

SCIENTIFIC AMERICAN

A WEEKLY JOURNAL OF PRACTICAL INFORMATION, ART, SCIENCE, MECHANICS, CHEMISTRY, AND MANUFACTURES.

Vol. XXVIII.--No. 3.
[NEW SERIES.]

NEW YORK, JANUARY 18, 1873.

[\$3 per Annum,
IN ADVANCE.]

IMPROVED BRICK MACHINE.

We illustrate this week a recently devised apparatus, known as the "Great American" brick machine, in using which, to quote the words of the inventor, "the brick maker has the satisfaction of knowing that, in five minutes from the time the clay is taken from its original bed, it has been thoroughly tempered into a uniform homogeneous mass, pressed into the nicest shaped brick, and placed into the hack, where no more handling is required until the brick are dry enough to enter the kiln." How these excellent results are obtained, the reader will find in the following description:

A, in our engraving, is the pug mill; B is the mold wheel containing twenty-four permanent metal molds, C C C, arranged in groups of three; under the latter is a movable bottom or follower, not shown, provided with a roller and traveling on a circular track, D, which raises or depresses the follower at proper points in the revolution of the mold wheel. Motion is communicated by the main pulley in the foreground by bevel gearing to the upright shaft, G, on the lower part of which a horizontal pinion actuates the mold wheel, B; while near its upper end is suitable gearing, H, which rotates the beaters within the pug mill.

The clay is brought directly from its bed, and not moistened unless it is too dry in which case a little water is added. The figure on the right is represented as shoveling the crude material into the receiver of the pug mill, within which it is thoroughly ground, tempered, and reduced to a homogeneous mass of about the consistency of thick putty. Thence it is forced into one of the groups of molds, C, which is carried under it by the revolution of the mold wheel, B, a polished metal surface giving the proper smoothness and finish to the top edges of the brick. The follower

under the mold wheel then travels up an incline, raising a group of bricks, E, from the molds, all the angles and faces being preserved smooth, sharp, and perfect. As each set of bricks rises from the mold, it is lifted off by the clamp represented in the hands of the figure on the left, and placed upon a double decked truck that is capable of holding one hundred bricks. When filled, the truck is wheeled away and its contents piled in hacks eight or ten bricks high. Each revolution of the mold wheel, therefore, turns out twenty-four bricks, and it is claimed that the machine can produce sixty-five per minute, or thirty-nine thousand in a working day of ten hours.

There is no doubt but that this apparatus is compact, of great simplicity, and economical, in that it produces brick without skilled labor. That it is a decided improvement over the old-fashioned methods of grinding up clay with a superabundance of water, molding in sanded wooden molds, and allowing the moisture to evaporate by spreading the brick in a sanded yard, is also evident. It is neither a "soft mud" nor a "dry clay" machine, but aims at a medium between the two extremes. To continue the list of advantages which the inventor claims, the clay is tempered in the machine itself, so that no separate process is necessary; no molding sand is required, the polished steel molds answering every requirement; no handling or washing of molds,

nor edging or spitting of bricks is needed; the bricks are taken directly from the machine to the hack, where they remain while drying, protected from rain and frost. A smaller yard will give the same drying capacity, the hacks being only six feet apart; and, lastly, the bricks can be manufactured at a much reduced cost.

The inventor points to the severe test which his bricks withstood during the Chicago fire, when 50 per cent came out perfect. As an item of interest, we note that the patentee affirms that he has made five hundred millions of bricks since 1865, in Chicago and other points, and that the compa-

rasible substances necessary in the manufacture of candles. The illuminating power of candles made from ozokerit has been expressed by the following comparison instituted by Dr. Letheby: To afford a given amount of light, must be taken of ozokerit candles, 754; paraffin candles, 891; wax candles, 1,150. The candles can be colored with mauve and magenta, and they then present a fine appearance.

English Prizes for Economical Stoves.

A friend of Sir W. Bodkin's has presented the sum of \$2,500 to the Society of Arts, London, to be awarded in prizes or "otherwise" for the invention of improved stoves for securing economy in the use of coal for domestic heating or cooking purposes. The Council have accordingly announced five prizes, each of which will consist of the Gold Medal of the Society and \$250, to be awarded as follows, provided the competing articles satisfy the judges. The announcement is as follows: The Society's Gold Medal and \$250:

1. For a new and improved system of grate suitable to existing chimneys as generally constructed, which shall, with the least amount of coal, answer best for warming and ventilating a room.

2. For a new and improved system of grate, suitable to existing chimneys as generally constructed, which shall, with the least amount of coal, best answer for cooking food, combined with warming and ventilating the room.

3. For the best new and improved system of apparatus which shall, by means of gas, most efficiently and economically warm and ventilate a room.

4. For the best new and improved system of apparatus which shall, by means of gas, be best adapted for cooking, combined with warming and ventilating the room.

5. For any new and improved system or arrangement, not included in the foregoing, which shall

efficiently and economically meet domestic requirements.

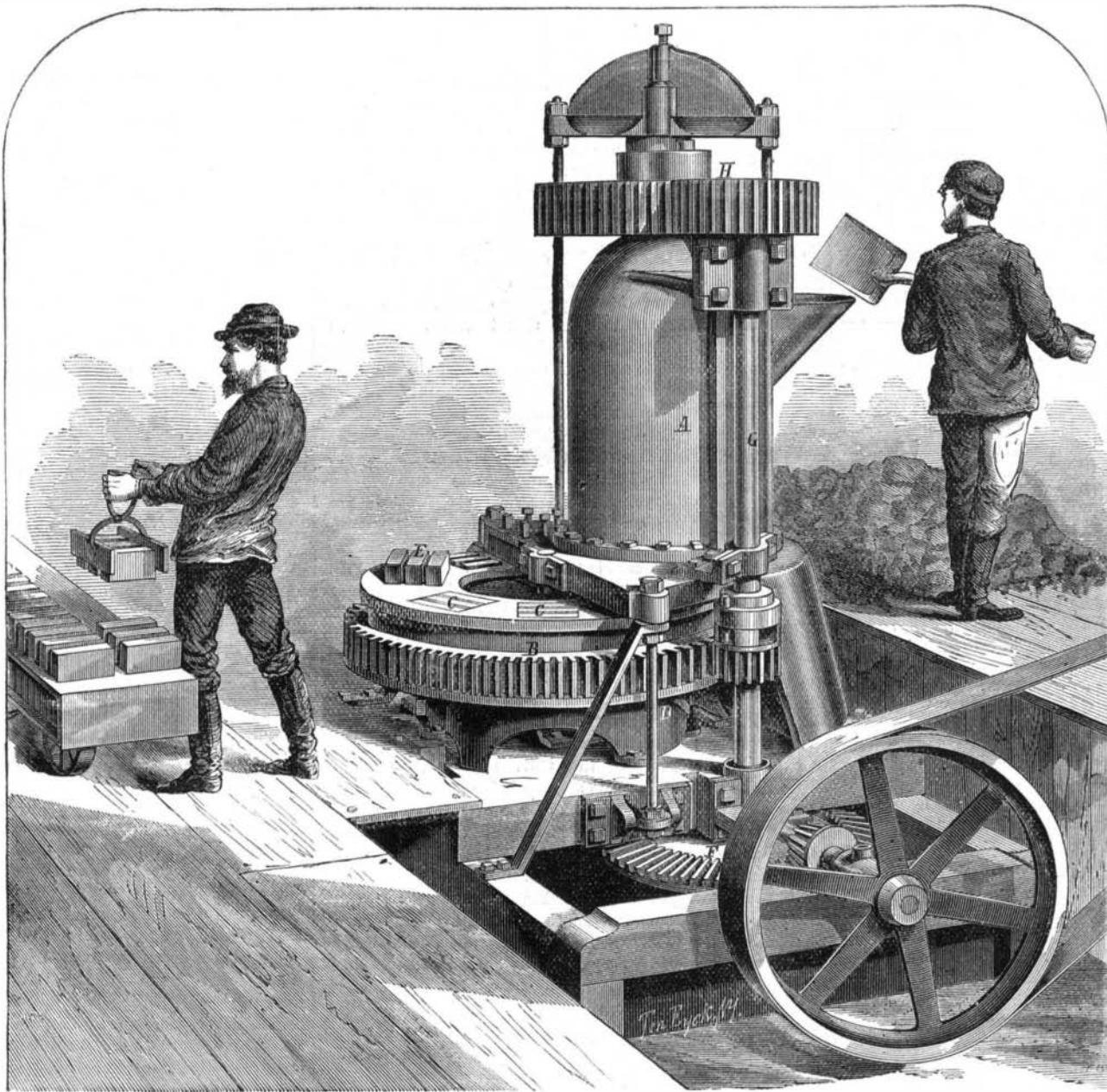
The Council reserve to themselves the right of withholding all or any of the above prizes, as the judges appointed by them may determine.

The competing articles must be delivered not later than the 1st of December, 1873, with a view to their being tested, and they will be subsequently shown in the London International Exhibition of 1874. Further particulars as to place of delivery and other arrangements will be published as soon as they are finally settled.

One moiety of the sum presented to the Society is thus disposed of, but what arrangements are in view for disposing of the other are not at present made public.

Mechanical Engineering in Cornell University.

It may be a word of encouragement to young mechanics in the shops to know that the Board of Managers of Cornell University have selected, for the head of its mechanical engineering department, Mr. John Edson Sweet, of Syracuse, N. Y., a young man who, with but a common school education, has risen from striker at the forge, through the machine-shop and drawing room, to be an instructor of engineering in this celebrated school. He has contributed, during the past year, a series of articles to *Engineering*, on "Mechanical Refinements."



THE GREAT AMERICAN BRICK MACHINE.

ny working this invention has turned out eight millions during the past season.

For further information, address the Great American Brick Machine Company, E. R. Gard, President, No. 53 South Jefferson street, Chicago, Ill.

Ozokerit Candles.

So much money has been expended in advertising ozokerit that in England the public generally look upon the candles purporting to be made from it as, in fact, nothing more or less than the adamantine candles long furnished to the trade. The suspicion is, however, entirely unfounded, as the candles are really made of purified ozokerit, which is paraffin of the best quality. Ozokerit, or native paraffin, also called earth wax, was found embedded in sandstone near Slanik in Moldavia, in the neighborhood of coal and rock salt deposits. It was afterwards discovered in the Carpathians, from which latter source the English manufacturers obtain their principal supply. The crude mineral has a brown, green or yellow color, is translucent at the corners and exhibits a resinous fracture. It is naturally brittle, but can be kneaded like wax. When exposed to the air it becomes black and waxy, and when rubbed is negatively electrified and yields an aromatic hydrocarbon odor. The low melting point of 66° C, renders the admixture of certain other less