Aug. 10, 1926. 1,595,953

J. Q. LEAVITT

CORER

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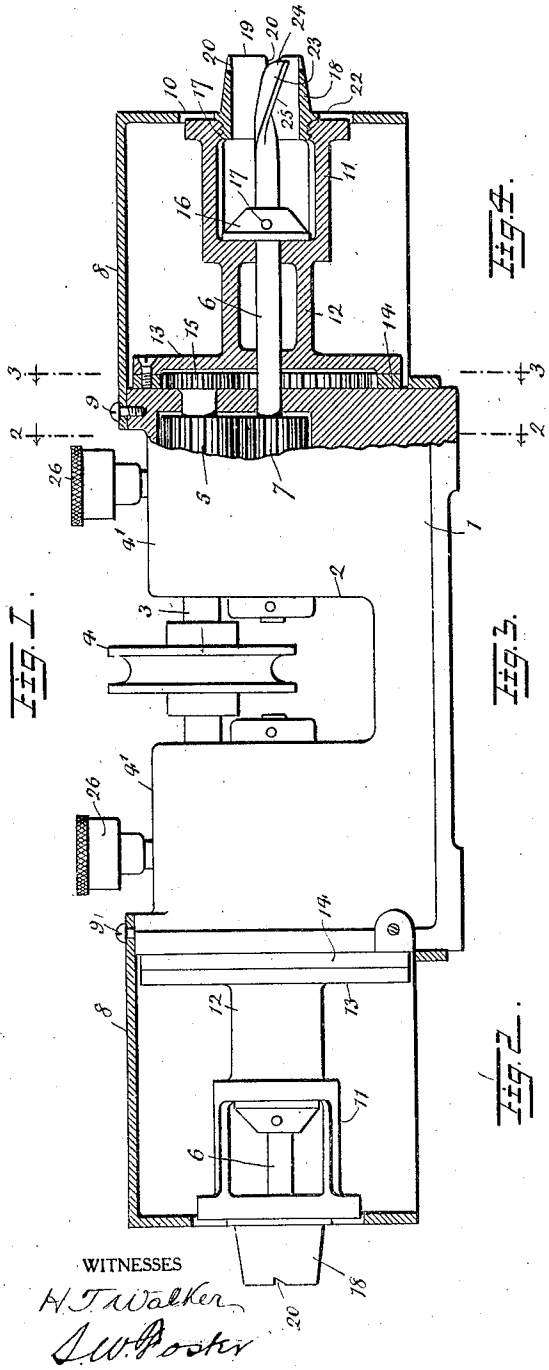


Fig. 1.

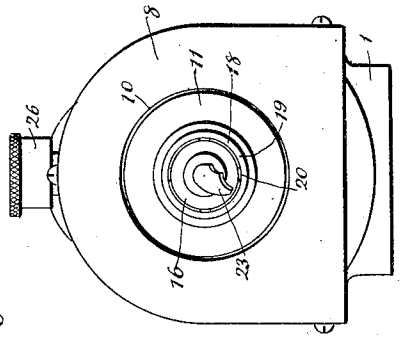


Fig. 4.

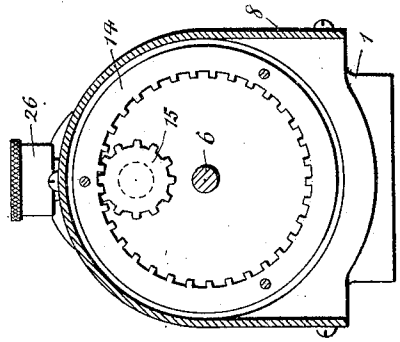


Fig. 3.

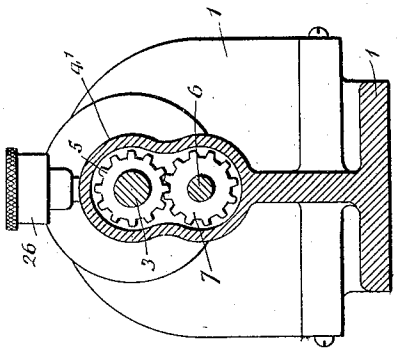


Fig. 2.

WITNESSES

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UNITED STATES PATENT OFFICE.

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CORER.

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This invention relates to corers, and more particularly to an apparatus for quickly coring tomatoes, apples or other fruits, vegetables or articles of any character in which it is common to remove the core especially when preserving, although of course the invention is not limited to any particular use.

An object of the invention is to provide a corer which will not only cut a circular opening into the article but will also sever the core within the circular opening from the article and perform this work quickly and efficiently.

A further object of my invention is to provide an apparatus which will constitute a time saver as well as one which will greatly improve the coring operation, preventing the removal of unnecessary portions thereof.

A further object is to provide an improved corer which embodies various novel features of construction and combinations and arrangements of parts, all of which will hereinafter be more fully described and pointed out in the claims.

In the accompanying drawings—

Figure 1 is a view, mainly in elevation but partly in longitudinal section, illustrating my improved corer;

Figure 2 is a view in transverse section on the line 2—2 of Figure 1;

Figure 3 is a view in transverse section on the line 3—3 of Figure 1;

Figure 4 is a view in end elevation of the corer.

1 represents a supporting block which is recessed at its center as shown at 2 and provides a mounting for a drive shaft 3 having a pulley 4 or other device thereon to which motion is transmitted from any source of power.

The apparatus illustrated is a double apparatus, or, in other words, includes a pair of corers arranged in tandem and driven from a single drive shaft 3. As these corers are precisely alike in construction and operation the detailed description hereinafter of one will apply alike to both.

The drive shaft 3 above referred to projects into gear housings 4′ at both sides of recess 2 and has fixed thereon within the housings 4′ gear wheels 5. Within each housing 4′, preferably below the drive shaft 3 and parallel therewith, I locate a second shaft 6 having suitable bearings within the block.

The shafts 6 do not extend across the recess 2, and each shaft 6 has a gear wheel 7 fixed thereon which meshes with the gear wheels 5. Each gear wheel 5 and 7 is relatively long so as to give great strength and rigidity to the meshing action and power transmission.

Hoods 8 are secured to the respective ends of the block 1, and these hoods are open at their bottoms and are preferably secured to the block by screws 9. Each hood 8 in its outer end is formed with an opening 10, and in line with this opening 10 a skeleton head 11 is positioned within the hood and is connected by a tubular extension 12 with a disk 13. This disk 13, extension 12 and head 11 preferably constitute an integral piece, and an internal circular rack 14 is secured to the disk 13 and is externally preferably of the same diameter as the disk.

A pinion 15 on drive shaft 3 meshes with this internal rack 14 to turn it in a direction opposite to the direction of rotation of the shaft 6. A cover 16 is fixed to the shaft 6, preferably by a pin 17, and is located within the head 11 and against the inner end of said head so that it functions to hold the head and its assemblage in proper operative relationship to the other features of construction.

The forward or outer end of the head 11 is internally screw threaded, as shown at 17, to receive the screw threaded inner end of a rotary circular cutter 18. This cutter 18 I refer to as a circular cutter because it is circular in cross section; while it is preferably of general cylindrical form internally, it is of truncated conical or tapering form externally so that its outer extremity presents a sharp cutting edge 19, the latter being provided with notches 20 which assist in insuring a cutting action on the vegetable, fruit or other article with which it is engaged. An annular flange 22 is formed on the cutter 18 and engages the end of head 11 so as to limit the movement of the head relative to the cutter and permit the parts to be tightly bound together by their screw threaded action.

On the forward or outer end of the shaft 6 a cutting blade 23 is provided and this blade may constitute a fixed or integral part of the shaft itself or may be a separate part, as desired. The blade 23 projects laterally from the longitudinal axis of shaft 6 and has a sharp cutting end 24 and a sharp cutting edge 25 at the side thereof.

This blade 23 is sufficiently wide to project close to the inner face of the cutter 18 and is transversely of a suitable dimension to insure a complete cutting of that portion of the core or article which is inserted or forced into the cutter 18.

Suitable grease cups 26 may be supported on the block 1 to supply lubricant to the wheels 5 and 7, and of course any suitable lubricating means may be provided to reduce friction to a minimum.

It will be noted that the shaft 6 and the head 11 turn in the opposite direction and at different speeds so that the shaft 6 with its cutting blade 23 turns at a greater speed than the circular cutter 18. This is due to the fact that motion is transmitted directly through the gears 5 and 7 to shaft 6 while motion to the head 11 is through the medium of the pinion 15 and the internal rack 14.

The fruit or article to be cored is forced onto the cutter 18 and as the blade 23 revolves in the opposite direction it will cut out the core within the confines of the cutter 18 and do this work rapidly, completely and without injury to the fruit or other article.

As the cutter and the blade turn in opposite directions there will be no tendency to revolve the fruit or vegetable being cored. As this fruit is sometimes soft this is very important because if the cutter and blade revolved in the same direction it would have a tendency to turn the fruit, which must therefore be held tightly in order to prevent its revolving and will be crushed or injured. It is desirable to have the blade revolve more rapidly than the cutter as its work of scooping or cutting out the core can be more efficiently carried out if the proportion of the speed of the parts is different as has been found by actual experiment.

Various slight changes and alterations might be made in the general form of the parts described without departing from the invention and hence I do not limit myself to the precise details set forth but consider myself at liberty to make such slight changes and alterations as fairly fall within the spirit and scope of the appended claims.

I claim:

1. A corer, including a rotary head having a discharge opening in its side wall, a circular cutter on one end of the head, and a rotary cutting blade inside the cutter.

2. A corer, including a cutter having a circular sharp outer edge, a blade inside the cutter, and means for causing the rotary movement of the cutter, said blade being turned in a direction opposite to the turning movement of the cutter and at a greater speed.

3. A corer, including a support, a pair of parallel shafts in the support, one of which constitutes a driving shaft, a rotary head having a discharge opening in its wall, a circular cutter mounted on the head, a blade within the circular cutter, said blade fixed to turn with one of said shafts, and means for transmitting motion from the other of said shafts to the head.

4. A corer, including a support, a pair of parallel shafts in the support, one of which constitutes a driving shaft, a rotary head, a circular cutter fixed to the head, a disk fixed to the head, an internal rack fixed to the disk, a pinion on one of said first-mentioned shafts meshing with the rack, and a blade on the other of said first-mentioned shafts mounted to turn within the cutter.

5. A corer, including a support, a pair of parallel shafts in the support, one of which constitutes a driving shaft, a rotary head, a circular cutter fixed to the head, a disk fixed to the head, an internal rack fixed to the disk, a pinion on one of said first-mentioned shafts meshing with the rack, a blade on the other of said first-mentioned shafts mounted to turn within the cutter, and a disk fixed to said last-mentioned shaft and holding the head and its connected parts in operative relation to the other parts of the mechanism.

6. A corer, including a support, a pair of parallel shafts in the support, one of which constitutes a driving shaft, a rotary head, a circular cutter fixed to the head, a disk fixed to the head, an internal rack fixed to the disk, a pinion on one of said first-mentioned shafts meshing with the rack, a blade on the other of said first-mentioned shafts mounted to turn within the cutter, a disk fixed to said last-mentioned shaft and holding the head and its connected parts in operative relation to the other parts of the mechanism, and a hood fixed to the support having an open bottom and having an opening its its end through which the circular cutter projects, said circular cutter being externally of truncated conical form.

7. A corer, comprising a block having a central recess, a drive shaft supported in said block and extending across the recess, shafts mounted parallel to the drive shaft and projecting in opposite directions, gear wheels connecting the drive shaft with the last-mentioned shaft, rotary cutters operatively connected to one of said shafts, and rotary blades within the cutters operatively connected to the other of said shafts.

JAMES QUINCY LEAVITT.