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MOLD-FACING SAND

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This invention relates to a certain new and useful improvement in mold-facing sands.

My invention has for its object, and resides in, the provision of a mold-facing sand characterized by its ability to withstand relatively high temperatures and to enable the economic, facile production of clean, uniform castings weighing up to approximately six thousand pounds.

The present sand, briefly described, comprises as its chief ingredients, elements, or constituents, a preferably sharp or unbonded sand, bentonite, pitch, and sea-coal, in preferably the following approximate proportions, namely, sand, 80%, bentonite, 12%, pitch, 4%, and sea-coal, 4%.

Preferably the bentonite, the pitch, and the sea-coal are each in the form of a dry powder of relatively fine mesh, while the sand is of a so-called sharp type possessing a high degree of refractoriness to withstand varying metal temperatures up to approximately 3000° F. and having a mesh or grain size ranging from 69 to 40 grain fineness according to the metal and thickness of the particular casting.

The sand is first disposed in a muller, and to the sand in the approximate proportions named, and with any selected unit as a base quantity, I add the dry bentonite powder, the dry pitch powder, and the sea-coal dry powder, with a small quantity, say, approximately 3% as a maximum, of water for effecting sand adherence or so-called plasticity during ramming.

The several constituents are then thoroughly mixed and mulled from two to five minutes, depending upon the stiffness required in the final product, in which the bentonite functions as a bond, the pitch functions in protecting the casting from sand-cutting, and the sea-coal vents the sand and assists the sand in pulling off the casting, so that a clean, smooth surface results.

The product may be efficiently rammed hard in the mold and poured with hot metal without any preliminary mold-drying and without any resulting scabs or cutting of the sand by the metal, and enables the production of fine, easily cleaned, and uniform castings.

The rammed product air-dries very readily, and, if necessary, coal-oil or blacking mixtures with an oil base may be employed in moistening the mold surface, without any injury or damage to the metal or sand.

The product may be cheaply manufactured and efficiently fulfills in every respect the object stated.

It should be understood that minor changes in the ingredients or constituents of the facing sand and in their relative proportions and manner of mixing may be made and substituted for those herein set forth without departing from the nature and principle of my invention.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. A mold-facing sand having the characteristics and properties described and comprising, as its constituents, sand, and bentonite, pitch, and sea-coal in the following approximate proportions, namely, sand 80%, bentonite 12%, pitch 4%, and sea-coal 4%, the bentonite, the pitch, and the sea-coal being each in the form of a dry powder of relatively fine mesh and the sand being of sharp type possessing a degree of refractoriness for withstanding metal temperatures up to approximately 3000° F.

2. A mold-facing sand having the characteristics and properties described and comprising, as its constituents, sand, and bentonite, pitch, and sea-coal in the following approximate proportions, namely, sand 80%, bentonite 12%, pitch 4%, and sea-coal 4%, the bentonite, the pitch, and the sea-coal being each in the form of a dry powder of relatively fine mesh and the sand being of sharp type possessing a degree of refractoriness for withdrawing metal temperatures up to approximately 3000° F. and having a grain size ranging from 69 to 40 grain fineness according to the metal and thickness of the particular casting.

3. A mold-facing sand having the characteristics and properties described and comprising, as its constituents, sand, bentonite, pitch, and sea-coal in the following approximate proportions, namely, sand, 80%, bentonite, 12%, pitch, 4%, and sea-coal, 4%, and water, approximately 3% as a maximum, sufficient for plasticity during ramming, the bentonite, pitch, and sea-coal being in powder form of relatively fine mesh, and the sand being of sharp type possessing a degree of refractoriness for withstanding metal temperatures up to approximately 3000° F.

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