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G. A. BILOCQ

2,232,431

ROTATING ELEVATOR

Filed Aug. 11, 1938

FIG. 1

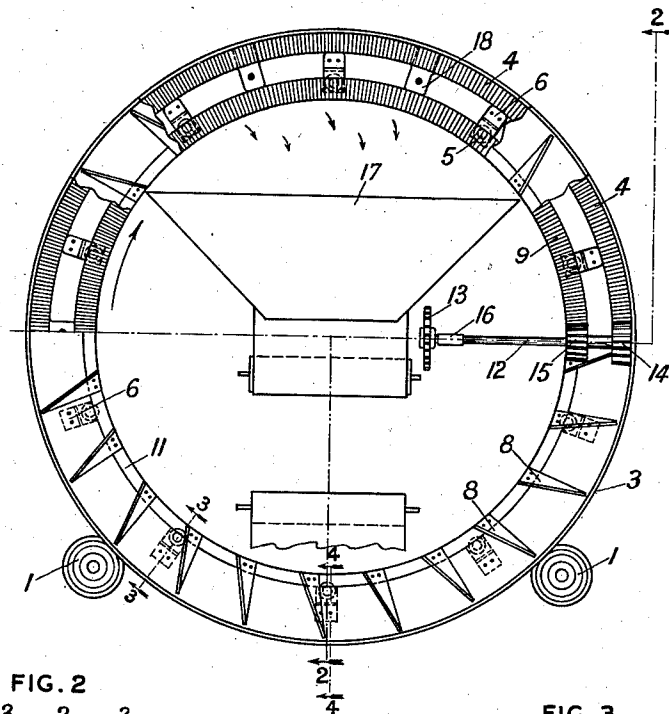


FIG. 2

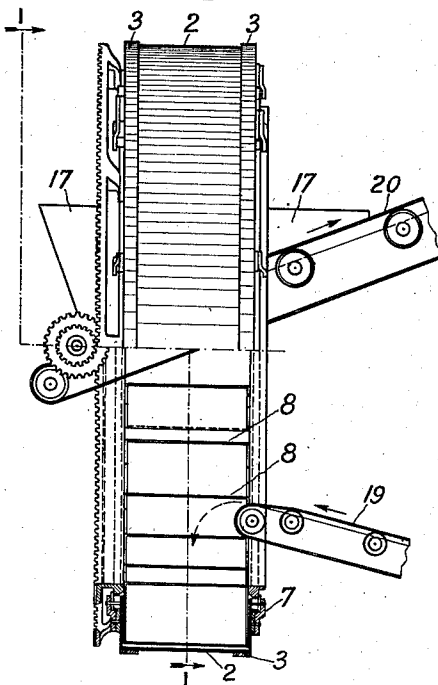


FIG. 3

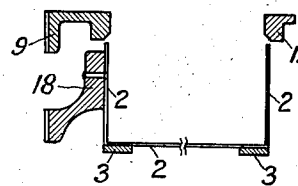
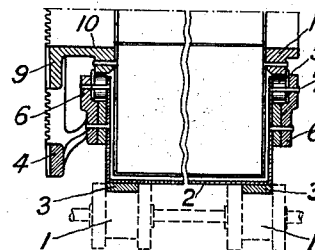


FIG. 4



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UNITED STATES PATENT OFFICE

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ROTATING ELEVATOR

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Application August 11, 1938, Serial No. 224,384
In Canada January 20, 1938

5 Claims. (Cl. 198—211)

My invention relates to improvements in rotating elevator for material in which a vertically rotating drum turns together with an internal system of partitions; and the objects of my improvements are, first, to provide the elevation of material in the pockets formed in the drum by said partitions; second, to provide cleaning of the internal sides of the drum by a differential motion of the drum and the partitions; and third, to provide means to change the ratio of said differential movement according to the material to be elevated.

I obtain these objects by mechanism illustrated in the accompanying drawing in which:

Figure 1 is a side view of the machine showing the upper part in elevation and the lower part in section.

Figure 2 is an end view showing the upper part in elevation and the lower part in section.

Figure 3 is an enlarged section on line 3—3 of Figure 1 and Figure 4 a detailed section on line 4—4 of Figure 1.

Similar numerals refer to similar parts throughout the several views.

The drum 2 consists of a circular trough supported by and turning on two pairs of rollers 1 and on tires or track bands 3 fixed to the drum; a circular toothed rack is supported by brackets 4 on drum 2 and motion is imparted to the drum by the pinion 14.

The partitions 8 are held by two circular metal bands 10 and 11 supported by and turning on rollers 5, said rollers turning on axes 7 supported by brackets 6 fixed on the drum; one of the holding bands 10 is provided with a circular toothed rack 9 acted upon by pinion 15. Both pinions 14 and 15 are fixed on shaft 12 revolving in bearing 16 and driven by wheel 13.

The partitions 8 turn freely close to and almost but not quite touching the inside of the drum 2, and a differential motion of the drum 2 and the partitions 8 is obtained by the proper selection of the number of teeth in the circular racks 4 and 9 and in pinions 14 and 15.

The material is brought to the elevator by conveyor 19 and falls in the pockets formed by drum 2 and partitions 8. As the system revolves the material is elevated and at the upper part of the elevator falls through hopper 17 onto the conveyor 20.

The partitions 8 are not radially fixed on the two holding bands 10 and 11 but inclined so as to be nearly horizontal when they arrive at the level of the top of the hopper 17 and to pass through a vertical position before arriving at

the other side of the hopper. This arrangement of the partitions 8 permits the material to be positively elevated up to the edge of the hopper and then to be emptied into the hopper even if said material is sticky.

The differential motion of the drum 2 and the partitions 8 results in a kind of creeping of said partitions along the bottom and the sides of the drum therefore cleaning said bottom and sides from any adhering particles of material.

I am aware that prior to my invention rotating elevators have been made with internal pockets, I therefore do not claim those broadly, but

I claim:

1. In a rotating elevator a revolving drum forming a circular trough, relatively moving partitions forming pockets inside of said trough, circular toothed racks respectively fixed on the drum and the partitions and receiving their motion through geared pinions fixed on the same shaft, the number of teeth of said racks and pinions being so disposed as to provide a differential movement of said drum and partitions.

2. In a rotating elevator a revolving drum forming a circular trough, a revolving carrier enclosed by the drum, fixed partition plates on the carrier and projecting into said trough, said partitions being placed obliquely to the radius in such a way that they attain in the upward movement a near horizontal position before arriving at the height where the material shall be discharged, the disposition of the partitions being also such as to attain near the top of the elevator a vertical position before arriving in their downward movement at the height where the material shall be discharged, and means to provide a differential movement of the drum and carrier.

3. In elevator apparatus, an annular trough-shaped member, means for rotatably supporting the said trough member, an annular member having spaced partitions, the said partitions projecting into the trough member to form pockets therein, means for supporting the partition member for rotation independent of the trough member, and means for rotatably actuating the said complementary members.

4. In elevator apparatus, an annular trough-shaped member, means for rotatably supporting the said trough member, an annular member having spaced partitions, the said partitions projecting into the trough member to form pockets therein, means for supporting the partition

member for rotation independent of the trough member, and means for rotating the trough and partition members at differential speeds.

5 In elevator apparatus, a pair of complementary members rotatable about a horizontal axis and adapted to form an annular series of carrier pockets in concentric assembly, the said

pockets having walls oblique to the radius so as to attain horizontal positions before arriving at the level of the axis of the said members in their upward movement, and means for rotating the said members at differential speeds.

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