

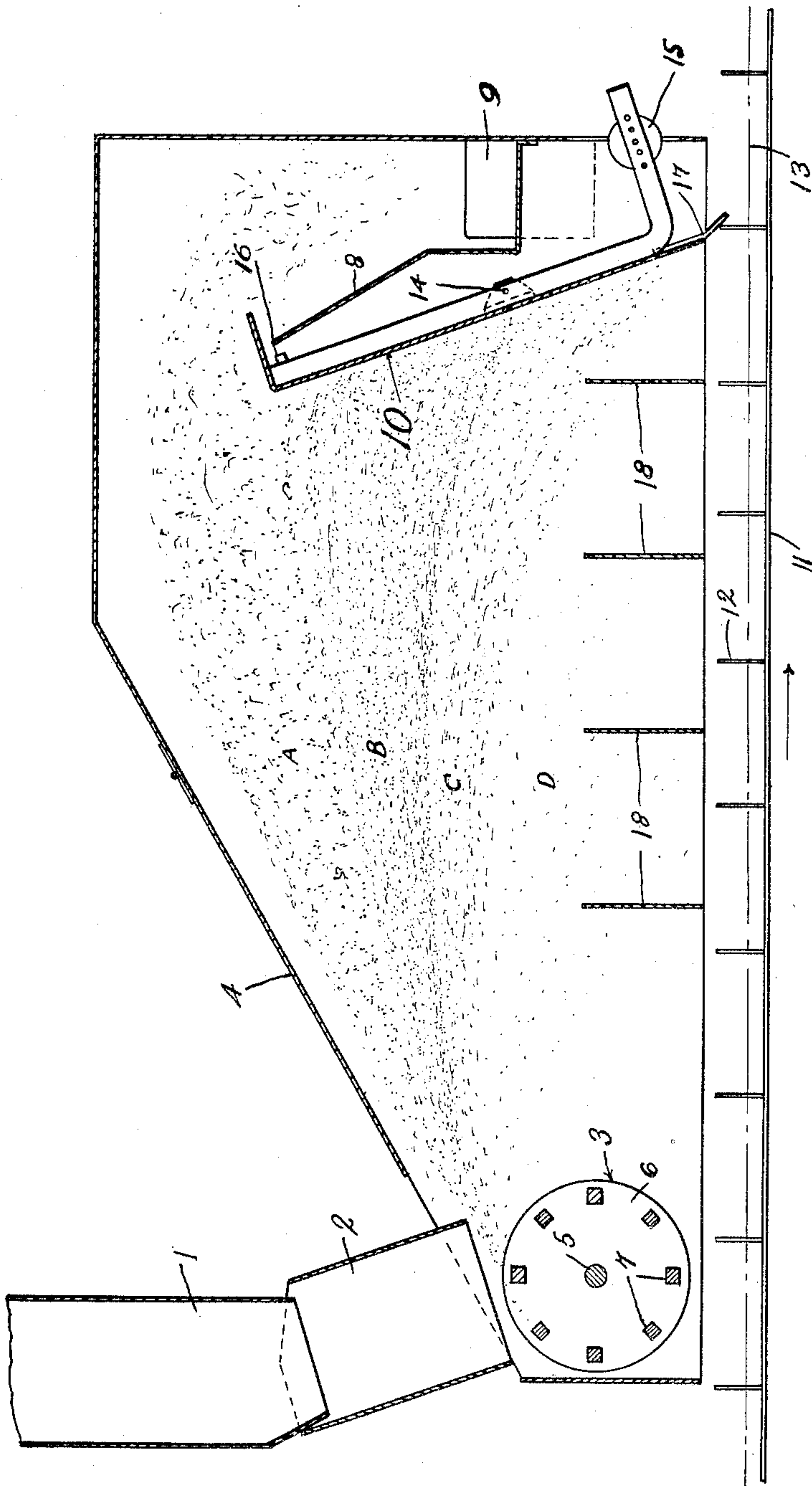
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## SAND AERATOR

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# UNITED STATES PATENT OFFICE

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## SAND AERATOR

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This invention relates to a device for scattering and aerating sand, and particularly foundry sand which has been previously used. The aim of the invention is to provide a simple and reliable device for throwing the sand through the air and subsequently mixing it, at the same time freeing it from heavy particles such as pebbles and metal slugs.

It will be understood that the principles of my invention are susceptible of application in various ways, but a preferred embodiment is shown in the single figure of the accompanying drawing.

In the figure a chute 1 is illustrated, having an adjustable spout 2 on the end of which the sand is delivered to a rapidly rotating wheel 3 placed in one end of a box 4, which is closed at top and ends, but open at the bottom.

A suitable form of wheel consists of a shaft 5 driven by any appropriate means (not shown) and carrying at each end a disk 6. Square bars, such as 7, are held at each end in the disks 6 and disposed axially about the periphery, making a squirrel cage cylinder, which rotates in a clockwise direction in the figure shown, thus throwing the sand and foreign matter upwards and to the right as indicated.

As will be readily understood, the heavy particles follow the highest path, generally indicated at A, while the medium, light, and very light sand tend to separate into successively lower streams, generally indicated by the characters B, C and D, respectively.

The heavy particles are thrown to the far end of the box 4 and there fall into a trough 8 from the bottom of which they are removed by a conveyor 9 of any convenient form.

The streams of sand B and part of the streams C impinge upon a blade member 10 just forward of the trough 8 and fall from there down onto a conveyor 11 beneath the box 4, this conveyor being preferably of the type having cross blades 12 attached to a moving chain 13. In order to prevent damp sand from clinging to the wall 10, this wall is forwardly inclined at the top and furthermore, is pivoted as at 14 near the middle and counterweighted as at 15 to tend to hold the

upper end against a stop 16. A projection 17 on the lower end intersects the path of the cross blades 12 so that each cross blade tilts the wall 10 in a counter-clockwise direction and the counterweight 15 returns it sharply against the stop 16, this constant vibration thus shaking off any appreciable quantity of cleaning sand.

To further separate and aerate the streams of sand, and particularly the lighter grades, such as the stream D, a series of vertical baffles 18 are placed transversely in the bottom of the box 4 immediately above the conveyor 11. Each of these baffles 18, being in the zone of the lightest particles D, gives a dead air space at the side away from the wheel, in which space the light particles, sheltered from the air currents, settle and fall through onto the conveyor 11. In this manner the sand which is thrown forward by the squirrel cage 3 is very thoroughly agitated, aired and mixed, while the entrained heavy matter is thrown out.

Although I have herein described a particular form of applying the principles of my invention, it will be understood that I do not limit myself thereto, but that the scope of the invention is as indicated by the appended claims.

What I claim is:—

1. In a device of the class described comprising a discharge chute and means adjacent the end of said chute for throwing material received therefrom, means for receiving thrown material comprising a receptacle for the heaviest grade of said material, said receptacle being furthest removed from said throwing means, a wall for limiting the travel of other grades of said material, a conveyor beneath the path of said other grades of material, a pivot supporting said wall, a stop for limiting the travel of said wall in one direction, a counterweight for urging said wall against said stop, and a projection upon said wall, elements upon said conveyor adapted to strike said projection, thereby moving said wall away from said stop.

2. In apparatus for conditioning granular material, in combination, a supply chute,



a bladed rotatable element beneath said supply chute, a series of dead air spaces provided by baffle plates successively disposed laterally of said rotatable element, a movable wall above and behind said dead air spaces and said wall, and cooperating elements on said conveying means and said wall for vibrating said wall.

Signed by me this 5th day of August, 1930.

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