

The Mosaic Tile Company's Works, Zanesville, O.

At these modern works, existing only about two years, the remarkably ingenious invention of H. C. Mueller is operated. This invention is a method of making an encaustic, or mosaic tile of any desired pattern or combination of colors in a very simple and expeditious way.

Ornamental tiles are of two kinds, those in which the designs are painted on to the surface and afterwards burned in, and those tiles in which the ornamental design is formed in the clay itself and to which the name of "encaustic" was given by the inventor about 50 years ago.

The encaustic tile was, and is still, made by means of a special metal die, with divisions in it, forming cells, into each



TILE MAKING AND PRESSING ROOM.



TILE PICTURE FOR BREWERY.

of which clay of a suitable color is poured until the whole is filled. This necessitates the making of a special die for every change of pattern, however slight, and very considerably increases the expense, but the superiority of the encaustic tile over the painted tile, in the matter of durability, was so great—particularly for flooring—that the increased cost was willingly borne by users.

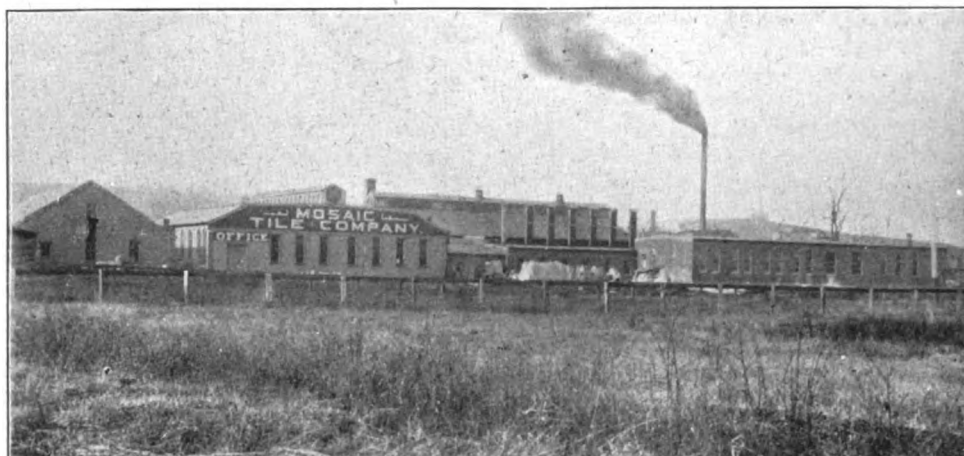
Mr. Mueller's process, which he calls "mosaic," produces a true encaustic tile, where the color is not only on the surface, but right down into the body of the ware. The method, which is as simple as it is ingenious, was described and illustrated in "Brick" for August, 1896, page 64. We may say, briefly, that instead of a special cell-frame for every change of pat-

tern of tile, the one cell-frame does for all and the pattern is determined by a perforated card or paper template, suggesting by its appearance the perforated cards of the Jacquard loom. This invention of Herman C. Mueller's is just as ingenious and epoch-making in its line, as Jacquard's was in his, and by means of it any pattern can be formed with the greatest ease. A sample of the work is shown in our illustration of the large tile picture intended for the decoration of a brewery. In this no two of the tiles, 208 in all, are alike.

A system such as this gives great freedom to the artist, or the architect, who is not bound by the limits of a pattern book, but can order his decorative tiles in exact accordance



FIRE-PLACE ORNAMENTED WITH MOSAIC TILE.

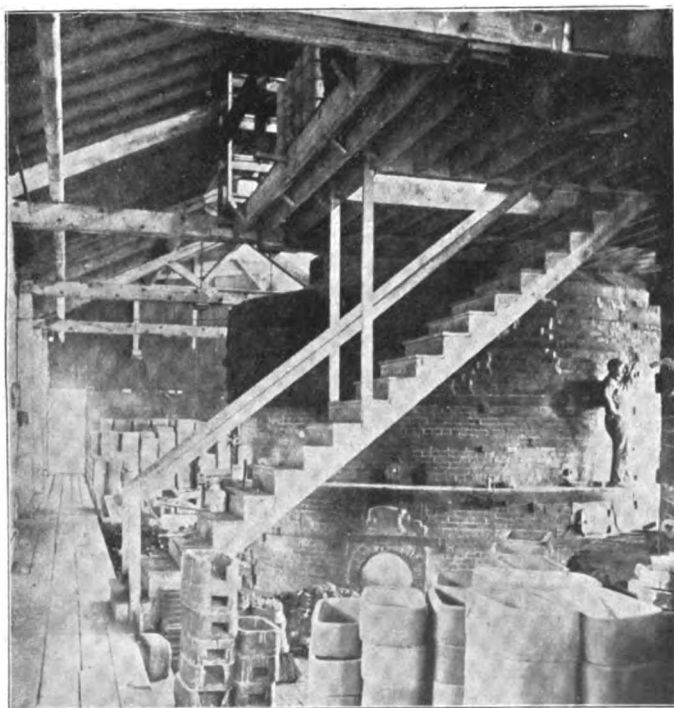


with his own ideas, both in design and color, without unduly increasing the cost.

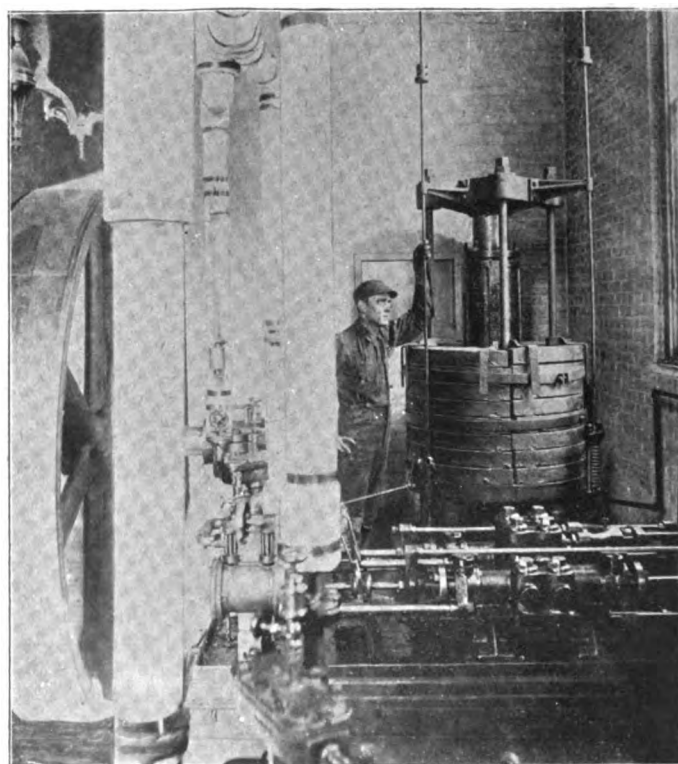
Our illustration showing operators using perforating machines, is very suggestive of workers at a sewing machine—it is not a sewing machine, though it is about the same size. The operator moves an index bar over the design placed in a frame alongside the machine, this index bar controls the movement of the card to be perforated, and a dividing plate or rack, ensures correct spacing. The perforation is effected by pressure upon a pedal.

Above the view of the perforating machines, our artist has seen fit to place that of one of the grinding rooms; here are three ball-mills, which are absolutely indispensable when it is

necessary to grind clay to a very fine powder. To prevent the clay being contaminated with iron the barrel, or revolving cylinder, like a common foundry rattler, is lined with hard porcelain plates, and the balls, which tumble about in the barrel along with the clay and do the grinding, are natural flints, as round as they can be got and about two inches in diameter. It will be seen that the revolving cylinder is boxed in. This prevents the escape of the fine dust, which would otherwise float about in the air to the discomfort of the work-people.



KILN SHED AND OVERHEAD DRYING FLOOR

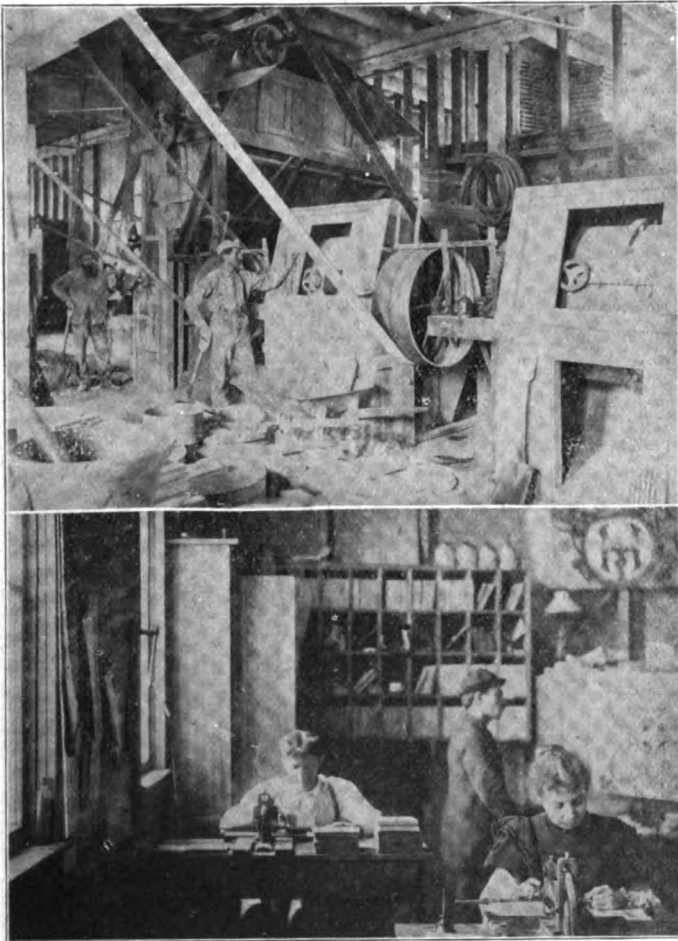


HYDRAULIC ACCUMULATOR.

The ball-mill, while a necessity for fine clayware, is but very little, if at all, used in this country for anything else. This has often surprised us, remembering the extensive use that

is made of it in Europe. It does not turn out a large quantity in a short time, but it does its work very thoroughly and takes comparatively little power to run it.

Turning to the pressing-room, our illustration shows in the foreground a circular bench, around which a number of young women are at work. The number of these depends upon the number of different colors in the tile. Each girl has her box of clay and her perforated card, by means of which she puts



BALL MILL FOR PULVERIZING CLAY.
PERFORATING MACHINES, MAKING TEMPLATES.

in her portion of clay and then passes the frame on to her neighbor. When it has made the round and all the divisions are filled, the frame passes to another operator, who lifts out the cell-frame, with a dextrous, straight-up movement, leaving the little mosaics of clay standing undisturbed, side by side. The plain clay backing is then put on, the whole is put in the hydraulic press and the tile is ready for drying and burning.

In the hydraulic press we noticed that three pressures are given, that is to say, power is put on, then taken off, then put on again. The plunger being raised slightly allows the air in the powdered clay to escape. Our readers will remember that the early troubles in the manufacture of dry-pressed brick were entirely due to ignorance of the necessity of doing this.

One of our illustrations shows an accumulator; this is a modern and important adjunct of the hydraulic press, the invention of the famous engineer Armstrong, now Lord Arm-

strong. The accumulator acts as a storage of power and the work of pressing is done quicker, more economically and with greater regularity.

Another illustration shows an arrangement of kilns with the drying floor above. There is perhaps no better way of utilizing the waste heat from the kilns than this, for this kind of ware; certainly nothing could be simpler. It is hardly necessary to say that in an establishment conducted on scientific principles as this one is that Seger cones are in constant use. Professor Seger's scale is adopted, but the cones are made on the premises. Another thing we expected to find there and did find, was the draft gauge.

C. W. Raymond & Co.'s Seventeenth Annual Catalog.

This catalog, issued by C. W. Raymond & Co., of Dayton, O., is a complete volume, handsomely bound in terra cotta covers, with raised lettering suggestive of a fine piece of clay ware. A remarkably well-written, but concise preface introduces us to the main divisions of the book, and its description of the various machines, from the "999" with its capacity of from 60,000 to 100,000 brick a day, down to the smallest machine made by C. W. Raymond & Co.

Cutting tables of different types are shown, for brick, tile and hollow blocks, and due space is given to the well-known Raymond re-press. This is now made with a dumping attachment for roofing tile. A new machine, the "Cyclone" clay and ore separator, for reducing shales, grinding and separating clays, is fully described, as well as everything required for the full, complete equipment of an up-to-date brick works, engines, boilers, dry-pans, pug-mills, cars, trucks, molds, etc., etc.

The catalog concludes with a very interesting feature, a number of pages are devoted to specifications of outfits, there are ten in all, for works of various capacities, and most of the specifications are illustrated with working drawings, showing plan and elevations for laying out the plant. A copy of the catalog will be mailed free on application to C. W. Raymond & Co., Dayton, O.

Practical Thoughts for Brickmakers.

A little book of 70 pages has been sent to us for review by W. A. Eudaly, the kiln builder of Cincinnati, O., which is really what it assumes to be, practical thoughts for brickmakers. It is not in the form of a catalog, though there is no concealment about the fact that the author's idea is to make friends for the Eudaly kiln; in which he is perfectly justified.

The book, which is marked Part I, is divided into chapters, with such headings as, "Hints on Planning and Building a Plant," "The Annealing of Clay Wares," "Chimney Draft," "Principles of Combustion," etc. As no price is marked on this little book, we presume that it is distributed free, though we have seen many high priced and more pretentious works that did not contain a tithe of the information to be found in "Practical Thoughts for Brickmakers."

J. W. Robb, secretary and treasurer of the Clinton (Ind.) Paving & Building Brick Company, called on us when spending several days in Chicago recently. He reports an improved outlook. At the recent election his company chose the following board of directors: Ex-Governor Matthews, B. H. Morgan, J. E. Newalls, H. C. Dies, W. L. Morey. Officers: W. L. Morey, president; B. H. Morgan, treasurer; J. W. Robb, secretary and sales agent. D. C. Porter becomes superintendent.

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No. 3.

The number before your name on the envelope in which this copy is mailed, indicates the serial number of the issue to which your subscription is paid. This is No. 33.

Brick Exchange for New England.

The Central New England Brick Exchange Company, Hartford Division, has been organized, with a capital of \$4,000, in eighty shares of \$50 each and \$800 are paid in.

The members of the organization are: The Capitol Brick Company, 6 shares; Charter Oak Brick Company, 12; Curtis & Donahue, 10; Dennis & Co., 6; Cephas Dorr, 7; H. W. Fox, 11; The Hartford Brick Company, 10; Michael Kane, 8; S. H. Wilson, 10.

We wish the Central New England Brick Exchange Company, business success and hearty co-operation and agreement among its members.

Could Not Break the Paving Contract.

An important decision has been made by the Supreme Court in the case of certain citizens of Des Moines against the city itself and the Des Moines Brick Manufacturing Company.

Some time ago it was decided by the city authorities that West Grand avenue, Des Moines, should be repaved and, as might be expected, the council concluded that the best, cheapest and most durable pavement would be one of vitrified brick. A contract was given to the Des Moines Brick Company for the work, but the hostile minority, which is so often met with where any outlay for improvements has to be made, was found here. One of the abutting property-owners, supported by fourteen others, commenced suit to cancel the contract and get an injunction. The reasons given for this were mere legal technicalities based upon alleged defects in the public notice to contractors. To meet these legal quibbles the Des Moines Brick

Company is said to have caused a bill to be introduced in the Iowa Legislature, which removed all doubts by legalizing the notices and contract as they stood. The act was passed, but in the suit brought by the objecting property-owners, the District Court declared the contract void, the act of the Legislature of no effect, and a permanent injunction was granted.

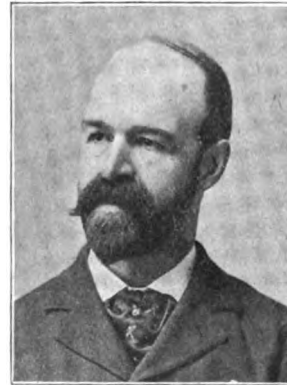
The case was then appealed to the Supreme Court, whose decision was, a few days ago, handed down; this reversed the decision of the District Court, declared the act of the Legislature to be constitutional and affirmed the original contract, which was awarded to the Des Moines Brick Manufacturing Company in September, 1893.

This judgment of the Supreme Court, while of interest to brickmakers generally, is of considerable importance to the city of Des Moines, for a large amount of street paving depends upon it.

Henry R. Griffen.

H. R. Griffen, whose excellent paper, "Clay in Architecture," read at Buffalo last month, we published in our February issue, is a clayworker of twenty years' experience. He graduated from the Rensselaer Polytechnic Institute, Troy, N. Y., in 1877, and since then has been working as a potter, brick-maker and terra cotta maker.

Mr. Griffen, who has proved his competence to erect and



H. R. GRIFFEN.

equip plants, is familiar with all operations, and is a thoroughly practical man, possessing considerable engineering ability. Being also a ceramic chemist of very wide experience, he is at present occupied, at his home at Phoenixville, Pa., with investigations of the suitability of clays for glazing, and is often called upon to help a brother clayworker out of a difficulty.

Riches in Clay.

Under the heading "Riches in Clay," the Atlanta Constitution publishes, apparently in all seriousness, an account of the "discovery" by Benjamin Brazelle, "a well-known scientist and inventor of St. Louis," of a method of transmuting clay into gold, silver and iron, by means of electricity, and that the said "well-known scientist" has convinced a number of capitalists, and that a stock company has been organized to turn out aluminum, calcium, gold, silver, iron and other metals from common clay.

"What fools these mortals be!"