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Wagner

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[54] **APPARATUS FOR DEPOSITING FLOWABLE MATERIAL**

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[52] **U.S. Cl.** **118/24,** 118/312

[51] **Int. Cl.** **B05c 5/00**

[58] **Field of Search** 118/16, 24, 25, 308, 312

[56] **References Cited**

UNITED STATES PATENTS

1,432,701	10/1922	Lawrence	118/312 X
2,347,164	4/1944	Petrilli	118/16 X
2,940,422	6/1960	Dott	118/312
3,404,659	10/1968	Croston	118/24
3,502,196	3/1970	Allen et al.	118/312 X
3,779,205	12/1973	Kuhlman	118/16 X

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[57] **ABSTRACT**

Apparatus for depositing flowable material and particularly flowable granular material on traveling articles that are transported on a conveyor means with the apparatus including a conveyor for transporting the articles, a dispenser for depositing portions of the material on the articles and further portions beyond the boundaries of the article and a collector for intercepting and recovering these further portions with the collector being movable relative to both the dispenser and the conveyor for returning these further portions back to the dispenser.

3 Claims, 2 Drawing Figures

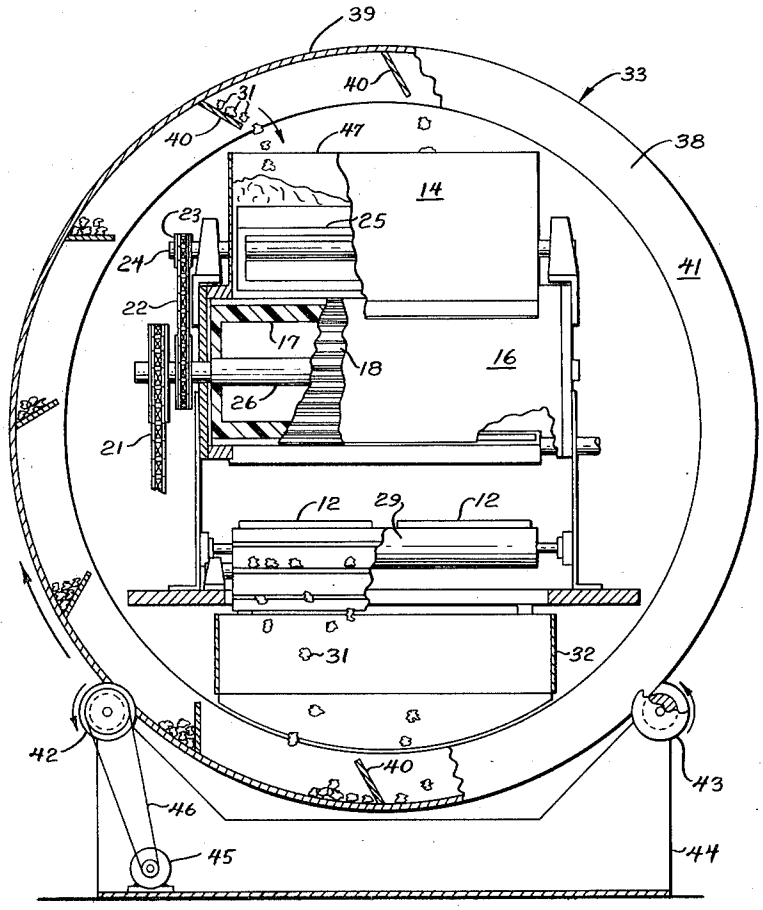


Fig. 1

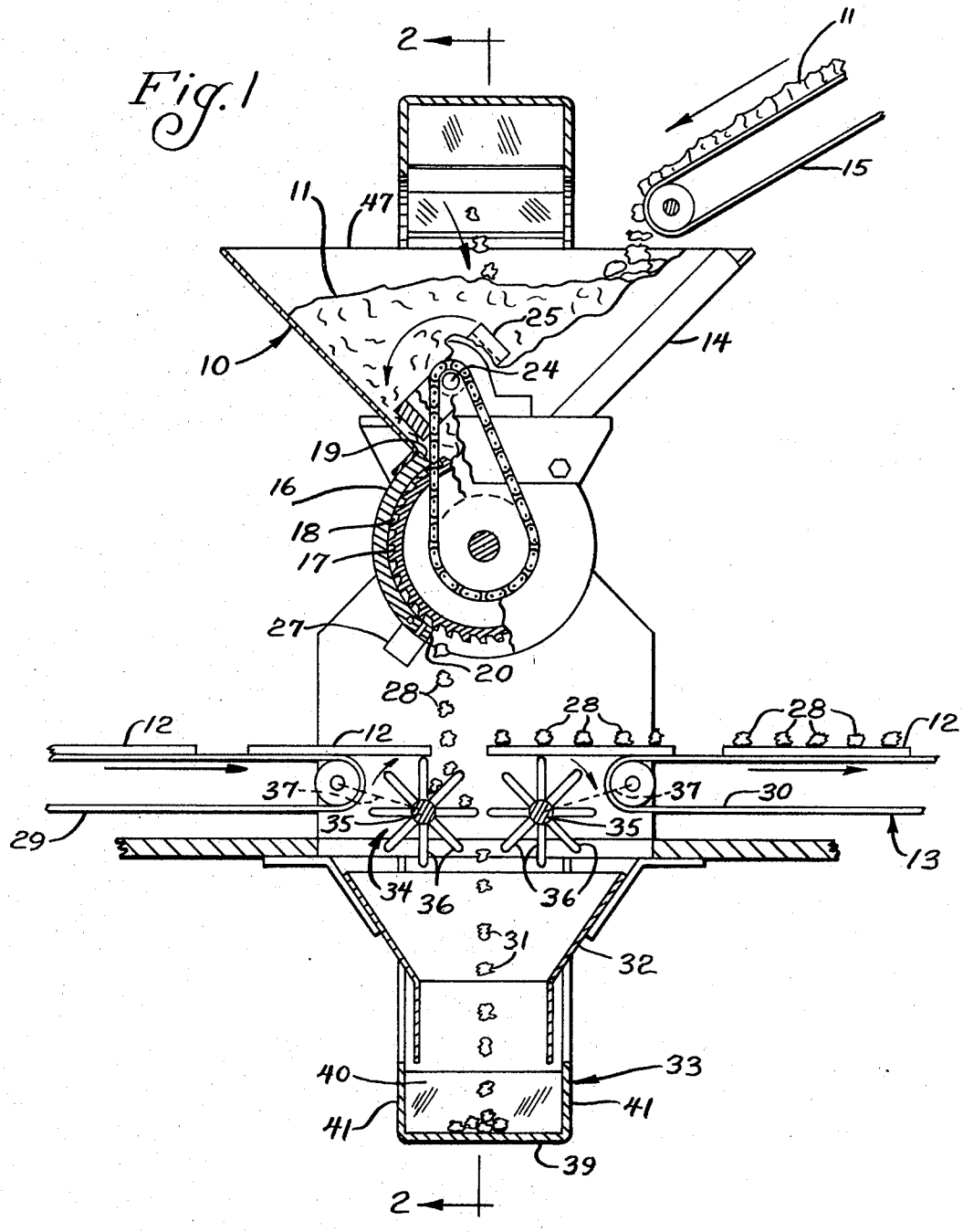
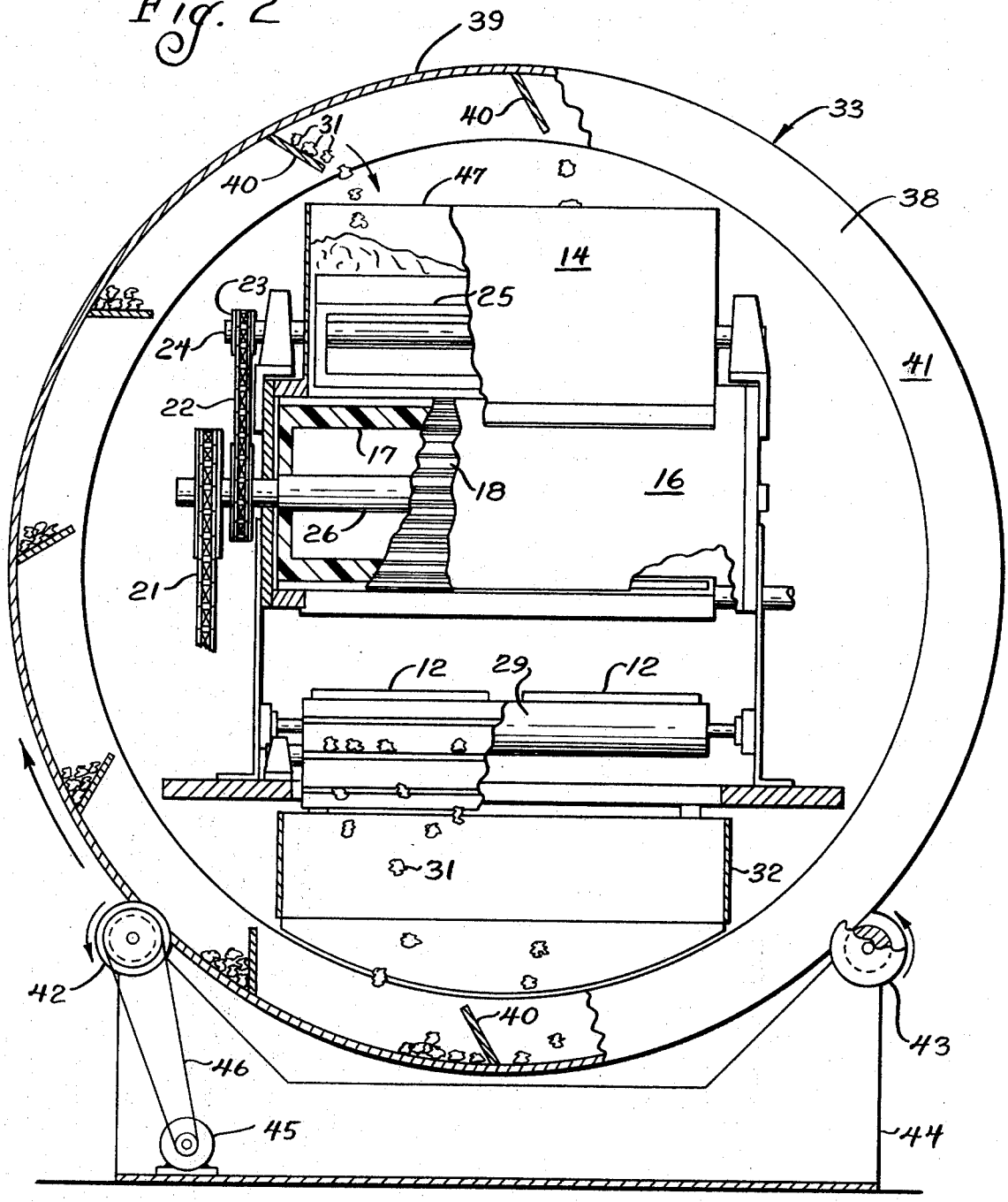

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APPARATUS FOR DEPOSITING FLOWABLE MATERIAL

BACKGROUND OF THE INVENTION

One of the features of this invention is to provide an improved apparatus for depositing a flowable material and particularly a granular material onto articles transported by a conveyor in which a portion of the material passes beyond the boundaries of the articles together with recovery collecting means for intercepting these further portions and means for moving the recovery collecting means relative to both the dispenser and the conveyor for returning these further portions to the dispensing means.

The most pertinent prior art of which applicant is aware is U.S. Pat. Nos. 2,227,067, 2,719,661, 3,217,760 and 3,404,659. The apparatus which is the subject of this invention, however, has certain advantages of construction and operation that are not present in any of these references.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a fragmentary side elevational view partially broken away and partially in section of an apparatus embodying the invention.

FIG. 2 is a fragmentary vertical sectional view taken substantially along line 2—2 of FIG. 1.

DESCRIPTION OF THE PREFERRED EMBODIMENT

In the illustrated embodiment the apparatus comprises a flowable material dispenser embodied in the dispenser **10** for cooked and drained ground beef **11** that is deposited from the dispenser on traveling pizza bases **12** as they are passed by a conveyor apparatus **13** beneath the dispenser **10.** As illustrated, the dispenser **10** comprises a receiving hopper **14** supplied with the granular material **11** by a conveyor **15** and with the hopper **14** being attached to a cylindrical housing **16** in which is rotatably mounted a cylindrical drum **17** having spaced material receiving pockets **18** in its periphery.

The pockets **18** of the dispensing means drum **17** receive the material **11** from the hopper **14** through an access opening **19** and dispense the material through a bottom opening **20** all as described in greater detail in my above-mentioned copending application.

The dispensing drum **17** is rotated by a chain **21** and **22** and sprocket drive with one sprocket **23** being attached to an agitator shaft **24** that extends through the hopper **14** for operating an agitator **25** therein. The chain **21** rotates the dispenser drum shaft **26** which is axially attached thereto with the result that as the dispensing pockets **18** pass over a compressed air jet system **27** the portions **28** are dislodged from the pockets **18** to fall onto the top surfaces of the traveling pizza bases as they are passed from one conveyor **29** to a next adjacent conveyor **30** which form parts of the conveyor apparatus **13.**

As can be seen in FIG. **1** the adjacent ends of the two conveyors **29** and **30** are spaced apart to form a depositing station in the area directly beneath the dispensing opening **20** as shown in FIG. **1.** Those portions **31** of the granular material that are not deposited on the traveling bases **12** fall into a recovery means funnel structure **32** and from there into a recovery collecting member **33** that is adjacent to and beneath the conveyor apparatus.

In order to aid in passing the articles **12** from one conveyor **29** to the next conveyor **30** there are provided in the space between the conveyors and immediately above the funnel **32** a pair of horizontal rotary auxiliary transport means each in the form of a shaft **35** having radially projecting vanes **36** thereon. The shafts **35** are parallel to each other and the tips of the vanes **36** during rotation substantially are on a level with the upper reaches of the conveyors **29** and **30.** Each shaft **35** may be rotated by any means desired such as take-off indicated at **37** from the adjacent roller of a respective conveyor **29** and **30.** Because of the spacing of the auxiliary transport means **34** embodied in the shafts **35** and vanes **36** the portions **31** that miss the articles **12** can easily pass therebetween and even if some are intercepted by the vanes **36** this is only temporary as the rotating vanes dump them for free fall into the recovery collecting means **33.**

In the illustrated embodiment the recovery collecting member **33** comprises a rotatable wheel **38** of generally circular construction that has a solid periphery **39** and inwardly directed angled walls or partitions **40** and parallel sides **41** defining peripherally adjacent and inwardly opening pockets (FIG. **2**). The wheel **38** is supported by support means including spaced bottom rollers **42** and **43** held in a foundation frame **44** for rotation in one direction such as the clockwise direction illustrated in FIG. **2.** At least one of the supporting rollers **42** and **43** is driven as by an electric motor and chain **46** drive illustrated schematically at the lower portion of FIG. **2.** As shown in the illustrated embodiment the angled partitions **40** form pockets that receive the material portions **31** that miss the traveling articles **12** and retains these portions **31** until they have been lifted to immediately above the hopper **14** where the angles of the partitions permit the portions **31** to fall by gravity into the open top end **47** of the hopper **14.**

Thus, as can be seen, the wheel **38** comprising the recovery collecting means collects the portions **31** by gravity fall and elevates them to a location above the hopper **14** where gravity again causes them to return to the hopper **14.** The apparatus of this invention occupies very small space and this is achieved by dispensing the granular material portions **28** in a vertical stream and locating the collecting means **33** to intercept the vertical stream of those portions which miss the traveling articles.

Having described my invention as related to the embodiment shown in the accompanying drawings, it is my intention that the invention be not limited by any of the details of description, unless otherwise specified, but rather be construed broadly within its spirit and scope as set out in the appended claims.

I claim:

1. Apparatus for depositing a flowable material on a travelling series of articles having spaced adjacent peripheries, comprising: conveyor means for transporting said articles through a depositing station; dispensing means above said conveyor means at said depositing station for depositing said material by gravity fall from the dispensing means onto the articles as said articles are transported through said station with some of said material falling beyond and between said peripheries of said articles; a receiving hopper means above and communicating with said dispensing means for supplying

material from said hopper by gravity flow to said dispensing means; a recovery means beneath said station for recovering said portions of material falling beyond and between said peripheries of said articles and including a rotatable recovery collecting member extending beneath the depositing station and above said dispensing means, said recovery collecting member having a solid circular periphery and peripherally adjacent pockets therein facing inwardly toward both said receiving hopper and said depositing station; and means for rotating said recovery collecting member and thereby elevating said material collected in said pockets to a position above said dispensing hopper for returning said recovered material by gravity fall successively from said pockets into said receiving hopper.

2. The apparatus of claim **1** wherein said pockets are separated from each other by inwardly angled walls that are sloped toward said receiving hopper at the top of said recovery collecting member for said gravity fall into the recovery hopper.

3. The apparatus of claim **1** wherein said receiving hopper is provided with a rotatable agitator, said dispensing means comprises a rotatable dispensing drum, and means are provided for rotating said agitator and dispensing drum substantially simultaneously.

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