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TELLTALE DEVICE FOR CLOSED BINS.

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Fig. 1.

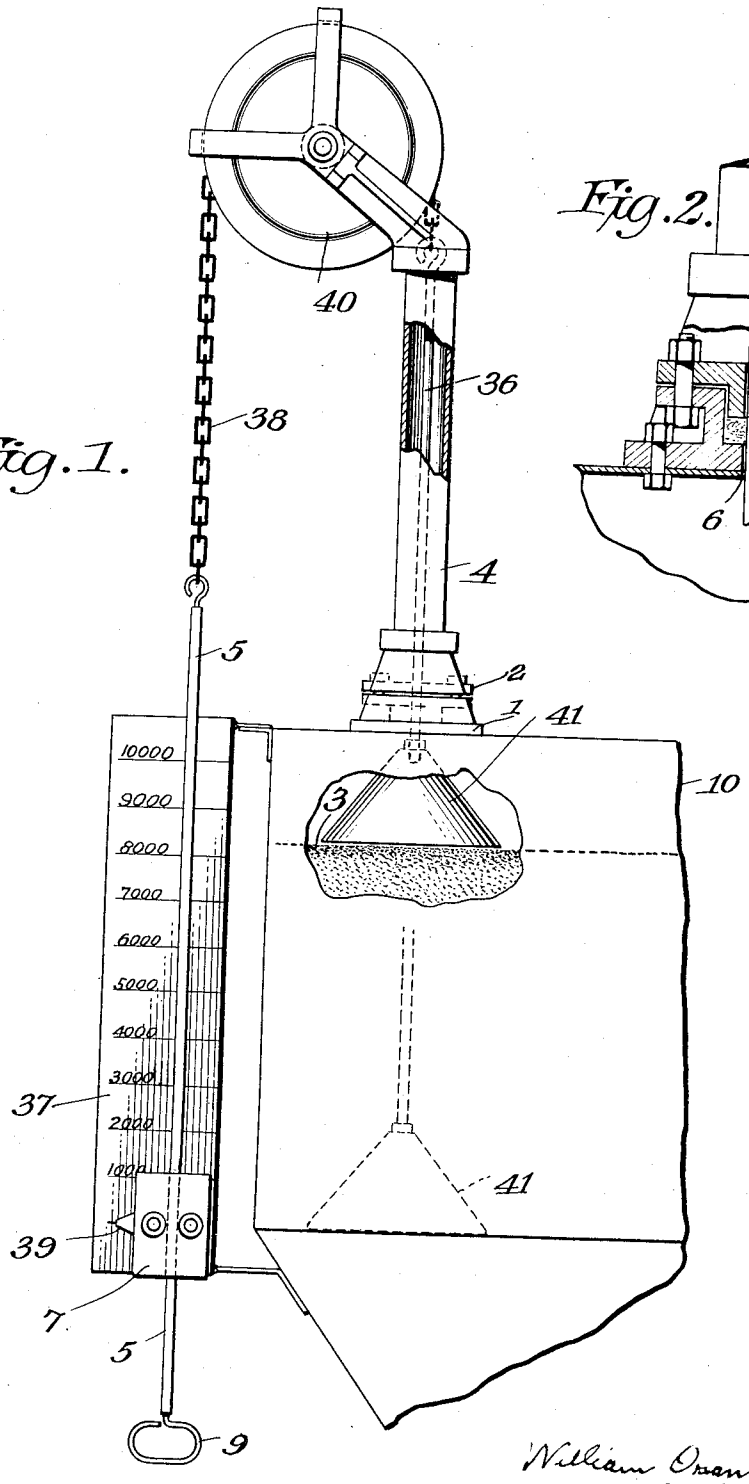


Fig. 2.

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To all whom it may concern:

Be it known that I, WILLIAM O. RENKIN, a citizen of the United States of America, residing at Oradell, county of Bergen, State of New Jersey, have invented certain new and useful Improvements in Telltale Devices for Closed Bins, of which the following is a specification.

My invention relates to gaging apparatus for closed receptacles containing finely divided material and is particularly designed for use in determining the amount of powdered coal contained in a closed storage bin such as must be employed in apparatus for handling, storing and burning this material when ground to an almost impalpable powder in order to insure perfect combustion.

In the accompanying sheet of drawing,

Figure 1 is an elevation of a bin and powdered coal feeding apparatus with my invention applied, parts being broken away and others shown in section, and

Fig. 2 is a detail vertical section on an enlarged scale of a stuffing box, and adjacent parts, used with my invention.

Throughout the drawings, like reference characters indicate like parts.

10, is the bin which is closed to prevent escape of the fine coal dust. To enable the operator to know how much coal there is in the bin at any given time, I provide, in accordance with my present invention, a block 41, having a flat bottom adapted to rest evenly on the surface of the body of coal 3, within the bin, and tapering upward along its vertical dimension in a generally conical or pyramidal shape, so as to prevent the coal dust accumulating on its upper surface. To the upper and smaller end of the block 41, is attached any suitable lifting member, such as the flexible chain 38, by means of a rod 36, projecting from the smaller end of the block 41. This rod passes up through a small perforation 6, in the bin cover, and preferably into a tubular standard 4, on the upper end of which is journaled the guide sheave or grooved pulley 40. The chain, passing over the sheave, extends down on either side, and to the outer depending portion thereof is connected a weighted slide 7 and a pointer 39, which are free to move up and down along the scale or gage board 37, the numbers on which run upward from zero. The upper end of rod 36 is connected to the inner end of chain 38. Preferably the attachment of pointer 39 to chain is made through rod 5, which has a handle 9 on its lower end, and carries weight 7, which with rod 5, are heavy enough to overbalance block 41 and rod 36, so that normally the block 41 is in the raised position shown in Fig. 1, and pointer 39 is at zero on the scale.

The tubular standard 4 and rod 36, form an efficient guide for block 41.

1 is a stuffing box having gland 2, and a light packing 8, of cotton felt, or similar material through which the rod passes. As stuffing box 1 is bolted to the top of the tank 10, there is no chance for the fine coal dust to escape through hole 6 in the tank top through which rod 36 passes.

In operation, the parts are normally in the position shown in full lines with the pointer at zero. After a portion of the contents have been drawn from the tank 10, usually through an opening near the bottom, not shown, as when fed to a furnace, and the operator wishes to know how much has been so drawn off, he has only to grasp handle 5, and lift slide 7, and pointer 39, which allows the block 41 to fall until it rests on the surface of the remaining body of coal in the tank or bin, as shown in dotted lines. This condition is indicated to the operator by the fact that any attempt to move the pointer 39 farther requires him to raise the entire weight of slide 7. The operator can then read on the scale the number of pounds of coal which have been removed from the bin and knows how much coal he needs to refill the bin. The light packing 8, in the stuffing box, does not interfere with the free movement of rod 36, but prevents any escape of the fine coal dust from the bin.

Having described my invention, I claim:

1. In combination with a closed bin for holding pulverized material or the like, a block movable vertically in said bin, an exterior vertical scale graduated to indicate the units of bin contents which may have been removed to lower the level of said bin to any given point, and a pointer movable over said scale and connected to the before mentioned block, the parts being so proportioned, suspended and weighted that the pointer and its connections overbalance the block and its connections, whereby the block is normally held in its uppermost po-

sition on the level of the bin contents and the pointer at zero on the scale, when the bin is filled to the proper extent, but the block will fall to the level of the material in the partially emptied bin when the pointer is moved over the scale by an exterior force.

2. In combination with a closed bin for holding a body of pulverized material or the like, a block in said bin adapted to bear on the surface of said body of materials, connections extending upward through the bin top from the block, a pulley, a chain running over the pulley from said block connections, an exterior, vertical scale graduated from zero upward to indicate in units the weights of portions of the contents of the bin, a pointer movable over said scale, and connected to the other end of said chain, and a weight attached to said pointer sufficient to make the pointer and its connections overbalance the block and its connections, whereby the block is normally held in its highest position on the level of the surface of a fuel bin load and the pointer suspended opposite zero on the scale, but on lifting the pointer the block may fall until it rests on the surface of the materials remaining in the partly emptied bin and the pointer will then be opposite the scale graduation indicating the weight of materials which have been removed from the bin to permit such movement of the block.

WILLIAM ORAN RENKIN.