

UNITED STATES PATENT OFFICE.

JOHN WILLIAM BAINBRIDGE, OF LONDON, ENGLAND.

COMPOSITION FOR CONSTRUCTING MOLDS, CORES, AND THE LIKE FOR USE IN CASTING.

1,049,799.

Specification of Letters Patent.

Patented Jan. 7, 1913.

No Drawing.

Application filed July 10, 1912. Serial No. 708,742.

To all whom it may concern:

Be it known that I, JOHN WILLIAM BAINBRIDGE, merchant, a subject of the King of Great Britain, residing at 2 Fen Court, Fenchurch street, London, England, have invented a certain new and useful Improved Composition for Constructing Molds, Cores, and the Like for Use in Casting, and of which the following is a specification.

10 This invention relates to an improved composition for constructing molds, cores and the like for use in casting and consists in incorporating with a mixture of new, and used or burnt sand, a thin paste or thick

15 cream comprising linseed or like meal, molasses and water, to which is added camphor. I have found that the employment in the manufacture of molds of camphor with the other ingredients as stated, enables the metal

20 to lie better and reduces the proportion of blow holes and faulty castings. Suitable proportions of the ingredients consist of linseed meal equal to from $\frac{1}{2}$ to 5% of the weight of the sand to be treated, molasses

25 of $\frac{1}{2}$ to $\frac{1}{4}$ % of the weight of the sand to be treated, and a small quantity of camphor, say about 1 to 3% of the weight of the sand, said ingredients being made into a thin paste or thick cream by the addition of

30 cold or preferably warm water thereto. In cases where the sand treated is required for core making, the proportion of molasses would be increased from say 5% to 50% for the same weight of the sand treated, according to the class of work to be

35 done. At the same time by this invention the proportion of new sand employed may be greatly reduced, that is to say, to the extent of 50% to 80% or even 90%. In

40 employing the composition of linseed meal, molasses and camphor mixed as previously stated, the said thick cream or thin paste mixture is left for some time in the vats in which it is mixed, and therein subjected to

45 frequent stirrings, after which it is poured over the sand—which is spread in a suitable layer on the floor—such sand having previously been mixed in the usual manner and moistened with water. After the paste

50 has saturated the sand, the mixture is shoveled up and treated in the usual manner. The molding sand can also be prepared in the following manner: The molding sand

55 is mixed in the usual way, the composition of linseed meal, molasses and camphor is then added, and the whole incorporated,

after which the mass is moistened with water and treated in the usual way.

It is sometimes an advantage to mix coal-dust with the sand before adding the thick 60 cream-like composition before mentioned, if the molding sand is intended to be used for a so-called wet casting.

Where space is available, it is advisable to prepare the sand in large quantities and 65 permit it to lie for some days, and when using, to remove the oldest sand or that firstly prepared from the bottom, while fresh lots of sand treated with the composition are added at the top.

By molding sand prepared as above described cores can be made to any degree of hardness, and if desired the admixture can be so applied that the cores after being used 70 in the casting readily leave the metal, a great advantage in cases of intricate castings, as with cores as generally constructed much time is frequently occupied in removing the cores.

By this invention, the molding sand prepared 80 in accordance therewith is rendered plastic and most easily worked, while the said prepared sand can be readily used for repair work to both molds and cores. At the same time neither the molds nor cores 85 are liable to disintegrate or crack at the surface as no particles of sand become detached. During the process of casting no unpleasant odors are given off, and as the mold and cores are porous the gases generated 90 in casting freely pass off, without affecting the surfaces of the casting, which latter is made with a beautiful smooth skin, free from unevenness or other defects. The cores are exceedingly friable after casting, 95 which admits of their being quite easily removed, while the castings are much more easily cleaned than when sand is used in the usual manner.

The admixture of the composition of linseed meal and other ingredients as stated, 100 with molding and core sand is of the greatest importance, as not only can the very poorest sand be utilized, but sand of any description can be as successfully used, as the 105 most suitable molding sand and the completely burnt sand can be used over and over again, by the addition of only a very small proportion of new sand. The invention therefore effects a very great saving in 110 foundries, particularly in such as have to obtain their supplies of sand from a dis-

tance, as not only is the actual cost of sand greatly reduced, but there is thereafter no necessity to cart away or remove the old spent sand. The quantity of new sand necessary is only the small proportion required to make good unavoidable waste, and that necessary in regenerating the used molding sand, and for this the poorest sand can be used, as when mixed with linseed meal and the other ingredients, as stated, it can be worked quite as well as the best and most cohesive sand previously used.

Although throughout this specification the employment of linseed meal only has been mentioned, it will be obvious that other oily vegetable meal, such for instance as rape meal may be employed instead of, or together with, the linseed meal, the same result being thereby obtained.

What I claim as my invention and desire to secure by Letters Patent is:—

1. The herein described composition for constructing molds, cores and the like, for use in casting; comprising sand incorporated with a thin paste consisting of linseed meal, molasses, camphor and water.

2. The herein described composition for constructing molds, cores and the like, for

use in casting; comprising moistened sand incorporated with a mixture of linseed meal of about $\frac{1}{2}$ to 5% of the weight of sand, molasses of about $\frac{1}{8}$ to $\frac{1}{4}$ % of the weight of sand and camphor, made into a thin paste by the addition of water.

3. The herein described composition for constructing molds, cores and the like, for use in casting; comprising moistened sand incorporated with a mixture of linseed meal of about $\frac{1}{2}$ to 5% of the weight of sand, molasses of about $\frac{1}{8}$ to $\frac{1}{4}$ % of the weight of sand and camphor, of about 1 to 3% of the weight of sand, made into a thin paste by the addition of water.

4. The herein described composition for constructing molds, cores and the like for use in casting; comprising molding sand a proportion of about 50% to 90% of which has been already used, incorporated with a thin paste consisting of linseed meal, molasses camphor and water.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

JOHN WILLIAM BAINBRIDGE.

Witnesses:

LOUISE M. TRUMP,
WILLIAM A. MARSHALL.