

# UNITED STATES PATENT OFFICE.

BRADFORD S. PIERCE, OF NEW BEDFORD, AND MASON R. PIERCE, OF  
MANSFIELD, MASSACHUSETTS.

## IMPROVEMENT IN THE MANUFACTURE OF POROUS WARE.

Specification forming part of Letters Patent No. 26,614, dated December 27, 1859.

*To all whom it may concern:*

Be it known that we, BRADFORD S. PIERCE, of New Bedford, and MASON R. PIERCE, of Mansfield, both in the county of Bristol, State of Massachusetts, have invented a new and Improved Compost for Drains, Pipes, Tubes, Flues, and Cores; and we do declare that the following is a full and exact description thereof.

The nature of our invention consists in the production of a porous body or substance, which is produced by slightly dampening the ingredients herein set forth and applying a tamping or pressing process.

To enable others skilled in the art to make and use our invention, we will proceed to describe its composition, construction, and utility.

The components are water-lime or hydraulic cement with coarse sand or gravel moistened with water. We construct our pipe, tube, flue, or core of any desired shape or length. To produce this porous body we take one part water-lime or hydraulic cement and six parts coarse sand or gravel thoroughly mixed in a dry state, after which we slightly moisten with water to the consistency of molding-sand used for foundry purposes. This mixing process can be performed with a hoe or shovel, after which it is thrown into the mold with a scoop or shovel. While the filling process is going on the ingredients should be thoroughly tamped or pressed until the mold is filled and pipe completed.

This porous pipe can be used for draining low and wet lands, and is particularly adapted to that purpose, as the water continually oozes through its surface, instead of entering at the joints, thus preventing obstruction to the interior of the pipe. It is further adapted to this purpose in consequence of the nature of the material being such that it becomes hard and stone-like if placed under water or in any other damp place, and still retains its porous quality. It can be manufactured by any person and upon the location where it is to be used. It matures by age, instead of by any baking or burning process, which makes the drain come much cheaper, and it is more durable than drains constructed with any other material. It can be used for

conducting filth from sinks, privies, cesspools, and all other filthy localities. It is not liable to obstruction, as it can be molded in a round or cylindrical shape, and its joints overlap, so as to form no obstruction of itself. When this pipe is used for a flue it can be molded in any desired shape, and is perfectly fire-proof, and can be used with all safety in conducting heat or smoke between floors, joists, or partitions. It is also adapted for flues in hot-houses, as the heat radiates therefrom in a mild and gentle manner. When used for a core it is tamped or pressed into the core-box in the same manner as other materials used for that purpose, and is relieved from the core-box in the same manner as all other cores, and is adapted to that purpose, as the nature of the material unites and becomes hard without any baking process, and retains a porous body for the escape of gas, which always arises from the metal when poured into the flask, and must seek its escape through the core, or an explosion takes place and destroys the desired form to be molded. It is further adapted to this purpose, as the material forms no gas of itself and is easily removed from the form cast, as the hot metal destroys the uniting or setting properties of the core before it has matured by age.

Having described the composition, construction, and utility of this drain-pipe, tube, flue, and core, we will proceed to describe the mode of manufacture.

The mold being prepared, we now proceed to fill the ingredients into it with a scoop or shovel, and while so doing the tamping or pressing process is performed till the mold is filled and pipe finished. Then the mold is placed on the bench. The plunger is then placed on the top of the core and forced with the lever, which relieves the core from the mold. The case and pipe are then lifted from the bottom of the mold and conveyed to a level surface and placed in an upright position. The clasp or fastener is then relieved from the case. The case is then removed from the pipe, leaving the same in an upright position, where it remains till the setting or uniting process performs its work.

Having described the tamping process as that by which we accomplish the coherence of



the material, we do not confine ourselves to that method alone. If the pressure necessary to make the mass cohere can be obtained by other methods, the object we have in view will be equally well obtained, which is the firm union of the particles by mechanical pressure.

We do not claim the use of hydraulic cement as a material to bind together the ingredients of artificial building material and for other analogous purposes, broadly considered, as such is not new.

What we claim as our invention, and desire to secure by Letters Patent, is—

The manufacture of porous drain-pipes and

other vessels which require to possess the property of porosity, when formed from the ingredients set forth and made to cohere by the process of tamping or other equivalent mode of pressure, as described, and receiving its porosity from the small proportion of water used in mixing the ingredients, as set forth and described.

BRADFORD S. PIERCE.  
MASON R. PIERCE.

Witnesses:

ISAAC T. FISHER,  
SILAS H. HOWLAND.