THE

BUILDER'S

COMPLETE GUIDE:

COMPREHENDING

THE THEORY AND PRACTICE

OF

THE VARIOUS BRANCHES OF

Architecture,

BRICKLAYING, MASONRY, CARPENTRY,

JOINERY, PAINTING, PLUMBING,

&c. &c.

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phery working against the joint of the two bars, and hence, as its larger radius comes against the joint, causing it to rise, by which the angle that the bars make with each other will become more obtuse; as a consequence they will elongate, and press against the piston, to which the end of one of the bars is connected, and thus press the clay into the mould or box.

From a rigger communicating with the first mover, a band is carried, which turns an axle (having many arms) placed over the hopper, by which the clay that is from time to time put into the hopper, is cut in small pieces, and forced down into the mould-box before mentioned. Thus the clay is supplied to the mould-box by being forced down through the hopper, and the brick is formed by the force of the connected bars, which press it into form when in the mould. There is a contrivance for pushing out the brick, when made, from the mould, by means of a stud acting against a lever, which opens the end of the mould-box, and the bricks are then received, one by one, on an endless web which conveys them away from the machine.

This apparatus may be moved by any of the known means of manual, horse, or steam power, &c. and may have a fly-wheel to equalize its motion.

Having in the preceding pages examined the various modes of making bricks which have been practised with advantage in this country, it may now be advisable to direct the reader's attention to the composition of *mortar* and other *cements*.

Mr. Dossie, in the second volume of the Memoirs of Agriculture, gives the following method of making mortar impenetrable to moisture, acquiring great hardness, and exceedingly durable, similar to that used by the ancients, which was discovered by a gentleman of Neufchatel: take of unslaked lime and of fine sand, in proportion of one part of the lime to three parts of the sand, as much as a labourer can well manage at once, and then adding water gradually, mix the whole well together with a trowel till it be reduced to the consistence of mortar. Apply it immediately, while it is hot, to the purpose, either of mortar, as a cement to brick or stone, or of plaster to the surface of any building. It will then ferment for some days in dry places, and afterwards gradually concrete, or set, and become hard: but in a moist place it will continue soft for three weeks or more; though it will at length attain a firm consistence, even if water have such access to it, so as to keep the surface wet the whole time. After this, it will acquire a stone-like hardness, and resist all

moisture. The perfection of this mortar depends on the ingredients being thoroughly blended together, and the mixture being applied immediately after to the place where it is wanted. The lime for this mortar must be made of lime-stone, shells, or marl; and the stronger it is, the better the mortar will be; besides, the lime should be carefully kept from the access of air or wet, otherwise, by attracting moisture, it will lose proportionably that power of acting on the sand, by which the incorporation is produced. It is proper also to exclude the sun and wind from the mortar for some days after it is applied, that the drying too fast may not prevent the due continuance of the fermentation, which is necessary for the action of the lime on the sand. When a very great hardness and firmness are required in this mortar, the use of skimmed milk instead of water, either wholly or in part, will produce the desired effect, and render the mortar extremely tenacious and durable.

M. Loriot's mortar, the making of which was announced by order of His Majesty at Paris in 1774, is made in the following manner: take one part of brick-dust finely sifted, two parts of fine river-sand skreened, and as much old slaked lime as may be sufficient to form mortar with water in the usual method, but so wet as to serve for the shaking of as much powdered quick-lime, as amounts to one-fourth of the whole quantity of brick-dust and sand. When the materials are well mixed, employ the composition quickly, as the least delay may render the application of it imperfect or impossible. Another method of making this composition is, to make a mixture of the dry materials; *i. e.* of the sand, brick-dust, and powdered quick-lime, in the prescribed proportion, which mixture may be put in sacks, each containing a quantity sufficient for one or two troughs of mortar. The above mentioned old slaked-lime and water being prepared apart, the mixture is to be made in the manner of plaster, at the instant when it is wanted, and is to be well chafed with the trowel. With respect to this method, Dr. Higgins observes, that M. Loriot corrects the bad quality of the old and effete lime, which constitutes the basis of his mortar, and which has regained a part of the fixed air that had been expelled from it, by the addition of fresh and non-effervescent lime, hastily added to it at the time of using the composition, which must undoubtedly improve the imperfect mass. And he adds, that when an ignorant artist makes mortar with whiting instead of lime, he can mend it considerably by adding lime to it; but his mortar will still be defective in comparison with the best that can be made, by reason of the old slaked-lime or whiting; this, on repeated trials, he has found