Dec. 1, 1936. W. GEIDNER 2,062,648

HOLDER FOR YARN SPOOLS AND THE LIKE

Filed June 29, 1933

Fig. 3

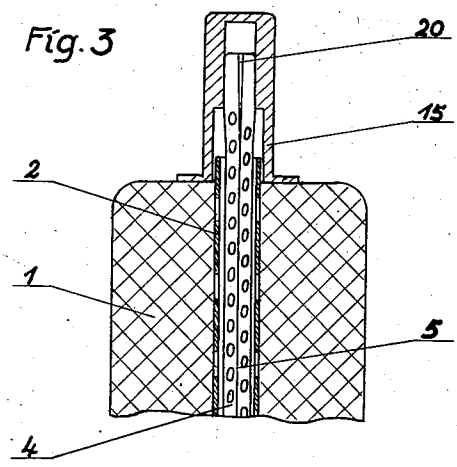


Fig. 2

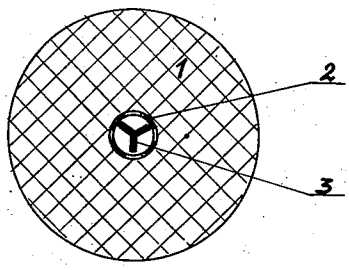


Fig. 4.

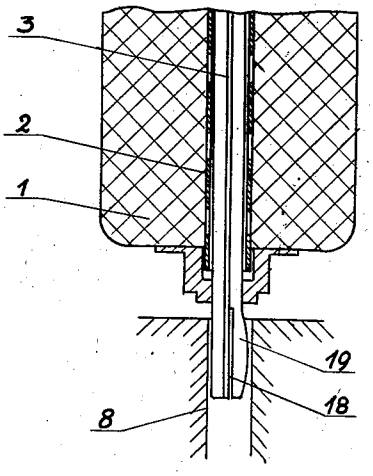
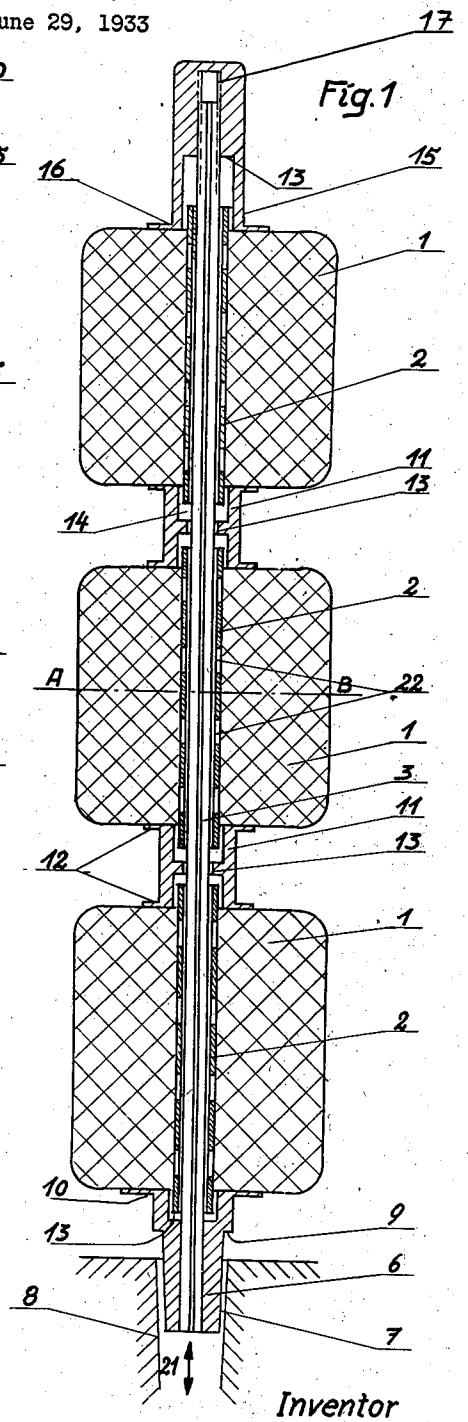


Fig. 1



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HOLDER FOR YARN SPOOLS AND THE LIKE

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3 Claims. (Cl. 8—19)

This invention relates to yarnholders as they are used for carrying the spools of textiles in the dyeing and drying apparatus.

An object of this invention is to provide a yarnholder the manufacture of which is inexpensive and simple.

An object of this invention is to provide a yarnholder which permits a quick and secured slipping on and taking off of the yarn or textile spools.

An object of this invention is to provide a yarnholder which avoids the throttling of the liquid or gas with which the yarns or textiles are treated.

An object of this invention is to provide a yarnholder which facilitates the treatment—dyeing, drying or bleaching—of individual spools.

An object of this invention is to provide a yarnholder snugly fitting into the sockets of the yarn or textile spools and accommodating a plurality of spools said spools together with the yarnholder forming a straight column.

An object of this invention is to provide a yarnholder adapted to accommodate a plurality of yarnspools and definitely preventing a toppling over of the spools or a collapsing of the column made up of said spools.

An object of the present invention is to provide a foot-piece for yarnholders which secures a reliable seating of the holder in the dyeing, drying or bleaching chamber and facilitates the withdrawal of the holders together with the spools from the chamber whereby the time required for taking the spools out of the apparatus for their wet treatment and placing them into the drying apparatus where the material is dried by applying a vacuum, circulating hot air or by centrifugal action is considerable shortened.

An object of this invention is to provide a holder for textile or yarn spools which definitely holds the spools and permits the free movement, expansion and contraction of the yarn material during the dyeing, drying or bleaching process within certain predetermined limits.

An object of this invention is to provide a holder for textile or yarn spools consisting of a centerpiece snugly fiting into the sockets of the spools a foot-piece for definitely securing the holder for example in a dyeing, drying or bleaching apparatus, intermediate distance-pieces for maintaining a certain predetermined distance between the individual spools and also limiting the expansion of the spools during the dyeing, drying or bleaching process and a closing-piece for definitely securing all spools on the holder said foot, distance and closing pieces being provided with small sloping flanges of such a configuration as to facilitate the free movement of the dyeing, drying or bleaching substance in a radial direction and to prevent an exit of the liquid in an axial direction and close to the sockets of the spools.

An object of this invention is to provide a holder for yarn spools and the like in dyeing, drying or bleaching apparatus which holds a plurality of spools having a hollow center piece or socket and which permits the building up of a straight column of such spools on top of each other and a continuous interior opening without any obstruction to the flow of the dyeing, drying or bleaching medium.

An object of this invention is to provide a holder for yarn spools and the like having a hollow center part said holder being within said hollow center part and of such a configuration as to facilitate the flow of the dyeing, drying or bleaching medium in an axial direction and also in a radial direction from the center into the spools.

An object of this invention is to provide a yarnholder as specified in the foregoing object and adapted to hold a splurality of spools in a straight column independent from the size and diameter of the spools.

An object of this invention is the provision of a yarnholder for holding a plurality of yarnspools on top of one another in a rigidly connected column which can easily be taken as a whole for example out of a dyeing bath and transferred for example into a drying apparatus.

Further and other objects of the present invention will be hereinafter set forth in the accompanying specification and claims and shown in the drawing which, by way of illustration, show what I now consider to be a preferred embodiment of the invention.

In the drawing:

Fig. 1 is a cross-section through a complete assembly of a holder according to my invention holding three yarnspools.

Fig. 2 is a cross-section along line 2—2 of the assembly shown on Fig. 1.

Fig. 3 shows a modification of a holder for yarnspools showing particularly the method by which the top or closing piece is applied.

Fig. 4 shows a modification of a construction of the foot piece of a holder for yarnspools according to my invention.

Referring more particularly to the drawing I are the yarnspools or spools carryir ; other fab-

rics or textiles. The spools 1 are provided with sockets 2 which are pushed over the holder proper 3. This may be a profile bar having three legs and of a cross-sectional configuration as shown on Fig. 2, or it may be a tube provided with holes as shown on Fig. 3 where this part is designated by 4. The tube may be solid drawn or rolled and having a seam 5. The holder proper 3 or 4 together with the spools 1 forms a yarn column which may be held together and to the dyeing, drying or bleaching apparatus by screwing or preferably according to my invention by pushing or sleeve construction which greatly facilitates and speeds up assembly and disassembly of the column. The columns as a whole are treated for dyeing, drying or bleaching the textiles or yarn on the spools. The dyeing, drying or bleaching medium which may be in a liquid or gaseous state enters the column through the foot piece 6 at 21 and is forced through the holes 22 of the sockets 2 and through the spools into the chamber which may contain a great number of such columns. The medium may also circulate in the opposite direction or be pumped forward and backward to intensify the treatment.

A foot-piece 6 is provided having a cone shaped outside contour 7 which fits into the opening 8 of the dyeing, drying or bleaching apparatus and securely holds the column. The holder 3 snugly fits into this foot-piece or is expanded into it. The foot-piece 6 has a shoulder 9 and a flange 10 of just so great a diameter as to give support to the spool 1. It is obvious that the pushing of the column into the aperture 8 is an operation which is easy and requires little time compared with constructions which use screws at this point. So is also the withdrawal of the column which in case of a screw connection is very often impossible and necessitates a dismantling of the whole column. If the foot-piece really should get stuck a special key can be made which is inserted from the top into the bath and which may have finger like projections which cooperate with the shoulder 9.

In between the individual spools distance-pieces 11 are provided which have flanges which again are small and slightly sloping to give support to the spools and at the same time give free access to the dyeing, drying or bleaching medium and prevent the flowing out of this medium along the sockets without its having fulfilled its purpose. These distance-pieces 11 as well as the foot-piece 6 and the cap 17 are provided with internal shoulders 13 having an opening large enough to accommodate the holder proper 3 but sufficiently small to prevent the socket from going through. There is a certain amount of clearance 14 provided permitting a certain amount of expansion of the spools and at the same time also limiting their compression for example by tightening up the screw 17 too much. Finally a head-piece 15 is attached having again a flange 16 of similar design as flanges 10 and 12. This head-piece 15 may be secured to the holder 3 by screwing as illustrated (17) or it may be pushed on to the holder. In the latter case it is advisable to make the end of the holder resilient by cutting a slot 18 as shown in Fig. 4 in one of the legs of the profile bar. In addition one or more of the legs may be widened out and have a pad like projection 19 (Fig. 4).

This same construction—slot and/or expansion of one or more legs—may be used for securing the column or rather the holder in apertures 8 of the dyeing, drying or bleaching apparatus; these apertures in this case having a cylindrical configuration as shown on Fig. 4.

Fig. 3 shows a holder of tubular configuration and having holes to permit a free flow of the dyeing, drying or bleaching medium from the center into the spools. It is obvious that such a design constitutes a greater obstruction to the flow of the medium than does the profile bar 1 on Fig. 1. The profile bar may be made to snugly fit into the sockets 2 which gives stability to the column. Any other configuration of the holder necessitates a certain amount of clearance to reduce the resistance to the flow of the dyeing, drying or bleaching medium making the whole construction somewhat loose. For holding the cap 15 the tube may be provided with a slot 20 and slightly expanded which renders the end of the tube resilient and secures the cap.

Although the holder 3 shown on Fig. 1 is preferable to the other shapes this invention is not limited to the use of such a particular configuration of the holder. The holder may also be made of a solid round or flat bar or of a bar having a polygonal cross section or it may be made up of a plurality of strips. The holder may also be made of a tube. Any number of spools may be lined on one holder or there may be just one spool on the holder.

While I believe the above described embodiments of my invention are preferred embodiments, I wish it to be understood that I do not desire to be limited to the exact details of process, design and construction shown and described, for obvious modifications will occur to a person skilled in the art.

What I claim is:

1. In a yarn-dyeing, -bleaching, and -drying mechanism comprising a spool-carrier and perforated-tube yarn-spools mountable thereon and having projecting tube ends, mounting means for said spools each comprising a liquid-circulating spool-supporting spindle, a hollow foot-piece for connection of said spindle to said carrier, and liquid-circulating substantially tubular distance-pieces relatively adjustable axially upon said spindle and upon the projecting ends of said perforated-tube yarn-spools, the internal liquid-circulating diameter of said distance-pieces being at least equal to the internal diameter of said perforated-tube yarn-spools.

2. In a yarn-dyeing, -bleaching, and -drying mechanism comprising a spool-carrier and perforated-tube yarn-spools mountable thereon and having projecting tube ends, mounting pieces for said spools each comprising a liquid-circulating spool-supporting spindle, a hollow foot-piece for connection of said spindle to said carrier, liquid-circulating substantially tubular distance-pieces relatively adjustable axially upon said spindle and upon the projecting ends of said perforated-tube yarn-spools, said distance-pieces having an internally projecting annular shoulder forming a liquid-circulating orifice and being adapted to abuttingly cooperate with the projecting ends of said perforated-tube yarn-spools, said orifice having a diameter which is at least equal to the internal diameter of said perforated-tube yarn-spools.

3. In a yarn-dyeing, -bleaching, and -drying mechanism comprising a spool-carrier and perforated-tube yarn-spools mountable thereon and having projecting tube ends, mounting means for said spools each comprising a liquid-circulating spool-supporting spindle, a foot-piece connected with said spindle for removably inserting

said spindle into said carrier and supporting the lowermost of said spools, liquid-circulating substantially tubular distance pieces relatively adjustable axially upon said spindle and upon the projecting ends of said perforated-tube yarn-spools, the internal liquid-circulating diameter of said distance pieces being at least equal to the internal diameter of said perforated-tube yarn-spools, said foot-piece having a smooth outside contour and being adapted to be axially and slidably pushed into said carrier and to secure a reliable hold therein.

WILHELM GEIDNER.