SPINNER FOR APPLYING DESIGNS TO FABRICS

Inventor: Robert A. Prichard, Mountain Dr., Pleasant Valley, N.Y. 12569

Filed: June 3, 1974

Appl. No.: 476,162

U.S. Cl.......................... 118/52, 34/58, 118/63
Int. Cl.......................... B05c 11/12
Field of Search................. 118/52-56, 118/320, 321; 117/101; 68/205 R; 34/8, 58

References Cited
UNITED STATES PATENTS
442,262 12/1890 Kristen.......................... 118/52
542,188 7/1895 Ergang.......................... 118/52 X

Primary Examiner—Morris Kaplan
Attorney, Agent, or Firm—Clarence A. O'Brien; Harvey B. Jacobson

ABSTRACT

Concentric annular walls are fixed to and project upwardly from a shaft mounted disc which is adapted for high speed rotation. The inner wall extends to a greater height than the outer wall and defines a circular chamber with an annular chamber being defined between the walls. Fabric to be painted is stretched over the inner circular chamber with the excess received within the annular chamber, the fabric being retained taut over the higher inner wall by a holding hoop sealed against the outer surface of the inner wall and overlying the surrounding annular chamber.

6 Claims, 3 Drawing Figures
SPINNER FOR APPLYING DESIGNS TO FABRICS

The present invention is generally concerned with the application of designs to fabrics, and more particularly relates to apparatus for selectively exposing and rapidly spinning fabrics upon which inks, paints or dyes have been applied so as to create unique random designs or patterns.

The following art is known to the inventor:

<table>
<thead>
<tr>
<th>Patent Number</th>
<th>Inventor(s)</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>3,842,188</td>
<td>R. Ergang</td>
<td>July 2, 1895</td>
</tr>
<tr>
<td>1,641,756</td>
<td>C. C. Leigh</td>
<td>Dec. 21, 1926</td>
</tr>
<tr>
<td>2,336,946</td>
<td>F. T. Powers</td>
<td>Aug. 29, 1944</td>
</tr>
<tr>
<td>2,557,348</td>
<td>L. Hornbostel</td>
<td>June 19, 1951</td>
</tr>
<tr>
<td>3,280,792</td>
<td>H. P. Heyde</td>
<td>Oct. 25, 1966</td>
</tr>
<tr>
<td>3,359,224</td>
<td>A. Benz</td>
<td>Sept. 5, 1967</td>
</tr>
<tr>
<td>3,373,717</td>
<td>R. Morales</td>
<td>March 19, 1968</td>
</tr>
</tbody>
</table>

It is a primary object of the present invention to provide apparatus whereby spin designs can be applied to fabric in a selective and controlled manner with only those portions of the fabric to which the design is to be applied being exposed. All other portions of the fabric are protected from the flowing design liquid.

Other objects of the invention include the provision of means for stretching or pulling the fabric taut in the area to which the design is to be applied whereby a proper flow of the design liquid can be achieved. Likewise, provision is made for a collection of the excess liquid remote from the fabric.

Basically, the apparatus of the invention includes a shaft mounted disc adapted for high speed rotation and including concentric upstanding walls. The inner wall, higher than the outer wall, defines a central chamber over which the portion of the fabric to be patterned is stretched. The space between the inner and outer walls constitutes a storage chamber for the remainder of the fabric. The fabric is held taut over the inner chamber and surrounding wall by a circular hoop which seals the fabric to the exterior of the inner wall and completely overlies the surrounding storage chamber. Excess paint collects either within the central chamber below the portion of the fabric being provided with the spin design or externally of the storage chamber within the apparatus housing. A hot air blower is pivotally mounted to the cabinet or housing for selective positioning over the spinning unit for an initial drying of the patterned fabric after which the fabric may be placed in an oven for final drying.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereininafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout.

FIG. 1 is a perspective view of the upper portion of the apparatus of the invention;

FIG. 2 is an enlarged transverse cross-sectional view taken substantially on a plane passing along line 2—2 of FIG. 1; and

FIG. 3 is a sectional detail illustrating the relationship between the fabric holding or retaining hoop and the inner wall.

Referring now more specifically to the drawings, reference numeral 10 is used to generally designate the apparatus comprising the present invention. This apparatus 10 includes an enclosing housing 12 provided with an enlarged access opening 14 through the top thereof. A support deck 16 is provided internally within the housing for support of the operating components of the apparatus.

These components include a fabric mounting and spinning unit 18 affixed to a vertical shaft 20 which is in turn rotatably mounted within an appropriate bearing unit 22 supported on the deck 16. The unit 18 includes a circular disc 24 having the center thereof rigidly affixed to the upper end of the shaft 20. Concentric outer and inner annular walls 26 and 28 are affixed to the disc or plate 24 and project vertically therefrom. The inner annular wall 28 is of a slightly greater height than the outer wall 26 and defines an internal excess liquid receiving chamber 30. A second annular storage chamber 32 is defined between the outer and inner walls 26 and 28 peripherally about the inner chamber 30.

An annular flat holding hoop 34 is selectively positioned about the inner wall 28 in an outwardly projecting relationship thereto peripherally thereabout so as to overlie the storage chamber 32 and seat upon the upper edge of the outer annular wall 26 for an enclosing of the storage chamber 32. The inner annular edge of the holding hoop 34 is provided with a resilient sealing ring 36 affixed thereto and adapted for frictional engagement against the outer periphery of the inner wall 28 or fabric overlying the wall as shall be explained presently. As suggested in the phantom line showing in FIG. 2, the holding hoop and attached sealing ring 36 can be vertically removed and subsequently vertically mounted.

In mounting the fabric for decorating, that portion of the fabric 38 which is to receive the paint or the like is stretched over the upper peripheral edge of the inner wall 28 and both pulled taut and locked into position by a vertical mounting of the holding hoop with the inner resilient ring 36 frictionally clamping the fabric against the outer periphery of the wall 28. The excess fabric, or that fabric outside of the area to be decorated, is positioned within the annular storage chamber and completely covered by the holding hoop 34 which provides a protective cover thereover.

The actual decorating is effected by applying paints, inks, dyes, or the like either immediately prior to a spinning of the turntable unit 18 or as the unit 18 is spinning. Any of the excess liquid is thrown outward onto the vertical side walls of the housing and collects on the deck 16. By the same token, any of the liquid seeping through the fabric 38 stretched over the inner chamber 30 merely collects therein. In both instances, the liquid is maintained completely out of contact with the portion of the fabric within the storage chamber 32.

After the design has been formed, an initial drying of the fabric is effected by a hot air blower 40 adjustably mounted on the outer end of a horizontal rod 42 which is in turn adjusably affixed to a vertical rod 44 secured to the rear of the housing 12. The vertical rod 44 will normally be so orientated as to allow for a swinging of the dryer 40 between two or more adjacent spinners 10. A final drying, depending upon the materials used, can be effected within an oven.

After a particular area of the fabric 38 has been decorated, the fabric can either be completely removed or merely shifted so as to expose another portion of the fabric with the fabric, in each position thereof, having only that portion being decorated exposed while the re-
remainder of the fabric is completely concealed within the annular storage chamber 32.

As will be appreciated from the drawings, the actual driving of the turntable unit 18, and more particularly the shaft 20 to which it is affixed, is effected by an electric motor 46 mounted to one side of the shaft 20 within the housing 12 below the deck 16 and operatively engaged with the lower portion of the shaft 20 through a belt and pulley assembly comprising a drive pulley 48 on the motor shaft, a driven pulley 50 affixed to the lower end of the shaft 20 below the deck 16, and an endless drive belt 52 engaged about both pulleys. Driven in this manner, it will be appreciated that a relatively heavy shaft 20 and associated bearing unit 22 can be utilized as will be required in the decoration of heavy or voluminous fabric, particularly in those situations wherein the fabric will not be symmetrically orientated about the shaft 20.

From the foregoing, it will be appreciated that a highly unique apparatus has been devised for spin decorating fabric in a manner whereby selected portions of the fabric can be decorated as desired.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.

What is claimed as new is as follows:

1. Spinner apparatus for decorating fabric comprising a turntable unit, said turntable unit including means for receiving and exposing a selected portion of the fabric for reception of decorating liquid thereon, means for enclosing the remaining portions of the fabric for isolation from the decorating liquid, and means for rotatably driving said turntable unit, said means for exposing a selected portion of the fabric including a central chamber defined by a peripheral wall over which the selected portion of the fabric is positioned, said means for enclosing the remaining portions of the fabric including a storage chamber outward of and peripherally about the first-mentioned chamber.

2. The spinner apparatus of claim 1 including cover means overlying said storage chamber completely thereabout.

3. The spinner apparatus of claim 2 wherein said cover means is provided with an inner sealing ring for a clamped retention of the fabric about the first chamber for a taut retention of the selected exposed portion of the fabric.

4. The spinner apparatus of claim 3 wherein said first-mentioned chamber is circular, said storage chamber being annular and defined by the wall of the first chamber and an outer relatively shorter wall parallel thereto.

5. The spinner apparatus of claim 4 including a hot air blower and means for adjustably mounting said hot air blower for selective positioning over the turntable unit.

6. The spinner apparatus of claim 5 wherein the means for rotatably driving the turntable unit includes a shaft affixed to and coaxially extending from the turntable unit, bearing means mounting said shaft for rotation, a driven pulley affixed to the outer end portion of the shaft, a laterally orientated motor, a drive pulley affixed to the drive shaft of the motor, and an endless belt engaged about said pulleys.

* * * * *