Feb. 14, 1961 V. H. LANGVILLE 2,971,549

CORING AND SECTIONING DEVICE

Filed July 25, 1958

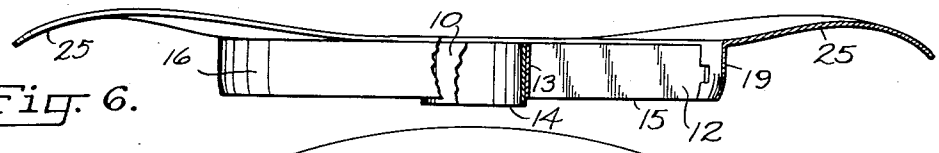

Fig. 6.

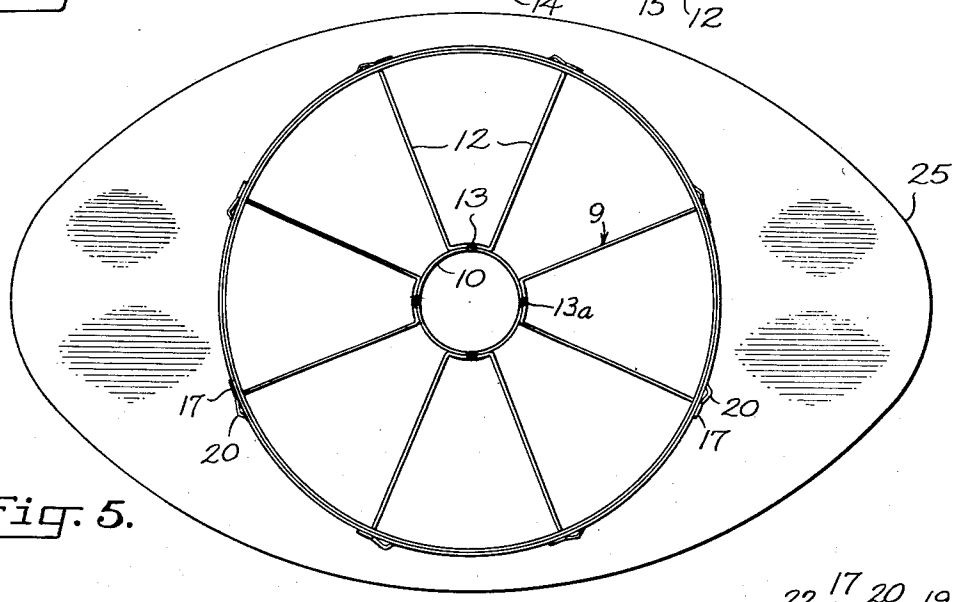

Fig. 5.

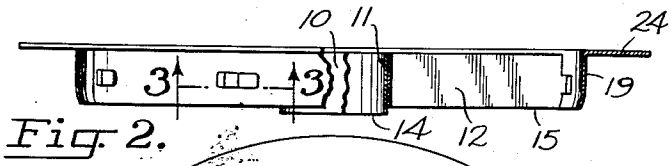

Fig. 2.

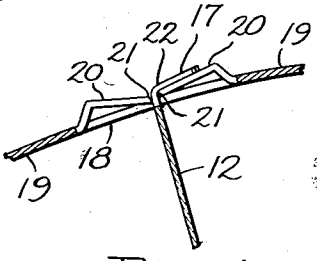

Fig. 4.

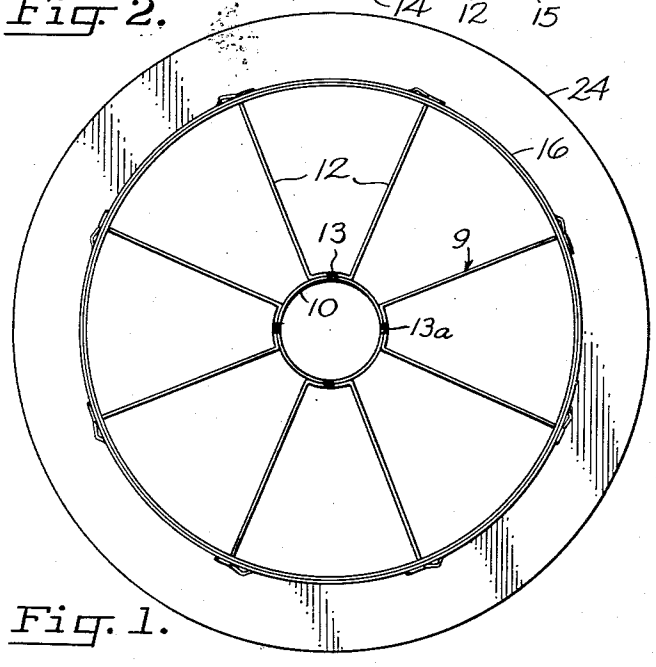

Fig. 1.

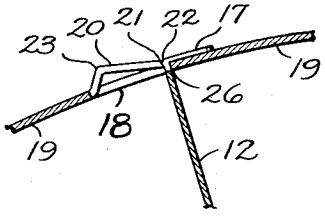

Fig. 3.

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CORING AND SECTIONING DEVICE

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This invention relates to coring devices and more particularly to hand-operated coring and sectioning devices.

Devices have been known whereby fruits, such as pears and apples, and vegetables, such as tomatoes, could have their cores removed and divided into a plurality of sections in one operation. These devices must necessarily be made as economically as possible because they are most often given away in connection with the purchase of produce. At the same time, it is necessary that these devices be sufficiently rugged and durable to perform their cutting function. An important shortcoming in the prior art devices was that sometimes the cutting blades became dislodged during use and injured hands of users. This situation was particularly likely to occur when the device was used for coring and sectioning relatively large, hard species of fruit, such as Washington State apples.

The object of the present invention is to provide an economical device which overcomes the shortcomings of the prior constructions and which is eminently satisfactory for performing its intended function while providing complete assurance that the cutting blades will remain securely mounted in the device and not endanger the hands of a user.

The object of the invention is achieved by a novel means of locking the cutting blades in the device. The ends of the blades extend through openings in a supporting ring and the ends are positively engaged by suitably deformed projecting members from the ring whereby the blades are firmly and securely locked in position.

The object and various features of the invention will be explained in greater detail with reference to the accompanying drawings in which:

Fig. 1 is a bottom plan view of the device according to the invention;

Fig. 2 is a side elevation of the device of Fig. 1 with parts broken away and certain parts in section;

Fig. 3 is an enlarged cross section on lines 3—3 of Fig. 2, showing the locking device;

Fig. 4 is an enlarged fragmentary cross section of another embodiment of the locking device according to the invention;

Fig. 5 is a bottom plan view of the device according to the invention, with another type of upper flange construction; and

Fig. 6 is a side elevation of the device of Fig. 5.

In the drawings, **10** is a center ferrule to whose wall **11** is fastened a cutting means, such as knife members **9** each having two blade portions or knives **12**. A connecting or yoke section **13**, integral with the pair of knives **12** of a member **9**, may be provided so as to join them together, and for purposes of fastening inner end portions of the knives to ferrule **10**. Sections **13** are spot welded at **13***a* to the ferrule.

As best seen in Figs. 2 and 6, bottom or cutting edge **14** of ferrule **10** extends down slightly farther, of the nature of 1/16", than cutting edges **15** of knives **12**. This construction enables the device when in use to cut out cleanly the core of a fruit. The core is usually harder

and more resistant to cutting than the rest of the body of the fruit which is sectioned by blades **12**.

In the device shown in the drawings, eight equally spaced knives **12** are shown for cutting a fruit into eight equal sections. It is, however, to be understood that more or less than this number of knives may be provided without departing from the scope of this invention.

The outer ends of knives **12** are fastened to a ring generally indicated at **16** which surrounds ferrule **10** at a distance corresponding to the length of knife cutting edge **15**. The knives extend radially between the ferrule and ring, and have their faces disposed in axially extending planes.

Referring more particularly to Fig. 3, a tongue **17**, of somewhat diminished cross section from the rest of the knife, is provided at the outer end of each knife **12**. Tongue **17** projects through an aperture or opening **18** which has been struck or punched out of side wall **19** of ring **16**. The portion which has been punched out of wall **19** to make opening **18** is formed into a projection **20** which extends outwardly from wall **19** while remaining attached thereto at one end. The outer or free end of projection **20** has a slight bevel at edge **21** that is provided for engaging tongue **17** at its turned-over edge **22**. Edge **21** and edge **26** of opening **18** define an elongated opening that extends longitudinally of the ferrule and ring center axes. A hump or crimp **23** is provided intermediate the ends of projection **20** so that there will be room in hole **18** for tongue **17** when the projection is pushed back towards the hole. The hump also tends to force beveled end **21** of the projection against the tongue.

Referring to Figs. 1 and 2, on the upper side of the device a continuous circular flange **24** extends at an angle of about 90° from wall **19**. The flange provides a surface or handle which may be grasped by the fingers of a person when it is desired to use the device. The device is used by aligning cutting edge **14** of the ferrule with the core of the fruit or vegetable and then pressing straight down with both hands whereby the core is removed from the object and it is divided into equal sections.

Figs. 5 and 6 show another type of flange construction **25** which extends from wall **19**. Flange **25** is expanded on two sides and curved to facilitate grasping by a person during use of the device.

The manner in which the knives are securely mounted between the ferrule and ring so as to prevent any dislodgement thereof during use is as follows: Yokes **13** of the knives are first spot welded to ferrule **10**. In a separate operation, projections **20** have been struck or punched out of wall **19** of the ring. The projections initially extend from the outer surface of wall **19** at an angle of about 45° and have bevels **21** formed in their free ends. Ring **16** is then positioned around ferrule **10** so that tongues **17**, which initially extend substantially straight out from the knives, pass through openings **18** in wall **19**. Thereafter, the knives are firmly locked to the ring by simultaneously turning over projections **20** and tongues **17**. As a result of these operations, tongue **17** is substantially at a right angle to edge **15** of the knife. Beveled end **21** of projection **20** engages turned-over edge **22** of the tongue and holds it firmly against edge **26** of opening **18**. Any attempted movement of knife **12** serves only to cause the end of projection **20** to dig into the knife's tongue.

Fig. 4 shows another embodiment of the locking means according to which opening **18** in wall **19** is formed by punching out from the wall two projections **20** which face each other. Tongue **17** is turned over on one projection **20** and locked in position by being engaged by beveled ends **21** of both projections which engage the tongue on either face of its turned-over edge **22**.

When in use, the device is continually subjected to moisture and acids, and must be relatively strong while having cutting edges on each side thereof. As a practical matter, the device must also be readily cleanable by a housewife using, for instance, a wiping cloth. In view of the foregoing requirements, I have found that a device made completely from stainless steel is highly satisfactory. The device could, however, be made from any other material which has the same characteristics as stainless steel and which may be more favorably priced than stainless steel.

From the foregoing, it will be seen that I have provided an inexpensive, easily assembled device that lends itself readily to mass production techniques. The cutting blades of the device are positively locked into position in a quick, inexpensive way and there is practically no danger of the blades ever working themselves loose.

While I have described preferred embodiments of my device, it is to be understood that modifications and variations may be resorted to without departing from the spirit and scope of the invention, as those skilled in the art will readily understand. Such modifications and variations are considered to be within the purview and scope of the invention and the appended claims.

I claim:

1. In a sectioning device; a center ferrule with a substantially cylindrical wall; a surrounding substantially concentric ring; elongated relatively thin knife members between the ferrule and ring; each of said knife members having a pair of blade portions extending radially between the ferrule and ring and with the faces of the blade portions disposed in axially extending planes, and a yoke portion integral with and joining the blade portions with an inner surface substantially conforming to the curvature of and abutting said ferrule wall; means fixing the yoke portions of the knife members to the ferrule; and means anchoring each blade portion to the ring whereby it is prevented from twisting and also from pulling inwardly of the ring; the latter means comprising means defining an opening in the ring having an axially extending edge and an opposed projection, and a tongue integral with the blade portion projecting through said opening and in engagement with said edge and the projection engaging said tongue.

2. The sectioning device of claim 1 wherein said tongue has an outer end extending substantially normally of the blade portion and disposed snugly against the outside of the ring.

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