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D. DE ROY SOFIELD

2,728,124

METHOD OF FORMING CYLINDRICAL SHELL WITH ABRASIVE INTERNAL LININGS

Filed March 26, 1952

Fig. 1.

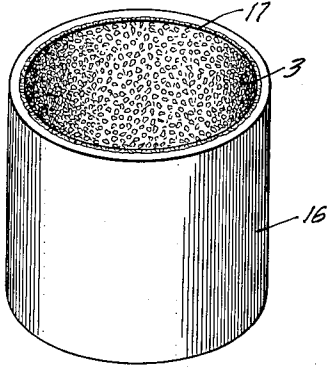


Fig. 2.

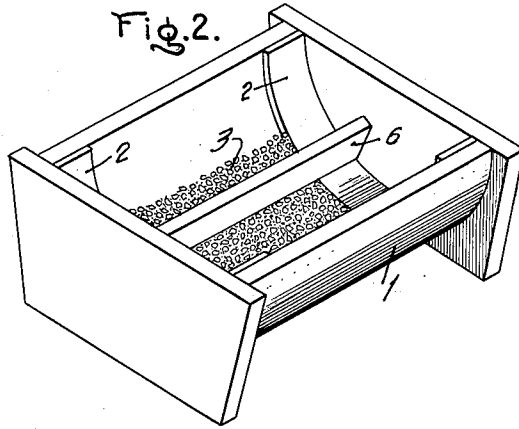


Fig. 3.

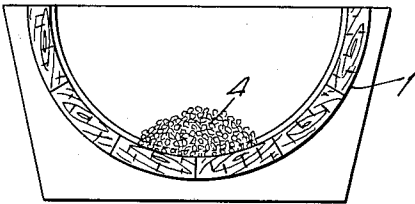


Fig. 4.

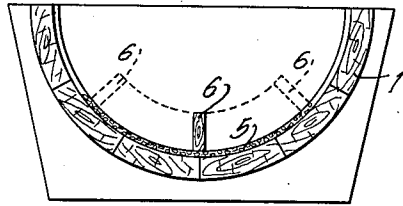


Fig. 5.

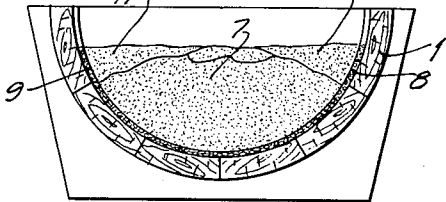


Fig. 6.

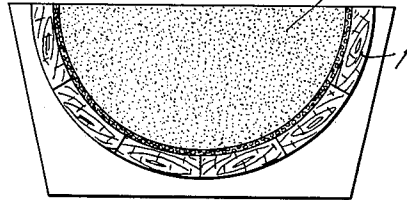


Fig. 7.

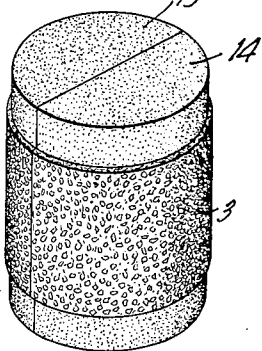
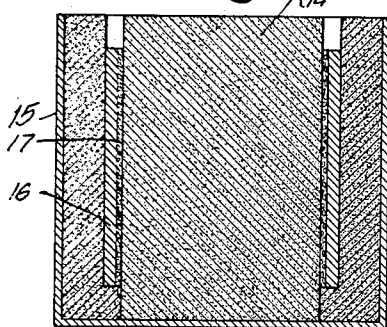


Fig. 8.



Inventor:  
David DeRoy Sofield,  
by *David DeRoy Sofield*  
His Attorneys.

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## METHOD OF FORMING CYLINDRICAL SHELL WITH ABRASIVE INTERNAL LININGS

David De Roy Sofield, Hudson, N. Y., assignor to Gifford-Wood Co., Hudson, N. Y., a corporation of New York

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2 Claims. (Cl. 22—202)

My invention relates to vegetable peeling machines and particularly to a method whereby the peeling cylinders thereof which have an abrasive lining may be cast as a single unit.

At the present time, so far as I am aware, the peeling cylinders, or "pots" as they are sometimes called, are formed in one of two ways, both of which are comparatively costly.

One of the methods is to roll a sheet of metal into cylindrical form, weld the abutting edges thereof together, machine or grind the weld smooth on the interior surface of the cylinder and thereafter bond a lining of silicon carbide grains to the inner surface thereof. The other common method is to cast the cylinder in separate sections with the abrasive silicon carbide grains fused into the inner surfaces of the sections. The sections are then assembled and welded together to form a complete cylinder having an abrasive surface on the inside thereof.

When casting these sections, the abrasive is sprinkled on one side of the mold which forms the concave side of the section and is then pressed down slightly into the sand, after which the mold is closed and the molten metal poured in as in making any casting. The molten metal flows around some of the abrasive grains and grips them firmly as it cools. After the casting is removed from the mold, the loose grains are brushed off. The cast sections (usually 4) are then assembled and welded together into the form of a complete cylinder. This is a slow and costly process, but heretofore apparently has been unavoidable because no one has been able to form a complete cylindrical core and hold the granular abrasive in place thereon so that the cylinder could be cast as an integral unit.

The principal object of my invention is to provide a method whereby satisfactory pots for vegetable peeling machines having an abrasive lining therein may be cast as single units.

I accomplish this object by means of the procedure described below and illustrated in the accompanying drawing in which—

Fig. 1 is a perspective view of a pot or cylinder cast as a single unit;

Fig. 2 is a perspective view of a core box in which a portion of the core is formed;

Fig. 3 is a transverse section of the core box illustrating the initial step in the process;

Fig. 4 is a view similar to Fig. 3 illustrating how the abrasive granules are spread to a uniform thickness over the bottom only of the core box;

Fig. 5 is a view similar to Figs. 3 and 4 illustrating how the abrasive grains first spread are secured in position, and illustrating two successive steps of the process in forming a complete half section of the core;

Fig. 6 is a view similar to Figs. 3, 4 and 5, but showing the completed half core;

Fig. 7 shows a complete core formed of two halves which are adhesively or otherwise secured together; and

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Fig. 8 is a vertical section through the mold and the pot cast therein.

Referring to the drawing—

1 is a semicylindrical core box having screed supporting surfaces 2 in each end therefore and which are of a thickness to which the silicon carbide grains 3 are to be spread in the box. The granular abrasive material is first mixed with a suitable binder, such as heavy core oil or gluten, which is a mixture of glucose and water, to form a mixture which is fairly stiff but plastic enough to spread in a uniform layer  $\frac{3}{16}$ " to  $\frac{3}{8}$ " thick on the curved bottom of the semicylindrical core box. Before spreading the abrasive mixture, the inside surface of the box is coated lightly with vegetable oil or grease to prevent the mixture from adhering thereto. Some of the plastic mixture is placed in the bottom of the box, as shown at 4 in Fig. 3, and is then spread evenly thereover in each direction by means of the screed 6, as shown at 5 in Fig. 4, as far as it will stay in place without flowing back towards the center. This portion is then covered with core sand 7 prepared as usual for core making, as shown in Fig. 5. The layer of abrasive is then extended upwardly in steps along the interior sides of the core box, as shown at 8 and 9, and covered and held in place by core sand 10 and 11, until the semicylindrical core is completed, as shown at 12 in Fig. 6.

The half core is then taken out of the box and baked in accordance with standard foundry practice. The two halves 13 and 14 are then put together to form a complete cylindrical core, as shown in Fig. 7, which is used in a mold 15 for casting the abrasive-lined peeling cylinder or pot 16 having the abrasive lining 17.

In practice, the pots or cylinders vary in size from about 10" in diameter and 10" high to about 23" in diameter and 17" high but can, of course, be made larger or smaller as desired.

What I claim is:

1. Those steps in the method of casting a one piece, abrasive-lined, cylindrical shell adapted for use in a vegetable peeling machine which comprises forming a cylindrical core for casting said shell by applying a uniformly thick layer of particles of silicon carbide in the form of a plastic mixture to those portions of the surface of a semicylindrical core box to which said mixture will temporarily adhere without sloughing; securing said mixture in place by placing core sand thereon; and thereafter progressively applying a layer of said mixture to portions of said surface and securing it in place with core sand laid thereagainst until said core box is completely filled.

2. The method of casting a one-piece, abrasive-lined, cylindrical, metal shell adapted for use in a vegetable peeling machine which comprises forming a stiff plastic mixture of silicon carbide particles and a binder of a substance which is combustible at casting temperatures; coating the surface of a semicylindrical core box with a substance adapted to prevent said mixture from adhering thereto; applying a layer of said mixture to the bottom of said box and extending up the sides thereof a distance less than that at which said mixture will tend to slough screeding said layer to a uniform thickness; holding said mixture in place by placing core sand thereon; successively continuing said layer upwardly on the sides of said box and holding it in place by placing core sand thereagainst until said semicylindrical core is completely formed; forming a second semicylindrical core in like manner; baking said cores; securing said cores together to form a cylindrical core; placing said core in a mold;

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and thereafter forming said shell with said particles embedded in the inner surfacing thereof by casting said shell in said mold.

References Cited in the file of this patent

UNITED STATES PATENTS

805,144 Kuller ----- Nov. 21, 1905

5

954,965  
1,561,287  
1,935,916  
2,479,598

390,252

4

Jacobs ----- Apr. 12, 1910  
Stern ----- Nov. 10, 1925  
Ragsdale ----- Nov. 21, 1933  
Barber et al. ----- Aug. 23, 1949

FOREIGN PATENTS

Great Britain ----- Apr. 6, 1933