The broken solid object has been separated into a small piece and a deficient solid object caused after the small piece has been scraped off. The small piece is moved to the supplying location with another whole solid object stored in the same storing hole as the small piece, and after that, the small piece is encrusted inside of an encrusted food product by the food manufacturing device. Further, the deficient solid object is stored in the storing hole and finally encrusted inside of another encrusted food product. These encrusted food products are defective products containing irregular solid objects. Thus, a solid object feeder which can supply solid objects without damaging them is desired.

## PRIOR ART PUBLICATION

[0011]

Patent Publication 1: Japanese Patent Laid-open Publication No. 2019-034854

Patent Publication 2: Japanese Utility Model Laid-open Publication No. S57-184813

Patent Publication 3: Japanese Patent Laid-open Publication No. 2010-148493

## SUMMARY OF THE INVENTION

## PROBLEM TO BE SOLVED BY THE INVENTION

[0012]

~~An object~~Embodiments of the present invention ~~is to~~ provide a solid object feeder which can stably supply solid objects without damaging them and a manufacturing device for a food product with the solid object feeder.

## MEANS FOR SOLVING THE PROBLEM

[0013]

~~The present invention has been made in view of the above-stated problem and is directed to~~According to a first aspect of the present invention, there is

provided a solid object feeder which includes a rotary disk including a plurality of storing holes of storing solid objects equally spaced on a circumference of a circle in a peripheral portion of the rotary disk; a driving device for rotating the rotary disk; and a supplying location at which the solid object stored in the storing hole is supplied downwardly from the rotary disk, and further includes a guide member disposed above the peripheral portion of the rotary disk, and a supporting member which is disposed below the rotary disk for supporting the solid object stored in the storing hole and defines an opening through which the solid object moves downwardly at the supplying location, wherein the supporting member includes a step region in a support area of supporting the solid objects, the step region continues from an upstream side to a downstream side relative to the guide member in a rotational direction, and a gap between a lower surface of the rotary disk and the step region is larger than the other region of the support area.

[0014]

For example, the step region is formed in the support area of the supporting member to continue from an upstream side relative to the guide member in the rotational direction to a location in which the storing hole passes at least a space below the guide member on a downstream side of the guide member.

[0015]

For example, the step region is formed in the support area of the supporting member to continue from a lowering start location, which corresponds to a first storing hole counted from the guide member toward an upstream side in the rotational direction, to the opening on a downstream side of the guide member.

[0016]

For example, the rotary disk is tilted so that the supplying location is

higher than the lowering start location of the solid object, namely, the beginning point of the step region.

[0017]

For example, the rotary disk includes a central projecting part which is formed with a slope peripheral surface on an upper surface of the rotary disk, and the slope peripheral surface slopes downwardly from a center of the rotary disk toward its periphery.

[0018]

For example, the central projecting part is disposed inside of an annular area in which the storing holes are disposed.

[0019]

For example, an outer wall is provided to extend upwardly higher than the peripheral portion at an outside of the rotary disk, and the guide member is disposed between an inner side of the outer wall and the central projecting part to partition a storage portion of storing the solid objects from a supply portion including the supplying location.

[0020]

For example, an outer wall is provided to extend upwardly higher than the peripheral portion at the periphery of the rotary disk, and the guide member is disposed between an inner side of the outer wall and the central projecting part to partition a storage portion of storing the solid objects from a supply portion including the supplying location.

[0021]

~~The present invention also includes~~According to a second aspect of the present invention, there is provided a manufacturing device for a food product with the above-stated solid object feeder.

EFFECTS OF THE INVENTION

[0022]

In the solid object feeder according to the above aspect of the present invention, since the supporting member of supporting the solid object includes the step region in the support area below the guide member, and the step region is formed so that the gap between the lower surface of the rotary disk and the step region is larger than the other region of the support area, another solid object rather than that to be stored in the storing hole is prevented from entering the storing hole. Thus, when the solid object is moved from the storage portion to the supply portion, the other solid object is not or is prevented from being sandwiched between the guide member and the storing hole to be broken (damaged), and the solid object can be surely stored in the storing hole, so that the predetermined solid object can be surely supplied from the supplying location of the solid object feeder.

[0023]

Further, since a number of solid objects can be loaded into the storage portion at one time, the work efficiency can be enhanced.

BRIEF DESCRIPTION OF THE DRAWINGS

[0024]

Fig. 1 is a schematically front view of a manufacturing device 1 for an encrusted food product with a solid object feeder 3 according to a first embodiment of the present invention.

Fig. 2A is a partially cross-sectional and schematically side view of the manufacturing device 1 for the encrusted food product with the solid object feeder 3 according to the first embodiment of the present invention.

Fig. 2B is a partially enlarged view of Fig. 2A.