

UNITED STATES PATENT OFFICE.

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BUILDING MATERIAL.

1,357,375.

Specification of Letters Patent.

Patented Nov. 2, 1920.

No Drawing.

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To all whom it may concern:

Be it known that I, MAX BAER, a citizen of the United States, and resident of the borough of Manhattan, in the city, county, and State of New York, have invented certain new and useful Improvements in Building Materials, of which the following is a specification.

In the use of concrete or cement for the building of ships, several defects have been encountered, among others, the comparative weight of the mass, the attrition or condition of those parts along the water level by the action of sea-water, the difficulty of obtaining water-tightness, the difficulty of obtaining a homogeneous air-cell free mass, etc.

To overcome these objections, one embodiment of my invention consists of a new composition of matter especially adapted for ship constructions, though adapted for other purposes, which consists of an intimate mixture of plaster of Paris (CaSO_4), H_2O , wooden chips, and metal chips or metal dust, or flakes, or other constituent in the nature of finely divided metal particles thoroughly intermingled with the plaster of Paris while plastic or liquid or semi-liquid. The resulting composition has the wooden chips and metal chips or dust, or flakes interlaced in such a manner as to form a strengthening net-work throughout the mass by virtue of the wooden and metal particles being thoroughly distributed and dispersed in the surrounding mass of plaster of Paris.

The wood has the advantage of absorbing to some extent, some of the water of the semi-plastic plaster of Paris during the setting of the same, and the metal particles serve to fill up whatever interstices may form in the plaster of Paris during its setting. When fine aluminum particles are used, the added advantage is obtained in that the entire mass is lightened, and in that aluminum is an electric positive element, with consequent lessening of any electrolytic action due to sea water in comparison to such action as is induced by steel, iron and similar metals.

It is important that the metal particles are dispersed throughout the mass of plaster of Paris, and powdered or fine thread like aluminum particles lend themselves especially to this dispersion.

The mode of operation is as follows:

I take a suitable quantity of plaster of Paris (CaSO_4), H_2O and make a paste of it with water, agitating it during the addition of the suitable quantity of water and then add an additional quantity of water to make it more fluid than is usually done in the use of plaster of Paris, at the same time continually agitating the mixture.

Thereupon I mix a suitable quantity of wood chips, and metallic chips or dust or flakes, or metal liquid or fluid, or other constituent in the nature of finely divided metal particles, and with these thoroughly intermingled, I gradually add this intermixture to the fluid or semi-fluid plaster of Paris mass—always stirring the same. By this stirring the wood chips and metal chips or dust or flakes, or other metal particles, are thoroughly dispersed in the fluid or semi-fluid mass.

Another form of operation is to mix the powdered plaster of Paris, wood chips and metal chips or dust, or other metal particles thoroughly together until a uniform dispersion is obtained, and then add sufficient water to this powdered mixture until the mixture becomes a paste in which the wood and metal particles are uniformly dispersed. By the rehydration of the plaster of Paris the set gypsum securely holds the dispersed particles in position, with some parts of the particles overlapping and interlacing with each other, whereby a firm and homogeneous mass is obtained. It may be said to be a closely knit mass.

The binding powers of the wood and metal particles make a tension and compression resisting material, having relative lightness. As it is capable of a molding flow when semi-liquid or plastic, it lends itself admirably to many of the uses of concrete or cement, with the advantage of being water-tight and avoiding the disadvantages of concrete hereinbefore set forth.

I also propose to add aluminum particles, whether chips or dust or flakes, or in other form, to concrete or cement to bring about a strengthening and binding action, and add sea water resisting qualities thereto, not now present in the uses of concrete or cement.

When my improved plaster of Paris composition is used for ship-building, a water-

proof paint is, of course, applied to the water exposed portions.

My composition may be inexpensively prepared and manufactured, and has many advantages, of which some have been pointed out hereinabove.

I have described the metal medium as chips or dust or flakes, but it is clear that any similar divided state of the metals may be used, as small pieces of metal of any shape.

Having described my invention, I claim as new and desire to secure Letters Patent:

I claim:—

1. A composition of matter comprising a vehicle of plaster of Paris, quantities of fibrous material in a finely divided state dispersed uniformly throughout the plaster of Paris vehicle and adapted to absorb a portion, at least, of the moisture initially present in the semi-fluid plaster of Paris, and a metal substance in a finely divided form also dispersed uniformly throughout the plaster of Paris vehicle and combined with the fibrous material in an interlaced structure.

2. An improved composition of matter for use in the building of ships which consists in a body or vehicle of plaster of Paris adapted to be molded to the desired shape, metal

substance in the form of flakes dispersed uniformly throughout the plaster of Paris body and adapted to knit the body together in a compact mass having the property of resisting tensile stresses to an increased degree, and wooden chips also dispersed uniformly throughout the plaster of Paris body and so placed with reference to the metallic substance that the particles of wood and metal become interlaced.

3. An improved composition of the character described composed of a body of plaster of Paris, finely divided aluminum flakes uniformly dispersed throughout the plaster of Paris body and acting to reinforce and knit the body together in a compact and homogeneous whole having increased resistance to tensile stresses and to electro-chemical action, and wooden particles also uniformly dispersed throughout the body of plaster of Paris and so placed with reference to the aluminum that the same become interlaced throughout the entire structure, said wood adapted to absorb at least partially the moisture initially present in the plaster of Paris body.

In testimony that I claim the foregoing as my invention, I have signed my name.

MAX BAER.