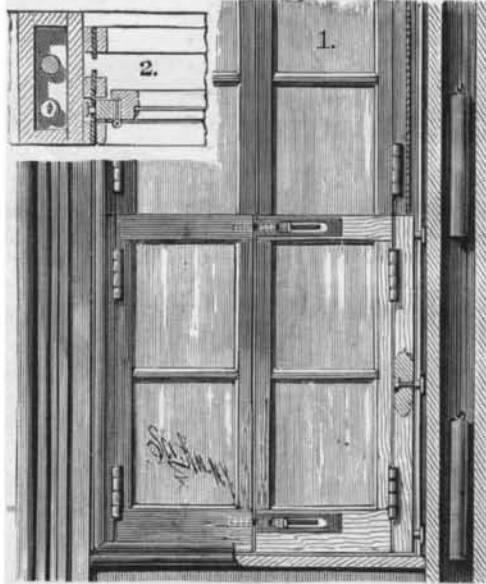
IMPROVED METHOD OF BURNING LIMESTONE.

We herewith illustrate an improved kiln for burning limestone, which, both in its construction and operation, possesses features that are new and of great value; but more important is the fact that the lime produced is of absolute purity. The stone during its passage down the kiln is subjected to the intense heat of hydrocarbon burners, and, the combustion being perfect, there is no opportunity for the introduction into the lime of any deleterious ingredient, such as sulphur; and as the stone from these quarries, which have been worked for over seventy years, is second to none in Pennsylvania in purity, the lime obtained is of the best quality. The white efflorescence often seen disfiguring the walls of buildings in some cases caused by carbonate and sulphate of soda and potash; General Gillmore, in his "Treatise on Limes, Hydraulic Cements, and Mortars," states that one source of these salts is, "beyond doubt, the hydraulic lime or cement used in the mortar, derived partly from the stone itself, and partly from the ashes of the fuel used in calcination." It will be seen that this method of burning is free from all danger arising from "the ashes of the fuel used;" and even if the limestone were of a poor quality, the hurtful elements would be eliminated in the burning.

Additional evidence is contained in a report by Mr. Wm. Trautwine, under the title of "Incrustations on Brick Walls," which gives the results of an investigation made by him into the cause of the defacing of the buildings in Philadelphia. He attributes the discolorations to the use of a lime in building composed of a large percentage of magnesia, and burned with wood and coal conjointly, or coal alone, the sulphur from the coal being very injurious to lime.

The kiln proper consists of an iron shell lined with fire brick; the upper part tapers off, and terminates in an ordinary stack passing through the roof of the building. As shown in the engraving, the kiln extends from the ground floor through the second and third. The burner openings—four in number—are made through the shell and lining at a convenient height above the second floor and at equal distances apart. In each opening is placed a hydrocarbon burner, similar in construction to the ordinary atomizer, and consisting of two small pipes arranged at right angles to each other, and with the outlet ends in close proximity to each other. The vertical pipe connects with an oil circle extending around the kiln just within or without the iron shell and below the floors of the burner openings. This circle is connected by a pipe with an auxiliary tank, rectangular in shape (shown in the center of the cut), which is supplied with oil—crude petroleum—from the main reservoir located in one end of the building. The oil flows by gravity

connected with it, which carries away water of condensation. Fed by the water tank, shown in the center of the picture, is a large pipe encircling the kiln above the burners. From this circle a smaller pipe leads to each opening, where it connects with a water back; from the outlet of each water back a pipe leads to a waste-water collector. By this means a constant circulation of cool water is maintained through each water back, and the bricklining adjacent to the flame is protected from the effect of the intense heat. Suitably located valves control the admission of steam and the flow of oil and water to the kiln. The steam, in its passage across the opening in the vertical oil pipe of

**BUCKNER'S IMPROVED WINDOW.**

the burner, draws up the oil, which enters the kiln as a fine spray; upon being ignited, an intense and equal heat is obtained, which burns the limestone as it gradually passes downward through the kiln.

Limestone from the quarry, but a short distance away, is brought upon cars to the level of the upper floor; from here it is fed to the kiln through a door in the upper conical portion. The degree of heat to which the lime in its passage is submitted increases as the burners are approached. Above each burner opening is a peep hole, through which the condition of the interior may be observed. The lower part of the interior of the kiln tapers downward, and terminates in a chute, provided with a weighted door, and through which the lime is drawn. The lime is stored upon this floor, or packed ready for shipping; a track leading to one of the branches of the Pennsylvania Railroad

a nicety and may be maintained for an indefinite period, and that the kiln is continuous in its action. The limestone is subjected to what may be termed a cleansing process, and the lime is delivered in a pure state.

This invention has been patented by Mr. Joshua Hunt, and is controlled by the Baker Lime Co. (Limited), of Avondale, Chester Co., Pa., whose kiln our engraving illustrates. The general agents of the Baker Lime Co. are the Jackson Lime and Coal Co., of Wilmington, Del.

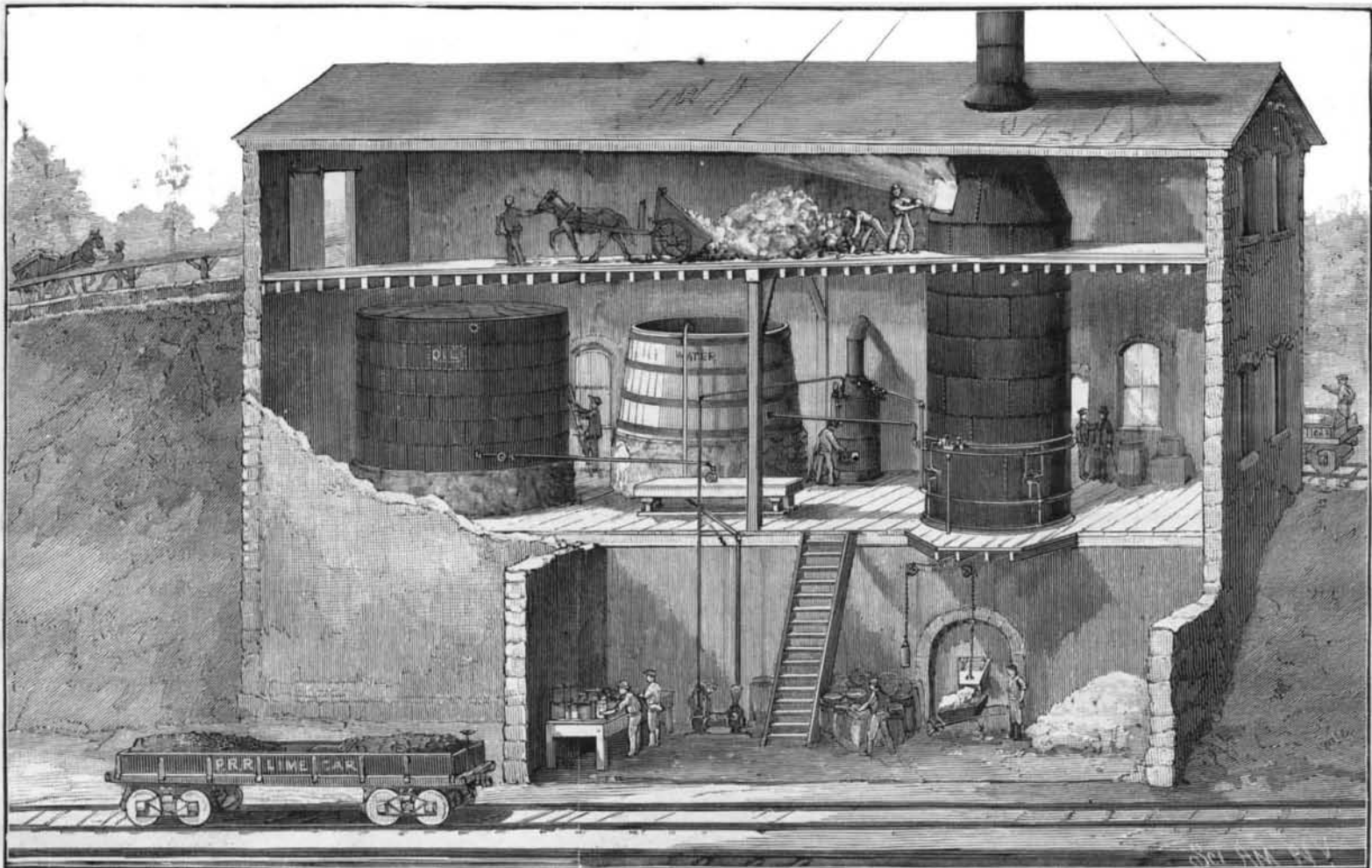
AN IMPROVED WINDOW.

To the window casing, which is formed with weight boxes in the ordinary manner, are attached guards forming grooves for the sashes to slide up and down in. Each of the sashes is made in two parts, rabbeted at their inner and outer edges to form close joints, and hinged at their outer edges to pieces fitted to slide up and down in the grooves in the casing. To each hinge piece are attached two or more bolts formed with flat heads, which project at the inner sides of the pieces so far as to underlap the adjacent edges of metal guide plates secured to and between the guards and casing, as clearly shown in the sectional plan view. When closed, the sashes are held together by bolts, as shown in the large view. With this construction the sashes can be raised and lowered with the same facility as ordinary sashes, and can also be swung open and shut upon the hinges, so that the outer sides of the window can be readily washed and the window can be fully opened in warm weather to admit air to cool and ventilate the apartment, and quickly closed when required.

This invention has been patented by Mr. M. S. Buckner, of 154 Hull Street, Savannah, Ga., who will furnish all further particulars.

Andromeda's Loss.

The new star in Andromeda, which was first seen by Ward, at Belfast, on August 19, as a star of the ninth magnitude, and two days later reached its greatest brightness as one of the seventh magnitude, is now fading at the rate of one magnitude in eighteen to twenty-one days, and has reached the lower brilliancy of a star of the eleventh magnitude. Monck has suggested the hypothesis that the stranger may be a dark star raised to incandescence by passing through the matter constituting the nebula, or may be a condensation of meteoric streams. Or it may not be in the nebula at all. If it is really passing through Andromeda, the length of its duration shows the enormous size of the nebula, since it must be going across the thin portion, the diameter of which is, nevertheless, forty or fifty times as great as the distance of the earth from the

**IMPROVED METHOD OF BURNING LIMESTONE.—KILN OF THE BAKER LIME CO**

from the reservoir to the auxiliary tank, which is at such an elevation that when full the oil surface is a few inches below the burner outlet. Each horizontal pipe of the burners is connected with a steam pipe encircling the kiln just below the burner openings, and supplied with steam by the boiler.

Immediately below the steam circle is another con-

passes before the door of this apartment. The lower portion of the kiln could, if thought desirable, be so constructed as to form a capacious storage chamber, in which the lime would be perfectly protected, and from which it could be easily drawn as needed.

From the above brief description it will be seen that all the parts are simple, the heat may be regulated to

sun, or about four and a half billions of miles. Similar dark stars have been previously observed.

SOME one suggests the brilliant idea of chaining a Bible to each telephone in the country, so that while waiting for replies the telephoners will have something to read of a nature to repress profanity.