SOMETHING NEW IN CONCRETE BLOCK MAKING.

BY M. H. HUNTING.

Of the many recent applications of concrete to the building industry in this country, few, if any, have attracted more attention than the process invented by a Des Moines, Iowa, man for the manufacture of enameled concrete blocks. A machine of gigantic proportions performs the many operations through which the block passes without the aid of the human hand, turning out 40,000 perfect blocks in each day of ten hours, each one an exact duplicate of every other in form and color.

The machine is 13 feet 8 inches in height, 17 feet in length, 6 feet in width, and weighs over 70,000 pounds. In the accompanying illustrations a man is shown standing beside the machine. This comparison gives a good idea of the machine's great size.

The process for the manufacture of the blocks, as before stated, is automatic from first to last. The raw material, including cement, sand, and gravel (or crushed stone), is first screened, and then workmen separate the aggregates into several sizes to eliminate voids and give added strength to the finished product.

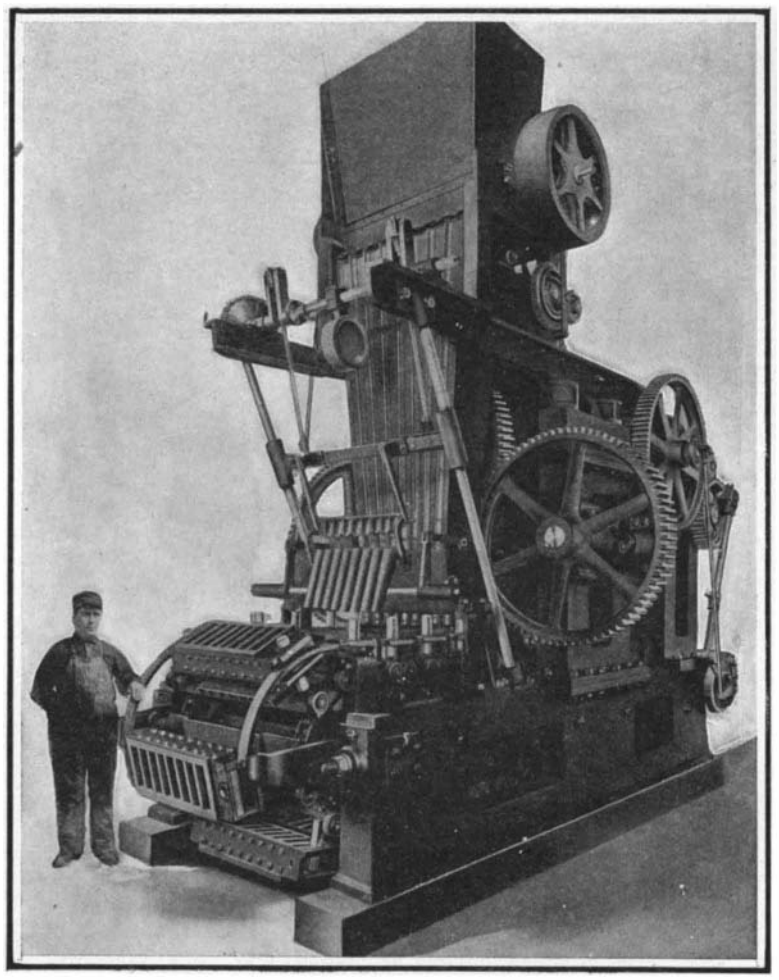
The ingredients are then mixed dry, after which a sufficient quantity of water is added to bring the mixture to a proper consistency. This mixture is then fed into an agitator, where it is kept under continual motion and permitted to flow into eight individual scale hoppers, each weighing the exact amount of material required for a single block. Then in unison these hoppers are dumped through receiving spouts into the molds which form the block, these being prepared in advance for the reception of this material.

While the above process is going on, a similar one for the preparation of the material forming the enameled part of the block is taking place in another part of the machine. This also starts by taking a dry mixture from individual bins, and measuring it automatically in a receptacle known as the reserve tank. At this time also the proper amount of coloring matter is added, so that blocks of a uniform shade may be produced.

Any color or combination of colors may be used; and no matter whether one, one hundred, or one thousand blocks are made, the same shade is produced in each one.

Water is next added after being automatically measured, and from the reserve tank the material is discharged into a receiving tank, a part of the machine proper with which are connected eight dipping cups conveying the material in a liquid form to the individual molds.

The molds are now ready for the body material, which has been in preparation as already described, and with the next movement of the machine an intimate association is effected between the two by the enormous pressure of 3,200,000 pounds applied to produce perfect cohesion.



A CONCRETE BLOCK MACHINE WEIGHING 70,000 POUNDS.

The molds move forward until they reach the releasing section of the machine, where the blocks are ejected, eight at a time, upon a pallet and loaded intact by workmen upon a car especially constructed for the purpose.

They are now conveyed to suitable storage, where they are allowed to season, no burning being required. Nature finishes the work by a process of crystallization, which gives each block a perfect surface without danger of distortion, as commonly results from burning clay bricks.

The illustration shows the machine to contain a rotary carrier consisting of thirty mold frames, each containing eight individual molds. At each movement of the machine several of these molds are receiving material at various fixed points; one group the enameling material, one the body material, while a third is submitting to the tremendous pressure which unites the two. After the application of this pressure, the next motion delivers the blocks contained in one mold frame upon the pallet as described elsewhere.

Anyone familiar with the process of manufacturing clay brick will readily realize the tremendous saving of time and expense accomplished by this process of manufacture. It has been estimated that the cost of sorting clay brick for quality and color is not less than $6 per thousand. This work of course is entirely done away with, as the enameled concrete blocks are absolutely uniform as to size and shape, and there can be no variation in color.

While especially designed for the manufacture of blocks, this is not the only function of the machine. Tile of various shapes, sizes, and colors are also produced by it with equal facility.

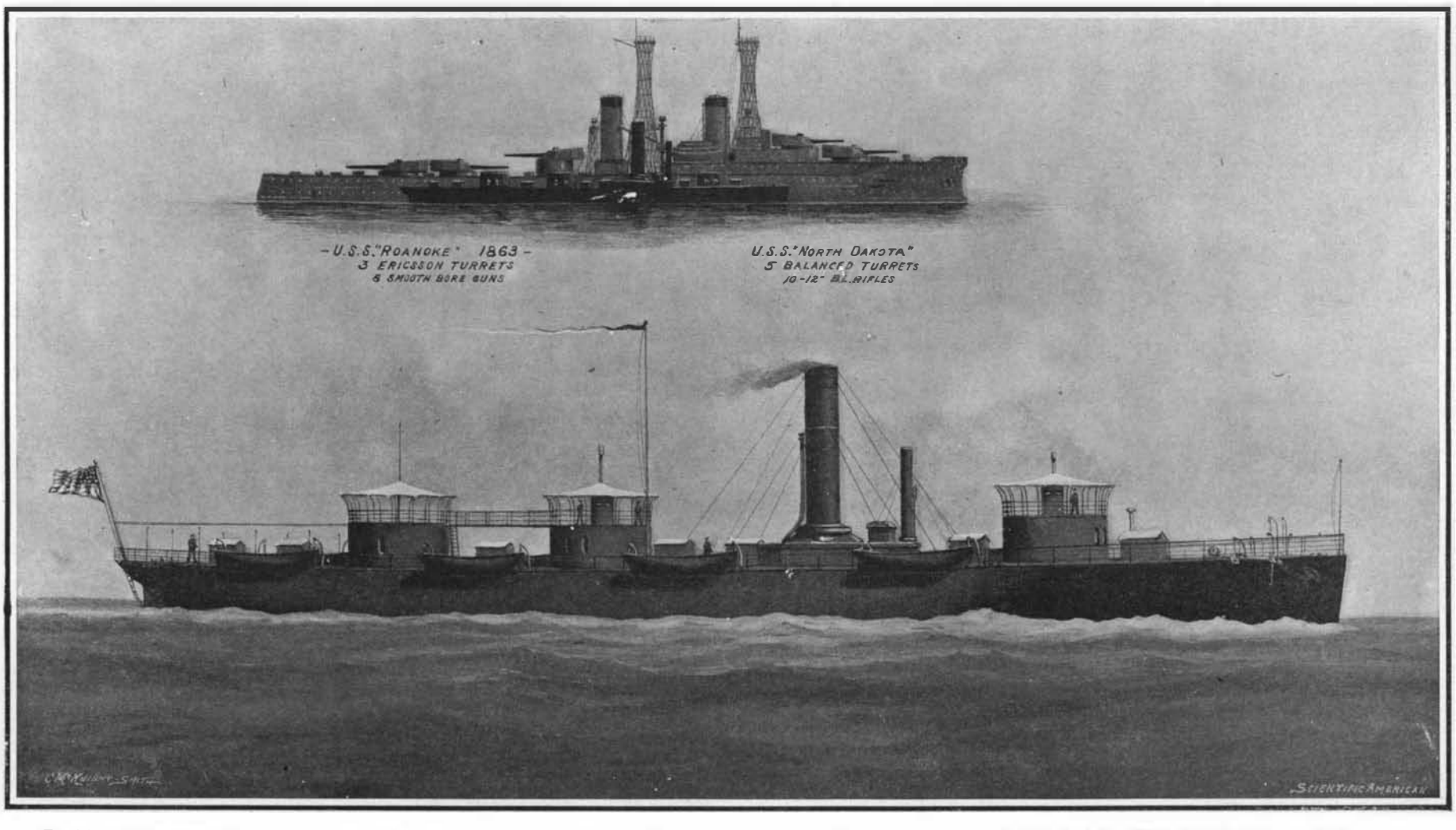
Though not in general use thus far owing to the inability of the manufacturers at the present time to supply the demand, the machine has nevertheless received exhaustive tests, and in each has given entire satisfaction. As for the material it produces, there can be no doubt as to its becoming popular. Our forests are rapidly disappearing, stone is prohibitive because of its expense, and the prospective builder turns with satisfaction to this comparatively new material, which recommends itself not only because of its cheapness, but because of its great lasting qualities.

A "DREADNOUGHT" OF 1863.

[The correspondent who sends us the photograph of an engraving from which the accompanying illustration of the "Roanoke" is reproduced, believes that this United States warship is entitled to be considered as the prototype of the modern "Dreadnought." We doubt if any early vessel can be quoted as having a stronger claim to be regarded as the first warship of this type.—ED.]

To the Editor of the SCIENTIFIC AMERICAN:

In the battleships of the "Lord Nelson" class of 1906, the British had come to about the limit of their intermediate battery, which consisted of ten 9.2-inch guns; these being substituted for the four 9.2 and ten



The frigate "Roanoke," subsequently to the civil war, was reconstructed at the Brooklyn navy yard. Her masts were removed; her sides armored; and her broadside battery was replaced by an all-big-gun armament of six heavy guns mounted in three armored turrets. The correspondent who sent us the above illustration suggests that she was the first of the "Dreadnoughts."

U. S. S. "ROANOKE," 1863. IS THIS THE PROTOTYPE OF THE MODERN "DREADNOUGHT"

SCIENTIFIC AMERICAN

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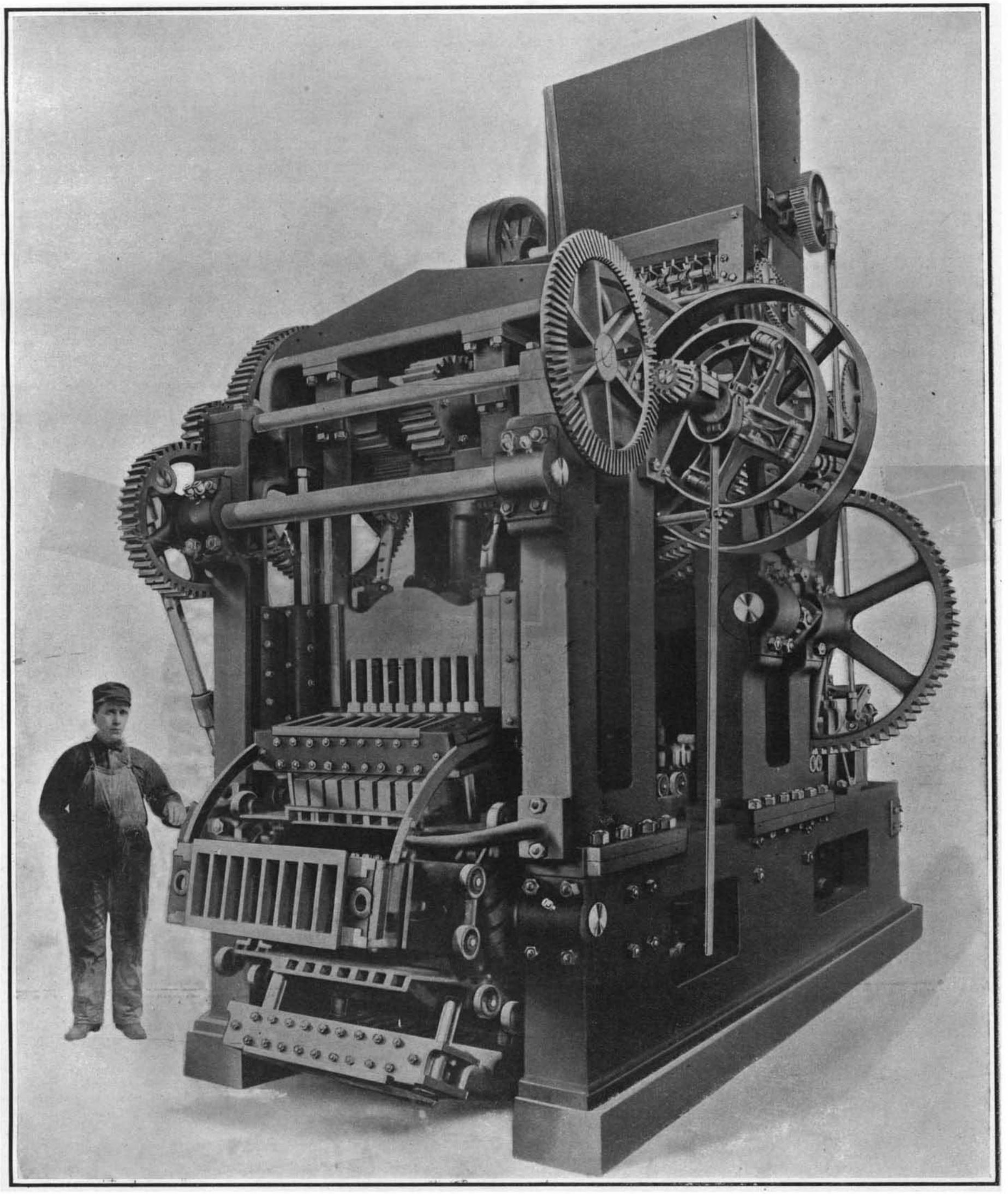
A POPULAR ILLUSTRATED WEEKLY OF THE WORLD'S PROGRESS

Vol. CI.—No. 21. ESTABLISHED 1845. NEW YORK, NOVEMBER 20, 1909. [10 CENTS A COPY $3.00 A YEAR.



A MACHINE THAT MAKES 40,000 ENAMELED CONCRETE BLOCKS IN TEN HOURS.—[See page 368.]