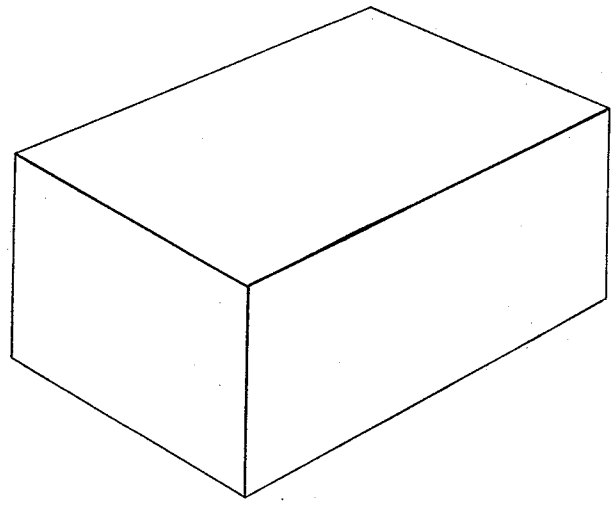
(No Model.)

O. & G. LILIENTHAL.

Composition Toy Building Blocks.

No. 233,780. **Patented Oct. 26, 1880.**



WITNESSES—

F. B. Townsend

F. W. Hasehagen.

INVENTORS—

Otto Lilienthal,

Gustav Lilienthal,

By Lafy & Dyer,

Attys.

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

OTTO LILIENTHAL AND GUSTAV LILIENTHAL, OF BERLIN, PRUSSIA, ASSIGNORS TO FRIEDRICH ADOLF RICHTER, OF RUDOLSTADT, GERMANY.

COMPOSITION TOY BUILDING-BLOCK.

SPECIFICATION forming part of Letters Patent No. 233,780, dated October 26, 1880.

Application filed September 18, 1880. (No model.)

To all whom it may concern:

Be it known that we, OTTO LILIENTHAL and GUSTAV LILIENTHAL, both of the city of Berlin, in the Kingdom of Prussia, and Empire of Germany, have invented a certain new and useful Improvement in Composition Toy Building-Blocks, of which the following is a specification.

The object we have in view is to produce toy building-blocks which will always retain their shape and color, will not be dangerous to be used by children, and will, by reason of their weight, better retain their position than if made of wood, as usual. This we accomplish by making our toy building-blocks of molded artificial stone, in the composition of which pigments are used to give the desired color or colors.

Our invention consists in toy building-blocks made of the composition and in the manner hereinafter explained.

The accompanying drawing represents one of our toy building-blocks, the same being shown as of oblong shape.

We propose, however, to make our blocks of various shapes, and the blocks of each set we intend to either make of one shape or of a number of forms, for erecting buildings in miniature from plans furnished with the blocks.

Our toy building-blocks are made in the following manner: We first prepare a composition of fine sand and finely-ground chalk in about equal parts. To this mixture we add the coloring-stuff in such quantities as the intensity of the color which it is desired to give to the blocks may require.

For yellow building-blocks we add to the mixture from three to four per cent. of the whole mass of ocher; for a red-brick color we add from fifteen to twenty per cent. of caput mortuum; for a bluish-gray color we add ten per cent. of ultramarine and ten per cent. of lamp-black.

If the blocks are to be used for producing characters or figures in a manner similar to loose mosaic work, finer and brighter colors are desirable, and for this purpose we use aniline colors in necessary quantities.

After the pigment has been added to the mixture of sand and chalk, we take of good linseed-oil varnish one-fourth of the whole weight of the mixture and incorporate it thoroughly with the mass by mixing until the mass becomes a damp powder. This is turned in the necessary quantities into molds, made of the shape it is desired to give to the blocks, which molds are provided with close-fitting followers. The followers are subjected to a heavy pressure while the composition is in the molds, and the blocks are formed by means of this pressure.

The small amount of varnish in the composition, when the same is subjected to the heavy pressure, becomes free and liquid, and binds or unites the chalk and sand together into a solid body.

The stone blocks formed in this manner are placed in an oven of any suitable construction and dried for about eight days at a temperature of from 100° to 150° Celsius. By this operation the hardening is completed and the stone blocks are ready for their purpose.

It will be seen that toy building-blocks made in this manner will always retain their shape and color. By reason of their greater weight they will be better adapted for building-blocks than those made of wood, and they are not dangerous in their use by children, since the coloring-matter does not come off, as is the case with painted wood blocks.

What we claim as our invention is—

As a new article of manufacture, toy building-blocks made from chalk, sand, coloring material, and varnish, formed in molds, and subjected to a heavy pressure, substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

OTTO LILIENTHAL.
GUSTAV LILIENTHAL.

Witnesses:
GUSTAV DITTMAR,
FRANK C. ZIMMERMAN.