

UNITED STATES PATENT OFFICE.

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MOLDING COMPOUND.

1,053,787.

Specification of Letters Patent.

Patented Feb. 18, 1913.

No Drawing.

Application filed August 6, 1912. Serial No. 713,690.

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 Molding Compound, of which the following is a specification.

The object of the present invention is to provide a novel molding compound in which the ordinary foundry slag and hydraulic cement are employed.

In manufacturing the compound which constitutes the subject matter of the present invention, waste material from a foundry cupola or air furnace, commonly known as foundry slag, is employed. The slag is commonly 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 takes place. The comminuted slag is then mixed with a 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 readily escape. 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 and 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 steam, or under the heat of a fire.

The compound 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 gagers will be unnecessary.

Molding elements constructed as above described, will be suitable for casting in a wide variety of metals, such as iron, bronze or brass, Babbitt, lead and the like, and by the use of the above specified compound, 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.

Having thus described the invention, what is claimed is:—

1. A molding compound comprising comminuted foundry slag and a binder.

2. A molding compound comprising comminuted, fibrous, foundry slag and hydraulic cement.

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

WILLIAM ROBERTS CONARD.

Witnesses:

J. STEWART BUGBY,
C. W. PRICE.