July 24, 1923. 1,463,114

E. A. BOSTROM

CORING MACHINE

Filed June 18, 1921 4 Sheets-Sheet 1

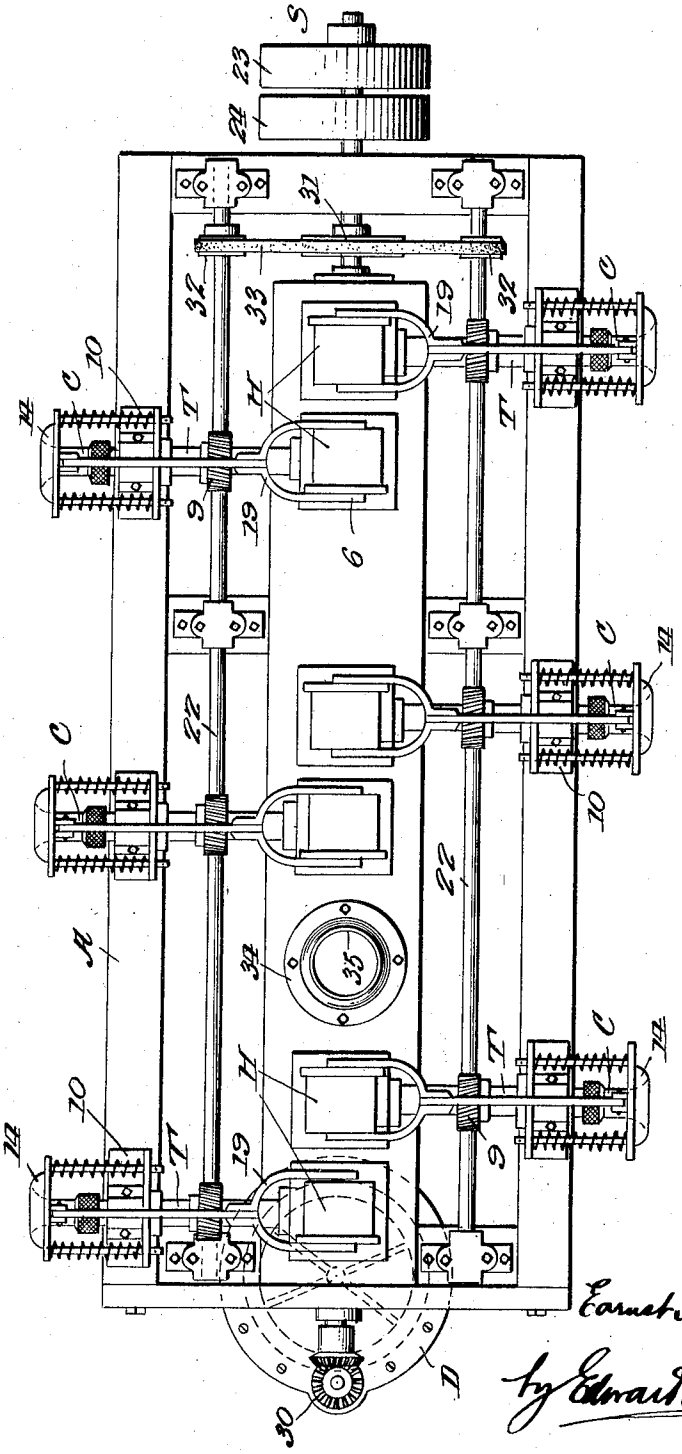


Fig. 1.

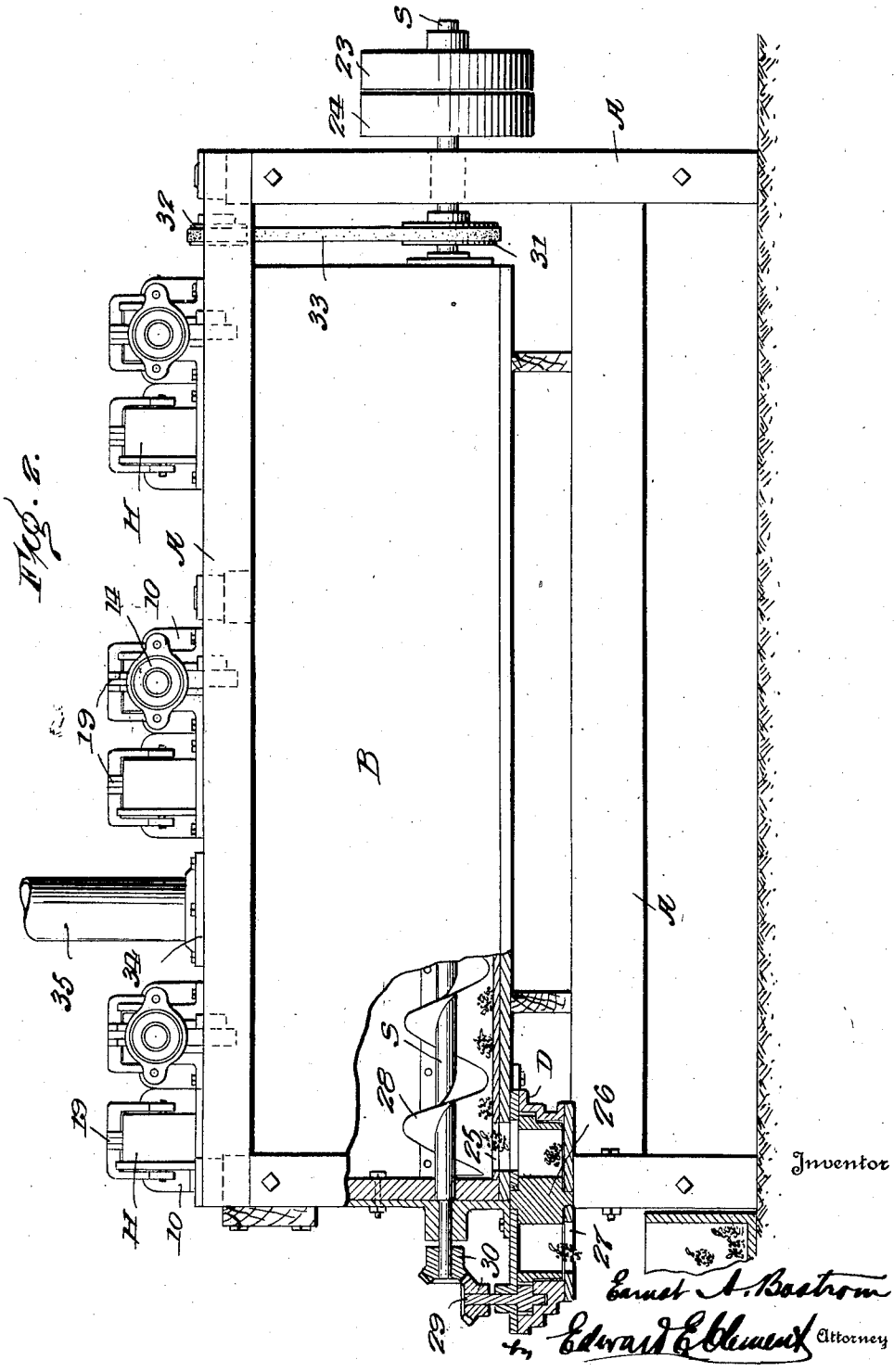
Inventor
Ernest A. Bostrom
by Edward E. Clement
Attorney

July 24, 1923. 1,463,114

E. A. BOSTROM

CORING MACHINE

Filed June 18, 1921 4 Sheets-Sheet 2



Inventor

Earnest A. Bostrom

by Edward E. Clement Attorney

July 24, 1923.

1,463,114

E. A. BOSTROM

CORING MACHINE

Filed June 18, 1921

4 Sheets-Sheet 3

Fig. 2

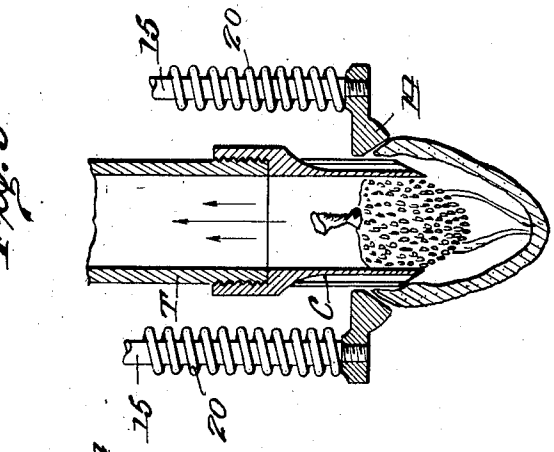
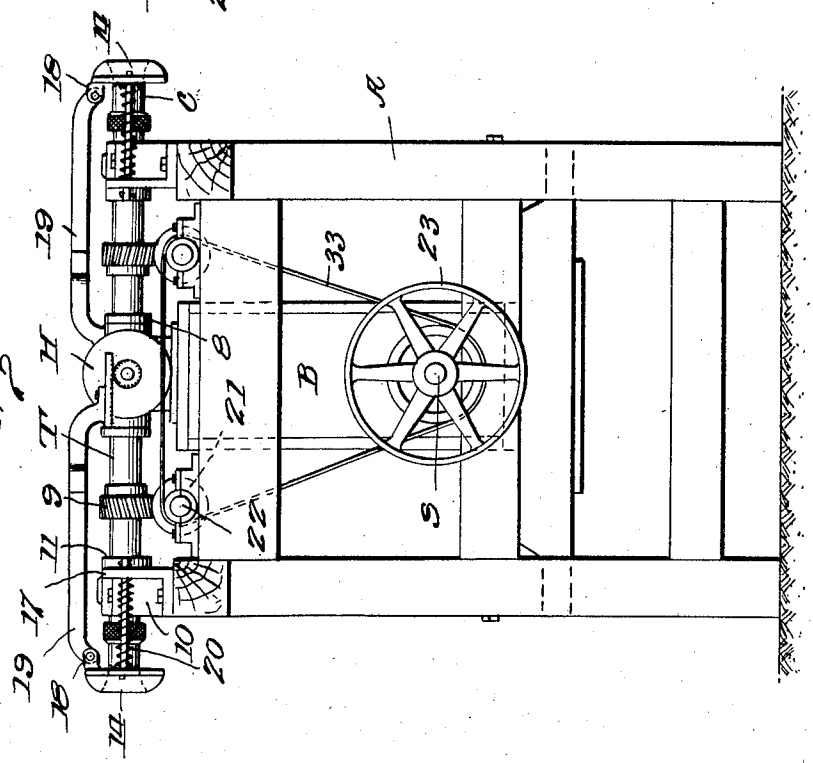


Fig. 3



Inventor

Earnest A. Bostrom

By Edward E. Clemens

Attorney

July 24, 1923.

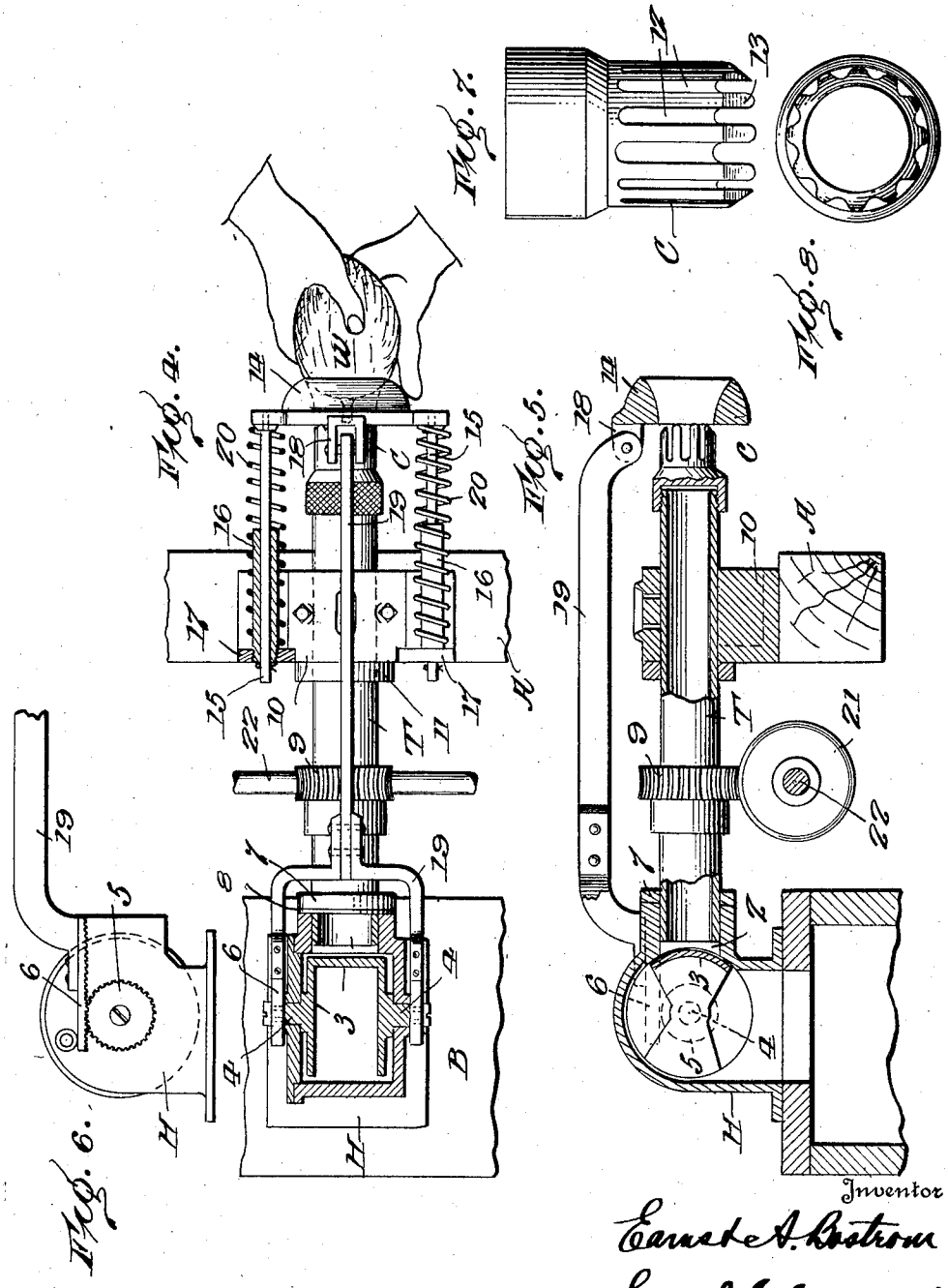
1,463,114

E. A. BOSTROM

CORING MACHINE

Filed June 18, 1921

4 Sheets-Sheet 4



Inventor

Ernest A. Bostrom

By Edward E. Clement

Attorney

Patented July 24, 1923. 1,463,114

UNITED STATES PATENT OFFICE.

EARNST A. BOSTROM, OF GRIFFIN, GEORGIA, ASSIGNOR TO POMONA PRODUCTS COMPANY, OF GRIFFIN, GEORGIA, A CORPORATION OF GEORGIA.

CORING MACHINE.

Application filed June 18, 1921. Serial No. 478,609.

To all whom it may concern:

Be it known that I, EARNST A. BOSTROM, a citizen of the United States of America, residing at Griffin, in the county of Spalding and State of Georgia, have invented certain new and useful Improvements in Coring Machines, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to improvements in extracting seed from vegetables, particularly the Spanish pimento, the object being to extract the seed efficiently and without injuring the body of the pimento. I attain this object by the mechanism described in the following specification and illustrated in the accompanying drawings.

In the drawings:

Fig. 1 is a plan view of the machine;

Fig. 2 is a side view or elevation partly in section, illustrating the internal construction of the vacuum chamber or seed collector, and also the construction of the seed removing valve, that dumps the seed without admitting air from the outside.

Fig. 3 is an end view of the machine;

Figs. 4 and 5 are enlarged views of the extracting mechanism partly in section, to more fully explain its construction;

Fig. 6 illustrates the valve motion which prevents air from entering except while removing seed;

Fig. 7 is a side view of the cutter head;

Fig. 8 is an end view of the cutter head; and

Fig. 9 is an enlarged sectional view showing how the cutter head enters the pimento.

In the following explanation similar letters or figures refer to similar parts throughout the several views.

The frame A is constructed in a suitable way for supporting the various parts composing the machine as shown. B represents the main body or vacuum chamber, to which are attached the suction heads H, as shown in Figs. 4 and 5. T is a suction tube extending from the suction head H, to cutter head C, at the same time serving as a means for revolving the cutter head C, as hereinafter explained.

The suction head H, constructed as shown in section in Figs. 4 and 5, has a rectangular base with a square hole or opening in the bottom, and a round opening 2 on one side as shown in Figs. 4 and 5, the opening forming a bearing for the inner end of suction tube T. This opening 2 is controlled by the valve 3 which swings on trunnions 4 and is operated from the outside by means of gears 5 and racks 6 as hereinafter explained.

The suction tube T has a collar 7 near its inner end, which with a soft washer 8 forms an airtight joint with suction head H, and carries a spiral gear 9 for the purpose of its rotation, which will be explained hereinafter. This suction tube T is supported by a central bearing 10 and a set collar 11 for keeping it in place. The outer end of this tube T is threaded for the purpose of holding cutter head C. Cutter head C is constructed as shown in Figs. 7 and 8 with a base that screws on to end of suction tube T forming part of same, and having a hole or opening through its center. The outer end of said cutter head is tapered down as shown, forming a sharp cutting edge around its central opening. A series of flutes or grooves 12 are formed around its circumference, and pass through the wall of the inner surface at the cutting edge, thus forming a serrated or toothed cutting edge as shown at 13. The purpose of said grooves or flutes is to admit air to the inside of the pimento as soon as the teeth cut trough the wall of the outer pod.

Just in front and immediately at the end of the cutting edge of the cutter head C is a centering or guiding device 14 which is held in position by sliding rods 15 and springs 20 which in turn are supported and guided by sockets 16 attached to lugs 17 which are a part of bearing 10. Guide 14 has on its upper edge two lugs 18 to which is pivoted a curved arm 19 connecting guide 14 with the racks 6 for the purpose of operating valve 3 as hereinafter described.

Suction tube T and its cutter head C receive a rotary motion through spiral gears 9 and 21. Gear 21 is located on shaft 22 and directly under gear 9 on suction tube T.

Inside of main body or vacuum chamber B at the bottom of same, is located a spiral conveyor 28, Fig. 2, attached to the main driving shaft S, which extends from one end of the machine to the other, having the tight and loose driving pulleys 23 and 24 on one end, and a miter gear 30, Figs. 1 and 2, on the other end, said miter gear meshing a like gear on the seed removing valve D. The

seed removing valve D is a flat circular box, the top of which is bolted to the bottom of the vacuum chamber B and communicates with the vacuum chamber through opening 25. The seed removing valve D has a rotary spider 26 fitting snugly between the top and bottom of said valve D and having six arms extending from center hub to outer rim, thus forming six pockets open at top and bottom but the edges of arms and rim fitting snugly between top and bottom of valve D. An opening 27 formed in the bottom of valve D on opposite side of center to opening 25 in top of valve case D permits anything dropping into compartments D at opening 25 to drop out when the revolution of the compartment reaches opening 27. The rotary spider 26 has a spur gear cut on its upper edge, meshing a spur pinion on shaft 29 which through the miter gear 30 gives rotary motion to spider 26.

Through sprockets 31 and 32 and chain 33 motion is communicated to shafts 22.

A flange 34 is bolted over an opening cut in the main vacuum chamber B and communicates through pipe 35 with a positive suction blower or vacuum pump for the purpose of exhausting the air from the vacuum chamber B.

The operation of the machine is as follows:

First the positive suction blower is started exhausting the air from main vacuum chamber B, the shaft S is started in motion by shifting the drive belt (not shown) on to tight pulley 24. The pimento to be seeded is held by the two hands against the centering or guiding device 14 as shown at W, Fig. 4, by pressure on the centering device. The springs give away allowing the revolving cutter head to bore or cut its way into the pimento as shown in section in Fig. 8. At the same time the valve 3 is actuated through the arm 19, rack 6 and gear 5 opening the valve 3 so that the suction formed by the suction blower exhausting the vacuum chamber B pulls the seed out of the pimento. The seed cone as soon as it reaches the vacuum chamber, drops to the bottom of same, and is then conveyed by the conveyor to the dumping end of the vacuum chamber where it drops through the opening 25 into the seed removing valve D where the seed is taken round to opening 27 and dropped into a box, without permitting air to enter the vacuum chamber from this point. As soon as pressure is relieved from guide 14 the spring 20 returns guide 14 to its first position, at the same time closing valve 3 in suction head H which prevents air from entering except when the machine is in use for extracting seed. Thus any number of suction heads may be attached to the vacuum chamber, its length and number of suction heads being limited only by constructive requirements.

I claim:

1. In combination, a vacuum chamber and means for maintaining a vacuum therein, a suction tube operatively connected at one end with said vacuum chamber and having its other end open and exposed without enclosure, a tubular cutter head on said outer end adapted to cut into the end of pimento peppers, said cutter head being so proportioned that air under atmospheric pressure will pass into the fruit and carry back the seed into the suction tube through the inside of the cutter head, substantially as set forth.

2. In combination with a vacuum chamber a number of suction heads and suction tubes, having cutter heads at their outer ends for cutting into the end of pimento peppers, for extracting seed from same by atmospheric pressure and a normally closed valve for each tube adapted to be opened upon pressure of the fruit against the head.

3. In a pimento seeding machine, the combination of a vacuum chamber, a revolving suction tube and cutter head with grooves for admitting air to the inside of the pimento, a centering device for holding the pimento in proper position for being seeded, a valve in the head arranged to automatically open when suction is desired, and a discharge valve arranged to discharge accumulation of seed without admitting air to the vacuum chamber, substantially as set forth.

4. A fruit coring device comprising a tube arranged to be forced into the fruit to surround the core, and means for directing a fluid into the fruit directly between the body of the fruit and the outside of the tube and out through the tube.

5. A coring device for fruit having a relatively soft seed core and relatively firm fleshy wall, comprising a tube adapted to be forced into the fruit to surround the core and means on the outer surface of said tube for directing the flow of a fluid between and in contact with the tube and the fleshly walls of the fruit.

6. In a fruit coring machine, a coring head having a single wall with fluid conducting channels formed therein along the outside across the end and through the middle, and means for forcing a fluid through said passage.

7. In a fruit coring machine, a low pressure chamber, a tubular coring head communicating with said low pressure chamber having fluid directing channels extending along the outside of its walls and across the end into communication with the center of the tube, and means for maintaining a difference of pressure between the outside of said coring head and said chamber.

8. In a fruit coring machine, a low pressure chamber, a tubular coring head com-

municating with said low pressure chamber having fluid directing channels extending along its outside walls and across the end into communication with the center of the tube, means for maintaining a difference of pressure between the outside of said coring head and said chamber, a guard for said head positioned normally to prevent contact with said head and arranged to be moved into a position to permit contact with the head, a valve controlling communication between said tubular head and the low pressure chamber, and controlling means for said valve operated by the movement of said guard.

9. In a fruit coring machine a low pressure chamber, a tubular coring head communicating with said chamber, a valve controlling communication between said coring head and chamber, means for maintaining low pressure in said chamber relative to the atmosphere sufficient to cause fruit cores severed by said head to be drawn into the chamber, a discharge opening in said chamber, and means communicating with said discharge opening for locking the cores from said chamber without permitting direct communication between the chamber and atmosphere.

10. A fruit coring machine as claimed in claim 9, having conveyor means for conveying the fruit cores to the discharge opening.

11. In a fruit coring machine, a tubular coring head having cutting teeth at the end thereof, and fluid directing channels extending along the outside walls and between the cutting teeth and the interior thereof arranged when the coring head enters the fruit to form a fluid passage extending along the outside of the cutting head between it and the body of the fruit and between the cutting teeth and the interior of the tubular coring head, and means for maintaining a reduced pressure within the coring head, relative to the outside pressure.

12. In a fruit coring machine, a rotatable cylindrical coring head having cutting teeth on the outer edge thereof and adapted to cut its way into the fruit to sever and surround the core, said coring head having grooves formed in the outer wall thereof communicating with the spaces between the cutting teeth in such manner that when the coring head is in the fruit the grooves will be covered by the body of the fruit to form a passage for a fluid extending between the coring head and the body of the fruit through the teeth and the core, means for rotating said coring head and means for maintaining a partial vacuum in the interior thereof.

In testimony whereof I affix my signature.

EARNST A. BOSTROM.

Witnesses:
JNO. H. POWER,
J. P. MASON.