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P. HARRICH

CORK ROD BAKER

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Fig. 1.

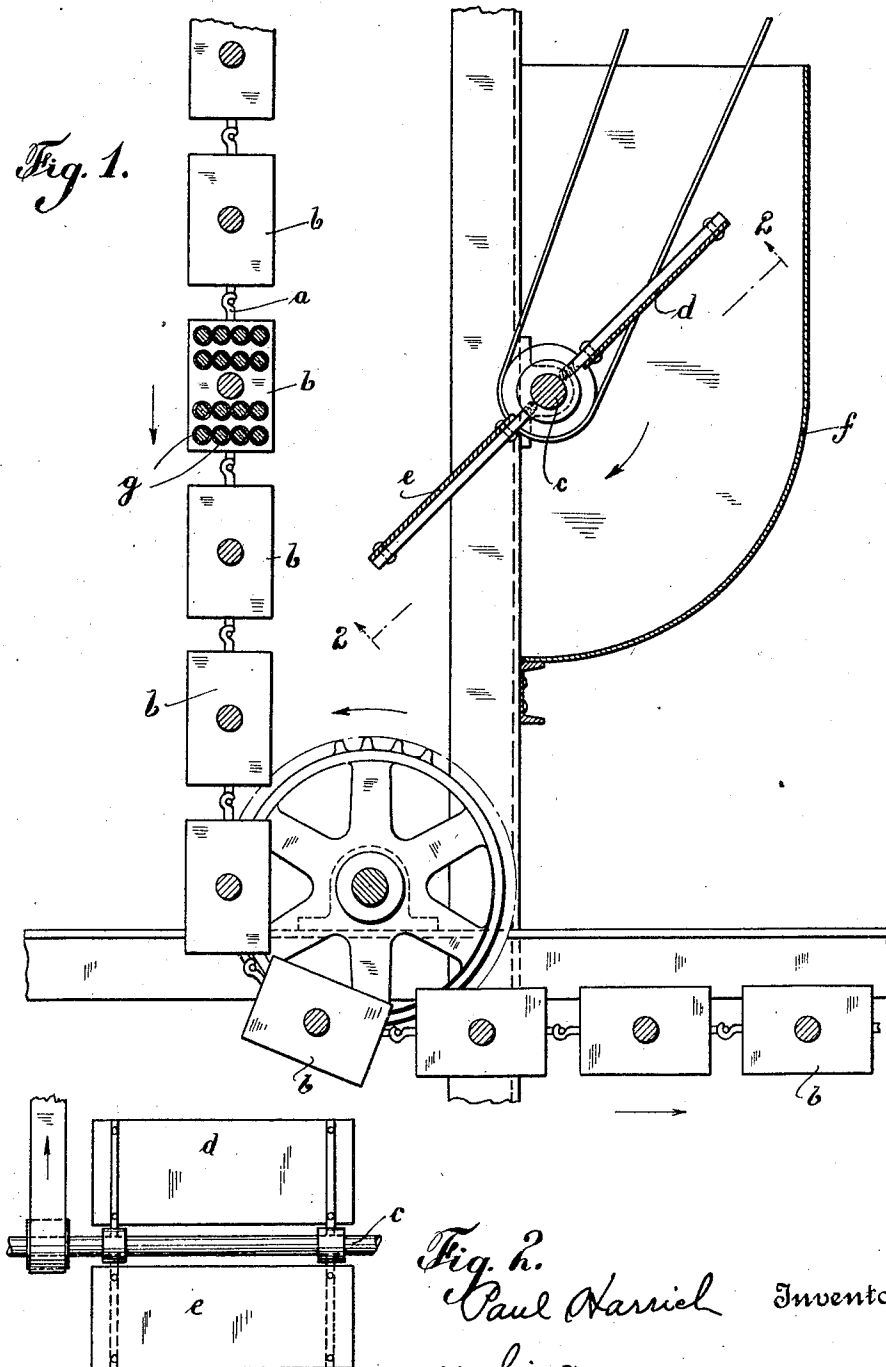


Fig. 2.

Paul Harriel Inventor

By his Attorney
Paul V. Wentworth

UNITED STATES PATENT OFFICE.

PAUL HARRICH, OF ROCHELLE PARK, NEW JERSEY, ASSIGNOR TO NEW PROCESS CORK COMPANY, OF BROOKLYN, NEW YORK, A CORPORATION OF NEW YORK.

CORK-ROD BAKER.

Application filed October 25, 1921. Serial No. 510,370.

To all whom it may concern:

Be it known that I, PAUL HARRICH, a citizen of Germany, residing at Rochelle Park, in the county of Bergen and State of New Jersey, have invented certain new and useful Improvements in Cork-Rod Bakers, of which the following is a specification, reference being had therein to the accompanying drawings, which form a part thereof.

My invention relates to cork rod bakers, and more particularly to a baker of this type wherein cork rods formed of granular cork and a binder which is set or vulcanized by heat will be so conditioned while still in the metallic tubes as to facilitate the ejection of the rod from the tube.

Cork rod bakers of the type to which my invention relates are so constructed as to receive succeeding tubes or groups of tubes having packed therein granular cork, and a suitable binder or adhesive which will set or vulcanize under heat, said tubes being supported by traveling carriers, which move them continuously through the oven for a sufficient time to ensure the proper setting, hardening or vulcanizing of the binder.

The application of heat to the tubes and the contained cork composition, causes the expansion of the composition within the tubes, and the binder adjacent the surface of the tube to have a tendency to adhere thereto, and thus interfere with the ejection of the rod from the enveloping tube.

To avoid this condition, I provide the baker adjacent the delivery end thereof with means which will circulate about the tubes, air at a materially lower temperature than that of the tubes and rods as they emerge from the oven and approach this point, causing a sudden drop of temperature superficially of the rod resulting in surface shrinkage thereof and a conditioning of the small volume of binder adjacent the wall of the tube so as to facilitate the pushing of the rod from the tube.

By employing a baker embodying my invention, the tubes may be removed directly therefrom and delivered to a cork rod ejector machine, thus permitting the subsequent curing of the rods under conditions which

will ensure more uniform conditions throughout same.

The invention consists primarily in a cork rod baker embodying therein an oven wherein a high temperature is maintained; means adapted to convey tubes containing a composition formed of granular cork and a binder through said high temperature zone, cool air circulating means adjacent the delivery point for the tubes and guiding means for said first named means positioned beyond said oven and extending adjacent said air circulating means, whereby said tubes and their contents will be cooled after leaving the oven and before reaching the delivery point; and in such other novel features of construction and combination of parts as are hereinafter set forth and described, and more particularly pointed out in the claims hereto appended.

Referring to the drawings,

Fig. 1 is a vertical section through the delivery end of a baker embodying my invention; and

Fig. 2 is an end view of the fan causing the circulation of air.

Like letters refer to like parts in both of said views.

In the accompanying drawings, I have shown merely the delivery end of the baker as the construction of the heating unit, and the charging end thereof is well known in this art and no detailed description thereof is required.

In such bakers, an oven is provided which is maintained at the desired temperature to set, harden or vulcanize the binder in the composition, suitable chain conveyors passing in a tortuous path through this oven. The reaches of such a chain conveyor are shown at *a* in the accompanying drawings, the chain conveyor having mounted thereon a sequence of tube carriers indicated at *b*, which may be so constructed as to each receive one or a group of tubes, each tube being packed with the granular cork and its binder.

While the carriers are progressing through the oven, the high temperature will cause the expansion of the composition,

which is tightly packed in the tube before it is charged into the baker, this expansion having the three-fold effect of forcing the entire volume of composition in the tube into close contact with the wall thereof, causing uniform density thereof and at the same time making the binder adhesive, and causing it to set, harden or vulcanize so that even though but a thin film thereof is applied to each particle of the cork, there will be a sufficient adhesion of this binder to the inside of the tube to interfere with the free withdrawal of the cork rod from the tube. The final setting or hardening of the binder requires a lower temperature, as it ordinarily will remain adhesive, or at least tacky so long as it remains at a high temperature.

To obviate this condition, I provide means adapted to circulate air at normal temperatures, which would be materially below the temperature of the oven, about the tubes containing the cork composition, after they have left the oven and as they are approaching the point where they will be removed from the carriers. By maintaining a continuous air circulation in this manner, I secure a rapid drop of temperature adjacent the surface of the rods, the cooling action having the two-fold effect of destroying the adhesiveness of the outer stratum of binder, and possibly shrinking the cork rod slightly so that immediately thereafter, it may be readily removed from the tube so that thereafter the entire rod may be subjected to the atmosphere and undergo a curing action thereby.

While various types of blowers or fans may be used for circulating the air, I preferably employ the type of fan shown in the accompanying drawings, which consists of two oppositely disposed substantially flat blades having a width approximating that of the baker. These blades are mounted upon a shaft *c* which is rotated at high speed, the blades themselves being indicated at *d* and *e*.

Upon the side of the shaft *c* away from the oven, I provide an open topped housing *f* which will ensure slight compression of the air before its discharge against the tubes.

The carriers *b* and their contained tubes *g* pass in a vertical path between the housing *f* and the oven, and by reason of the slow travel of said carriers, they will be subjected to the low temperature air for a sufficient interval to secure the desired superficial cooling of the rods.

The operation of the herein described baker is substantially as follows:—

As the conveyor chains *a*, the various carriers *b* and rods *g* emerge from the high temperature zone of the oven, they pass in a vertical path, in fairly close proximity to the housing *f* and the fan blades *d* and *e*,

each of which will act to circulate air under low pressure about a sequence of carriers, thus causing a more or less gradual cooling of the tubes and the cork rods therein, since each carrier will travel at low speed for a distance of six feet or more while within the area through which the air is thus circulated. As a result, the cork rods contained in the tubes will be so conditioned that any bond between same and the tubes may be readily broken and there will be no dragging action upon the rod as it is forced from the tube. At the same time the tubes may be readily handled by the operator at the delivery end of the machine and if desired transferred directly from the baker to the cork rod ejector mechanism, whether hand or power operated.

It is not my intention to limit the invention to the precise details of construction shown in the accompanying drawings, it being apparent that such may be varied without departing from the spirit and scope of the invention.

Having described the invention, what I claim as new and desire to have protected by Letters Patent, is:—

1. A cork rod baker embodying therein an oven wherein a high temperature is maintained means adapted to convey tubes containing a composition formed of granular cork and a binder through said high temperature zone, cool air circulating means adjacent the delivery point for the tubes and guiding means for said first named means positioned beyond said oven and extending adjacent said air circulating means, whereby said tubes and their contents will be cooled after leaving the oven and before reaching the delivery point.

2. A cork rod baker embodying therein an oven wherein a high temperature is maintained means adapted to convey tubes containing a composition formed of granular cork and a binder through said high temperature zone, a rotatable shaft driven at high speed, and a plurality of fan blades carried thereby and extending transversely of the oven and guiding means for said first named means positioned beyond said oven and extending adjacent said fan blades, whereby cool air is directed against the tubes after they have left the high temperature zone and as they approach the delivery point.

3. A cork rod baker embodying therein an oven wherein a high temperature is maintained means adapted to convey tubes containing a composition formed of granular cork and a binder through said high temperature zone, a rotatable shaft driven at high speed, a plurality of fan blades carried thereby and extending transversely of the oven an open topped housing in which air is adapted to be placed under low com-

pression by said fan blades successively
prior to its delivery adjacent said tubes and
guiding means for said first named means
positioned beyond said oven and extending
5 adjacent the outlet of said housing, whereby
cool air is directed against the tubes after
they have left the oven and as they ap-
proach the delivery point.

In witness whereof I have hereunto affixed
my signature, in the presence of two sub- 10
scribing witnesses, this 6th day of October
1921.

PAUL HARRICH.

Witnesses:

FRIEDA KOEHLER,
SOPHIE M. BAEDER.