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Alexandrov et al.

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[54] **PROPORTIONING AND CHARGING APPARATUS**

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[52] **U.S. Cl.** **222/368**

[51] **Int. Cl.** **G01f 11/20**

[58] **Field of Search** 222/311, 312, 315, 222/317, 367, 368, 369, 444

[56] **References Cited**

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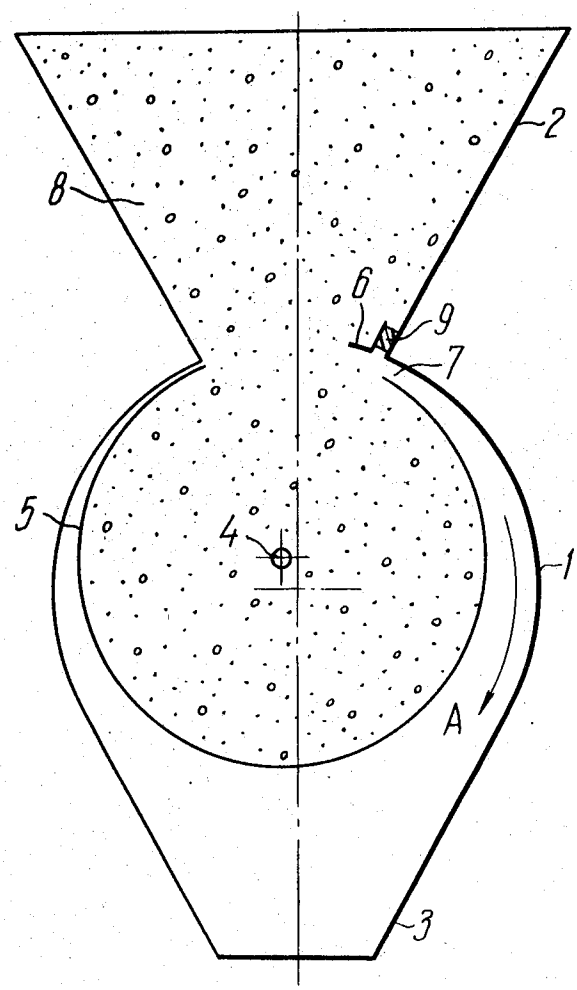
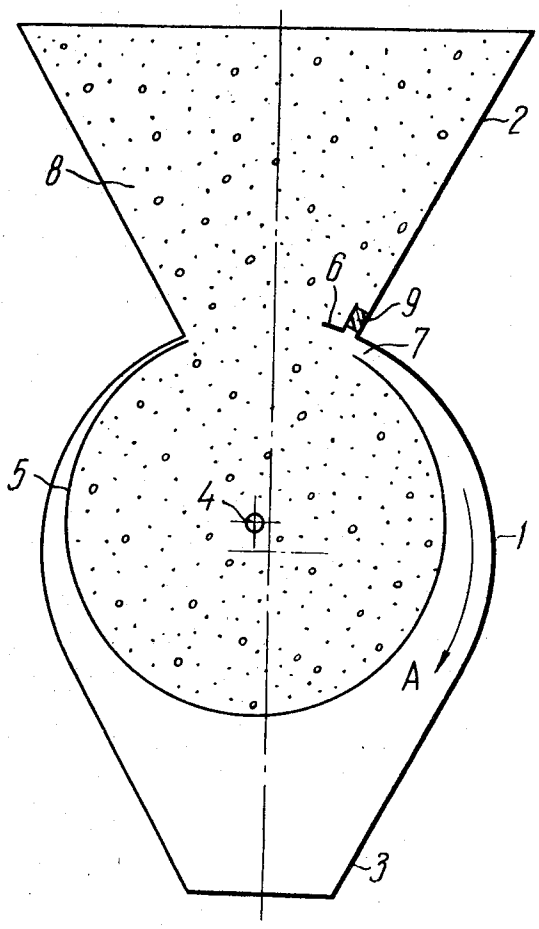
[57] **ABSTRACT**

A proportioning and charging apparatus for bulk materials is provided with a batcher arranged in the apparatus housing eccentrically so that between the batcher wall and the housing there is formed a slot diverging in the direction of the batcher rotation.

2 Claims, 1 Drawing Figure

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PROPORTIONING AND CHARGING APPARATUS

BACKGROUND OF THE INVENTION

The present invention relates to charging apparatus and, more particularly, it relates to proportioning and charging apparatus for bulk materials, adapted for measuring materials by volume.

PRIOR ART

There are widely known proportioning and charging apparatus for fine-grained bulk materials (for example, sand), adapted for measuring materials by volume. Said known apparatus comprise a batcher encased in a housing and made as a rotatable cylindrical chamber. The housing of the apparatus has in its upper portion a charging hopper and in the lower portion a discharge hatch. In the cylindrical wall of the batcher chamber provision is made for a charging port.

During the charging operation, the batcher is turned so that its charging port coincides with the outlet opening of the hopper.

When filled, the batcher chamber turns and, since the walls of the batcher come rather close to the upper walls of the housing, the material in the batcher is fully cut off from the material in the hopper of the apparatus. During further turning of the batcher, when the charging port of the batcher is brought to coincidence with the discharge hatch of the apparatus housing, the batched volume of the material is discharged into a container positioned under the discharge hatch of the apparatus.

Said known apparatus are disadvantageous in that they are only suitable for charging fine-grained materials such as sand and the like.

When using lumpy materials such as stone rubble, gravel, etc., the lumps get stuck in the slot formed by the walls of the batcher and housing. This brings about the jamming of the batcher in the housing. Thus, said known apparatus are practically unsuitable for operations using coarse materials.

OBJECTS AND SUMMARY OF THE INVENTION

The object of the present invention consists in the elimination of the afore-listed disadvantages of said known proportioning and charging apparatus for bulk materials.

Said objects are attained owing to the fact that in a proportioning charging apparatus for bulk materials, comprising at least one batcher in the form of a cylindrical chamber provided with a charging port and mounted rotatably in a housing which has in its upper portion a charging hopper and in the lower portion a discharge opening, according to the invention, the batcher is mounted in the housing eccentrically, shifted upwards and to one side, while mounted inside the hopper on the wall opposite to that located in the direction of the batcher shift is an element overhanging, like a deflector, a slot formed by the batcher wall and the housing of the apparatus.

With the batcher mounted in this manner in the housing of the apparatus, the slot between the batcher wall and the housing extending in a direction opposite to that of the drum rotation has the shape expanding in the direction of the drum rotation. This provides for carrying the lumps, that entering this slot, inside the housing; the deflector element serves to protect the slot from the mass penetration of the material.

In order to preclude the breakage of the deflector element by large lumps of the material falling thereonto, it is expedient that said deflector be connected to the wall of the hopper by means of a resilient member.

BRIEF DESCRIPTION OF THE DRAWING

Following is a detailed description of an examplary embodiment of the present invention, due reference being had to the accompanying drawing, in which the sole FIGURE illustrates the proportioning charging apparatus for bulk materials, manufactured in accordance with the present invention, in cross-section.

DETAILED DESCRIPTION OF THE INVENTION

Referring now to the drawing, the device according to the invention incorporates a housing **1** with a charging hopper **2** and a discharge funnel **3.** Mounted on a shaft **4** in the housing **1** is a batcher **5** fashioned as a cylindrical chamber featuring a discharge port provided in the cylindrical wall thereof.

Installed inside the hopper **2** on the wall which faces the direction of rotation of the batcher **5** is an element **6** in the form of a deflector overhanging a slot **7** between the batcher wall and the housing **1.**

Owing to the fact that the batcher is eccentrically mounted in the housing **1,** the slot **7** diverges in the direction of the batcher rotation.

A single housing **1** of the apparatus of the invention can accommodate several batchers successively mounted thereinside. In that case, each batcher should be provided in the area of its location with the analogously arranged charging hopper and discharge funnel.

Such an apparatus is convenient for simultaneously charging several containers, for example, a train of railcars and the like.

The apparatus of the present invention is mainly designed for charging lumpy materials such as stone rubble, gravel and the like, however, it can likewise be used to advantage in the case of finely dispersed bulk materials such as sand and the like.

During the charging operation, the batcher **5** takes such a position that the batcher port coincides with the outlet opening of the hopper **2.** In such a position, the batcher is filled with material **8** from the hopper **2.** The deflector element **6** precludes the spilling of the material into the slot **7.** After the batcher has been filled, it is turned in a direction shown with arrow A, the cylindrical walls of the batcher **5** and the deflector element **6** serving to cut the hopper volume off from the batcher volume.

Thanks to the diverging shape of the slot **7,** the lumps of material penetrating said slot pass easily inside the housing **1,** and is carried off by the batcher rotation. Thus, the jamming of the batcher is obviated.

By securing the deflector element **6** on the wall of the hopper **2** by means of a resilient member **9** made of rubber, a possibility of breakage of the deflector element **6** is ruled out, for it can easily bend upwards when struck by a large lump.

We claim:

1. A proportioning charging apparatus for bulk materials, comprising a housing, provided with a hopper in its upper portion and a discharge opening in its lower portion, a batcher defined by a bladeless cylindrical chamber, said chamber being eccentrically rotatably mounted in the housing, shifted upwardly and to one side, said chamber having an inlet for material, there

being a slot between the wall of the chamber and the housing, said slot having an entrance end, an exit end and diverging in the direction of rotation of the chamber, and a deflector element within the hopper on its wall oposite to that located in the direction of the shift of said chamber, said deflector overhianging the slot adjacent the entrance end for precluding the spilling of material into the slot when the chamber is filled from

the hopper and upon rotation of the chamber, the deflector cuts the hopper volume off from the chamber volume.

2. The proportioning charging apparatus as claimed in claim **1** including a resilient member by which the deflector element is mounted on the wall of the hopper.

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