April 3, 1956 E. W. BRIDGE 2,740,560

MEASURING AND DISPENSING DEVICE

Filed Oct. 15, 1952

FIG. 1.

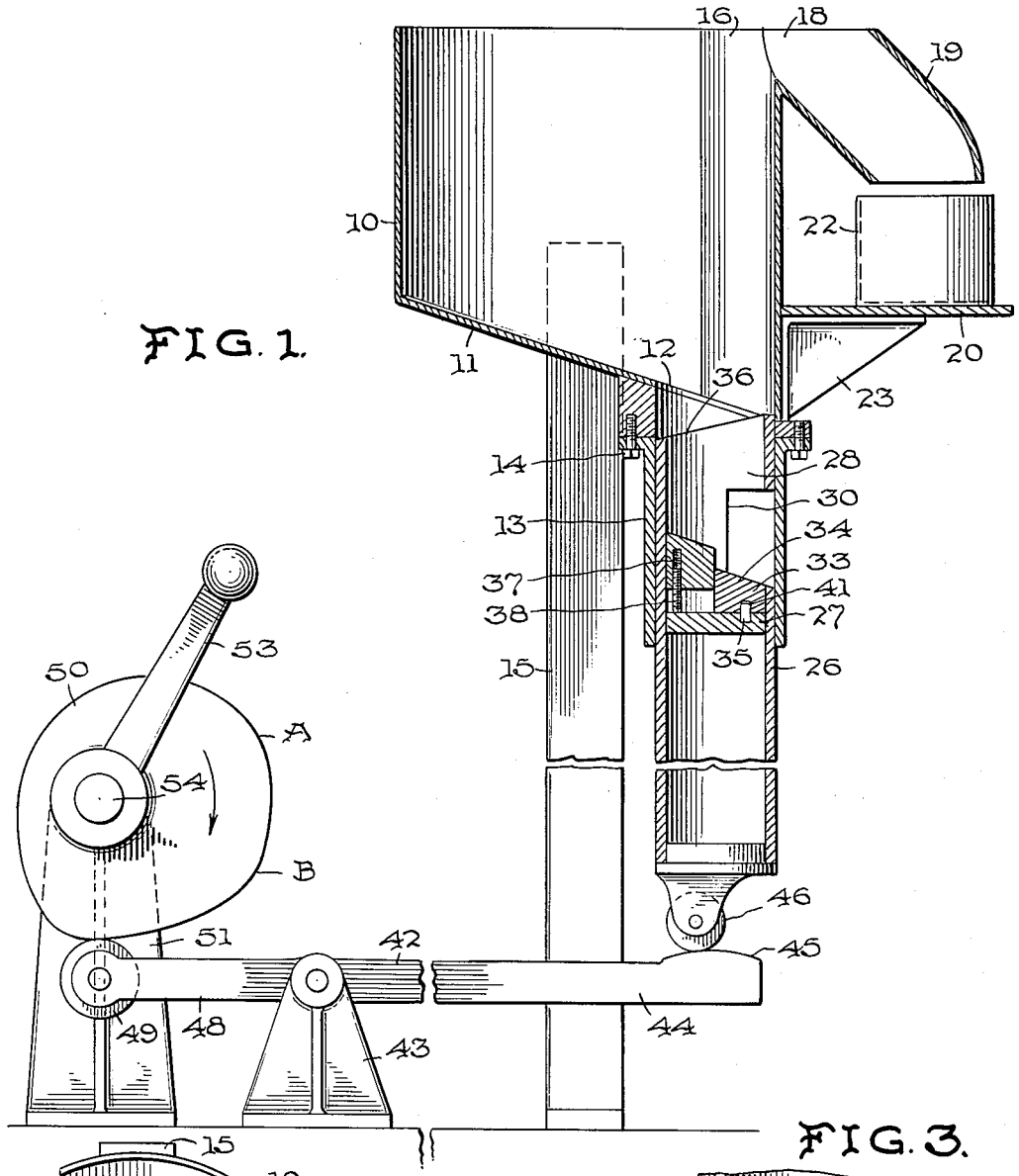


FIG. 2.

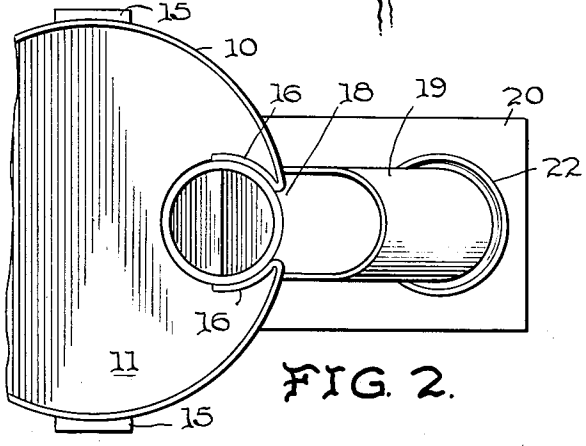
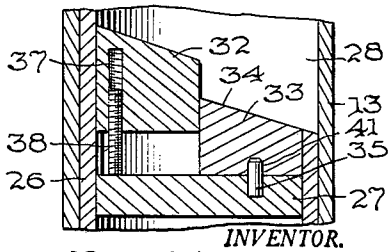


FIG. 3.



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MEASURING AND DISPENSING DEVICE

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2 Claims. (Cl. 222—308)

This invention relates to an improvement in a dispensing device, and more particularly adapted to filling cans with a measured quantity of material from a stationary hopper.

The invention consists in providing a hopper with a reciprocating measuring cup, which collects a quantity of material from the hopper and discharges the material to a spout on the hopper for delivery of the material to cans disposed beneath the spout.

The invention consists of certain novel features of construction and combinations of parts which will be described hereinafter and pointed out in the claims.

In the accompanying drawing:

Figure 1 is a view partly in elevation and vertical section illustrating the invention;

Figure 2 is a detail top plan view; and

Figure 3 is a detail view in vertical section of the measuring cup.

The invention is adaptable for use with can filling and closing machines, wherein the hopper **10** would be filled to a suitable height with vegetables, fruits or other articles. The hopper **10** is shown cylindrical in shape, but other configurations may be employed, and is provided with a sloping bottom **11**. The bottom **11** at lowest portion and adjacent the wall of the hopper is provided with a circular opening **12**. Connected to the bottom **11** and encircling the opening **12** is a cylinder **13** which is attached to the bottom by screw bolts **14**. The hopper is supported at a desired elevation on standards **15**.

Arranged on the inner wall of the hopper **10** are two arcuate shaped flanges **16**, **16** which extend from the bottom **11** to the upper peripheral edge of the hopper providing a semi-circular guide way therebetween. The flanges are so spaced from each other as to encompass or encircle a portion of the opening **12** in the bottom **11**, so that the inner walls of the flanges **16** are in alinement with the opening **12** and inner wall of the cylinder **13**. A discharge opening **18** is formed at the upper portion of the wall of the hopper between the flanges **16**, and a spout **19** is connected to the outer wall of the hopper **10** to receive the material discharged through the discharge opening **18**. A platform **20** is provided beneath the spout **19** for cans **22** to be filled. Brackets **23** are connected to the wall of the hopper for supporting the platform.

Mounted in the cylinder **13** is a hollow cylindrical piston **26** which is adapted to be reciprocated therein and between the guide flanges **16** of the hopper **11**. The piston **26** is provided intermediate its length with a partition **27**, which divides the piston and forms a bottom for a cup like receptacle **28** at the upper or outer portion of the piston.

The front wall of the piston **26** and of the cup receptacle **28** is provided with an arcuate-shaped outlet opening **30** adapted to be brought into registry with the discharge opening **18** in the front wall of the hopper **10** to discharge the contents of the cup **28**. The outlet opening

30 is normally closed by the walls of the cylinder **13** and hopper **10**.

Mounted on the partition bottom **27** is a false bottom consisting of two semi-circular members or segments **32** and **33**. The upper surface of the members or segments is downwardly inclined or sloping as at **34** to conform to the contour or slope of the bottom **11** of the hopper **10**. The segment **32** of the false bottom is capable of vertical adjustment with respect to segment **33**, to change the capacity of the cup **28**, to conform to the size and capacity of the can **22** to be filled. The upper end of the cup **28** and piston **26** is cut off on a bias or at an inclination in a downward direction from the front wall of the piston **26**, as at **36**, so that as the cup **28** is filled through the opening **12** in the hopper bottom **11**, the cup **28** and piston **26** are moved through the hopper **10** to the discharge opening **18** the contents of the cup will spill off into the hopper and level off the contents of the cup **28**. The segment **32** is provided with a vertical screw threaded opening **37** extending upwardly from the bottom thereof, and in which an adjusting screw **38** has screw threaded engagement. The segment **32** is adapted to be adjustably positioned within the cup **28** for regulating the capacity of the cup, by the adjusting screw **38**, which when screwed into the opening **37** so that the outer end thereof is flush with the bottom of the segment **32**, the segment will rest on the bottom or partition **27**, and the cup **28** can be filled to its capacity. However, when the cup **28** is to be filled to less than its capacity the screw **38** is moved outwardly with respect to the bottom of the segment **32** and the outer end of the screw will rest on the partition **27** and support the segment above the partition **27**. The segment **33** is removably supported against lateral movement on the partition or bottom **27** by a pin or dowel **35** on the partition **27** which is received in a hole **41** formed in the bottom of the segment **33**. The hole **41** is disposed off center with respect to center line of segment **33**, so that segment **33** is held against turning in the cup **28**, and segment **33** will therefore prevent segment **32** from turning. This method of mounting the segments **32** and **33** on the bottom or partition **27** permits of their easy removal for the purpose of cleaning.

A lever **42** is fulcrumed on a base **43**, and the longer portion **44** of the lever is provided with a cam surface or bearing **45** at its outer end which is engaged by a roller **46** journaled on the bottom of the piston **26**. The short end **48** of the lever **42** is provided with a roller **49** journalled therein which is in engagement with a cam **50** journalled on a standard **51**. A handle **53** is connected to a shaft **54** of the cam **50** for rotating it, although other power means may be employed. On rotating the cam **50** by the handle **53** the lever **42** is oscillated for raising and lowering the piston **26** and cup **28** in the cylinder **13** and hopper **10**, and in its uppermost position bringing the outlet opening **30** of the cup **28** into registry with the discharge opening **18** of the hopper **10** to discharge the contents of the cup **28** into the spout **19** and can **22**. The opening **30** is located in the front wall of the cup and extends upwardly from the stationary segment **33** so that the contents of the cup will be readily discharged into the spout, and the sloping upper surfaces **34** of the segments being in the direction of the opening **30** insures that the contents are discharged through the opening **30**.

The roller **46** is mounted on the bottom of the piston **26** so that its axis is offset with respect to the center line of the piston and disposed rearwardly of the outlet opening **30**. The roller **46** travels or tracks one way at all times up and down on the straight lever cam **45** and maintains the outlet opening **30** of the piston **26** positioned to always make registry with the discharge opening **18**.

The level of the contents of the hopper **10** is below the bottom of the discharge outlet **18** thereof, and the cam **50** is provided with a flat dwell between the points A and B to allow the contents of the cup **28** to level off after the top or upper portion of the cup passes above the upper surface or level of the contents of the hopper **10**, by the inclined surface or end **36** of the cup **28**, and momentarily interrupting the travel of the piston in its upper movement in bringing the outlet opening **30** into registry with discharge opening **18**.

What I claim is:

1. In a dispensing device, comprising a hopper having a discharge opening in the wall thereof, a bottom in said hopper having an opening therein disposed below said hopper discharge opening, a cylinder connected to said bottom and surrounding said bottom opening, a hollow piston mounted for reciprocation in said cylinder, two semi-circular segments received in said piston and arranged in juxtaposition to form the bottom of said piston, means for retaining one of said segments against movement, means for adjusting said other segment with respect to said fixed segment for varying the capacity of said piston, said piston having an outlet opening in the wall thereof above said segmental bottom adapted to register with said hopper discharge opening, and means for reciprocating said piston in said cylinder and said hopper.

2. In a dispensing device, comprising a hopper having a discharge opening in the wall thereof, a bottom in said hopper having an opening therein disposed below said hopper discharge opening, a cylinder connected to said bottom and surrounding said bottom opening, a hollow piston mounted for reciprocation in said cylinder and having communication with said hopper, a partition located in said piston, two semi-spherical segments mounted on said partition and arranged in juxtaposition to form the bottom of said piston, means removably connecting one of said segments at said partition for retaining said segment against rotation with respect to said other segment, means on said partition for vertically adjusting said other segment within said piston and with respect to said first mentioned segment for varying the capacity of said piston, said piston having an outlet opening in the wall thereof above said segmental bottom adapted to be brought into registry with said hopper discharge opening upon the reciprocation of said piston, and means for reciprocating said piston in said cylinder and said hopper.

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