

April 6, 1948.

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2,439,115

SUPPORT FOR DRYING PASTE PRODUCTS

Filed Sept. 2, 1944

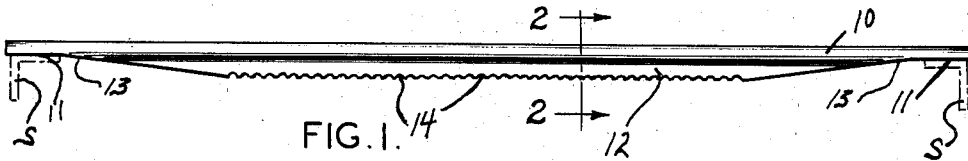


FIG. 2.

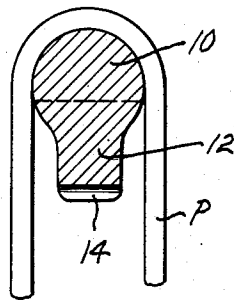


FIG. 3.

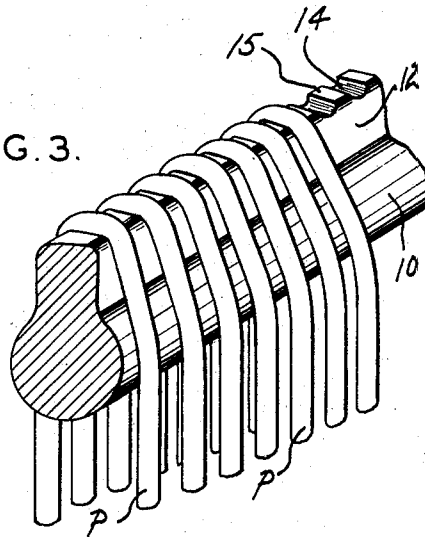


FIG. 4.

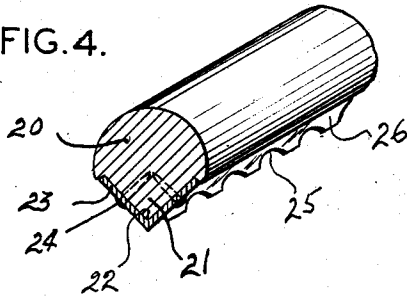


FIG. 5.

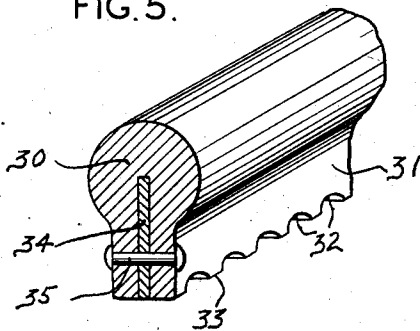
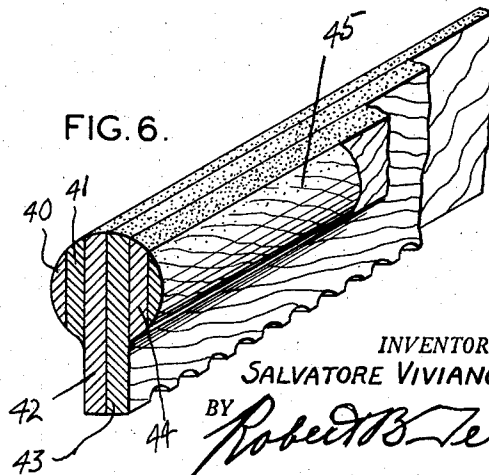


FIG. 6.



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2,439,115

SUPPORT FOR DRYING PASTE PRODUCTS

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Application September 2, 1944, Serial No. 552,552

3 Claims. (Cl. 34-240)

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This invention relates to improvements in supports for drying paste products and more particularly to elongate rod-like members of improved design such as utilized, for example, in the drying of macaroni, spaghetti, vermicelli, and similar elongate extruded products of paste-like consistency, although susceptible of use, with great advantage in the drying of various elongate, stranded or strip materials.

In the manufacture of alimentary paste products, the material is extruded in substantial lengths varying, in standard practice, from 20" to 36" in length. These strands are prevalently draped over sticks of wood for drying, such sticks being conventionally of the order of 50" to 54" in length. Due to irregular wood grain and the desirable absorption of some moisture from the product by the stick, considerable trouble and great expense is incurred by reason of warping, swelling and various deformation of the sticks. Since it is highly desirable that the strands of drying product remain separated, it is obvious that warping effects will, if at all severe, detract from the usefulness of the sticks, necessitating their frequent renewal. Because of the substantial number of sticks employed even in smaller plants, the replacement expense thereof constitutes a substantial proportion of total manufacturing costs. Further, a badly warped stick results in a serious direct loss of product, amounting to four to eight ounces of material per batch; as well as the incident time loss. This is due to uneven and short lengths, not commercially saleable, incident to automatic trimming, since the sticks of product must be of uniform length for packaging. Heretofore also, prevalent circular drying sticks were required to be of much larger diameter than strictly necessary, in order to result in any useful life. By present improvements resulting in a stick body of smaller diameter, smaller heads are formed on the product, enabling a marked reduction in package sizes per unit of weight. The novel smaller diameter sticks further valuably increase the drying capacity of a given drying space and number of racks, since many more of the loaded sticks may be supported on a drying rack of given dimensions. It is accordingly a major and general objective of the present invention so to improve drying sticks for the purposes noted that they will resist for long periods of time, in fact indefinitely, the usual warping and other deformation characterizing the more commonly used sticks or rods for this purpose, and to attain in production practice, the several advantages noted.

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Additional and important objects are attained in an improved, substantially permanent, lightweight, absorbent drying stick for the support of extruded moist products.

A still further important object of the invention is attained in novel provisions for reinforcing drying sticks against bending stresses, due either to warping effects, or the combination thereof with effects of loading.

Yet another object of the invention which is of great importance in saving of operator time, and in betterment of product, consists in the provision of an improved arrangement for semi-automatically spacing and singling the strands or strings of extruded products which are draped over the stick for drying.

A further and somewhat general object is attained in a realization of the desiderata above mentioned, which results in a drying stick which may be produced at a reasonable cost. The cost factor is of importance in view of the number of units employed.

The foregoing and numerous other objects of the invention will more clearly appear from the following detailed description of certain selected embodiments of the invention, particularly when considered in connection with the accompanying drawing, in which:

Fig. 1 is a side elevation of a drying rod or stick in a preferred form;

Fig. 2 is a transverse sectional view as taken along line 2-2 of Fig. 1;

Fig. 3 is an isometric view of a fragmentary portion of a stick such as shown by Figs. 1 and 2, but illustrating its usage in effecting a separation of the strands or lengths of the product undergoing drying;

Fig. 4 is an isometric view of the fragmentary portion of a somewhat modified form of drying stick;

Fig. 5 is a view similar to Fig. 4, but showing a still further modification, and

Fig. 6 is an isometric view of a fragmentary portion of an additional modification of laminated wood construction, certain parts being broken away for better illustration of the relation of the laminae to each other.

Referring now by characters of reference to the drawing, it may be noted that although any suitable material of desirable rigidity and moisture-absorbent properties may be selected for the construction of the stick, it is greatly preferred to utilize a long-grain wood, in which the grain is as uniform as possible through the length of the unit, for example and as a preference in

a one-piece stick, selected long grain kiln-dried ash; the term "wood" is however not to be understood as restrictive to wood materials in their natural or usual state; it is intended for example, that laminated products such as plywood, veneer or the like, as well as transmuted wood and synthetic products, may be employed provided only that they possess the noted requisite physical characteristics.

The stick is characterized by a partly cylindrical, full length body, being the rod portion proper and indicated at 10. This is incompletely circular in transverse section as will appear from Fig. 2, and is somewhat flattened underneath each of its end portions, as shown at 11. These flattened supporting seats are, under normal conditions of usage, in engagement with horizontal end supports S, each pair of which serves to support a considerable number of the sticks 10, as in conventional drying racks, frames or the like, whether used in air drying or oven drying installations.

The intermediate portion of the stick according to Figs. 1 and 2, is characterized by a depending integral rib 12 of generally rectangular cross section, the rib 12 being of a taperingly reduced section at each of its ends, as it approaches the flattened seats 11; it is a preference, however, that the ends of the rib taper away completely, somewhat short of the end zones, whereby to provide at each end of the stick, a zone 13 of substantially circular section convenient for gripping the stick in carrying same from place to place incident to succeeding drying operations. It will be noted that the provision of the flattened seats 11 determines, with the planar supporting surfaces of the angle members S, a normal angular position of the stick in which the rib projects dependingly, or downwardly as indicated by Fig. 2.

It should be noted as of importance so to form the rib 12 that its thickness or sectional width is, as clearly appears from Fig. 2, appreciably less than the diameter of the part-circular portion 10 of the stick. Thus it is seen that with the strands of paste P draped over the stick in normal position, the parallel vertical planes of pendency of the strands P lie laterally beyond the rib side walls, in fact beyond any part of the reinforcing rib 12, thus precluding normal or casual contact of the strands of paste P with any other than the smoothly rounded upper area of the body portion 10.

An optional but valuable provision for readily effecting an isolation or separation of the individual strands P, being the lengths of product undergoing drying, best appears in Fig. 3. As the strands are extruded and brought to lie over the stick, it frequently happens that in case the stick is tilted or for other reasons, the individual strands of product tend to bunch together, and since they inherently possess considerable adhesive properties, it is difficult to separate them without deformation or loss of some of the strands. It has been found by repeated experiments that the rib 12 may be provided transversely of its lowermost surface with a series of spaced notches 14. These are, by preference, also separated by appreciable land portions 15, the latter being somewhat curved or rounded by preference. It is also a preference that the notches 14 be so dimensioned and curved that they will receive and conform to the curvature of the strands or lengths say of macaroni, spaghetti or the like, and indicated at P.

In the practice of separating or singling the strands, after the lengths or strands P are brought over the stick, it is manually rotated about its axis approximately 180 degrees, so as to bring the notched area of the rib beneath the now overlying strands. A quick shaking movement endwise of the stick results in a large proportion, sometimes all, of the strands falling into the notches 14, and thus being evenly spaced from each other, hence evenly distributed over the ribbed length of the stick. Following this stranding effect or separation of individual lengths, the stick is again rotated 180 degrees to its initial or normal drying position, the strands then remaining individualized or spaced as determined by the spacing of the notches 14. It will of course be distinctly understood that the warp-resisting features and load reinforcement provided by the rib 12 are still realized, irrespective of the strand separation feature hereinabove described, even though the under surface of rib 12 be allowed to remain smooth, without notching.

The essential features of the present improvements may be embodied in a variety of structures, but a few of which are illustrated, and will now be described solely by way of examples of structural variants, but without intending by any means to exhaust such possibilities. In Fig. 4 for example, the rounded body of the stick is indicated at 20. In this arrangement a depending rib 21 underlies the partly circular body 20 and is of edge-apexed form, the apex of which is indicated at 22. In order still further to resist warping effects and enhance the capacity of the stick to be loaded without deformation, the rib is overlain by a metal angle 23, the internal angle of which fits closely over and conforms to the shaping of the rib 21. Securement of the metal angle to the rib of the stick is effected as by screws, nails or the like 24, and if desired, the angle member 23 may be provided with notches 25 and intervening land portions 26, corresponding in general purpose to the similar features of the structure of Figs. 1 and 2.

In the modification of Fig. 5, the structure of the stick and rib may be substantially the same as that of Figs. 1 and 2 but with certain additions. This form is characterized by a main body or rod portion 30 partly circular in transverse section, a normally depending, reinforcing rib 31 which in dimensions and arrangement may correspond, if desired, exactly with rib 12, being optionally provided with notches 32 and intervening lands 33. In this structure the stick is longitudinally saw-cut substantially intermediately of the lower face of rib 31, thence inwardly of the stick preferably to a zone along the axis of the part circular portion, as shown. This saw-cut is occupied by a correspondingly dimensioned metal reinforcing strip 34. This strip may, if desired, for reduction of weight and non-rusting properties, be formed of an aluminum or magnesium-aluminum alloy for example. It will be noted that in the normal loaded and drying position of the stick, the reinforcing strip 34 is loaded edgewise, or otherwise expressed, so that it occupies a position close to and along a longitudinal vertical plane radially of the rounded body 30. This arrangement results in a practically permanent drying rod of a type which is susceptible of almost indefinite use. If and as desired, the metal reinforcing strip 34 may be secured in assembly within the stick through the use of a series of transverse rivets or other suit-

able fastening members, one of the rivets being indicated at 35.

A still further but highly desirable modification is illustrated by Fig. 6, wherein a series of layers or laminations of veneer are utilized to build up the body of the ribbed stick. In this arrangement the successive laminations, proceeding crosswise of the stick, are indicated at 40, 41, 42, 43, 44 and 45. The laminations are suitably bonded as by a thermo-plastic resin, and an initial composite strip of such materials laid up in parallel fashion, preferably with the grain of adjacent plies or laminations staggered as shown by Fig. 6. Polymerization or other process of resinification may, for example, be carried out under heat and pressure, and by well known methods.

It will be realized that the great strength and resistance to bending stresses characterizing thermo-plastic bonded laminations, will serve adequately to attain a semi-permanent or permanent stick for the purpose noted. Several advantages obtain in this form of structure, among the more important of which may be noted the arrangement of laminations edgewise to the load, as above noted in reference to the metal strip 34 of Fig. 5. Further, it will be seen that this arrangement serves to present the edge portions of at least several of the laminations, to the load-bearing area of the rod or stick. This formation of the rounded load-carrying surface serves greatly to enhance its moisture-absorbent properties, with great advantage.

It will be noted that in all of the forms shown, there has been carefully avoided any form or formation of stick such as would present any sharp corners, edges, or apices in the drying surface of the stick; it may also be noted that each of the rounded drying surfaces of the various forms illustrated, is characterized by substantial moisture absorbent properties.

The particular forms of support for the plurality of drying sticks are conventional and need not be herein described in detail; similarly, the manner of usage of wood drying sticks in the manufacture of macaroni, spaghetti and like products, is well known to those skilled in the art, hence need not be here further outlined. The purpose and manner of utilization of the special provision of the notches for spreading and singling the strands of the product P, have been heretofore described.

It will now have appeared that the device in any of the several forms referred to, will serve fully to attain each and all of the objectives hereinabove specifically mentioned, and numerous others implied from the more detailed description. Although the invention has been described by detailed reference to a certain few exemplary embodiments, this detail of description is to be understood in an illustrative rather than a limiting sense, numerous variants in structure being possible within the scope of the claims hereunto appended.

I claim as my invention:

1. A stick for the drying support of lengths of alimentary paste products and the like, consisting of a primary, partly cylindrical portion, a rib normally below the cylindrical portion and supporting seats near the ends of the stick, so formed as to tend to keep the cylindrical portion uppermost when the stick is loaded for drying, the rib being provided with a longitudinal slot upwardly and depthwise of the rib, and a flat reinforcing strip of non-rusting characteris-

tics occupying the slot, and disposed edgewise to the direction of loading of the stick, and pin elements extended transversely through the rib and strip for assembly thereof.

2. A stick formed of wood of appreciable absorptive capacity, and for use as a horizontal support in drying moist strands of alimentary paste products, the stick consisting of a substantially complete cylindrical body normally uppermost of the stick when in drying position, and a rib depending medially of the cylindrical portion and integral therewith, all parts of the rib being of lesser width than the diameter of the cylindrical portion, the rib tapering in depth toward the cylindrical body, at a distance inwardly of each end of the stick, whereby there is provided an unobstructed, substantially cylindrical portion a distance inwardly of each end of the stick to facilitate manual lifting and transportation of the stick and its load, the extreme end portions of the stick beyond said manual lifting portions, having flattened lower surfaces to resist rocking of the stick when its ends are supported upon substantially planar rests.

3. A stick formed of an absorbent material, for use as a horizontal support in drying strands of alimentary paste products or the like, the stick being formed as an elongate, substantially cylindrical body, modified by the addition of an integral, longitudinal, normally depending reinforcing rib, that portion above the rib exteriorly presenting the major portion of the surface of a full cylinder, and the rib extending medially below the cylindrical body and having a maximum width or transverse dimension somewhat less than the diameter of the cylindrical portion of the stick, whereby, when flexible moist strands of the drying product are draped across the stick, the rib is substantially spaced from the strands at each side thereof, the rib being further characterized by a series of notches relatively closely spaced, and extending transversely across the lower rib portion, whereby to enable rotation of the stick substantially a half turn about its axis, to provide for interengagement of the strands by the notches, the notches being thus adapted for spacing the strands during transportation of the stick and its load.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
168,948	Weinig	Oct. 19, 1875
550,488	Dufford	Nov. 26, 1895
640,170	Barlow	Jan. 2, 1900
708,874	Dubois	Sept. 9, 1902
1,042,808	Macmanus	Oct. 29, 1912
1,473,842	Frederick	Nov. 13, 1923
1,499,134	Waldron	June 24, 1924
1,534,500	Braemer et al.	Apr. 21, 1925
1,997,696	Parkes	Apr. 16, 1935
2,076,836	Goldblatt	Apr. 13, 1937
2,159,955	Scales	May 23, 1939
2,288,080	Forman	June 30, 1942
2,380,953	Dubassoff	Aug. 7, 1945

FOREIGN PATENTS

Number	Country	Date
1,223	Great Britain	1896
33,915	Netherlands	Sept. 16, 1934