

UNITED STATES PATENT OFFICE.

BENJAMIN JONES, OF CLEVELAND, OHIO.

MOLD, MOLD-FACING, AND CORE AND PROCESS OF MAKING SAME.

SPECIFICATION forming part of Letters Patent No. 507,226, dated October 24, 1893.

Application filed January 21, 1893. Serial No. 459,259. (No specimens.)

To all whom it may concern:

Be it known that I, BENJAMIN JONES, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and
5 useful Improvements in Molds, Mold-Facings, and Cores and Processes of Making the Same; and I do hereby declare the following to be a full, clear, and exact description of the inven-
10 tion, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention relates to improvements in molds, mold-facings and cores used in the manufacture of steel and other metallic cast-
15 ings, more especially steel castings, and in the process of making same, the object being to produce molds, mold-facings or cores capable of withstanding the intense heat had in the manufacture of such castings and that
20 will shrink with the casting in cooling and will cleave readily from the casting.

My improved core, mold or mold-facing is made as follows: Take five parts of clean strong sand, such, for instance, as molding
25 sand to one part of fine combustible material or substance, preferably flour, and thoroughly mix the same while dry. The core, mold or mold-facing is built up of said compound, the latter of course being dampened
30 and tempered suitable for the purpose. The proportions of sand and combustible substance or material used in making the compound may be varied more or less according to circumstances, but I would advise the
35 use of too much rather than too little sand. The core, mold, or mold-facing, having been built up as hereinbefore described, coal-tar or other suitable binding and hardening substance or composition is introduced so as to
40 form one compound with the flour or combustible substance and sand of the material of which the core, mold or mold-facing is composed. This introduction of the coal-tar or binding and hardening substance is ef-
45 fected by applying the same while in a hot liquid condition to the surfaces of the core, mold or mold-facing until the mold, core or mold-facing has become thoroughly impreg-
50 nated with it and its gases, the core, mold or mold-facing being thoroughly dried and heated preparatory to the introduction of the tar. It may be said that the tar or binding and hardening substance is burned into the
55 core, mold or mold-facing. If all the gases

were retained therein disastrous results would likely ensue in the operation of casting, but by introducing the binding and hardening substance as hereinbefore described, by burn-
60 ing the same into the core, mold or mold-facing enough of said gases is eliminated to avoid such results.

A core, mold or mold-facing composed as hereinbefore described will not only with-
65 stand the intense heat had in the manufacture of steel castings but will shrink approximately with the casting in cooling owing to the consumption or burning, after the oper-
70 ation of casting, of the flour or fine combustible substance in the material composing the core, mold or mold-facing, and will readily cleave from the casting.

I would here remark that I prefer to have the core, mold or mold-facing saturated with the tar or binding and hardening substance,
75 so that the core, mold or mold-facing shall be as solid as practicable.

What I claim is—

1. A mold, mold-facing or core consisting of a compound of sand and flour impregnated
80 or saturated with coal-tar, substantially as set forth.

2. The process herein described of making molds, mold-facings and cores, consisting in
85 building up the core, mold or mold-facing of a compound composed of sand and a suitable combustible substance and then coating the external surface of the same with a hot liquid binding and hardening substance or
90 composition until the body of the core, mold or mold-facing shall become impregnated or saturated with the binding and hardening substance, substantially as set forth.

3. The process herein described of making molds, mold-facings and cores, consisting in
95 building up the core, mold or mold-facing of a compound composed of sand and flour in approximately the proportions specified and then coating the external surface of the same with hot liquid coal-tar and applying tar un-
100 til the body of the core, mold or mold-facing shall become impregnated or saturated with the tar, substantially as set forth.

In testimony whereof I sign this specification, in the presence of two witnesses, this 4th
105 day of January, 1893.

BENJAMIN JONES.

Witnesses:

C. H. DORER,
WARD HOOVER.