A. D. ELBERS.

PROCESS OF DISINTEGRATING MOLTEN SCORIACEOUS SUBSTANCES.

No. 180,470. Patented Aug. 1, 1876.

Fig: 1

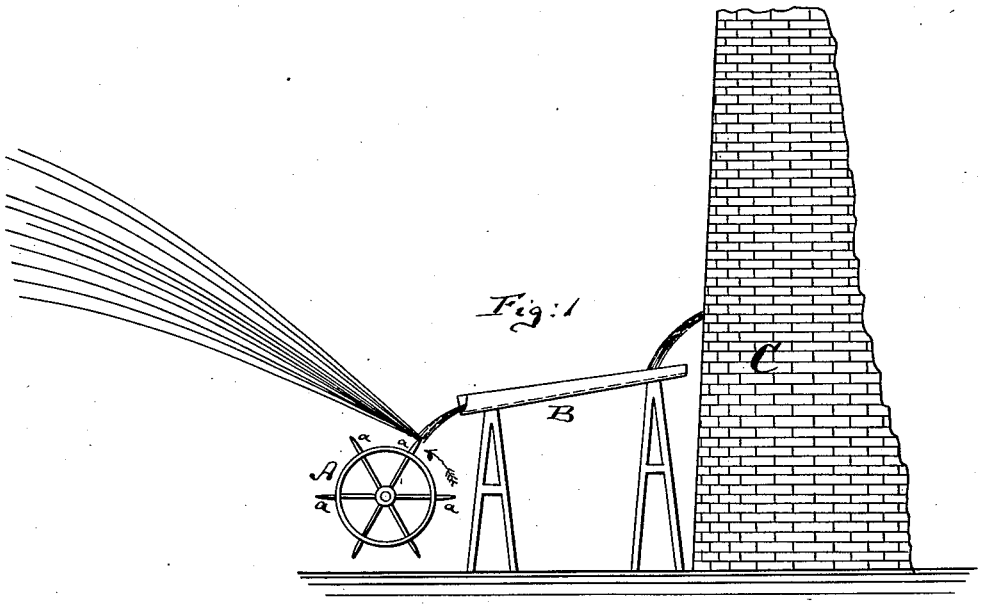


Fig: 5

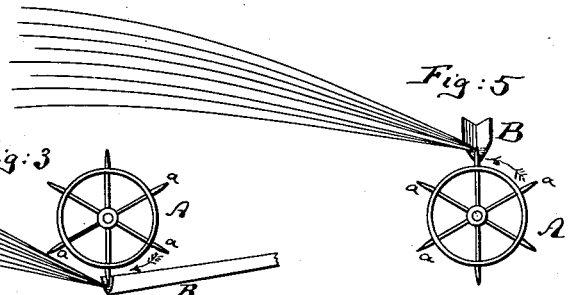


Fig: 2

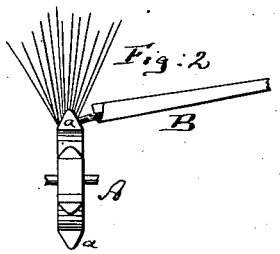


Fig: 3

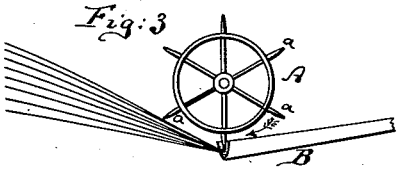
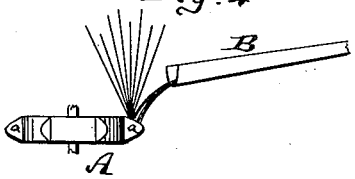


Fig: 4



Witnesses:

F. V. Briesen

A. Moraga

Inventor

Alexander D. Elbers

by his attorney

A. V. Briesen

UNITED STATES PATENT OFFICE.

ALEXANDER D. ELBERS, OF HOBOKEN, NEW JERSEY.

IMPROVEMENT IN PROCESSES OF DISINTEGRATING MOLTEN SCORIACEOUS SUBSTANCES.

Specification forming part of Letters Patent No. **180,470**, dated August 1, 1876; application filed May 15, 1876.

To all whom it may concern:

Be it known that I, ALEXANDER D. ELBERS, of Hoboken, Hudson county, New Jersey, have invented a new and Improved Apparatus for, and Method of, Disintegrating Scoriaceous Substances, of which the following is a specification:

Figures 1, 2, 3, and 4 represent side views of different modifications of my improved apparatus. Fig. 5 is an end view of the device shown in Fig. 2.

Similar letters of reference indicate corresponding parts in all the figures.

This invention has for its object to provide means for reducing molten scoriaceous substances to a fibrous condition, for producing what is known as "mineral wool." Heretofore such reduction was usually effected on scoriaceous substances by a jet of air or steam propelled through or against a stream of molten slag or scoria; but in practice I have found that, upon striking the flowing mass, the force of the jet of steam or air is spent to a greater or less degree, and the reduction consequently not as perfect as it would be if less changeable power were applied. In the production of mineral wool a very considerable proportion of objectionable bead like globules is therefore produced, simply because the jet of air or steam does not remain sufficiently powerful to follow all the parts of the diffused matter and reduce them in proper manner.

My invention consists in the use of a rotary paddle-wheel, which I apply to the molten scoriaceous matter.

Thus a wheel, A, having a suitable number of projecting blades or buckets, *a a*, at the edge, may be applied, as in Fig. 1, beneath the outlet or discharge-opening of a trough or conduit, B, that contains the flowing scoriaceous matter, the wheel being so placed that, in revolving with proper velocity, its blades will strike and diffuse the molten mass, whirling it with considerable force through the air, and causing its disintegration into fibers or other small particles, whose form will, of course, vary according to the nature and composition, and even degree of heat, of the matter acted upon.

The paddle-wheel may be placed at right angles to the outlet of the conduit, as in Figs. 2, 4, and 5, to throw the diffused mineral matter in a spray to either one side or the other, as may be desired, and according to where the receiving-chamber may be placed; and it may, as in Fig. 3, be applied above the conduit with substantially the same effect.

Heated or cooled air or steam may be used in connection with my process and apparatus. Thus, in order to prevent the diffused particles of slowly-solidifying mineral wool from reuniting on contact, they may be thrown into or through a current of cold air, which may assist in further dividing or reducing the particles which fly from the wheel.

By my invention I am enabled to mechanically disintegrate or reduce all molten scoriaceous or equivalent substances into fine fiber, whereby many of these substances will be improved in condition for further use in the arts, and many also brought into useful forms at a comparatively trifling expense.

The trough or conduit B is, of course, combined with a receptacle, C, which contains the molten substance and supplies it to such conduit in the requisite quantity.

I am aware that shot has already been produced by the centrifugal force of a rotary disk, upon whose face the molten metal was poured; and this I do not claim, as my invention refers to the production of mineral wool, and to the use of a wheel having projecting paddles, that strike the molten mass as they revolve, and affect it mechanically; but

I claim as my invention—

1. The method herein described of forming scoriaceous substances into mineral wool by exposing the same in a fluid state to the action of a rotary paddle-wheel, substantially as herein shown and described.

2. The combination of the rotary paddle-wheel A with the conduit B and receptacle C, all combined for action on molten scoriaceous substances, substantially as herein shown and described.

ALEXANDER D. ELBERS.

Witnesses:
F. V. BRIESEN,
O. A. WEIDNER.