

UNITED STATES PATENT OFFICE.

JAMES STICKLE, OF DENVER, COLORADO.

PROCESS OF MOLDING AND TREATING SLAG FOR PAVING AND OTHER PURPOSES.

SPECIFICATION forming part of Letters Patent No. 289,939, dated December 11, 1883.

Application filed March 23, 1883. (No specimens.)

To all whom it may concern:

Be it known that I, JAMES STICKLE, a citizen of the United States, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in the Process of Molding and Treating Slag for Paving and other Purposes; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

Heretofore the natural brittleness of slag has prevented it being used for many purposes, as after being molded in the ordinary manner a slight concussion would cause it to crumble and break. If brought into contact with water, it would be affected in a similar manner.

The object of my invention is to render the slag more compact and elastic, as also to make it impervious to moisture, to the end that it may not be materially injured by shocks or jars, and that it may successfully resist the action of air and water.

To carry my invention into effect I take ordinary molds of cast-iron or other suitable material and fill them with small pieces of slag which have been crushed to an adaptable size. The dimensions of the particles of slag should be sufficiently large to allow molten slag, when poured upon them, to freely pass through the interstices to the bottom of the molds. In some cases, instead of using slag exclusively for the filling, I mix with it a foreign substance, as gravel or crushed stone. After filling the mold in this manner, I pour molten slag upon the filling and into the mold until they are full, and then allow the casting to cool or set, when it may be taken from the molds. After the casting is taken from the molds, it is immersed, while still warm, in boiling coal-tar and left until the tar has penetrated the openings upon the surface and attached itself in the form of a thin coating to the surface, when it is taken from the tar and placed in boiling pitch until it has received a coating of pitch sufficient to hold the tar in place. It is also practicable to immerse the casting in a mixture of equal parts boiling coal-tar and pitch, and in some cases boiling pitch alone is preferable.

If slag is cast in molds by the old method, the surface of the casting, when finished, is marred by cracks and crevices, which injure it to such an extent as to make it unavailable for the purpose intended. With my process the fragments of cool slag with which the mold is filled previous to pouring in the molten slag cause the casting to cool more equally and simultaneously, thus preventing the unequal contraction which occurs in a casting by the old process and subsequent inferior results. My process produces a casting that is very compact and practically free from imperfections, yet partially porous. The boiling coal-tar and pitch in which the casting is immersed penetrates through the pores to the interior and adheres to the surface, producing a coating, and imparts additional strength to the casting, and also effectually excludes air and water.

A peculiar characteristic of slag in its natural state is that it is comparatively easily broken until reduced to a certain size, the average minimum weighing an ounce, after which it becomes very difficult to split it asunder. My aim has been to thoroughly unite small fragments of slag in the manner described, to the end that it might be made available in larger solid bodies for commercial purposes.

If slag is prepared by my process, it becomes adaptable for building purposes, for bases for fence-posts, for paving streets, and for a variety of purposes requiring a material of that nature.

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

1. A paving or building block composed of small particles of iron, slag, and gravel or crushed stone, cemented together with molten slag, as set forth.

2. A paving or building block composed of iron, slag, and gravel or crushed stone, the particles of which are cemented together with molten slag and saturated with coal-tar or other bituminous substances, as set forth.

JAMES STICKLE. [L. s.]

Witnesses:

J. H. NICHOLS,
J. L. STICKLE.