

UNITED STATES PATENT OFFICE.

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PROCESS FOR PREPARING MOLDS.

1,053,949.

Specification of Letters Patent.

Patented Feb. 18, 1913.

No Drawing. Original application filed August 6, 1912, Serial No. 713,690. Divided and this application filed November 27, 1912. Serial No. 733,906.

To all whom it may concern:

Be it known that I, WILLIAM R. CONARD, a citizen of the United States, residing at Burlington, in the county of Burlington and State of New Jersey, have invented a new and useful Process for Preparing Molds, of which the following is a specification.

This application aims to provide a novel process for preparing a mold, and the subject matter of this application has been divided out of my co-pending application for Letters Patent upon a process and compound for casting, Serial No. 713,690, filed August 6, 1912.

In carrying out the process herein disclosed, waste material from a foundry cupola or air furnace, commonly known as foundry slag, is employed. The slag is ordinarily of a fibrous nature, and when it comes from the furnace in masses too large for immediate use, I comminute the slag by crushing, grinding or otherwise, to a fine and preferably impalpable powder, although the fineness of the comminuted slag will depend upon the nature of the casting which is to be produced. The slag should be in a dry condition, and if it is moist, either before or after being comminuted, it may be dried, either before or after the comminuting process take place. The comminuted slag is then mixed with an hydraulic cement, either natural (Rosendale) or artificial (Portland) cement being employed, the cement, of course, being in a dry condition. Ordinarily, one part of cement and two parts of slag are employed, but considerable latitude may be permitted in the proportions of the ingredients. The operator will be guided by the size of the casting which is to be produced, and by other conditions which are known in the art. Ordinarily, if the castings which are to be produced are of considerable dimensions, the amount of cement may be reduced, so as to secure a more porous aggregate, whereby the gases generated in the casting operation may escape readily. After the comminuted slag and cement have been mixed thoroughly, in a dry condition, water or other liquid is added, in order to make the mass plastic. The plastic mass is thoroughly mixed until it is of a uniform and homogeneous nature. The aggregate, in a moist plastic condition, is applied to a pattern, and in this connection

it is to be understood that the word "pattern" is used to designate any element which serves to cause the molten metal to conform to the shape of the object which is to be cast. After the moistened aggregate has been applied to the pattern, the aggregate is worked into all of the interstices of the pattern, by rubbing, pressing or otherwise, so that all of the lines of the pattern are entered by the aggregate. If necessary, the aggregate applied to the pattern may be permitted to take an initial set or a final set, this step in the process depending largely upon the amount of liquid which has been introduced into the aggregate. The pattern is then removed from the aggregate, the same now conforming to the pattern, and constituting the mold. All moisture is removed from the mold, and this step may be consummated either by permitting the mold to dry out in the atmosphere, or by the application of heat.

The process hereinbefore referred to may be employed with equal propriety for making the drag, the cope, or the core.

A molding element, constructed as above described, may be used repeatedly, and the employment of gaggers will be unnecessary. Molding elements constructed as above described, will be suitable for casting in a wide variety of metals, such as iron, bronze, brass, babbitt, lead and the like, and by the practice of the above described process, a casting will be produced which will be devoid of imperfections, and which will be superficially smooth.

Patterns of wood, metal or rubber, depending upon the nature of the work, may be coated as above described, and in carrying out the invention, the expense for material and labor will be reduced to a minimum.

What is claimed is:—

1. A process of preparing a mold, which consists in pulverizing dry foundry slag; adding dry hydraulic cement; mixing the slag and the cement in dry condition to form a homogeneous aggregate; moistening the aggregate; mixing the moist aggregate; applying the moist aggregate to a pattern; forcing the moist aggregate into the interstices of the pattern; removing the pattern; and removing the moisture from the aggregate.

2. A process of preparing a mold, which

consists in mixing comminuted foundry slag
with hydraulic cement, in a dry condition,
to form a homogeneous aggregate, moisten-
ing the aggregate; applying the aggregate
5 in a moist condition to a pattern; permit-
ting the aggregate to take a set, upon the
pattern; and removing the pattern.

In testimony that I claim the foregoing
as my own, I have hereto affixed my signa-
ture in the presence of two witnesses.

WILLIAM R. CONARD.

Witnesses:

J. S. BORGBY,

C. W. PRICE, Jr.