The invention relates to a cutting device for food products and a method of using the same. The device includes a center knob assembly, an arm, and a cutting assembly. The center knob assembly comprises a base portion adapted to contact a food sheet and fix a position of a cutting assembly relative to the food sheet. The arm is adapted to rotate about the center knob assembly. The cutting assembly comprises a cutting portion having a rotatable cutting blade. The cutting assembly is releasably fixed to the arm to cut a generally circular pattern into the food sheet as the arm rotates about the center knob assembly.
CUTTING DEVICE FOR FOOD PRODUCTS AND METHOD OF USING THE SAME

DESCRIPTION

CROSS-REFERENCE TO RELATED APPLICATIONS


TECHNICAL FIELD

[0002] The present invention relates to a food cutting device, and more particularly, to a food cutting device adapted to cut food sheet products into generally circular shapes using a blade.

BACKGROUND OF THE INVENTION

[0003] When preparing food, such as during baking, it is often necessary to cut food sheet products into a generally circular shape. For example, fondant used in cake decorating is often provided in a generally flat sheet. If used with a cake with a circular shape, it is often desirable to cut the fondant into a generally corresponding circular shape to decorate the cake. Currently, a baker, or other food preparer, has few options to accurately cut the generally flat sheet into a circular shape. The baker may use a compass to inscribe a circle into the fondant, and then use a knife to cut through the fondant by following the inscribed circle. Additionally, it is known to have a template with a known diameter, and the baker places the template over the fondant and then cuts around the exterior of the template. These existing methods and devices have certain drawbacks. For example, the use of a compass often punches a hole in the fondant, or other sheet-like material, while a template is only useful to make a cutout of predetermined sizes. Thus, a need exists for a circular cutter that overcomes some of these limitations.

[0004] The present invention is provided to solve the problems discussed above and other problems, and to provide advantages and aspects not previously provided. A full discussion of the features and advantages of the present invention is deferred to the following detailed description, which proceeds with reference to the accompanying drawings.
SUMMARY OF THE INVENTION

[0005] According to one embodiment, a circle cutter for a food sheet comprises a center knob assembly, an arm, and a cutting assembly. The center knob assembly comprises a base portion and a knob portion. The base portion has a base core with a center section projecting upward from the base core. The knob portion has a knob core releasably attached to the center section of the base core. The arm rotatably couples to the center knob assembly and has a bottom surface and an elongated opening and a generally circular opening. The center section of the base core extends through the generally circular opening. The base portion of the center knob assembly is disposed generally below the bottom surface of the arm and the knob portion of the center knob assembly is disposed above the bottom surface of the arm. The cutting assembly couples to the elongated opening of the arm. The cutting assembly comprises a cutting portion and an activation portion. The cutting portion has a rotatable cutting blade. At least the cutting blade of the cutting assembly is moveable along the elongated opening of the arm.

[0006] According to another embodiment, a circle cutter for a food sheet comprises a center knob assembly, an arm, and a rotatable cutting blade. The center knob assembly comprises a base portion adapted to contact a food sheet and fix a position of the cutting assembly relative to the food sheet. The arm connects to the center knob assembly. The arm is rotatable about the center knob assembly. The rotatable cutting blade is moveable along at least a portion of a length of the arm.

[0007] According to one process, a method of cutting a circular pattern into a food sheet is provided. A circle cutter for a food sheet is provided. The circle cutter has a center knob portion, an arm couples to the knob assembly and is adapted to rotate about the center knob portion, and a cutting assembly releasably fixed to the arm. A food sheet product is also provided. The cutting assembly for a food sheet is placed on the food sheet such that a bottom surface of the center knob portion contacts the food sheet product. The cutting assembly is positioned at a desired location along the arm. The arm rotates about the center knob portion with the cutting assembly engaging the food sheet product.

[0008] According to a further embodiment, a cutting assembly for a circle cutter comprises a cutting portion and an activation portion. The cutting portion has a rotatable cutting blade, a support arm, and a cam. The rotatable cutting blade rotatably connects to the support arm. The cam has a generally flat portion and a generally cylindrical portion that projects upward from the
generally flat portion. A portion of the support arm extends through an opening formed in both the generally flat portion and the cylindrical portion of the cam. The activation portion has a slidable base, a biasing member, a biasing member cap, and an activation cap. The slidable base removably connects to the cylindrical portion of the cam. The biasing member cap attaches to the support arm. The biasing member is disposed between the cam and the biasing member cap. The biasing member passes through the slidable base. The biasing member applies a biasing force to the biasing member cap to position the support arm and the rotatable cutting blade in a first non-cutting position. The activation cap connects to the biasing member cap. A force applied to the activation cap compresses the biasing member and positions the support arm and the rotatable cutting blade in a second cutting position.

[0009] Other features and advantages of the invention will be apparent from the following specification taken in conjunction with the following drawings.

**BRIEF DESCRIPTION OF THE DRAWINGS**

[0010] To understand the present invention, it will now be described by way of example, with reference to the accompanying drawings in which:

[0011] FIG. 1 is a perspective view of a circle cutter according to one embodiment;

[0012] FIG. 2 is a top view of the circle cutter of FIG. 1;

[0013] FIG. 3 is a side view of the circle cutter of FIG. 1;

[0014] FIG. 4 is an end view of the circle cutter of FIG. 1;

[0015] FIG. 5a is a sectional view taken through line 5-5 of FIG. 4 with the cutting blade in a first position;

[0016] FIG. 5b is a sectional view taken through line 5-5 of FIG. 4 with the cutting blade in a second position; and

[0017] FIG. 6 is an exploded perspective view of the circle cutter of FIG. 1.

[0018] The components in the drawings are not necessarily to scale, emphasis instead being placed upon clearly illustrating the principles of the present invention.

**DETAILED DESCRIPTION**

[0019] While this invention is susceptible of embodiments in many different forms, there is shown in the drawings and will herein be described in detail preferred embodiments of the
invention with the understanding that the present disclosure is to be considered as an exemplification of the principles of the invention and is not intended to limit the broad aspect of the invention to the embodiments illustrated.

[0020] According to one embodiment of the present invention, as shown in FIGs. 1-6, a circle cutter 10 is provided. The circle cutter 10 comprises a center knob assembly 12, an arm 14, and a cutting assembly 16.

[0021] As best shown in FIG. 6, the center knob assembly 12 has a base 18 and a knob portion 20. The base 18 has a base overmold 22, a base core 24, and a base cap 26. The base core 24 has a cylindrical center section 25 that extends upward from a bottom of the base core 24 and through the arm 14. The overmold 22 is adapted to be secured to the base core 24 via a press fit. The overmold 22 is adapted to rest on the food sheet product being cut by the circle cutter 10. However, it will be understood that the overmold 22 can be secured to the base core 24 by fasteners, adhesives, or any other suitable mechanisms. The overmold 22 may be made from a thermoplastic elastomer, such as Dynaflex® G2755c from GLS corporation of McHenry, Illinois. Further, it is contemplated that the thermoplastic elastomer will have a durometer reading of about 65. It will be understood, however, that the overmold can be formed from other suitable materials without departing from the present invention. The overmold 22 has a generally flat bottom such that the contact of the overmold 22 with the food product provides sufficient surface area to resist movement of the circle cutter 10 relative to the food sheet.

[0022] The base cap 26 is attached to the base core 24. It is contemplated that the base cap 26 may be attached to the base core 24 via sonic welding or any other suitable attachment mechanism. The base cap 26 has a center opening through which the cylindrical center section 25 passes through.

[0023] The knob portion 20 has a knob core 28 and a knob overmold 30. The knob core 28 has a center opening 29 adapted to receive the cylindrical center section 25 of the base core 24. It is contemplated that the cylindrical center section 25 of the base core 24 will interact with the center opening 29 of the knob portion 20 to connect the base 18 and the knob portion 20. For instance, the cylindrical center section 25 and the center opening 29 may be threaded, or have a snap-fit configuration to removably connect the base 18 to the knob portion 20. Removing the base 18 from the knob portion 20 allows the circle cutter 10 to be more thoroughly cleaned.
In one embodiment, the knob overmold 30 is secured to the knob core 28 via a press fit. It should be understood, however, that the knob overmold 30 can also be secured to the knob core 28 by fasteners, sonic welding, or other suitable coupling mechanisms or methods. It is contemplated that the knob overmold 30 may be made from a thermoplastic elastomer, the same materials as the overmold 22 of the base 18.

The arm 14 has an elongated opening or slot 32 and a generally circular opening 34. The elongated opening 32 is adapted to receive the cutting assembly 16 and allows a position of the cutting assembly 16 to be adjusted based on the size of a circle that is desired to be cut into the food sheet. In order to more accurately determine the position of the cutting assembly 16, measuring indicia 33 are provided on the arm 14 along the elongated opening 32. Thus, a user may position the cutting assembly 16 next to a measuring indicia 33 indicative of a diameter of a circle the user wishes to cut in the food sheet. In one embodiment, the circle cutter 10 may be used to cut a circle with a diameter from about five (5) inches to about twelve and a half (12.5) inches. However, the concepts of the present invention also apply to both larger and smaller circle cutters without departing therefrom.

The circular opening 34 of the arm 14 is adapted to receive the cylindrical center section 25 of the base core 24 of the base 18 therethrough. Thus, the arm 14 is secured between the base 18 and the knob portion 20 of the center knob assembly 12. The arm 14 is adapted to rotate relative to the center knob assembly 12 and thereby rotate the cutting assembly 16 relative to the center knob assembly 12. A bottom surface of the arm 14 is adapted to contact a top surface of the base cap 26. Thus the arm 14 is at least partially supported by the base 18 of the center knob assembly 12.

The cutting assembly 16 comprises a cutting portion 36 and an activation portion 38. The cutting portion 36 has a circular cutting blade 40. The circular cutting blade 40 is adapted to rotate through a food sheet in order to cut the food sheet. As the cutting blade 40 rotates, a smooth edge is typically created in the food sheet, as opposed to a more jagged edge that would be generated by a fixed blade. Thus, the food sheet will have a more attractive appearance by the use of the circular cutting blade 40. The blade 40 may be formed from a variety of materials including metals and polymeric materials, but stainless steel may be favored due to its durability and compatibility in use with food products.
The cutting blade 40 is connected to a support arm 42 by fastener hardware 43. The hardware 43 may include a thumb screw, such that a user may remove the cutting blade 40 for cleaning without the use of special tools. The support arm 42 may have a plurality of splines disposed on an outer surface of the support arm.

The support arm 42 is received by a cam 44. A portion of the cam 44 is adapted to contact an underside of the elongated opening 32 of the arm 14. The cam 44 has a number of slots formed on an interior surface of a through hole 45 formed through the cam 44. The slots of the cam 44 are adapted to receive the splines of the support arm 42 in order to fix the rotational position of the support arm 42 relative to the cam 44.

The activation portion 38 of the cutting assembly 16 comprises a slidable base 46. The slidable base 46 is adapted to contact a top surface of the elongated opening 32 of the arm 14. The slidable base 46 and the cam 44 may contain a quarter-turn feature in order to tighten the slidable base 46 and the cam 44 against the arm 14 and fix the position of the cutting assembly 16 relative to the arm 14. The quarter turn feature allows the slidable base 46 to rotate a quarter turn relative to the cam 44 to loosen the slidable base 46 from the cam 44 to allow the cutting assembly 16 to slide in the elongated opening 32 of the arm 14. The slidable base 46 may have internal threads that allow a pair of protrusions 44a (only one of which is visible in FIG. 6) disposed on a cylindrical portion 44b of the cam 44 to engage to tighten and loosen the slidable base 46 and the cam 44. A generally flat portion 44c of the cam is disposed below the elongated opening 32 of the arm 14, while a portion of the cylindrical portion 44b of the cam 44 passes through the elongated opening 32 of the arm 14 to engage the slidable base 46.

A slidable base overmold 48 may be secured to the slidable base 46 via a press fit. It is contemplated that the slidable base overmold 48 may be made from a thermoplastic elastomer, the same materials as the overmold 22 of the base 18.

A biasing member 50 is disposed between the slidable base 46 and the cam 44. The biasing member 50 may be a spring, a compressible polymeric material, a foam, a gas strut, a hydraulic strut, or the like. The biasing member 50 contacts a surface on the cam 44 and biasing member cap 52 disposed proximate a top surface of the slidable base 46. The biasing member cap 52 has an opening adapted to receive a fastener that connects to the support arm 42. Thus, the support arm 42 is connected to the biasing member cap 52. The biasing member 50 provides a biasing force to lift the cutting blade 40 away from the food sheet. The biasing member 50
provides a force against the biasing member cap 52 to hold the biasing member cap 52 and the support arm 42 in a first position, such as a storage position. The cutting blade 40 will be disposed above a surface the circle cutter 10 is resting on when the support arm 42 is in the first position, as shown in FIG. 5A.

[0033] The activation portion 38 additionally comprises an activation cap 54. The activation cap 54 is secured to the biasing member cap 52, such as by a snap fit, or a press fit. An activation cap overmold 56 may be secured to the activation cap 54 via a press fit. It is contemplated that the activation cap overmold 56 may be made from a thermoplastic elastomer, the same materials as the overmold 22 of the base 18. The activation cap 54 and the activation cap overmold 56 are provided to enable a user to apply a downward force on the activation cap 54 and the activation cap overmold 56 that compresses the biasing member 50. The compression of the biasing member 50 lowers the support arm 42 and the cutting blade 40 to the second position, as shown in FIG. 5B. The cutting blade 40 will be placed into the food sheet with the support arm 42 in the second position.

[0034] Thus, once the support arm 42 is placed into the second position, the arm 14 can be rotated about the center knob 12 in order to perform a circular cut of the food sheet. The blade 40 rotates through the food sheet, thereby generating a generally smooth edge in the food sheet.

[0035] While specific embodiments have been illustrated and described, numerous modifications come to mind without significantly departing from the spirit of the invention, and the scope of protection is only limited by the scope of the accompanying Claims.
CLAIMS

What is claimed is:

1. A circular cutter for a food sheet comprising:
   
a center knob assembly comprising a base portion and a knob portion, the base portion having a base core and a center section projecting upward from the base core, the knob portion having a knob core releasably attached to the center section of the base core;
   
an arm rotatably coupled to the center knob assembly, the arm comprising a bottom surface, an elongated opening and a generally circular opening, the center section of the base core extending through the generally circular opening, the base portion of the center knob assembly being disposed generally below the bottom surface of the arm and the knob portion of the center knob assembly being disposed generally above the bottom surface of the arm; and
   
a cutting assembly coupled to the elongated opening of the arm, the cutting assembly comprising a cutting portion and an activation portion, the cutting portion having a rotatable cutting blade rotatably coupled thereto, wherein at least the cutting blade of the cutting assembly is moveable along the elongated opening of the arm.

2. The circular cutter for a food sheet of claim 1, further comprising a base overmold connected to the base core.

3. The circular cutter for a food sheet of claim 2, wherein the base overmold comprises a thermoplastic elastomer.

4. The circular cutter for a food sheet of claim 1, further comprising a knob overmold connected to the knob core.

5. The circular cutter for a food sheet of claim 1, wherein the knob core releasably attaches to the center section of the base core via threads.

6. The circular cutter for a food sheet of claim 1, wherein the cutting portion of the cutting assembly further comprises a support arm, the rotatable cutting blade being attached to the support arm.

7. The circular cutter for a food sheet of claim 6, wherein the activation portion of the cutting assembly comprises a cam and a slidable base, the cam being generally disposed below the elongated opening of the arm, the slidable base being generally disposed above the elongated opening of the arm, the cam and the slidable base cooperating to releasably fix the cutting assembly relative to the elongated opening of the arm.
8. The circular cutter for a food sheet of claim 1, wherein the rotatable cutting blade is moveable between a first non-cutting position and a second cutting position.

9. A circular cutter for a food sheet comprising:
   a center knob assembly comprising a base portion adapted to contact a food sheet and fix a position of the cutting assembly relative to the food sheet;
   an arm connected to the center knob assembly, the arm being rotatable about the center knob assembly; and
   a rotatable cutting blade coupled to the arm, the rotatable cutting blade being moveable along at least a portion of a length of the arm.

10. The circular cutter for a food sheet of claim 9, wherein the rotatable cutting blade is moveable between a first non-cutting position and a second cutting position.

11. The circular cutter for a food sheet of claim 10, wherein the cutting assembly further comprises a biasing member, the biasing member biasing the rotatable cutting blade to the first position.

12. The circular cutter for a food sheet of claim 9, wherein the arm includes an elongated opening and wherein the cutting blade is positionable along the elongated opening.

13. A cutting assembly for a circle cutter comprising:
   a cutting portion having a rotatable cutting blade, a support arm, and a cam, the rotatable cutting blade rotatably connected to the support arm, the cam having a generally flat portion and a generally cylindrical portion projecting upward from the generally flat portion, a portion of the support arm extending through an opening formed in both the generally flat portion and the cylindrical portion of the cam; and
   an activation portion having a slidable base, a biasing member, a biasing member cap, and an activation cap, the slidable base removable connected to the cylindrical portion of the cam, the biasing member cap attaching to the support arm, the biasing member being disposed between the cam and the biasing member cap and passing through the slidable base, the biasing member applying a biasing force to the biasing member cap to position the support arm and the rotatable cutting blade in a first non-cutting position, the activation cap connecting to the biasing member cap, wherein a force applied to the activation cap compresses the biasing member thereby positioning the support arm and the rotatable cutting blade in a second cutting position.
14. The cutting assembly for a circle cutter of claim 13, wherein the biasing member comprises a spring.

15. The cutting assembly for a circle cutter of claim 13, wherein the biasing member comprises a gas strut.

16. The cutting assembly for a circle cutter of claim 13, wherein the biasing member comprises a polymeric foam.