Sept. 17, 1957 M. E. WALLIS 2,806,250

APPARATUS FOR PRODUCING CONTINUOUS STRANDS OF WAX

Filed Nov. 27, 1953 2 Sheets-Sheet 1

FIG. 1.

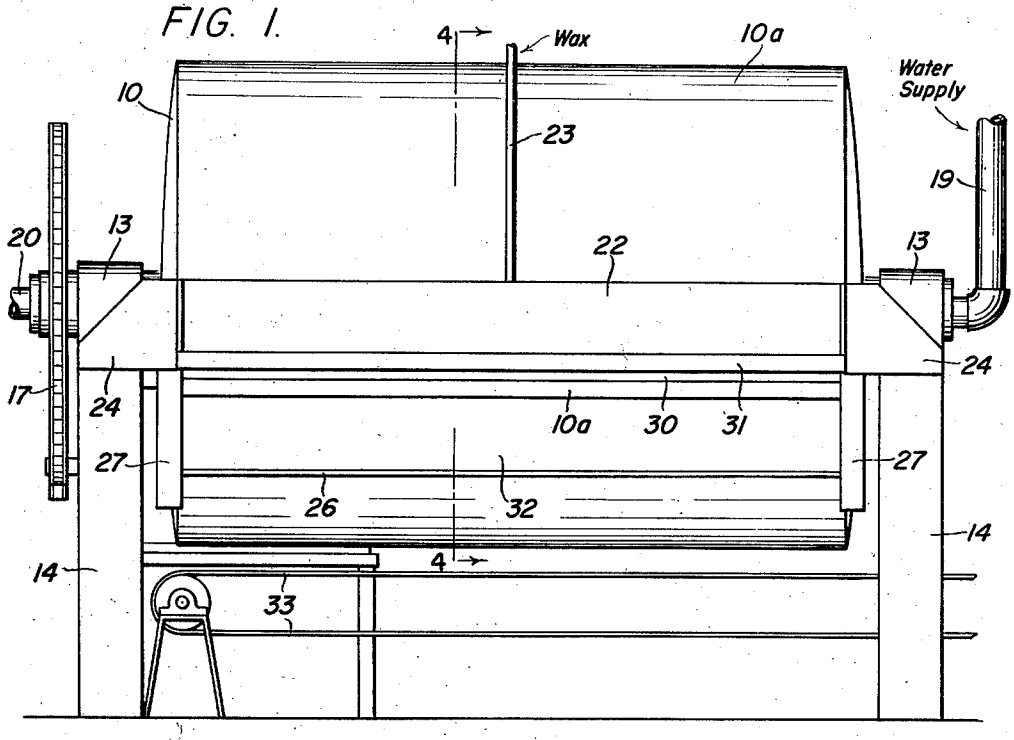
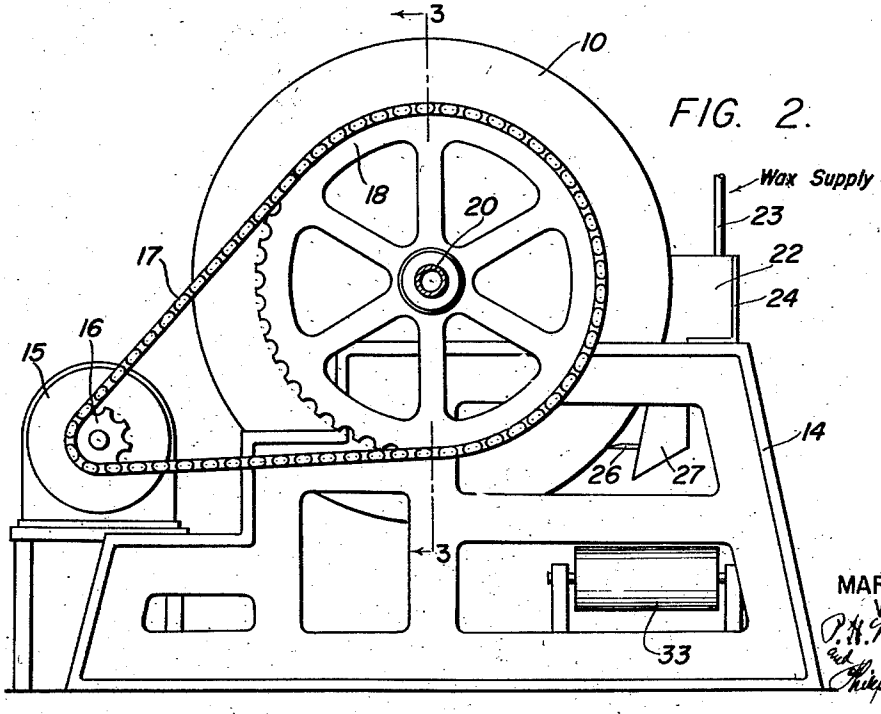


FIG. 2.



Inventor:
MARVIN E. WALLIS,
by P. H. MacCracken and Philip A. MacCracken
Attorneys.

Sept. 17, 1957 M. E. WALLIS 2,806,250

APPARATUS FOR PRODUCING CONTINUOUS STRANDS OF WAX

Filed Nov. 27, 1953 2 Sheets-Sheet 2

FIG. 3.

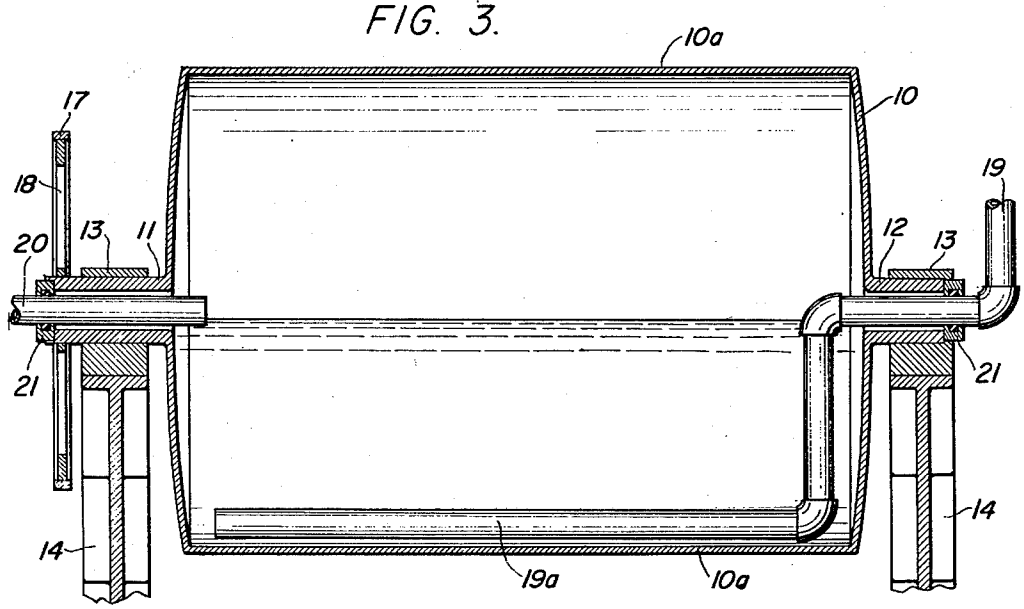
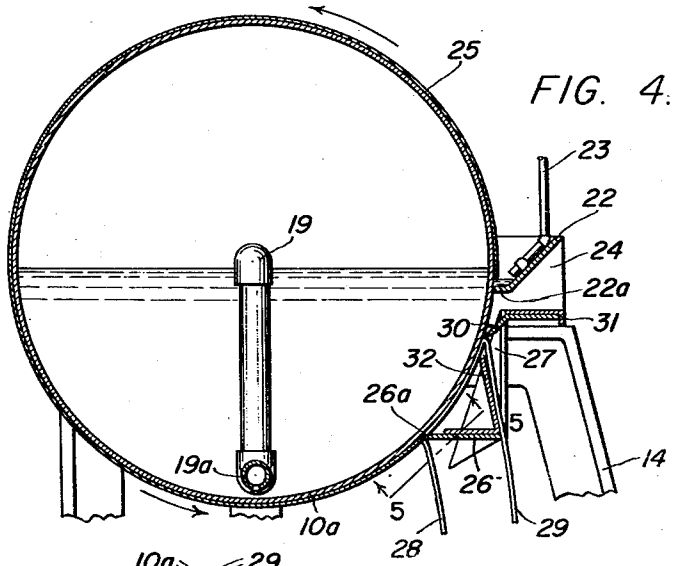


FIG. 4.



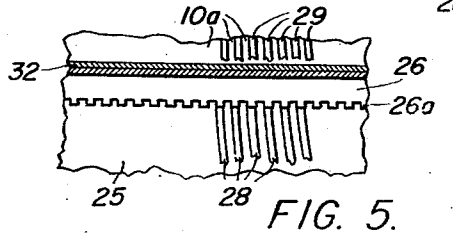


FIG. 5.

Inventor:
MARVIN E. WALLIS,
By A. Mallinckrodt and Philip A. Mallinckrodt,
Attorneys.

United States Patent Office 2,806,250 Patented Sept. 17, 1957

2,806,250

APPARATUS FOR PRODUCING CONTINUOUS STRANDS OF WAX

Marvin E. Wallis, Salt Lake City, Utah, assignor to Sure-Seal Corporation, Salt Lake City, Utah, a corporation of Utah

Application November 27, 1953, Serial No. 394,598

4 Claims. (Cl. 18—15)

This invention relates to processing apparatus for wax and wax-like materials, and is concerned particularly with the production of continuous strands of wax or wax-like materials.

The underlying concept of the present invention resides in the flowing of the wax or wax-like material in molten condition onto an endlessly traveling surface, so that the surface is progressively and substantially uniformly coated continuously as the surface travels. The coating of such material as applied to the traveling surface is solidified, and, thereafter, a multiplicity of longitudinally continuous strands of the character desired are simultaneously and progressively stripped from the solidified coating, in side-by-side relationship, as the surface travels.

The apparatus here disclosed is particularly advantageous from the standpoints of economy of construction and operation, economy of floor space occupied, ease of cooling and of controlling the degree of cooling, simplicity and convenience of accomplishing the stripping operation, and the uniformity of results achieved.

The apparatus embodies a closed, rigid, hollow cylinder mounted for rotation on a horizontal axis, which is desirably provided by hollow stub shafts at opposite ends of the cylinder, through which shafts respective inflow and outflow conduits pass for the circulation of a coolant through the hollow interior of the cylinder as it rotates. An elongate trough, extending longitudinally with the cylinder and in feed relationship with its exterior circumferential surface, provides for the application of the molten wax or other wax-like material, while a similarly extending serrated blade and a following straight-edge blade accomplished a gouging operation followed by a peeling operation to produce separate groups of strands which fall naturally onto a continuously moving conveyor for transportation to use or storage.

Further objects and features of the invention will become apparent from the following detailed description of the preferred embodiment of the apparatus illustrated in the accompanying drawings.

In the drawings:

Fig. 1 represents a front elevation;

Fig. 2, an end elevation looking from the left in Fig. 1;

Fig. 3, a longitudinal vertical section taken on the line 3—3 of Fig. 2;

Fig. 4, a transverse vertical section taken on the line 4—4 of Fig. 1, and illustrating the machine in operation;

Fig. 5, a fragmentary section and bottom plan taken on the line 5—5 of Fig. 4.

Referring now to the drawings:

In the apparatus illustrated, a closed, rigid, hollow cylinder **10** is mounted for rotation on a horizontal axis by means of tubular stub shafts **11** and **12**, which extend from respectively opposite ends of the cylinder and are journaled in respective bearings **13** supported by respective structural frame uprights **14**.

The circumferential, external, cylindrical surface **10***a* of the cylinder **10** is prefereably smooth and polished to provide the endlessly traveling surface on which the coating is formed.

As here illustrated, the cylinder **10** is arranged to be rotated by means of a motor **15**, Fig. 2, having a drive sprocket chain **17**, with a sprocket wheel **18** secured to the stub shaft **11**.

A coolant, preferably cold water, is circulated through the hollow interior of the cylinder **10** by means of inflow and outflow piping **19** and **20**, respectively, the former having distributing leg **19***a* extending along and in close adjacency to the interior surface of the circumferential cylindrical wall of the cylinder, with a series of nozzle outlets along its length. Accordingly, cold water is discharged in close proximity to the working face of the cylinder, and the warmed water is discharged at a location remote therefrom. Stuffing boxes **21** prevent leakage.

It is preferred that the molten material be applied to the surface **10***a* of the cylinder by means of an elongate trough **22** which extends longitudinally along the surface **10***a* and opens directly thereagainst, a lower lip member **22***a* being pressed in sealing contact with such surface to prevent leakage of the molten material supplied to the trough by a feed pipe **23**.

The trough **22** is advantageously supported, at its ends, by plates **24** rising from the frame uprights **14**.

As indicated in Fig. 4, the molten wax from trough **22** is picked up by the relatively cool surface **10***a* of the drum as it passes by, the nature of the arrangement being productive of a substantially uniform coating **25** over the entire length of such surface and extending continuously circumferentially thereof from the point of application.

For gouging a multiplicity of strips from the continuously formed coating **25**, an elongate serrated blade **26** is securely mounted in longitudinally extending, working adjacency to the surface **10***a*, as by means of hangers **27** depending from fixed securement to the plates **24** so that the serrated blade edge **26***a* contacts such surface **10***a* at a suitable gouging angle, as indicated, see Fig. 4.

In operation, as the cylinder **10** rotates, the unbroken expanse of coating **25** is progressively carried into the line of action of the gouge blade **26**, whereby spaced strips **28** of the wax or wax-like material are progressively gouged from the coating. It will be noted that spaced strips **29** remain adherent to the surface of the cylinder. These are peeled off by a straight-edge follower blade **30**.

It will be noted that, in order to provide a multiplicity of strands of uniform width, the width of the teeth of the serrated blade **26** must equal the width of the spaces between the teeth. Under these circumstances, the strips **28** will be equal in width to the strips **29**.

The straight-edge follower blade **30** extends relative to the surface **10***a* similarly to the serrated blade **26**, but is disposed in a position which follows the latter, considered in the direction of rotation of the cylinder. It is here shown as secured to a correspondingly elongate supporting member **31**, extending between and secured to the plates **24**, its cutting edge being directed against and contacting the surface **10***a* of the cylinder at a suitably directed angle for peeling, as illustrated.

In operation, as the surface **10***a* continues past the serrated blade **26**, the blade **30** peels off the strips **29**, which have remained adherent thereto, and these fall as indicated in Fig. 4. It is advantageous that a guide shield **32** be provided to direct such strips **29** as they fall.

While the two groups of strips **28** and **29** may be handled in any desired fashion following their formation and removal from the surface **10***a* of the cylinder, it is preferred that they fall directly upon an endless conveyor arranged longitudinally of the cylinder and below the same, for example, the belt conveyor **33**, Fig. 1.

The speed of rotation of the cylinder **10** will be dependent, in any given instance, upon the melt point of the wax. Generally speaking, the higher the melt point the faster the wax will congeal and the faster the cylinder

may be rotated. For example, I have found that a wax of 180° F. melting point can be processed approximately six times faster than a wax of 120° F. where tap water is used as the coolant. The processing time can be lowered, of course, in all instances if refrigerated water or some other low temperature coolant is employed.

Whereas this invention is here illustrated and described with respect to a particular preferred form of apparatus, it is to be understood that both the method and apparatus are limited only by the scope of the claims which here follow.

I claim:

1. Apparatus for preparing wax for extrusion, comprising a closed, hollow cylinder of rigid material having a smooth outer cylindrical surface; means mounting said cylinder approximately horizontal for rotation about its longitudinal axis; means for rotating said cylinder; means for introducing a coolant into the hollow interior of said cylinder; a serrated blade extending longitudinally of the said smooth outer cylindrical surface of the cylinder with its cutting edge against said surface and directed in opposition to the direction of rotation thereof; a similarly positioned blade having a blade edge which comprehends the valleys between teeth of said serrated blade, said second blade being disposed at a location following said serrated blade in the direction of the rotation of the said cylinder, and both said blades being located within approximately the lower portion of said cylindrical surface; and means for applying molten wax material across the said smooth outer cylindrical surface of the cylinder, said applying means being located at a position relative to said cylindrical surface remote from the said blades in a direction opposite to the direction of rotation of said cylinder.

2. Apparatus as set forth in claim 1, wherein the material-applying means is an elongate trough extending longitudinally with the outer cylindrical surface of the cylinder and opening thereinto along its length, so as to flow the molten material against the said surface as the latter rotates.

3. Apparatus as set forth in claim 1, wherein the second-named blade has a continuous blade edge.

4. Apparatus as set forth in claim 1, wherein an elongate guide shield extends longitudinally of the outer cylindrical surface of the cylinder and depends downwardly therefrom immediately below the serrated blade; wherein means are provided for supporting said guide shield in its said position; and wherein the second blade is carried by said guide shield along the lower portion thereof.

References Cited in the file of this patent

UNITED STATES PATENTS

2,068,181	Hurxthal	Jan. 19, 1937
2,314,062	Alvey et al.	Mar. 16, 1943
2,327,943	Tiers	Aug. 24, 1943
2,478,885	Alvey	Aug. 9, 1949
2,499,359	Cox	Mar. 7, 1950
2,556,247	Zeigler et al.	June 12, 1951
2,654,125	Hall	Oct. 6, 1953
2,697,249	Bettes et al.	Dec. 21, 1954