Oct. 8, 1957 F. J. MORAVECKY 2,808,969

DISPENSER FOR ABRASIVE GRIT

Filed Feb. 16, 1956 2 Sheets-Sheet 1

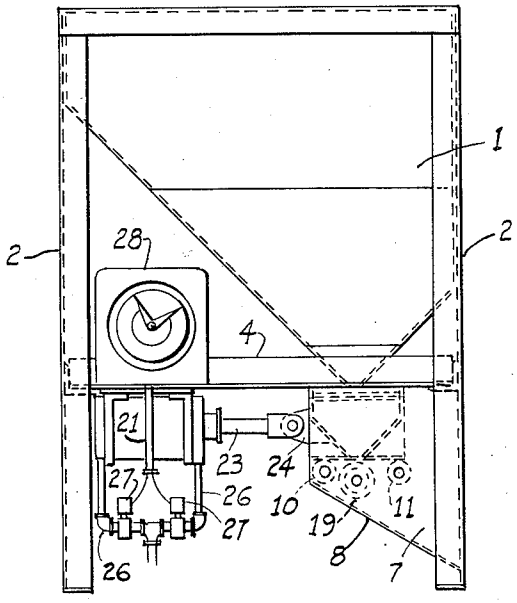


Fig. 1

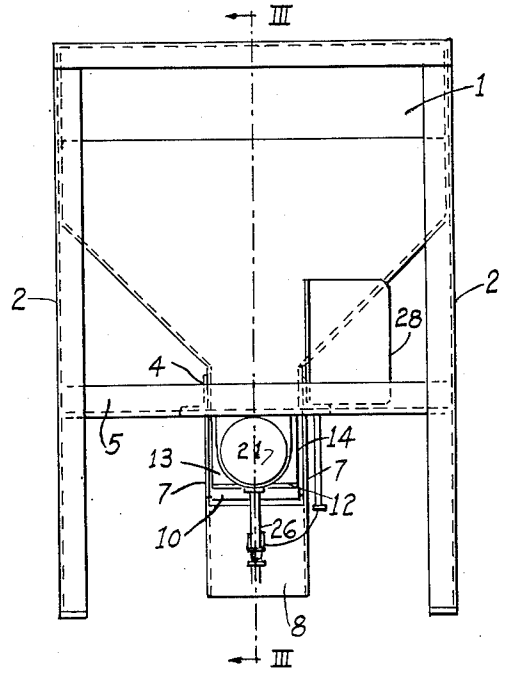


Fig. 2

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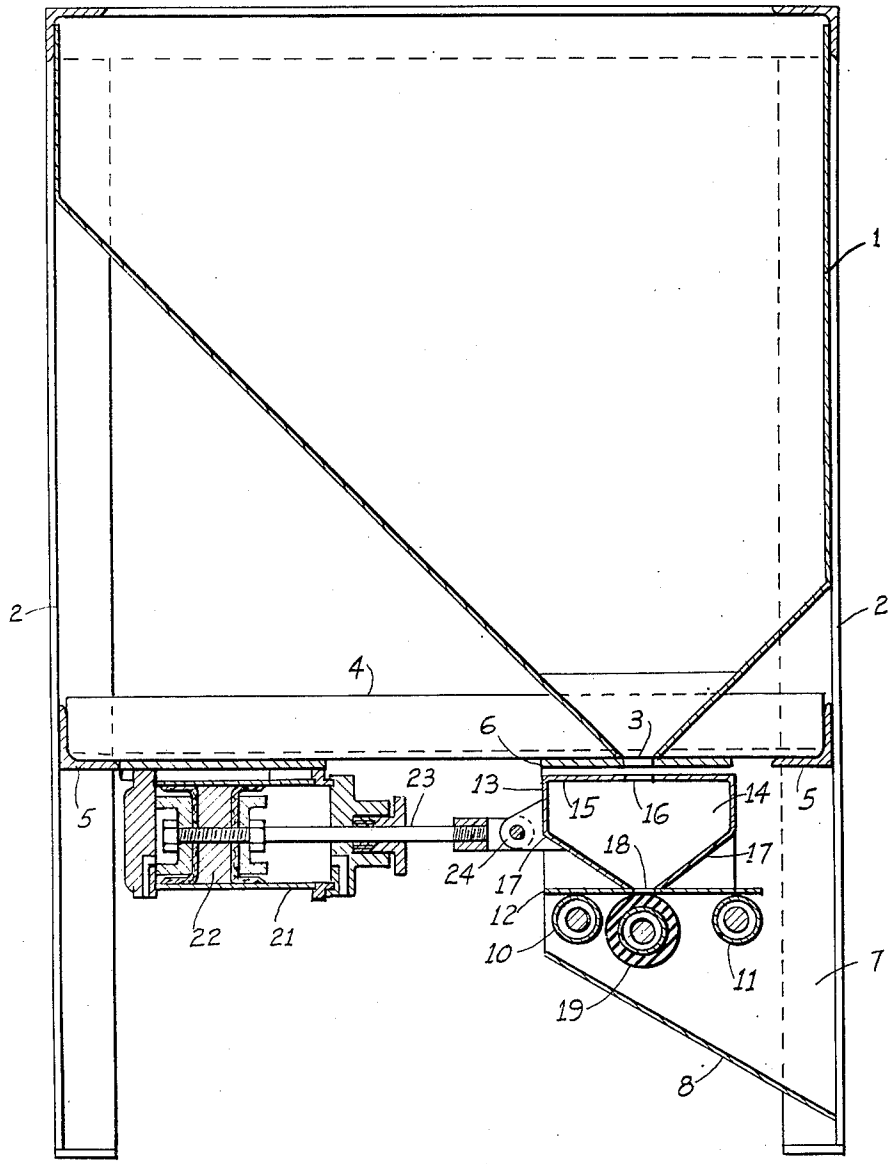


Fig. 3

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DISPENSER FOR ABRASIVE GRIT

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3 Claims. (Cl. 222—361)

This invention relates to dispensers for granular material, and more particularly to those for dispensing measured amounts of abrasive grit and the like.

In using abrasive cleaning apparatus, the abrasive grit is consumed in the process so that additional grit has to be delivered to the apparatus periodically. This is usually done by hand at irregular intervals and in varying amounts. Consequently, the apparatus often does not operate efficiently because it contains either too little or too much grit. There also is improper distribution of grit size, there being too many large particles when grit is added and too many small particles before the addition of new grit. Besides, it requires the attention of a man for feeding the abrasive to it.

It is among the objects of this invention to provide a dispenser by which abrasive grit and the like can be dispensed automatically in predetermined amounts and at selected intervals, and in which the material being dispensed will not interfere with the operation of the dispenser.

In accordance with this invention, a hopper or the like is provided with a bottom discharge opening, beneath which there is a measuring box. This box has an inlet in its top normally registering with the discharge opening so that the box can be filled from the hopper. The bottom of the box is provided with an outlet that normally is closed by a resilient roller extending across the box beneath the outlet. Means are provided for moving the box across the roller in order to close the hopper outlet and to open the outlet of the box so that its contents will be discharged. The box preferably rests on rollers on opposite sides of the resilient roller, and when the box outlet is moved away from the latter, the grit is discharged between the resilient roller and one of the supporting rollers.

The preferred embodiment of the invention is illustrated in the accompanying drawings, in which:

Fig. 1 is a side view of my dispenser;

Fig. 2 is an end view thereof; and

Fig. 3 is an enlarged vertical section taken on the line III—III of Fig. 2.

Referring to the drawings, a bin or hopper **1** is mounted in the upper part of an open framework that includes four legs **2**. The bottom of the hopper is inclined down to a discharge opening **3** (Fig. 3) near one side of the frame. The opening preferably is rectangular. Extending across the frame beside the lower end of the hopper at opposite ends of its discharge opening, is a pair of cross bars **4**, the ends of which are supported by similar angle bars **5** fastened to the legs of the frame. A slotted horizontal plate **6** is secured to the cross bars directly beneath the hopper outlet and forms the lower end of the hopper. Parallel vertical plates **7** extend downward from the opposite sides of plate **6** to form the side walls of a chute, the bottom of which is formed from an inclined plate **8** so that material falling into this chute will be delivered to the side of the frame.

Journaled in the side walls of the chute some distance

below hopper plate **6** is a pair of parallel rollers **10** and **11**, which support a horizontal plate **12** forming the bottom member of a measuring box **13**. This box has rectangular side walls **14** that slide against the sides of the chute, and a top wall **15** that substantially engages plate **6**. The top wall of the box has a central inlet opening **16**, which registers with the hopper outlet when the box is in normal or retracted position. The end walls **17** of the box extend downward from its top, and then are inclined downward and toward each other to the bottom plate **12**. Their lower ends are spaced apart, and the bottom plate is provided with an outlet **18** between them.

It is a feature of this invention that when box **13** is in normal or retracted position, the outlet **18** in its bottom is closed by a roller **19** that extends across the bottom of plate **12** and has its ends journaled in the sides of the chute. Also, this roller is resilient, as it includes a thick covering of rubber or the like. The roller serves as a valve for the box outlet.

After the retracted box has been filled from the hopper with abrasive grit, for example, the box is moved forward toward the adjacent side of the frame in order to move its outlet **18** away from the resilient roller so that the box can discharge its contents. In this movement of the box, its bottom plate **12** travels across the rollers, which support it. At the same time, the inlet **16** to the box moves away from the discharge opening of the hopper, which is then closed by the top of the box to prevent grit from escaping from the hopper until the box returns to its normal, filling position. The outer roller **11** is spaced far enough from the resilient roller to permit the box to discharge its contents between them. The box then is returned to its inner position, and it is immediately refilled from the hopper, the discharge opening of which is uncovered by the top of the box.

The measuring box is reciprocated in any suitable manner, but preferably by means of a fluid pressure cylinder **21** supported by cross bars **4** and containing a double-acting piston **22**, from which a piston rod **23** extends out of the cylinder toward the box. The outer end of the rod is connected to a bracket **24** projecting from the inner end of the box. Fluid under pressure is delivered to the opposite ends of the cylinder alternately through suitable pipes **26**, each of which is controlled by a solenoid valve **27**. These valves may be controlled by an electric timer **28**, which can be set manually to cause the box to be reciprocated with any desired frequency. The frequency will be determined by the rate at which the grit is used up in the cleaning apparatus (not shown), so that the apparatus can be kept operating efficiently. The box can be allowed to fill completely before each forward movement, or it can be advanced before it is filled.

The resilient roller **19** that closes the outlet of the measuring box is an important feature of this invention. Attempts to use a flat plate instead of the roller for closing the outlet were not successful because the abrasive grit would get between the bottom of the box and the plate and interfere with the movements of the box. The resilient roller solved the problem. Any grit that tends to gather between the bottom of the box and the roller is immediately disposed of as soon as the box is moved forward, because the roller is rotated by that movement and the grit falls away from it. Also any grit pinched between the box and the roller will be pressed into the resilient surface until the roller turns, and will not be ground between two metal surfaces.

According to the provisions of the patents statutes, I have explained the principle of my invention and have illustrated and described what I now consider to represent its best embodiment. However, I desire to have it understood that, within the scope of the appended claims,

the invention may be practiced otherwise than as specifically illustrated and described.

I claim:

1. A dispenser suitable for abrasive material, comprising a hopper provided with a bottom discharge opening, a measuring box mounted below said opening and having in its top an inlet normally registering with that opening, the bottom of the box having an outlet, a resilient roller beneath the box extending across it and normally closing its outlet, and means for moving the box across the roller to open the box outlet.

2. A dispenser suitable for abrasive material, comprising a hopper provided with a bottom discharge opening, a measuring box mounted below said opening and having in its top an inlet normally registering with that opening, the bottom of the box having an outlet, rollers extending across the bottom of the box and supporting it, one of said rollers being resilient and normally closing the box outlet, and means for moving the box across the rollers to close said discharge opening and open the box outlet.

3. A dispenser suitable for abrasive material, comprising a hopper provided with a bottom discharge opening, a measuring box mounted below said opening and having in its top an inlet normally registering with that opening, the bottom of the box being provided with a horizontal plate having a central outlet for the box, a pair of rollers extending across the plate and supporting its opposite ends, a resilient roller between said supporting rollers and parallel thereto, the resilient roller normally closing the box outlet, and means for moving the box across the rollers to open the box outlet.

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