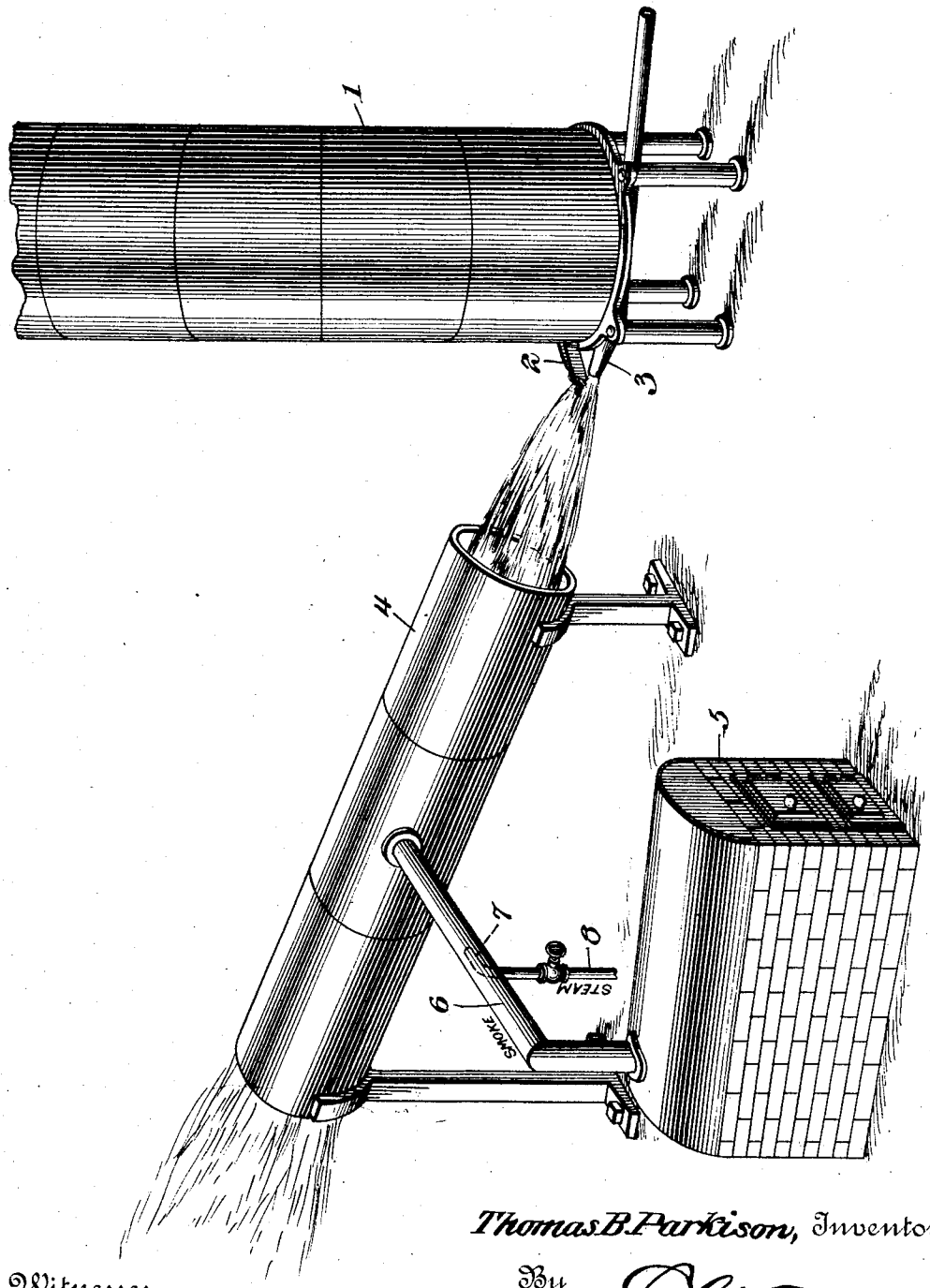
No. 779,307. PATENTED JAN. 3, 1905.

T. B. PARKISON.

PROCESS OF MANUFACTURING MINERAL WOOL.

APPLICATION FILED JAN. 29, 1904.



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No. 779,307. Patented January 3, 1905.

UNITED STATES PATENT OFFICE.

THOMAS BRADY PARKISON, OF MUNCIE, INDIANA.

PROCESS OF MANUFACTURING MINERAL WOOL.

SPECIFICATION forming part of Letters Patent No. 779,307, dated January 3, 1905.

Application filed January 29, 1904. Serial No. 191,216.

To all whom it may concern:

Be it known that I, THOMAS BRADY PARKISON, a citizen of the United States, residing at Muncie, in the county of Delaware and State of Indiana, have invented a new and useful Process of Manufacturing Mineral Wool, of which the following is a specification.

My invention relates to a novel process for the manufacture of mineral wool, the object being to produce a fibrous material from the slag or scoria of iron, glass, and certain species of rock or other suitable substance by means of instrumentalities which will produce filaments or fibers of considerable length, great toughness, and of soft uniform texture.

A further object of the invention is to reduce to a minimum or entirely eliminate the small bead-like particles usually found in large quantities in mineral wool and due to the imperfect fibration of the scoria.

Ordinarily mineral wool is produced by directing a strong blast of air or steam through the molten slag as it issues from the cupola to blow the molten mass through a blow-tube and into a blow chamber or receiver. The material settles in the blow-chamber in the form of a mass of fine fiber interspersed with considerable quantities of minute globules or beads, the presence of which is due to the imperfect conversion of the slag into a fibrous form. Aside from the presence of this solid though minute residue the usual process is open to serious objection, for the reason that the fiber is highly frangible and the individual filaments are very short and of irregular thickness. The body of mineral wool is therefore but slightly coherent and is of a hard though extremely loose texture, which makes it exceedingly difficult to form the wool in different permanent shapes. By extensive experiment I have discovered that the bead-like particles, the presence of which in the wool has been marked, are produced by the cooling of the slag before the latter is completely converted into fibrous form, the minute beads solidifying at the ends of the filaments. I have also discovered that by subjecting the material during its flight to the action of a hot vapor, preferably smoke or a combination of smoke and steam, the fibers are softened or annealed, materially lengthened, and given additional tensile strength, with the result that the body of the wool when taken from the settling-chamber is of a soft coherent texture and is almost wholly devoid of beady particles.

In the accompanying drawing I have illustrated one form of apparatus which may be employed in practicing my process.

1 indicates an ordinary furnace of the cupola type; 2, the slag-outlet, and 3 the blast-nozzle, the blast from which drives the escaping slag through the blow-tube or funnel 4 and into the settling-chamber. (Not illustrated.) These elements of the apparatus are well known; but in addition thereto I employ smoke-producing means, preferably in the form of a small furnace 5, having a stack 6, designed to lead the smoke into the blow-tube 4 at a point preferably intermediate of the ends thereof. The smoke may be produced in the furnace 5 by the consumption of any suitable fuel and is preferably forced into the blow-tube in considerable volume by a jet of steam issuing from a steam-jet 7, located in the stack 6 and placed in communication by a valved steam-pipe 8 with a suitable steam-generator. (Not shown.) As the molten slag is projected by the blast it assumes a more or less fibrous form and during its passage through the blow-tube 4 is brought into contact with the hot vapor issuing from the stack 6 in the form of smoke and steam. This vapor, as already stated, serves to elongate, soften, and toughen the fibers and to effect the complete conversion of the material, which would otherwise be precipitated in the form of solid globules or beads.

While the combination of smoke and steam is desirable, particularly as the steam aids materially in forcing considerable quantities of smoke into the blow-tube, I do not wish to be limited to this combination, since it is demonstrable that the smoke alone is highly efficient. It should be distinctly understood, furthermore, that any desired type of apparatus may be employed, that the terms "slag" or "scoria" are intended to embrace any substance or material from which mineral wool may be produced, and that I reserve the right to vary

the described process at will within the scope of the protection prayed.

What I claim is—

1. That process for the production of mineral wool which consists in subjecting the molten slag or scoria to the action of smoke.

2. That process for the production of mineral wool which consists in subjecting the molten slag or scoria to the action of smoke and steam.

3. That process for the production of mineral wool which consists in projecting the hot slag or scoria and in subjecting the material in transit to the action of smoke.

4. That process for the production of mineral wool which consists in projecting the molten slag or scoria through a body of smoke.

5. That process for the production of mineral wool which consists in projecting the hot slag or scoria, and in subjecting the material in transit to the action of smoke and steam.

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

THOMAS BRADY PARKISON.

Witnesses:

JOHN A. PARKISON,

LAWSON CRAWFORD.