

S. ROBBINS.

Machine for Granulating Slag.

No. 164,397.

Patented June 15, 1875.

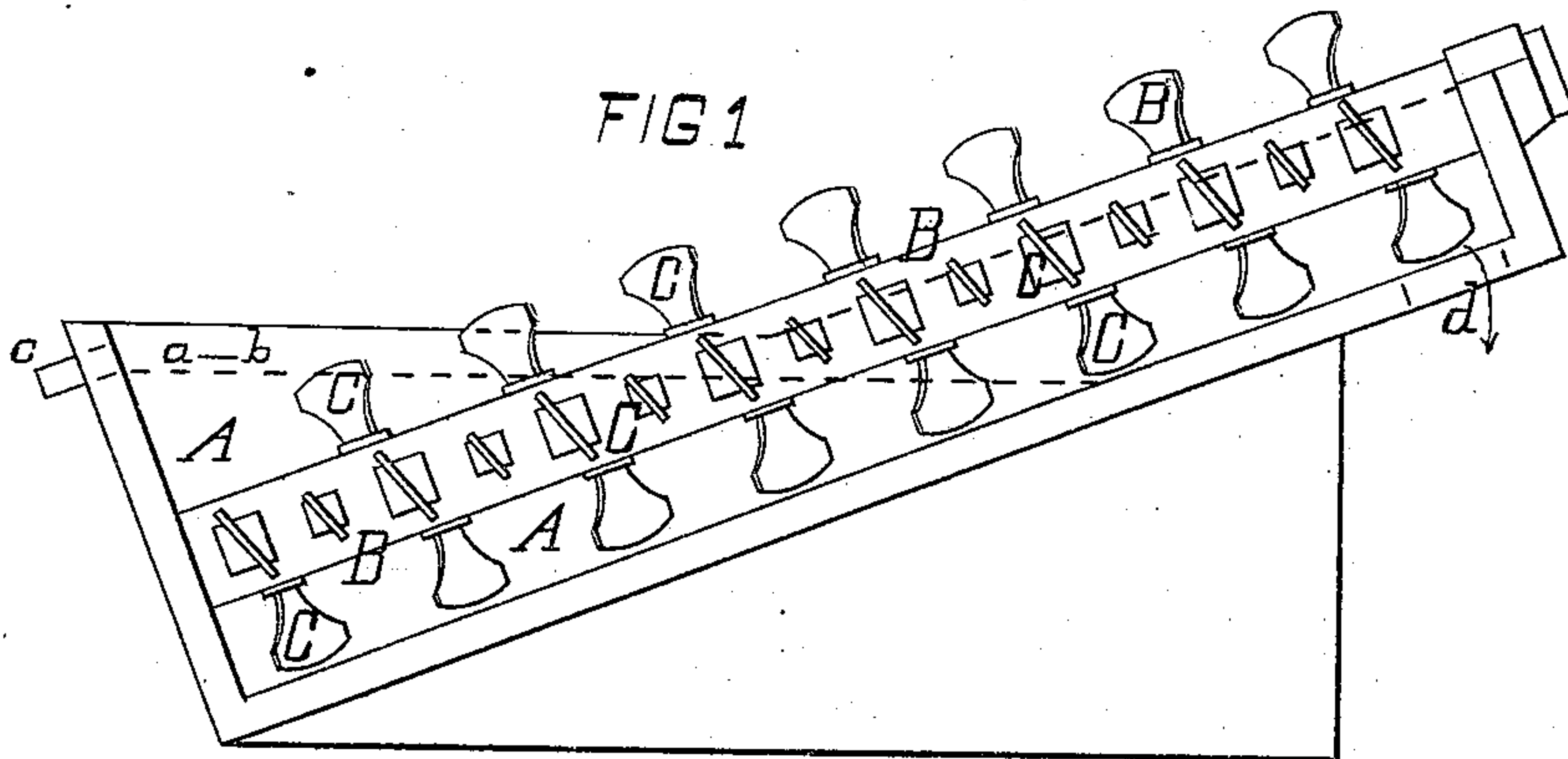
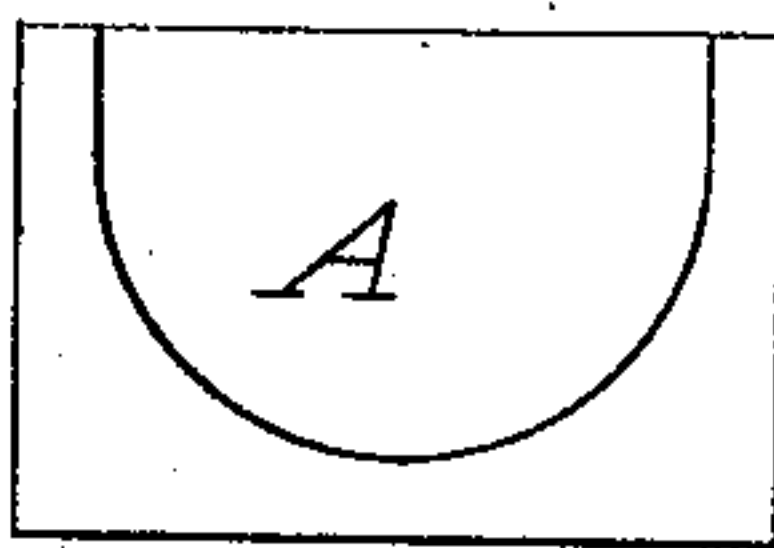
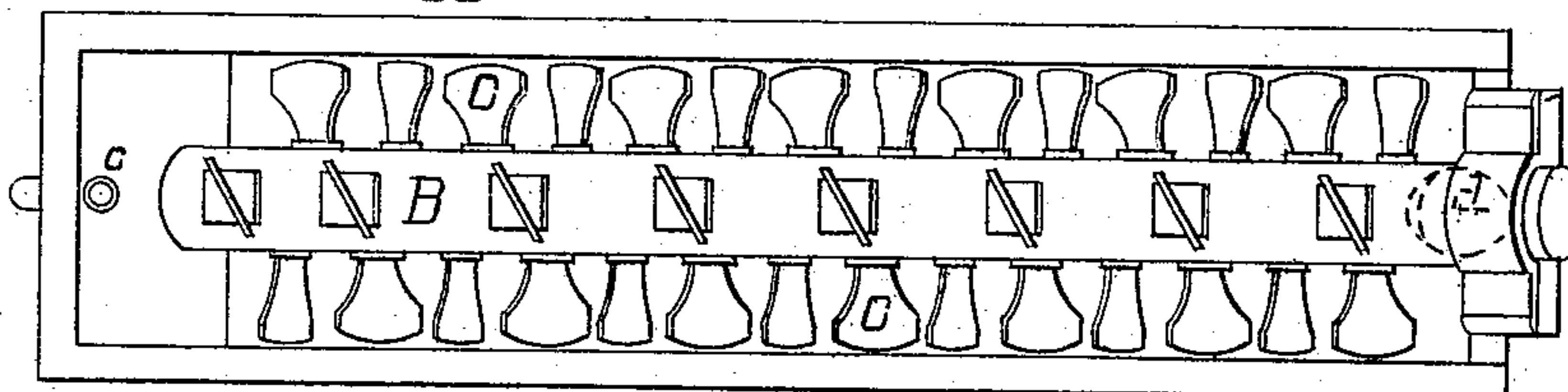


FIG 2



A

FIG 3



WITNESSES
Geo. J. Huntington
Chas. J. Haw Foon

INVENTOR
Stephen Robbins
by Francis D. Eastwood
his Atty.

UNITED STATES PATENT OFFICE.

STEPHEN ROBBINS, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN MACHINES FOR GRANULATING SLAG.

Specification forming part of Letters Patent No. **164,397**, dated June 15, 1875; application filed December 22, 1874.

To all whom it may concern:

Be it known that I, STEPHEN ROBBINS, of Philadelphia, Pennsylvania, have invented an Improved Machine for Granulating Furnace-Slag, of which the following is a specification:

The improved machine for granulating the slag or recement resulting from the manufacture of cast-iron consists of an inclined semi-cylindrical bottom trough, and an inclined revolving shaft having screw or oblique blades. The trough is kept constantly supplied with cold water, into which the molten slag is tapped from the furnace, and subjected to the beating action of the revolving blades, which granulate and reduce it to fine sand.

Figure 1 is a side elevation of the improved machine, one side being removed to exhibit the shaft, blades, and the interior of the trough. Fig. 2 is an end view. Fig. 3 is a plan view.

A is an inclined semi-cylindrical trough, in which revolves a similarly-inclined shaft, B, having screw or oblique blades C, which curve into and sweep, as near as safety will permit, the rounded bottom of the trough. The trough is kept filled with cold water to the line *a b*, the level of the overflow-pipe *c*. The slag, on being tapped from the furnace, is flowed, in its molten state, into the trough, when, by its contact with the water, it is cooled in brittle porous lumps, which are broken and granulated to sand by the action of the revolving paddles, and forced up the inclined trough to the opening *d*, through which it drops into a barrow or other receptacle, and is taken away.

The inclination of the trough A backs the sand against the revolving blades C, and, as the granulating process continues until it reaches the drop or opening *d*, it will be readily seen that the backing or piling of the slag or sand, in its various degrees of granulation, at different stages of the trough, granulates it evenly and perfectly. The inclination also keeps the level *a b* of the water from the sand-opening *d*, and the decreasing depth of the water toward the said opening, and its level or surface stopping some distance from it, serves to drain the water from the sand, which is delivered comparatively dry to the barrow.

I am aware that slag has been poured into water for the purpose of granulating. I am also aware that a machine for granulating slag has been illustrated and described in the Letters Patent No. 56,595, granted to Morris and Eynon, July 24, 1866.

I claim as my invention—

The inclined trough A, with an overflow, *c*, and a sand-drop, *d*, in combination with the inclined shaft B and blades C, substantially as and for the purpose shown and described.

In testimony whereof I hereunto sign my name in presence of two subscribing witnesses.

STEPHEN ROBBINS.

Witnesses:

FRANCIS D. PASTORIUS,
JOHN MARTIN.