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H. WECHSLER

2,320,496

DECORATING DEVICE

Filed Nov. 28, 1941

Fig. 1

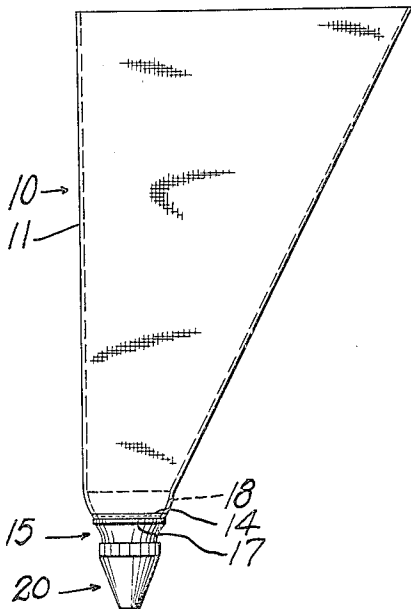


Fig. 2

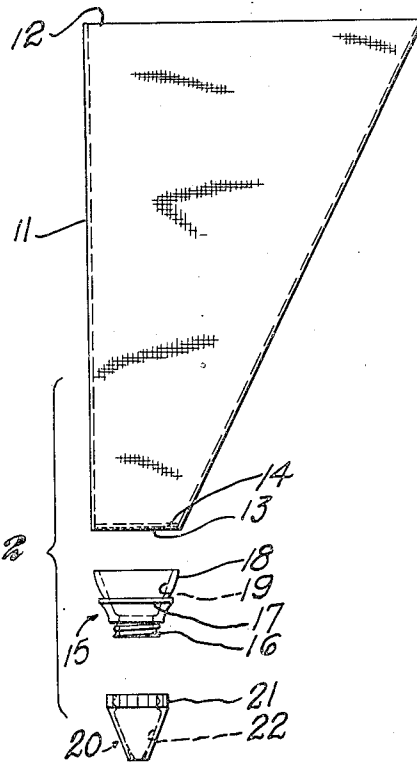


Fig. 3

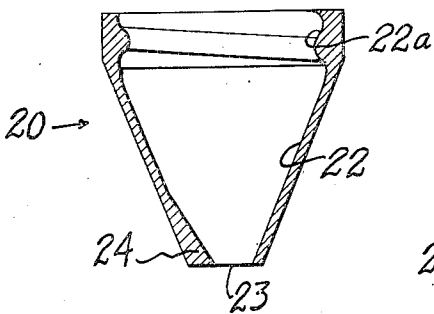


Fig. 4

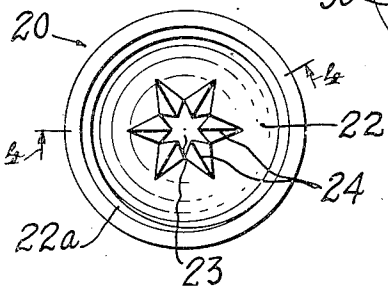


Fig. 5

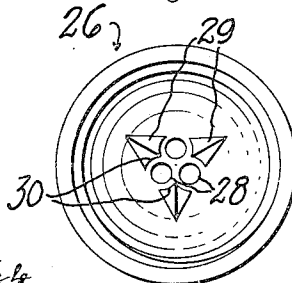
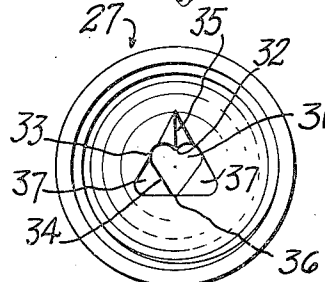


Fig. 6



INVENTOR.
Henry Wechsler
BY
Rus Schmucker
ATTORNEY.

UNITED STATES PATENT OFFICE

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DECORATING DEVICE

Henry Wechsler, Arverne, Long Island, N. Y.

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1 Claim. (Cl. 107—52)

This invention relates to decorating devices such as are used for applying plastic edible substances to cakes and the like to form various decorative designs thereon.

One object of the invention is to provide a device of the character described having improved means whereby a smooth, uniform and non-clogging flow of the plastic substance will readily occur through the nozzle to thus assure an even or predetermined configuration of the extruded filament or ribbon.

Another object is the provision of such a decorating device having improved means whereby a uniform streamlined flow of the plastic material is permitted even under gravity feed without the building of material on shoulders at the decorating orifice or the nozzle, and which is sanitary and hygienic.

Another object of the invention is to furnish a device of the class alluded to having improved means whereby the same is adapted for inexpensive manufacture and assembling, and is durable, reliable and efficient and adapted for use in the selective formation of different designs; among the features comprehended may be mentioned the utilization of a bag engageable directly with a nozzle or with a screw collar therefor; the shoulder and conical seat of the collar for engagement by the bag by a simple manual pressure; the capability of the nozzle of being molded out of plastics of the resin or acetate or other kinds, in different colors, for easy cleaning, durability, interchangeable and resistance to acids and the like; the simplicity and ease of operation without requiring moving parts; and the use of internal ribs or buttresses for reenforcing the nozzle tip and for causing the edible plastic to be gradually preformed within the nozzle instead of merely at the orifice thereof.

Other objects and advantages of the invention will become apparent as the specification proceeds.

With the aforesaid objects in view, the invention consists in the novel combinations and arrangements of parts hereinafter described in their preferred embodiments, pointed out in the subjoined claim, and illustrated in the annexed drawing, wherein like parts are designated by the same reference characters throughout the several views.

In the drawing:

Figure 1 is a view in side elevation showing a device embodying the invention.

Fig. 2 is a similar view but with the parts of the device separated from each other.

Fig. 3 is an enlarged top plan view of the nozzle.

Fig. 4 is a sectional view taken on the broken line 4—4 of Fig. 3.

Figs. 5 and 6 are views like that of Fig. 3, showing modified nozzles.

The advantages of the invention as here outlined are best realized when all of its features and instrumentalities are combined in one and the same structure, but, useful devices may be produced embodying less than the whole.

It will be obvious to those skilled in the art to which the invention appertains, that the same may be incorporated in several different constructions. The accompanying drawing, therefore, is submitted merely as showing the preferred exemplification of the invention.

Referring in detail to the drawing, 10 denotes a decorating device embodying the invention. The same may include a hopper or bag 11 of any suitable flexible material, of downwardly tapered or generally triangular form. Thus the bag has a large top opening 12 and a small bottom opening 13. At the latter there may be provided any suitable annular reenforcement or hem 14 to reliably engage a conical nozzle or nozzle collar that may be inserted through the opening 12 and pushed downward into the opening 13.

A suitable nozzle collar as referred to is shown at 15. The same may comprise nozzle engagement means such as a thread 16. Above the latter is an annular ring or shoulder portion 17 which is surmounted by a conical seat portion 18. The collar 15 may have a relatively thin wall, providing a uniformly downwardly tapered passage 19 therein. It may be molded of plastic so that it is cheaply produced, and can have different colors, is easy to clean, and is perfectly smooth. Hence the collar 15 may be pushed down through the bag 11 until the hem part 14 snugly engages or snaps around the seat 18 and bears against the shoulder 17. Thus a tight and reliable securement is easily obtained, and the collar is in assembled position as in Fig. 1 for the attachment thereto of any nozzle.

The nozzle 20 may be of generally conical shape as shown, with an annular finger grip portion 21 at the top and an internal thread 22a for engaging the collar thread 16. The wall of the nozzle 20 is quite thin to conserve plastic, and it forms a conical passage 22 leading to the orifice 23, which is at the extreme bottom of the nozzle.

The orifice 23 is of widely varying shape or contour for decorative purposes. To afford ample variety, half dozen or more nozzles may be fur-

nished with each decorating unit, only a few such nozzles need be shown herein. By way of illustration, and not in a limiting sense, the orifice 23 may have a star-like design as in Fig. 3.

To prevent the creation of shoulders at the points or edges of the design or star, which would cause complete or partial clogging at the orifice, I provide ribs or buttresses 24 disposed in any suitable juxtaposition to the orifice. Thereby the nozzle tip is reinforced, but more important is the fact that angle of the passage surface is always substantially less than the angle of repose to thus prevent the building up of plastic edibles or other substances near the orifice with the creation of lateral pressure which may result in wholly or partially clogging of the orifice by such plastics depending on the density thereof. In any case, the rate of flow would be impeded, and distortion of the desired design effect would be caused. All these difficulties are avoided herein.

Preferably the flow or guide ribs 24 are triangular in cross section as shown, the inner or apical portion of each rib being aligned or coincident with an adjacent point of the star. Thus the design on the plastic substance is preformed within the nozzle instead of being produced only at the orifice.

By upwardly tapering each rib 24 so that it gradually merges into the side wall of the nozzle, the preforming of the design occurs gradually. Thus as the flow progresses downward and the substance becomes more highly compact, the deforming action is graduated and becomes a maximum as the orifice is approached. In this manner a smooth flow with a minimum of friction is assured, disturbances and eddy currents avoided and an even feed of the plastic obtained.

The nozzle 20 may be molded of plastic and in different colors, permitting easy cleaning, being non corroding, and having all the other advantages herein noted. Nozzles of the general type such as 20 are interchangeably connected so that the bag 11 and collar 15 form with the nozzle a continuous downwardly tapered passage, which is especially advantageous with the low and variable pressure obtained by a gravity feed.

In Figs. 5 and 6 are shown modified nozzles 26, 27 which in all respects may be like that at 20, except that the designs are different. Thus in the nozzle 26, the orifice may be sectional, comprising a plurality of small openings 28. Co-operating with this orifice are a plurality of ribs 29 of triangular cross section and being upwardly tapered like those at 24, except that the base portion of each triangle forms arcs 30, each registering with a portion of the periphery of an adjacent hole 28. Thus the streamlining flow ribs 29 extend into the closest possible proximity to and about the holes 28. The holes 28 may be regarded as the equivalent of the orifice 23, with the holes corresponding to the spaces between the points of the orifice 23.

The orifice of the nozzle 27 may be an opening comprising an entrant point portion and

curved or straight portions. Thus the heart shaped orifice 31 has a point 32, curves at 33 and straight lines at 34. Accordingly a guide or flow rib 35 is provided at the point 32 like the rib 24. No guide ribs need be formed at the curves 33 or at the point 36 which lie close to the conical nozzle wall. But at the flat or slightly curved sides 34, flow guiding ribs or buttresses 37 may be provided, which, however, are not triangular in cross section, but are relatively flat, the shape being as though a plane intersected the conical nozzle wall at an angle different than that of said wall. Thus the objects hereinbefore stated are realized.

Other nozzles may have other designs. For instance, a generally rectangular orifice may have a series of points at one side with ribs such as 24 therefor, and ribs such as 37 for one or more of the other sides. Or a clover leaf or scalloped shaped orifice may be used, with ribs such as 24 registering with the points or protrusions. Other designs will be apparent to those skilled in the art. The plastic used may be transparent so that the operator may be able to observe the progress of the edible plastic. Thus a sanitary, hygienic device is produced which fulfills the objects of the invention.

I claim:

A device including a decorator for the free gravity flow of plastic edible substances, including a hopper and a nozzle connected to the hopper at the lower end thereof, the hopper and nozzle providing a passage that is continuously downwardly tapered to the orifice of the nozzle to thus tend to compress the plastic substances in course of downward flow thereof, the side-wall of said nozzle having a series of internal integral ridges extending in the general direction of the nozzle axis and terminating within the orifice thereof, said ridges being of triangular cross section throughout and merging at their upper ends into the orifice wall, said ridges being downwardly tapered with respect to each other and occupying substantially the entire internal periphery of the orifice, the nozzle having its internal surface generally circular so that adjacent ridges diverge upwardly from each other, and the ridges being so small in cross sectional area as to afford a relatively large area of free flow in the nozzle, with the flow area being bounded by the side wall of the nozzle except at the orifice itself at which the flow area is bounded substantially entirely by said ridges, the flow area between the ridges and above the orifice comprising at all points regions which taper downwardly more than the taper of said ridges for a correspondingly increased friction of flow between the ridges and which regions continuously enlarge toward the orifice axis so as to avoid choking of the plastic substance between the ridges and permit free flow of the substance while continuously and gradually preforming and urging the same toward the inner edges of the ridges in course of said flow toward the orifice.

HENRY WECHSLER.