

Protection from moisture, even that of air, is very essential for the preservation of cements as well as of quicklime. On this account the barrels are generally lined with stout paper. With this precaution, aided by keeping the barrels stored in a dry place, raised above the ground, the cement, although it may require more time to set, will not otherwise very appreciably deteriorate for six months; but after fourteen or sixteen months, Gilmore says it is unfit for use in important works. But in lumps kept dry, it will remain good for two or three years, and may be ground as required for use.—*Trautwine*.

**STEAM TIGHT JOINT.**—Mix boiled linseed oil and white lead to a proper consistency, always using the larger portion of white lead. This composition may be applied to a piece of flannel and fitted to the joint. A more powerful cement for withstanding the action of steam is composed in the proportion of 2 ozs. of sal-ammoniac and 4 ozs. of sulphur, made into a stiff paste with a little water. When the cement is wanted for use dissolve a portion of the paste in water rendered slightly acid, and add a quantity of iron turnings or filings, sifted or powdered to render the particles of uniform size. This mixture, put into the interstices of iron work, will in a short time become as hard as stone. From experience it is ascertained that more depends upon calking the joints than in mixing the cement.

### ARTISTIC BRICKWORK.

#### THE MORSE BUILDING.

A building has been erected recently upon the corner of Nassau and Beekman streets, New York, which in many respects attracts more than passing notice. It is known as the Morse Building, and stands upon the site of the old Park Hotel. Although there have been many tall buildings erected in New York of late years, this one outstrips them all. It is the highest sheer brick wall now standing in the city. But it is not its height alone that attracts attention. There is a display of ornamental brickwork in its walls which, in its arrangement and effect, is very pleasing to the eye of the observer. The features of construction embodied in the building throughout are very striking, and the largest measure of convenience and taste in appointments has been obtained at the expenditure of a very moderate sum of money; besides, the building is fire-proof throughout.

The features of this structure to which we particularly desire to call the attention of our readers, and a description of which we believe will be of practical use to them, lie in the peculiar use and treatment of brickwork. The accompanying engravings, which have been especially prepared for this article, serve to illustrate these points. Fig. 1 shows the principal, or Nassau street, elevation, while the other cuts represent details of the several stories and of the individual bricks employed.

Believing the building itself to be of interest to our readers, not excepting those who are situated at a distance from New York, we will attempt a general description of the structure, in connection with the special features of brick construction and decoration already referred to.

The architectural problem set by the owners was a very difficult one. With a frontage of some 85 feet on Nassau street and some 69 feet on Beekman street, they insisted upon a structure of eight stories, exclusive of the basement. It was to be fire-proof, and economy of construction was to be considered throughout.

The architects selected for the purpose of carrying out these ideas were Messrs. Silliman & Farnsworth, of New York, and that they have made a success is clearly indicated by the building they have produced. They set out to design a structure which should be as effective artistically as possible, which should be entirely appropriate and thoroughly adapted to the purpose for which it was intended, and which should involve the expenditure of the least amount of money. The result accomplished speaks for itself.

It was decided that the use of cast iron in a constructed building was to be avoided. No material which was simply decorative in character was to be employed, but whatever features of ornamentation were necessary should be obtained from the materials of which the structure was built. The lessons of the great Chicago and Boston fires, which clearly demonstrated that brick construction affords the greatest measure of safety against a conflagration, were remembered, and brick was selected as the leading material for the edifice.

The chief point of interest in brickwork is, of course, the arch, and the architects accordingly attempted to vary the form of the

arch and the details in a way that should bring out, in the most satisfactory manner, the peculiar properties of brick as distinguished from other building material. The question which arose in the consideration of the design were, first, the general mass; second, the forms of the openings of the windows and style of the cornice, and third, the details.

The general form of the building was necessarily determined by the purpose for which it is to be used—that of offices—and one story had to conform to another. To obtain variety, therefore, strong lines of piers were projected, throwing the building into bays, and these bays in turn were treated from story to story in such a way as to keep the horizontal lines as strongly marked as possible, in order to overcome as much as might be the excessive height to which the building was obliged to be carried.

It was believed by the designers that, if they could succeed in obtaining enough light and shade upon the building, a brick building would be made as satisfactory and as pleasing to the eye as a stone building, or one constructed from any other material. They therefore studied to obtain strong shadows in the front entrance archway, in the window openings and along the sides of the main piers. These may be considered primary shadows. Secondary shadows were obtained by the projecting and receding of the bricks in the arch heads of the window openings and in the front entrance.

By examination of the elevation, the reader will see just how the front was divided by the piers, as above described, and how prominence was given to horizontal lines in the shape of belt courses, sills, &c. The details show the methods employed for what we have termed the secondary shadows, and in part those for the primary shadows. The requirements for these various purposes were happily blended in the general composition.

In the basement heavy segmental arches were employed between the main piers, and the latter, in turn, were battered to assist in giving a strong and substantial appearance to the structure. In the first story large semi-circular arches—of about 8-foot openings—were used, which were treated very boldly in all their arch lines. Above these, again, semi-circular openings of about half the width were employed, and then for the next two stories the openings were grouped together in the form of segmental arches. The same order was then repeated, commencing with the semi-circular arches in the fifth story and finishing with the same in the eighth, which in turn was surmounted by the cornice.

The cornice, a detail of which is shown in Fig. 2, was designed in terra-cotta, with bold projections standing upon corbels of brickwork. The capping member of the cornice presents a serrated sky-line.

As will be seen by examination of the details, molded brick was freely used throughout the building—in the arch heads, string-courses, corbels and other ornamental portions, and much of the pleasing variety of detail which the structure presents is due to the employment of molded brick. The only contrasts in color were obtained by the use of black brick. The latter were colored by dipping in coal tar while hot, and from day to day, during the progress of the building, as required for use.

The molded bricks employed were of the shapes shown in the diagrams accompanying our details, and the numbers of which correspond to the numbers inserted in the details. They were selected from the regular stock patterns of the Peerless Brick Company, of Philadelphia, concerning whose products we shall have more to say further on. Nearly 3,000,000 common brick were consumed in the building and about 150,000 pressed brick, some 15,000 of the latter being molded brick.

(To be continued.)

**HEPTANE.**—Six or seven years ago abietene, a hydrocarbon obtained by distilling the exudation of the nut pine or digger's pine of California (*Pinus sabiana*), was introduced in market and sold in a crude state under various names, and is now used for removing grease spots, etc. It is aromatic, colorless, and very liquid. Chemists lately made a pretty thorough chemical and physical examination of this abietene, and found it to consist mainly of pure heptane—a substance the other known natural sources of which are petroleum and fossil fish oil. The occurrence of a paraffine playing the part of oil of turpentine in a tree now living is exceedingly interesting. In ordinary turpentine a paraffine-like substance has been found, but only in very small quantities. The composition of the oil of the *Pinus sabiana* probably varies at different seasons, as sometimes the nuts taste strongly of turpentine, and at other times they have hardly any of that flavor.