

June 7, 1960

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2,939,614

FOOD INGREDIENT DISPENSER

Filed Aug. 12, 1958

2 Sheets-Sheet 1

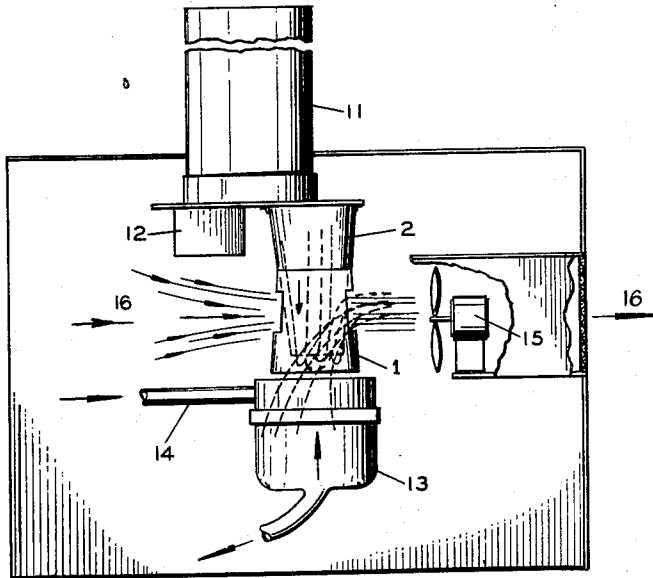


FIG. 1

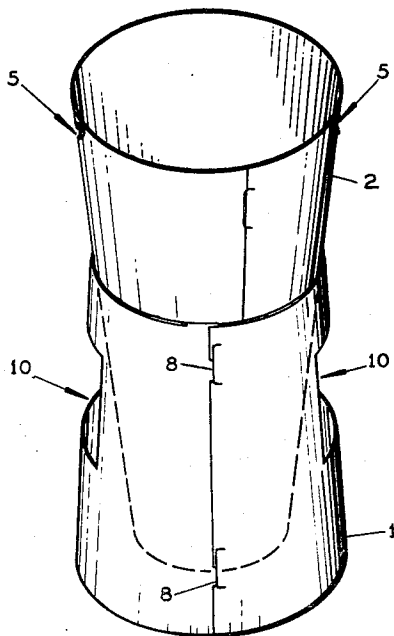


FIG. 2

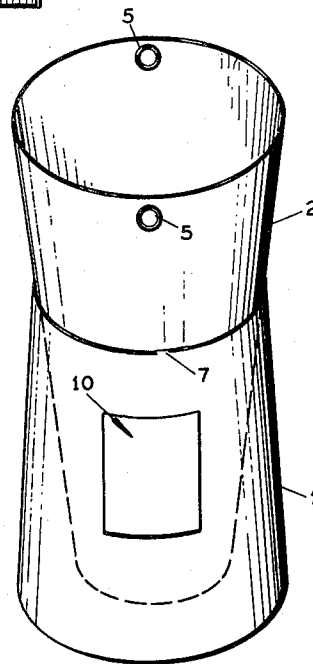


FIG. 3

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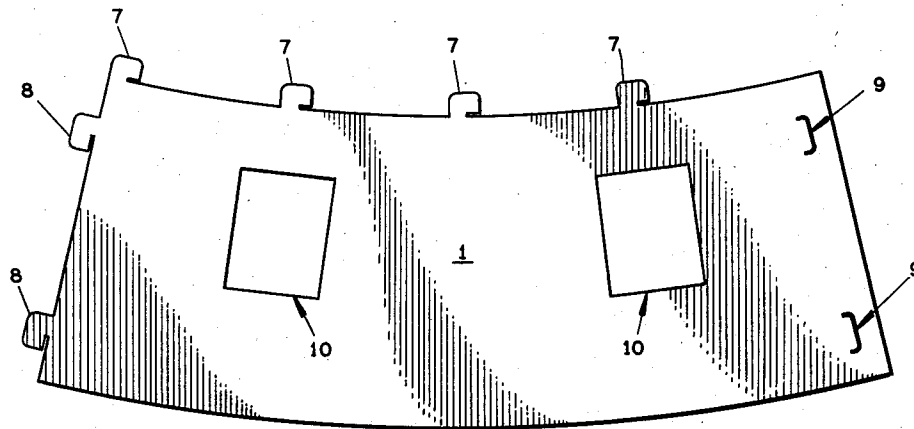


FIG. 4

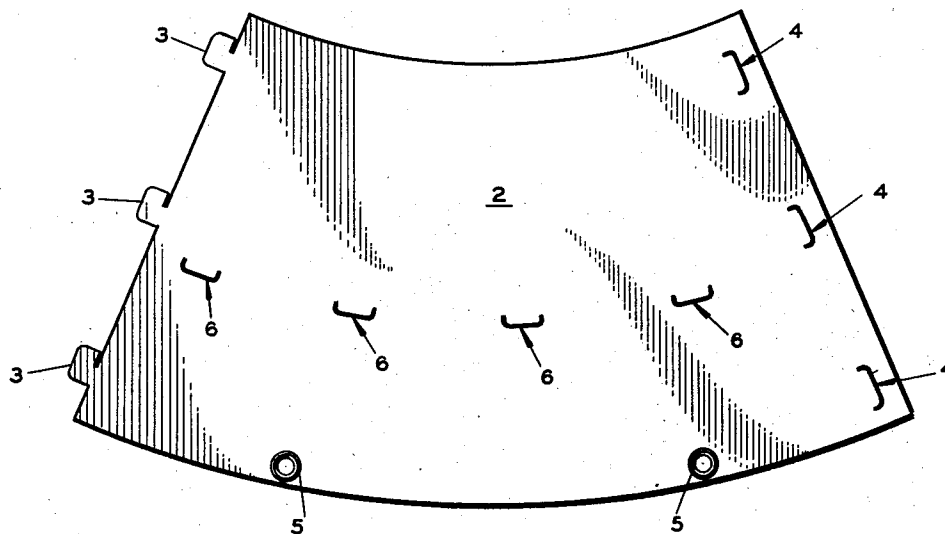


FIG. 5

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FOOD INGREDIENT DISPENSER

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3 Claims. (Cl. 222—190)

This invention relates in general to beverage dispensing machines and more particularly to a combination disposable dispenser and vapor trap for conducting gravitating dry ingredients to a blending device for mixing with heated fluids, including air passage means for preventing moist vapor from reaching the hopper means from which the ingredients are periodically released.

Prior to this invention dispensers used screw conveyors and/or funnel means for conducting powdered hygroscopic ingredients to a blending device which were subject to unsanitary accumulation of ingredients largely due to the presence of moisture which in some cases would build up to such proportions as to prevent proper operation of the device.

The present invention embraces a novel dual funnel means which provides a positive gravity flow of dry ingredients therethrough and also provides a flow of air from a blower source around and in the inner of said funnel means whereby moist vapor from the blending device is prevented from contaminating the inner surfaces of the dispenser and reaching the storage hopper, and provides a principal object of the invention.

Another object of the invention is the provision of two paper elements die cut from sheet stock formed with inter-locking tab-fasteners from which a low cost disposable dispenser may be manually formed into a dual funnel means for use in machines requiring gravity transport of dry ingredients to a blending device for mixture with fluids.

A further object of the invention is the provision of vapor trap on said dispenser responsive to a flow of air for preventing vapor from reaching the ingredient conducting surfaces of the dispenser.

These and other objects and advantages in one embodiment of the invention are described and shown in the attached specification and drawings in which:

Fig. 1 is a side elevation of the dispenser illustrating its position in a beverage machine.

Fig. 2 is a perspective view of the dispenser assembly.

Fig. 3 is the same as Fig. 2 in changed position.

Fig. 4 is a plan view of the die-cut lower element of the dispenser.

Fig. 5 is a plan view of the die-cut upper element of the dispenser.

Referring to Figs. 4 and 5, the two elements 1 and 2 are preferably die cut from flexible moisture resistant paper board, or from sheet metal for non-disposable use.

Element 2 is provided with hook shaped integral tabs 3 positioned for engagement with corresponding slots 4 when formed into a truncated cone as shown in Fig. 2.

The holes 5—5, preferably re-inforced by eyelets are positioned to engage suitable hooks, not shown, for retaining the dispenser assembly in the machine illustrated in Fig. 1.

The four slots 6 are provided for locking engagement with the corresponding four tabs 7 shown Fig. 4.

The element 1 shown in Fig. 4 is die cut from the

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same material as element 2 and is also provided with hook shaped tabs 8—8 for locking engagement with slots 9—9 when the element is formed into the shape of a truncated cone.

5 The open apertures 10—10 are positioned to provide an air passage through opposite sides of the lower element as shown in Fig. 2 when said lower element is secured concentric with the upper element and locked thereto by mating engagement of tabs 7 with slots 6 in the upper element 2.

10 When the elements are formed into conical shape the tabs are inserted in corresponding slots and laterally displaced for hooked engagement at one end of each slot.

Referring to Fig. 1 a canister 11 retains a quantity 15 of dry powdered beverage ingredient such as instant coffee, chocolate or the like and by operation of motor means 12 a measured quantity of ingredients is released from the bottom of the canister into dispenser element 2 whereby it gravitates into a blending device 13 which is 20 simultaneously supplied with a pressurized charge of heated beverage fluid through a conduit 14.

In order to prevent steam or moist vapor and ingredient dust from rising from the blender 13 and entering the dispenser and then into the ejection portion of the canister 25 11 and forming deposits of the highly hygroscopic ingredients an electric blower 15 and suitable duct is provided to induce a lateral flow of air around and through said dispenser to carry the vapor dust away from the dispenser.

30 The use of the upper conical element 2 alone will not prevent the vapor from entering therein and accumulating undesirable deposits of ingredients. The lower conical element 1 retained over the lower portion of the upper element 2 provides an effective trap when in the presence 35 of a lateral stream of air as indicated by dotted lines in Figure 1.

The travel of air through the apertures 10 and around the lower portion of element 2 creates a partial vacuum in the latter which forms a down draft therein the upper 40 dotted lines and vertical arrow indicate the downward movement of air and dust inside element 2 and around the lower edges thereof into the lateral air stream 16. The lower dotted lines and vertical arrow indicate the upward flow of vapor and dust around the lower portion 45 of element 2 into the lateral air stream. Hence the rising vapor and ingredient dust from the blending device is carried away from the dispenser in direction shown by arrow 16, Fig. 1.

50 In order to provide for a high degree of sanitation, when the dispenser assembly becomes stained or when left unused for protracted periods it may be readily replaced at low cost in accordance with the forgoing assembly of elements 1 and 2 which may be shipped and stored in a minimum of space when in their flat form.

55 Having described my invention, I claim:

1. A dispenser for conducting gravity propelled dry ingredients from a delivery hopper means into a blending means for mixture with vapor emitting fluid comprising a conducting element having a conical downward converging wall for directing said ingredients into said blending means, a vapor trap element having a downward divergent wall secured at its upper end around said conducting element and coaxially divergent from the lower portion thereof, said trap element having a pair 60 of oppositely disposed apertures therein for the lateral passage of air to and from said lower portion of said conducting element, a blower means positioned for inducing a lateral flow of air around said dispenser and through said apertures when operated whereby vapor rising from said blending means is diverted into said flow 70 of air and for inducing a downward flow of air through

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said conducting element when said blower means is operated.

2. A dispensing means of the character described comprising a downward converging conical conducting tube and a downward divergent conical vapor trap tube, each said tube formed from a die-cut flat blank of sheet material with the opposite ends thereof secured together by a plurality of integral tabs projecting from one of said ends in interlocking engagement with corresponding slots in the opposite one of said ends, said conducting tube coaxially secured within said vapor tube by the interlocking engagement of a plurality of integral tabs projecting from the upper edge of said trap tube in interlocking engagement with corresponding slots around the periphery of said conducting tube, said trap tube having a pair of apertures positioned in opposite sides thereof for providing a path for the flow of air in one of said apertures around the lower end portion of said conducting tube and out of said other one of said apertures.

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3. A dispenser of the character described comprising a conical dispensing tube for conducting gravity propelled ingredients from its convergent end, a conical trap tube coaxially secured to the outer surface of said dispensing tube by the upper end thereof with its divergent end portion in spaced divergent relation with respect to said convergent end of said dispensing tube and extending a predetermined distance below the latter, said trap tube having apertures in opposite sides thereof forming a passage therethrough and around the end portion of said first tube for inducing a flow of air downward there-through when a lateral flow of air is induced through said apertures.

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