May 8, 1928. 1,669,263

C. J. PUGH

PEAR PEELING MACHINE

Filed Nov. 10, 1925

Fig. 1.

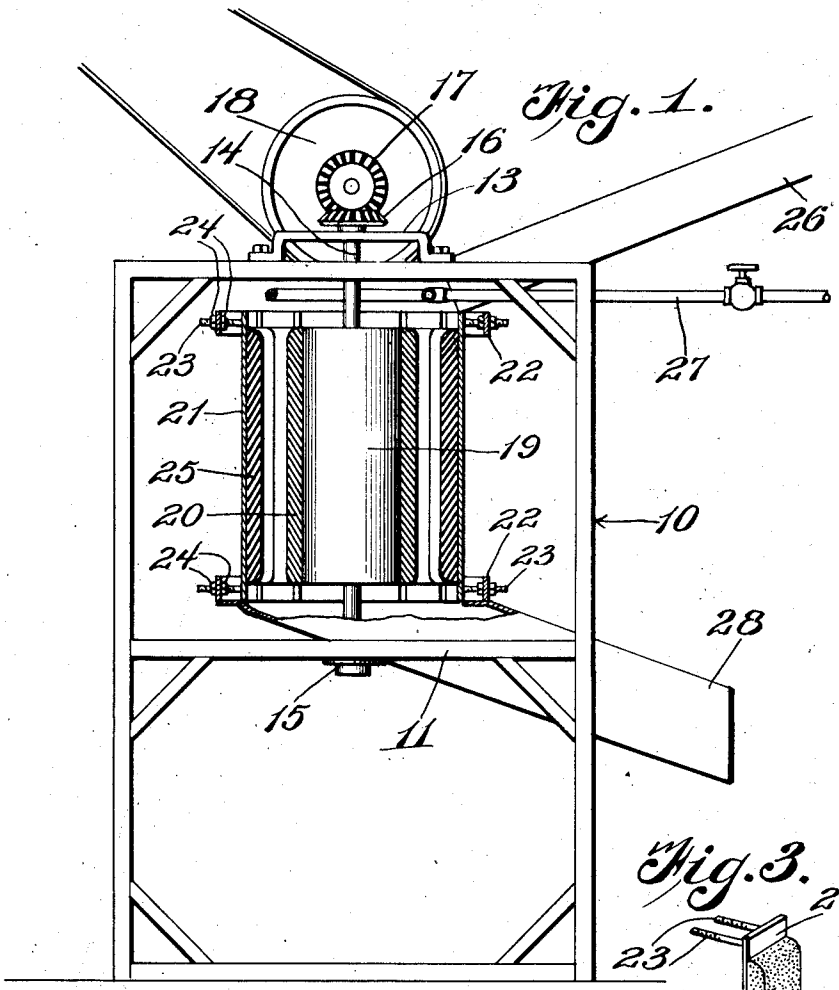


Fig. 3.

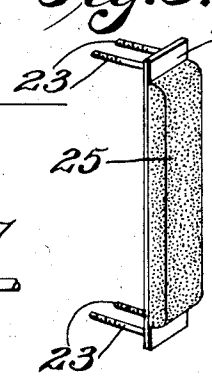


Fig. 2.

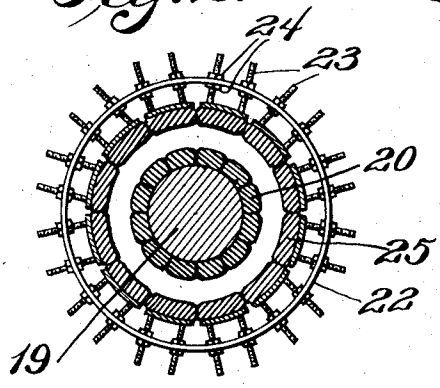
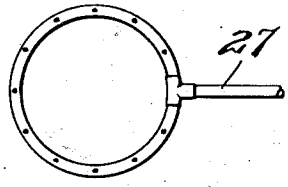


Fig. 4.



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UNITED STATES PATENT OFFICE.

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PEAR-PEELING MACHINE.

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This invention relates to devices for removing the skin from fruit, and particularly to a machine for removing the skin from pears.

In peeling pears, it is the usual custom to drop the pears into a hot solution of brine, then remove the pears to a cold bath, and then remove the skin by hand, the action of the solution being to cause the skin to very readily slip off.

The general object of the present invention is to provide a device of this character which will eliminate the necessity of any peeling of the pears by hand, which is an expensive operation but one which is almost universally used at the present time.

A further object is to provide a device of this character which is so constructed that it will not injure or mar the pear, and which is further so constructed that it will accommodate the irregularities of the pear while at the same time applying sufficient force to the surface of the year as to remove the skin therefrom.

A still further object is to provide a mechanism of this character including a central cylinder rotating in one direction and carrying pads of sponge rubber and an outer cage, as it were, or cylinder having sponge rubber on the inside face thereof and facing the sponge rubber on the outer cylinder, the outer cylinder being fixed, and the cylinders acting to rub the skin off the pear, gradually turning the pear as it does so so that the skin will be rubbed off all portions of the pear.

Another object is to provide means for this purpose in which sponge rubber strips are mounted upon the inner cylinder and outer cylinder and the pads of the outer cylinder are adjustable toward or from the pads of the inner cylinder so that the space between the cylinders may be adjusted and the space, if desired, may be made narrower at the lower ends of the cylinders than at the upper ends thereof or vice versa.

Other objects will appear in the course of the following description.

My invention is illustrated in the accompanying drawing, wherein:—

Figure 1 is a side elevation of my fruit peeling machine, the outer and inner cylinders being shown in section;

Figure 2 is a cross sectional view through the outer and inner cylinders;

Figure 3 is a perspective view of one of the supporting strips showing the rubber block mounted thereon;

Figure 4 is an under side plan view of the spraying pipe.

Referring to this drawing, 10 designates a supporting frame of any suitable character but shown as made up of angle irons and including an intermediate horizontal frame 11 and an upper horizontal frame 12. A bearing member 13 is supported upon the frame 12 and extending downward through this bearing is a shaft 14, which shaft is supported in a bearing 15 on the lower frame 11. The shaft is operated by means of a beveled gear 16 engaged with the beveled gear 17 on a horizontal shaft, in turn carrying a belt wheel 18 whereby power is conveyed to the machine. I do not wish to be limited to any particular driving mechanism.

Mounted upon the shaft 14 is a cylinder 19 having attached to its face a plurality of vertically extending blocks or strips of sponge rubber, designated 20. These sponge rubber strips or blocks are preferably about three and a half inches thick and the sponge rubber may be attached to the cylinder in any suitable manner, the blocks being placed in contact with each other and the outer corners of the blocks being rounded or beveled.

Mounted exteriorly to the cylinder and in concentric relation thereto is an outer casing formed of vertically extending strips of metal 21 connected at their upper and lower ends to circular hoops 22 at the upper and lower ends of the plate or strips 21. These hoops may be supported in any suitable manner from the frames 11 and 12 and the plates 21 are attached to these hoops by means of bolts 23, each bolt carrying two nuts 24 which permit the bolts to be adjusted inward or outward with reference to the hoops, it being understood that the bolts 23 are stud bolts projecting from the plates 21 and rigid therewith.

Attached to the inner face of each plate is a longitudinally extending block or strip of sponge rubber 25, these blocks or strips being almost in contact with each other at their inner corners and the hoops being large enough, as shown in Figure 2, to permit the adjustment of the nuts 24 to shift the plates 21 inward or outward with reference to the hoops. A feed chute 26 extends downward and discharges fruit into the space between the inner and outer cylinders, and a water pipe 27 extends over the space between the inner and outer cylinders and is provided

with spray openings by which water may be sprayed downward into the space between the cylinders and onto the fruit and at the lower end there is provided a discharge chute 28 which carries off the water and the skin which has been slipped from the fruit.

This machine is to be used with a stream of cold water continually flowing into the cylinder into which the pears are fed in order to wash the peelings down, which peelings will be discharged into the chute 28 along with the pears. The pears, peelings and water will flow down the chute and the water will, of course, wash away the peelings or skins. I have found in actual practice that the sponge rubber is of particular value in this connection for the reason that while it is sufficiently elastic and soft to yield to the irregularities of the pears, it will be at the same time sufficiently firm to completely rub off the skin of the pear. Brushes must be made either with bristles which will not properly yield and will thus tend to scratch the fruit or else with bristles which are so soft that they will not entirely remove the spin. Sponge rubber blocks, however, will not mar the fruit in any way but will act to remove the skin completely.

In the use of this device, the pears are disposed in a hot saline solution. This solution cooks the skins, which can then be easily broken and slipped off the entire pear. It is, therefore, necessary that the pears, after being submitted to the action of hot water, be disposed in this machine in the space between the trough and inner cylinder, and as the inner cylinder rotates the pears will be rotated to some extent, the skins will be slipped off, and the pears entirely clean and dropped down into the discharge chute.

Because pears are of an irregular shape, it is necessary in order that the machine shall run properly that rubber sponge shall be used for rubbing the skin off the pear, as this is the only material which will do the work without marring the fruit. It is also necessary that the side walls be adjustable, as it is necessary to adjust the side walls for different thicknesses of pears. It is necessary with certain grades of pears that the cylinder should be smaller at the bottom than at the top. The rubber sponge will be in long flat strips, in some instances as much as two feet wide, and may be applied directly to the metal of the cylinder 19 or to the vertical strips 21 or be vulcanized onto an intermediate portion attached to these parts.

I claim:—

1. A machine for skinning fruit including in its organization an inner cylinder having an outer surface composed of longitudinally extending strips of rubber sponge the rubber being of such thickness as to conform to the contour of the fruit and permit the fruit to be partially embedded in the rubber and an outer cylinder including vertically extending members having attached thereto vertically extending blocks of relatively thick rubber sponge, means for adjusting the strips of the outer cylinder toward or from the surface of the inner cylinder, and means for rotating one of said cylinders relative to the other.

2. A machine for skinning fruit including in its organization a supporting frame, a vertical shaft supported by said frame, an inner cylinder mounted upon said shaft and having its surface composed of vertically disposed blocks of sponge rubber, said rubber being of such thickness as to permit the fruit to be partially embedded in the rubber and the rubber to conform to the contour of the fruit, an outer cylinder disposed approximately concentric to the inner cylinder and including upper and lower hoops, vertically disposed strips adjustably engaged at their upper and lower ends with said hoops and carrying relatively thick, vertically extending blocks of sponge rubber, means connecting the strips to the upper and lower hoops and permitting the opposite ends of the strips to be independently adjusted toward or from the inner cylinder, means for discharging fruit and water into the space between the outer and inner cylinders and conducting fruit peelings and water away from the lower end of said space, and means for rotating the inner cylinder.

3. A machine for skinning fruit comprising a supporting frame, a vertical shaft mounted in said frame, means for rotating said shaft, a cylinder carried upon the shaft and having its outer face composed of vertically extending blocks of sponge rubber, the rubber being of such thickness that it will conform to the contour of the fruit and permit the fruit to be slightly embedded therein, an outer cylinder mounted upon the supporting frame and comprising upper and lower hoops, vertical plates extending between said hoops, vertical blocks of relatively thick sponge rubber carried upon said plates, stud bolts extending outward from said plates and passing through the hoops, a pair of nuts mounted upon each stud bolt whereby the stud bolts may be adjusted relative to the hoops to thereby adjust the plates relative to the inner cylinder, a pipe discharging water into the upper end of the space between the outer and inner cylinders, a feed chute discharging fruit thereinto, and a discharge chute receiving fruit, peelings and water from the lower ends of the cylinders.

In testimony whereof I hereunto affix my signature.

CLIFFORD J. PUGH.