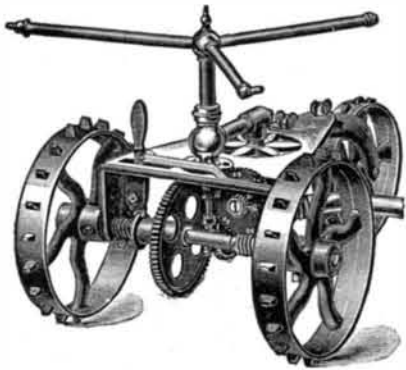


THE Arabol Manufacturing Co., 13 Gold Street, New York, invite particular attention to their Sphinx gum for hanging lincrusta-walton, heavy leather and pressed papers, and refer, by permission, to Messrs. Fr. Beck & Co., leading artistic decorators, who have used the composition with good results in their own work. Sphinx gum has the necessary strength and consistency for hanging lincrusta-walton and pressed paper, is always conveniently ready for immediate use, dries rapidly, and has the great advantage of not swelling and soaking relief papers, as is the case when ordinary flour paste is used.

#### A TRAVELING LAWN SPRINKLER.

The sprinkler shown in the illustration has the capability of moving itself over a lawn, under a moderate and ordinary pressure of water, dragging, if necessary, 100 feet of hose. It can be set to travel in a straight line or in a circle, at a speed of from 15 to 500 feet per hour, and has a figured dial by which it can be set for the required



THE "LITTLE GIANT" LAWN SPRINKLER.

distance and speed, when it stops automatically. It can be gauged to throw the water over a space of from 5 to 50 feet in width, or it may be used as a stationary sprinkler by throwing it out of gear. This sprinkler is sold by the E. Stebbins Mfg. Co., brass founders and finishers, of Brightwood, Mass.

"LAMBERT'S Suburban Architecture" is the title of a recent publication on suburban and country homes. It contains many illustrations and considerable letterpress. It gives photographic views of houses actually erected, tells where the buildings are located, by whom built, and has several pages of testimonials. It is issued by Wm. A. Lambert, 116 Nassau Street, New York.

#### Egyptian Cement Plaster.

By J. M. BELL, M.D., Professor of Chemistry, Central Medical College, St. Joseph, Mo., and member of American Chemical Society.

The destruction of the Alexandria Library by the Arabs, an initial step in the long train of events which led to the settling of that black cloud that during the Middle Ages smothered the learning of Egypt, Greece and Rome, has been lamented by investigators in all lines of human industry. In recent years archæologists have accomplished much in unraveling the mysteries of the past by incessant digging, by observing the indelible thumbprints left upon nature, and by deciphering the many hieroglyphics. By these clues as a basis for deductive reasoning, a fair picture of the life and works of the ancients has been drawn. In some cases, results have suggested methods of procedure to modern artists, architects, and mechanics; but in many cases involving chemical decomposition, we have been unable to determine by results the precise nature of raw materials used and processes involved; for, as is well known, in the blending of elements, compounds are formed which no amount of *a priori* reasoning could have anticipated; and, on the other hand, after decompositions have taken place, the end products in many cases furnish no clue as to which of many known or unknown procedures had been followed. Conspicuous in the category of problems remaining unsolved are the nature of their brilliant and permanent pigments and dyes, and the cements used by the builders. In spite of the progress which we of the nineteenth century are making in all fields, the pyramids, as an example of Egyptian ingenuity, are still the cynosures of all mechanical eyes. But beyond the mere mechanical feature is a remarkable chemical one, in the nature of the cement used in the building of them. The chemistry of building cements has been studied closely for years, and much has been learned that has increased the possibility of perfecting such an article. For a long time these conjectures were matters of curiosity, but now that our buildings are become as massive and ponderous as some of those ancient heaps of masonry, we are confronted with the problem, which must be met, not as a matter of scientific interest only, but as a cold, hard business necessity:

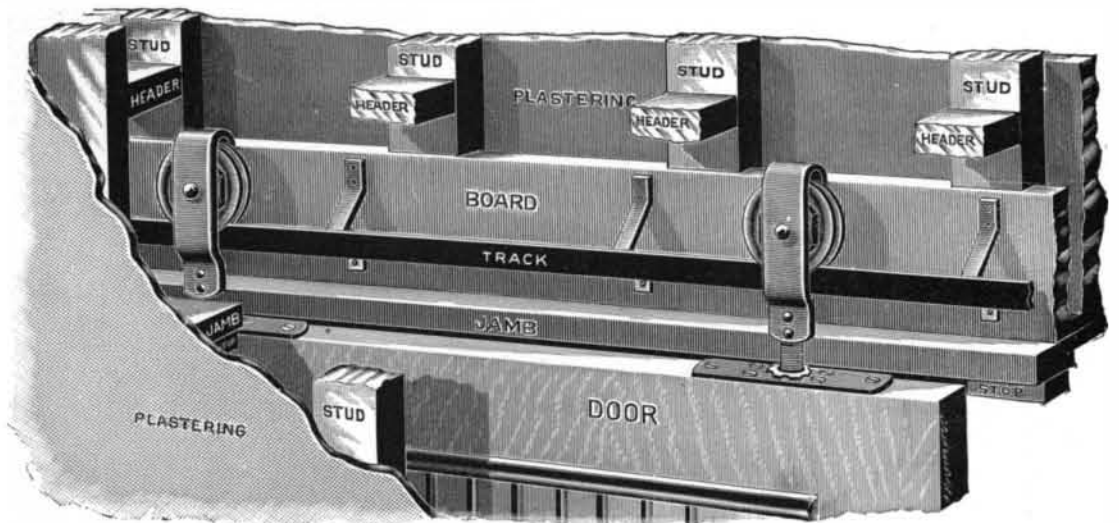
How can we nearest approach to that ancient building cement?

In order to arrive at the conclusion most directly, attempts have been made to determine the origin of the Egyptian cement, and, if possible, duplicate the process with material taken from the soils. The conjecture which seems most reliable and plausible is that the cement was made from earthy deposits taken from the bank of the Nile, about 18 miles away. Since the essential features of cement are aluminium and calcium compounds, which are insoluble to any extent in river water, and since Nile mud deposits would consist largely of these elements, left as the riversubside, while the more soluble potassium, sodium and magnesia compounds, with phosphorus and chlorine, would have been absorbed by alluvia and appropriated by vegetation, this hypothesis seems reasonable. Such a deposit, properly treated, would have resulted in the formation of a perfect cement. In America many processes adopted have reproduced a cement resembling the Egyptian compound, but some qualities have been lacking. The compound which most nearly approaches this ideal blending of qualities was unearthed in Dickinson County, Kansas, three years ago. While making an analysis of this earth, I felt convinced that it contained as nearly as could be almost all the qualities necessary to the realization of a perfect cement—one that could be used in massive structures, and be enabled to withstand the disintegrating influence of atmospheric changes in this country. A necessary factor in such cement is aluminium, in that it resists decomposition to a greater extent than iron and such elements. Its light specific gravity and hardness render it of special value, and the fact that it resists oxidation to a remarkable degree places it as a factor of utmost importance in cements to be used in expensive and massive structures. The large percentage of aluminium in this earthy deposit led some Missouri cement men to investigate it with a view of using it in cement work. After several months of experiment and trial it was found to contain all the properties anticipated by the analysis, so the entire tract of land was controlled by a St. Joseph syndicate, and the finished product (aluminite) put on the market. Aluminite, after two years' public career, has proved to builders a boon, since it has enabled them to carry into execution plans long anticipated, but delayed in the absence of a cement of high tensile strength, non-porous, and adapted to resist moisture, fire, and frost.

The advent of aluminite has thereby revolutionized building procedures, since it has embodied this unusual blending of desirable qualities. The Dillon Cement Plaster Company, of St. Joseph, Mo., who own and operate aluminite mills, have already established a national reputation, not merely through aluminite, but because of the series of elaborate investigations they are constantly making to advance the interest of cement plaster throughout the country.

#### Ornamenting Glass.

A new method of ornamenting glass has been discovered recently by Gorlitz, of Zurich. The method is not a very expensive one, and the results obtained are said to be very beautiful. The design to be reproduced on the glass is first engraved "positively" on a printing plate of rubber, and this plate, after being coated with varnish, is pressed against the glass. The glass is then covered with bronze powder, or other suitable material. The portions forming the design will remain empty and therefore transparent. The glass is then placed in a frame which has a backing of strong paper board, over the front of which is mounted a bright sheet of tinfoil or tin plate. It will be seen that the design will therefore be shown by a reflected



LANE BROTHERS' PARLOR DOOR HANGER.

light through the transparent portion of the glass, while its other parts will form a background stamped in relief. The common plan for producing enameled writing and designs in relief on glass has been to apply enamel paint by means of a brush.

**A Bridge of Concrete.**  
A concrete bridge having a clear span of 164 feet and 26 feet wide was recently constructed over the Danube at Munderkingen, in Austria. Stone is scarce and dear there, while good Portland cement is produced in large quantities. The centring was covered with oiled paper, on which the concrete was laid, consisting of 1 part cement,  $2\frac{1}{2}$  parts sand, and 5 broken stone, all thoroughly mixed. Blocks of this concrete have shown a resistance of 187 tons per square foot in seven days, 235 tons in twenty-eight days, and 308 tons in five months. The concrete was applied in layers 12 inches thick, starting at the abutments and working toward the crown, where it is  $3\frac{1}{4}$  feet thick; midway to the crown it is  $4\frac{1}{2}$  feet thick. The time spent in laying the concrete was only nineteen days, and ten days after the centres were struck. The deflection proved less than  $4\frac{1}{4}$  inches.

THE Cortright Metal Roofing Co., of Philadelphia and Chicago, have a system of roofing, which embraces metal slates, Victoria shingles and trimmings for ridges, hips, valleys, etc. The goods are made of tinplate, galvanized steel or copper, and are especially desirable where a fire-proof, stormproof, ornamental and durable finish is required. The tinplate used is all full weight, 10 light-weight plates or wasters being handled, and the present low price of tin puts the company in a position to sell their product at very reasonable prices. Customers in the East and South are directed to the main office, at Broad and Hamilton Streets, Philadelphia, while those in the West can be supplied from 134 Van Buren Street, Chicago, Ill.

#### NEW MODEL PARLOR DOOR HANGER.

The accompanying cuts represent a new parlor door hanger, which Lane Brothers, of Poughkeepsie, N. Y., have designed and placed on the market, to supply the increasing demand for a thoroughly first-class article, at a moderate price. It is made entirely of steel, and all parts are tinned. The wheel is fitted with roller bearings, running on a hard steel bushing, making it anti-friction and never requiring oil. The wheel is noiseless in action, owing to its having vulcanized fibre filling. The adjustment of this hanger may be accomplished from either above or below the base plate. The adjustment nut extends entirely through the plate, having serrated projec-



tions both above and below, by which it may be turned. This permanently fastens it to the plate, and it cannot work out or be lost. In many cases the new model may be adjusted from the end of the door, and this hanger is particularly well adapted to single doors, where it is impracticable to run them out far enough to get on the rear