Aug. 9, 1938. R. LITTLE ET AL 2,125,937

APPARATUS FOR PROCESSING FIBROUS MATERIALS

Filed Dec. 27, 1935 3 Sheets-Sheet 1

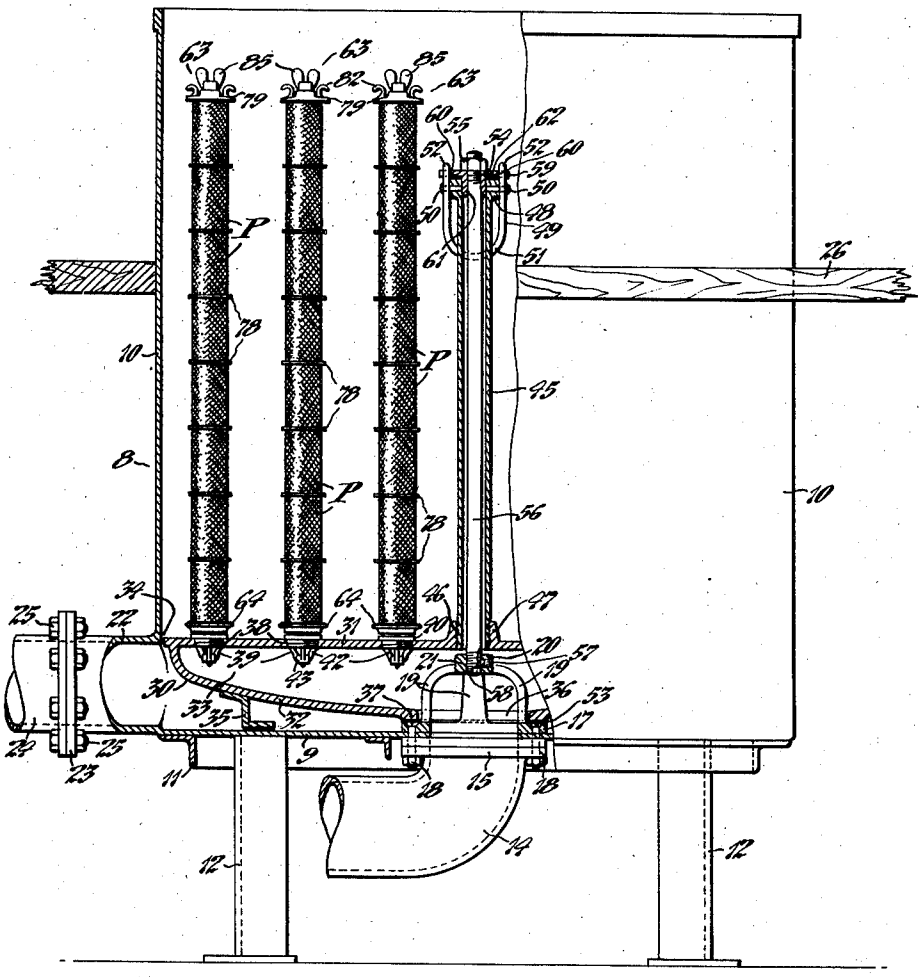


Fig. 1.

Inventors:
Royal Little, William A. Traver,
John M. Wood and Freeman W. Fraim
By Fairmington Dodd & White
Attorneys.

Aug. 9, 1938. R. LITTLE ET AL 2,125,937

APPARATUS FOR PROCESSING FIBROUS MATERIALS

Filed Dec. 27, 1935 3 Sheets-Sheet 2

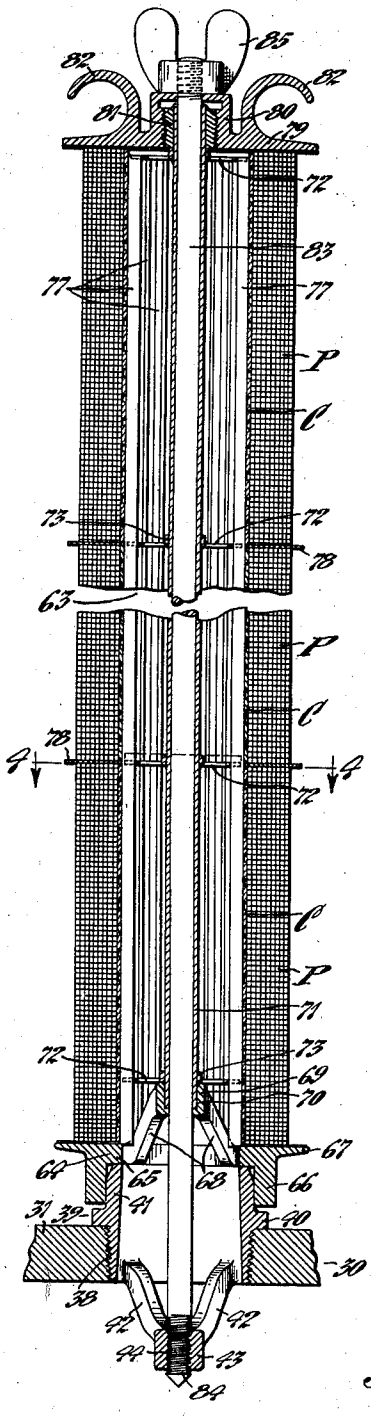


Fig. 2.

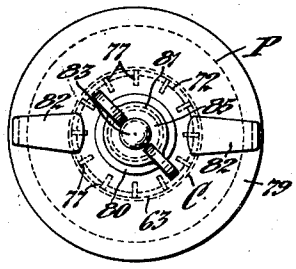


Fig. 3.

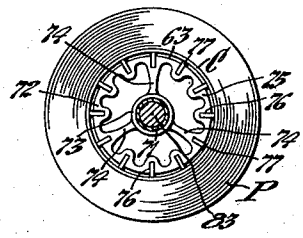


Fig. 4.

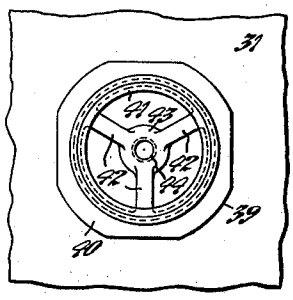


Fig. 5.

Inventors:
Royal Little, William A. Traver,
John M. Wood and Freeman W. Hahn
By
Attorneys.

Aug. 9, 1938. R. LITTLE ET AL 2,125,937

APPARATUS FOR PROCESSING FIBROUS MATERIALS

Filed Dec. 27, 1935 3 Sheets-Sheet 3

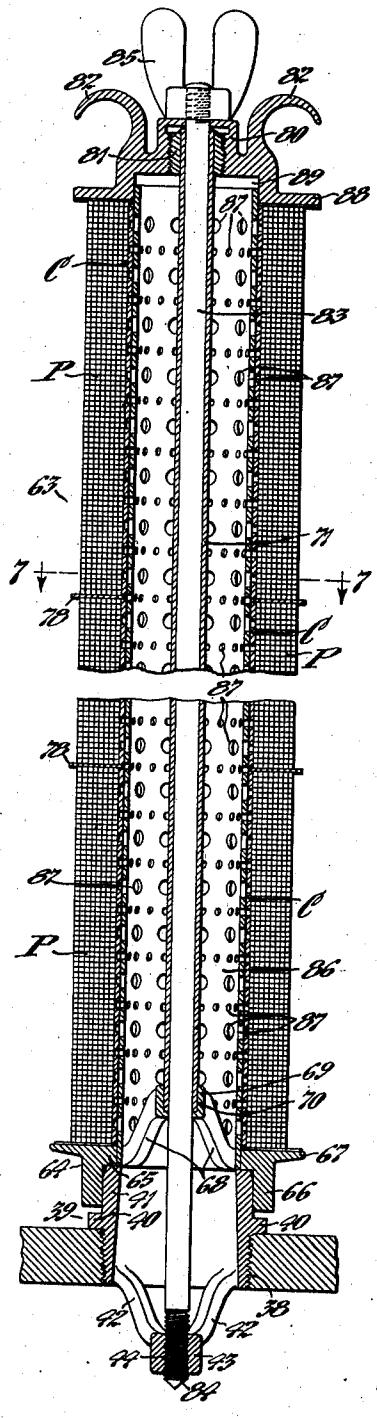


Fig. 6.

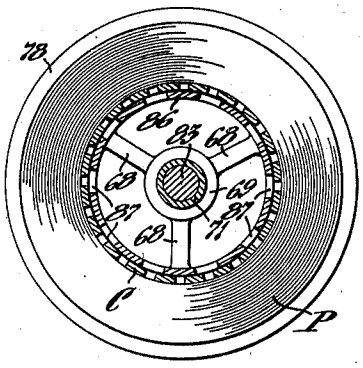


Fig. 7.

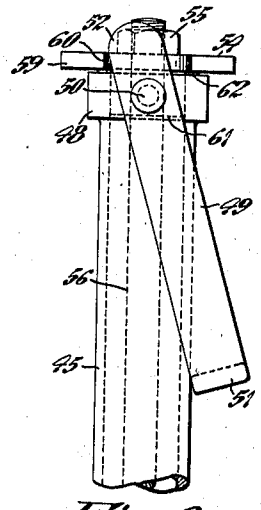


Fig. 8.

Inventors:
Royal Little, William A. Frazer,
John M. Wood and Freeman W. Frazier
By
Pennington and Lee
Attorneys.

Patented Aug. 9, 1938 2,125,937

UNITED STATES PATENT OFFICE

2,125,937

APPARATUS FOR PROCESSING FIBROUS MATERIALS

Royal Little and William A. Traver, Providence, and John M. Wood and Freeman W. Fraim, Cranston, R. I., assignors to Franklin Rayon Corporation, Providence, R. I., a corporation of Rhode Island

Application December 27, 1935, Serial No. 56,338

7 Claims. (Cl. 8—19)

This invention relates to improvements in apparatus for washing, dyeing, bleaching and otherwise processing fibrous materials such as yarn and thread in package form. By the term "package" as employed in the following specification and claims is meant any wound mass of textile material whatever its character or form and whether or not supported from within or without.

One of the objects of the invention is to provide an apparatus of the type indicated including a portable carrier on which packages of the material to be treated are assembled in multiple series outside of the kier or other processing chamber and thereafter placed therein as a unit.

Another object of the invention is to provide a carrier of the type indicated adapted to detachably mount a plurality of holders each of which carries a group of packages in a self-contained unit.

Another object of the invention is to provide a hollow carrier of the type indicated adapted to receive a treating fluid and to dispense the fluid through a plurality of the units of packages.

Another object of the invention is to provide an apparatus of the type indicated in which groups of packages are mounted in series on holders to form self-contained units; the holder units detachably mounted on a portable carrier; and the portable carrier detachably held in a kier.

Still another object of the invention is to provide an apparatus adapted to facilitate the assembly of a plurality of packages for treatment with a fluid and to provide for convenience in handling the packages to increase the efficiency of the treating operation and to produce a more uniform and satisfactory result in the processed material.

Further objects of the invention are set forth in the following specification which describes a preferred form and arrangement of the apparatus, by way of example, and two different types of package-holders for use therewith, as illustrated by the accompanying drawings. In the drawings:

Fig. 1 is an elevational view of the apparatus shown partly in section and illustrating the carrier for the package units detachably clamped in its operative position in a kier;

Fig. 2 is a longitudinal sectional view of one form of holder for a group of packages showing the manner in which it is detachably mounted on the portable carrier;

Fig. 3 is a top plan view of the package-holder assembly shown in Fig. 2;

Fig. 4 is a transverse sectional view taken on line 4—4 of Fig. 2 and showing one of the disks on which the radial supporting slats are fixed;

Fig. 5 is a top plan view of a portion of the carrier showing the spider clamping element for attaching a package holder in position over a dispensing nozzle therein;

Fig. 6 is a longitudinal sectional view of a modified form of package-holder assembly showing a perforated cylindrical shell for supporting packages wound on thin paper tubes;

Fig. 7 is a transverse sectional view taken on line 7—7 of Fig. 6 showing the relationship of the elements; and

Fig. 8 is an enlarged side view of the upper portion of the lifting rod for the carrier showing its bail locked in inoperative position.

The present invention relates generally to apparatus for dyeing or otherwise treating packages of textile material with a fluid. The apparatus includes a portable carrier adapted to be lifted into and out of a kier or other processing chamber and a plurality of package holders detachably mounted on the carrier. With the present apparatus the material in the packages may be processed by submerging the carrier and packages in a treating fluid in the kier but preferably the fluid is forced radially through the packages. The carrier is of hollow construction having an inlet for cooperation with an intake conduit in the kier through which the treating fluid is supplied, and a plurality of outlet nozzles for dispensing the fluid through the hollow holders and packages. Each of the holders is adapted to mount a group of packages which are assembled in axial alinement to form a self-contained unit independent of the carrier and the kier. Means are provided for detachably mounting the package-holder units on the carrier and for detachably clamping the carrier in the kier with its inlet in register with the intake conduit through which the treating fluid is supplied.

The present invention may be applied to practically any type of dyeing or treating vessel and as herein illustrated it is adapted for use with a cylindrical kier or vat as shown in the drawings and designated generally by the reference character 8. The kier 8, as shown in Fig. 1, is in the form of a cylindrical vessel having a flat bottom 9 and side wall 10 terminating in an open top. When the packages are to be dyed under pressure with the flow from the outside inwardly the open top of the kier may be closed by a cover, not herein shown, in a manner commonly employed in the art. The kier 8 is supported in

raised position above the floor by a base framework 11 having legs 12. Opening through the center of the bottom 9 of the kier 8 is an intake pipe 14 having its flange 15 bolted thereto at 18. Within the kier 8 is an annular seat-rim 17 surrounding the opening of the pipe 14 and clamped to the bottom 9 of the kier by the bolts 18 for the pipe 14. Formed integrally with the annular seat 17 are spaced arms 19 which extend upwardly and inwardly and merge into a central hub 20 to form a spider. The hub 20 has a threaded aperture 21 in axial alinement with the opening in the annular seat 17 for a purpose to be later explained. On the side of the kier adjacent its bottom is an exhaust outlet 22 provided with a flanged end 23 for connection with a flanged pipe 24 by means of bolts 25. The intake and exhaust pipes 14 and 24 are connected to the opposite sides of a suitable pump, not herein shown, for circulating a treating fluid through the kier in the usual manner. Preferably, the kier 8 is supported from a lower base and extends upwardly through a floor 26 above so that its interior will be conveniently accessible to the operators.

The portable carrier 30 for the package units is adapted to be bodily lifted into and out of the kier 8 and supported on the bottom 9. The carrier 30 is of hollow construction having a flat top wall 31 and a generally curved bottom wall 32 forming a closed chamber 33 therebetween. The carrier 30 is preferably constructed in an integral circular structure of such diameter as to provide an annular space 34 between its outer edge and the wall 10 of the kier 8. Suitable brackets 35 are provided on the bottom wall 32 of the carrier 30 in the form of feet for supporting it on the floor outside. Centrally positioned in the bottom wall 32 is a circular inlet opening 36 for cooperation with the open end of the intake conduit 14. A boss or rim 37 is provided on the bottom wall 32 of the carrier 30 surrounding the inlet opening 36 to adapt it to engage the annular seat 17 in the bottom of the kier 8.

Suitably spaced apertures 38 are provided in the top wall 31 of the carrier 30 in which are a plurality of outlet nozzles 39 for dispensing the dye liquor or other treating fluid. As shown in Figs. 2 and 6, the nozzles 39 are of tubular form having annular flanges 40 intermediate of their ends. The portions of the nozzles 39 below the flanges 40 are threaded and screwed into the apertures 38 to engage the flanges with the top face of the wall 31 adjacent the apertures. The upper portions of the nozzles 39 form nipples 41 projecting above the top wall of the carrier 30. Each nozzle 39 has a plurality of radial arms 42 which project from its interior adjacent the bottom and extend downwardly and inwardly to form a spider. The arms 42 are joined by a central hub 43 having a tapped hole 44 extending axially of the nozzle.

A tubular lifting rod 45 extends through the top wall 31 of the carrier 30 and is rigidly secured thereto by any suitable means such as its screw-threaded connection 46 with a hub or boss 47, see Fig. 1. The lifting rod 45 has a collar or enlargement 48 at its upper end with a bail 49 pivotally connected thereto by means of pins 50 extending through the opposite sides of the bail. The bail 49 is in the form of a U-shaped loop 51 with its ends 52 extended beyond the pivot pins 50. The carrier 30 may be bodily lifted into and out of the kier 8 by attaching a hoist to the bail 49 on the lifting rod 45 and the inlet opening 36 is guided into register with the annular seat 17 by the upwardly-extending spider formed by the arms 19. Preferably, a compressible gasket 53 is provided between the annular boss or rim 37 and the seat 17 to seal the joint.

The carrier 30 is clamped in place in the kier 8 by means of a cap 54 and nut 55 screwed onto the upper end of an attaching rod 56 fixedly secured within the bore of the hub 20. The lower end of the rod 56 is threaded to screw into the tapped hole 21 in the hub 20 and a set-screw 57 entering the side of the hub has its end engaging a slot 58 in the rod to prevent the latter from turning. The cap 54, shown more in detail in Fig. 8, has a circular flange 59 with recesses 60 on the opposite sides thereof and a depending sleeve 61 adapted to fit within the open end of the tubular rod 45. After the carrier 30 has been lowered into the kier 8 the loop 51 of the bail 49 is swung down into engagement with the side of the tubular rod 45 and the cap 54 placed over the end of the attaching rod 56. In applying the cap 54 its depending sleeve 61 is alined with the annular opening between the two rods 45 and 56 with its recesses 60 in the flange 59 in alinement with the extended ends 52 of the bail 49. The nut 55 is then screwed onto the end of the rod 56 to clamp the carrier 30 in position in the kier 8, a packing ring 62 being provided between the cap 54 and collar 48 on the tubular lifting rod 45 to seal the joint. The bail 49 is thus locked in inoperative position by the engagement of its extended ends 52 with the recesses 60 in the cap 54 so that the bail cannot be raised to lift the carrier 30 out of the kier 8 until the nut 55 and cap 54 are removed. This construction prevents damaging or breaking the parts by attempting to remove the carrier 30 without removing the nut 55 and cap 54.

The packages P to be dyed or otherwise treated may be wound on hollow perforated paper cores C and a group of the packages mounted in axial alinement on holders 63. When the packages are to be treated by immersion in the kier 8 or when the fluid is forced from the interior of the packages radially outward the holders 63 are preferably in the form shown in Figs. 2 to 4 of the drawings. This form of holder 63 comprises a cylindrical base member 64 having an annular seat 65 for cooperation with the end of the nipple 41 on the carrier 30 and a depending skirt 66 for surrounding the nipple to properly position the holder thereon. Preferably, the upper end of the nipple 41 is beveled at its rim to facilitate placing the member 64 thereon. The base member 64 is formed with a peripheral flange 67 with its upper face in the form of a plate for seating the lowermost dye-cop or package P of a group mounted thereon. Arms 68 extend radially inwardly and upwardly from the base member 64 and are joined in a central hub 69 having a countersunk bore 70. A tubular supporting column 71 has its end seated in the countersunk bore 70 and rigidly secured to the hub 69 in any suitable manner as by welding, soldering or the like. A series of skeleton disks or spreaders 72 are mounted on the column 71 at spaced intervals along its length with their hubs 73 embracing the column and suitably secured thereto. Arms 74 extending radially from the hubs are joined to annular rims 75 formed with spaced radial slots 76 on their peripheries. A series of radially-extending slats 77 are mounted in the alined slots 76 in the spreaders 72 and extend throughout the greater portion of the length of the column 71.

The slats 77 are rigidly secured to the spreaders 72 by welding, soldering or other means to form an open-sided stringer on which the packages P are mounted in axial alinement with the outer edges of the slats supporting the paper cores C on which the packages are wound while providing for a free flow of the treating fluid through the holders radially thereof.

A group of packages P are mounted on the holder 63 with or without spacers 78 between their ends to adapt them to be clamped together on the holder by an end plate 79 to form a self-contained unit. The end plate 79 has a hollow interiorly-threaded hub 80 which cooperates with a threaded collar 81 rigidly secured to the upper end of the supporting column 71 and outwardly curved finger-grips 82 are provided on the end plate for screwing it down on the column or for lifting the complete unit. The end plate 79 is screwed longitudinally of the supporting column 71 to seal the ends of the cores or paper tubes one against another. In other instances when compressible cores, for example springs with stockinet covers, are used the packages may be compressed to bring the material to a predetermined density. In this manner the packages P may be assembled on the holders 63 to form self-contained units prepared before placing them on the carrier 30 for application to the kier 8 while a dyeing operation is being performed.

The self-contained holder and package units are detachably clamped to the carrier 30 with the annular seats 65 in engagement with the ends of the nipples 41, as shown in Fig. 2, by rods 83 extending through the hollow columns 71. The rods 83 have threaded ends 84 which are screwed into the tapped holes 44 in the hubs 43 of the nozzles 39. Wing-nuts 85 or other devices are provided on the upper ends of the rods 83 for seating against the hub portions 80 of the end plates 79. The wing-nuts 85 are screwed onto the threaded ends of the rods 83 and secured fixedly thereto by heading over the end of the rod whereby the rods serve as the means for clamping the holders 63 to the carrier 30 and sealing the joints between the ends of the nipples 41 and the annular seats 65 of the base members 64 as their threaded ends 84 are screwed into the tapped holes 44 in the nozzles.

In Figs. 6 and 7 of the drawings a modified form of holder for the dye-cops or packages is shown which permits circulation of the dye liquor or other treating fluid in opposite directions while preventing collapse of the paper tubes when the pressure is from the outside of the packages. In this form of construction a hollow cylindrical standpipe 86 is substituted for the spreaders 72 and radially-extending slats 77 in the previously described construction. The lower end of the standpipe 86 is supported from and rigidly secured to the interior of the cylindrical base member 64 in any suitable manner as by welding, soldering or the like. The cylindrical standpipe 86 has rows of perforations or holes 87 and as herein illustrated the alternate rows of perforations are of different size to insure communication with the perforations in the cores C. When a group of packages are mounted on this type of holder the rigid standpipe 86 supports the paper cores C to prevent them from collapsing as the treating fluid is forced radially inward toward the center of the holder. The end plate 88 for sealing the ends of the paper tubes, or in other instances for compressing the packages, is generally of the same construction as the end plate 79 but has a central annular recess 89 into which the end of the standpipe 86 extends to guide the plate as it is screwed down on the column 71. In all other respects the holder is of substantially the same arrangement as that of the previously described form and adapted to be detachably mounted on the carrier 30 in the same manner.

The apparatus having now been described in detail its mode of operation will be next explained. A group of packages P are first mounted on each of a plurality of holders 63 of the type adapted for the particular method of treatment to be practiced. As explained above, if the packages are to be treated by immersion only or by forcing the treating fluid into the interior of the packages and radially outward through the material the form of holder disclosed in Figs. 2 to 4 is used as the radial slats 77 will adequately support the paper cores C and provide for a free flow of the treating fluid. However, if the fluid is to be forced in opposite directions through the package the form of holder shown in Figs. 6 and 7 is preferable to prevent the relatively unstable paper cores from collapsing. In either case the end plate 79 or 88 is removed from the holder 63 and the packages P slid thereon to dispose them in axial alinement and preferably with suitable separators 78 between their ends to prevent the yarn in adjacent packages from being matted and tangled. The lowermost package of the group is supported by the upper face 67 of the base member 64 and when a desired number of the packages have been mounted on the holder the end plate 79 or 88 is screwed down on the threaded collar 81 fast on the column 71 by means of the finger-grips 82. As the end plate is screwed down on the collar 81 the ends of the paper tubes are forced into meeting engagement to effect a liquor seal between the packages. A plurality of holders equal to the number of nozzles 39 on the carrier 30 are loaded with groups of packages P and thereafter mounted on the carrier 30 in the manner as next explained.

The package units are detachably mounted on the carrier 30 outside the kier 8. To this end the attaching rods 83 are passed through the hollow columns 71 of the holders 63 and the latter are handled by the finger-grips 82 to apply the base members 64 in position on the nozzles 39 of the carrier 30. As the holder is thus manipulated the annular seat 65 on the base member 64 is guided into engagement with the end of the nipple 41 by the depending skirt 66 which rides over the beveled end of the nipple. When the base member is properly seated the wing-nut 85 on the end of the rod 83 is turned to screw the threaded end 84 of the rod into the tapped hole 44 in the centrally-positioned hub 43 of the nozzle 39. As the threaded end 84 of the rod 83 is screwed down into the hub 43 the wing-nut 85 engages the hub portion 80 on the end plate 79 or 88 and thereby acts through the rigid column 71 and base 64 to clamp the annular seat 65 of the base member 64 against the end of the projecting nipple 41 to seal the joint therebetween. The rod 83 extending upward'y through the hollow column 71 will then rigidly support the holder 63 on the carrier 30. In this manner a package unit is connected to each nozzle 39 and detachably supported on the carrier 30.

The loaded carrier 30 illustrated in Fig. 1 is then bodily lifted by the bail 49 and lifting rod 45 and lowered into the kier 8 by alining the tubular rod 45 with the attaching rod 56. As the

carrier 30 approaches the bottom of the kier 8 the spider formed by the upwardly and inwardly directed arms 19 enters the inlet opening 36 in its bottom wall and guides the surrounding rim or boss 37 into engagement with the annular seat 17 on the bottom 9 of the kier. When the carrier 30 is seated in the kier 8 the attaching rod 56 extends upwardly through the tubular lifting rod 45 with its threaded end projecting thereabove. The bail 49 is swung into engagement with the side of the lifting rod 45, the cap 54 applied over the end of the attaching rod 56 with the extended ends 52 of the bail positioned in the recesses 60, and the nut 55 screwed down on the threaded end of the rod in the manner previously explained. As the nut 55 is screwed down against the cap 54 it impinges against the upper end of the lifting rod 45 to clamp the carrier 30 in the kier 8 while compressing the gaskets 53 and 62 to seal the joints between the annular seat 17 in the kier 8 and the rim 37 on the carrier 30 and between the cap 54 and collar 48 at the upper end of the lifting rod.

The treating fluid is then continuously pumped through the intake pipe 14 and inlet opening 36 into the chamber 33 in the carrier 30 and thence dispensed through the outlet nozzles 39 in the top wall 31 of the carrier. The fluid passes upwardly through the hollow holders 63 and radially outward through the slats 77 or perforations 87 depending upon which type of holder is used, and then through the porous cores C and packages P. The fluid drains down through the annular space 34 between the edge of the carrier 30 and the wall 10 of the kier 8 and is exhausted through the outlet 22 and pipe 24. The exhaust pipe 24 directs the fluid back to the pump by which it is again recirculated through the apparatus. After the treating operation has been completed the carrier 30 is released from the kier 8 by unscrewing the nut 55 on the upper threaded end of the rod 56, the cap 54 being then removed and the bail 49 swung to its upright position, so that the loaded carrier may be bodily lifted from the kier by means of a chain hoist or suitable tackle. The package-holder units are then detached from the carrier 30 exteriorly of the kier 8 by unscrewing the rods 83 and lifting the units off from the nozzles 39. Another series of previously assembled package units are then applied to the carrier and another treating operation performed in the kier 8; it being understood that during this second treatment in the kier the first-treated packages P on the holders 63 may be subjected to further processing or removed and other packages to be treated mounted on the holders in the manner explained above.

It will also be understood that when the treating fluid is forced through the package units from the outside or in both directions the form of holder 63 shown in Figs. 6 and 7 is used. With this form of holder the relatively unstable paper cores C are supported interiorly by the perforated cylindrical standpipe 86 and exteriorly by the packages C. In this manner the cores C will be prevented from collapsing and the treating fluid will pass through the perforations 87 in the standpipe and the perforations in the core alined therewith and through the packages P, or in the reverse direction.

The apparatus and its mode of operation having now been described it will be observed that the invention provides for treating packages of textile materials with fluids in such manner as to facilitate the handling of the packages before, during and after such treatment by providing for their assembly in self-contained units independently of the kier or carrier.

It will further be observed that the apparatus includes novel forms of holders for mounting groups of packages in self-contained units, a portable carrier on which the units are detachably mounted and a kier into which the loaded carrier is bodily lowered and thereafter detachably clamped in position to be treated. The invention thus provides for assembling and maintaining groups of packages in self-contained units which may be prepared while the dyeing kier is being used for a previously prepared batch, and which may also be employed in other processing steps, such as washing, extracting, drying, reconditioning and the like either before or after the dyeing process.

While we have herein described and illustrated a preferred form of construction of the device it is to be understood that modifications may be made in the structure and arrangement of the parts without departing from the spirit or scope of the invention. Therefore, without limiting ourselves in this respect, we claim:

1. In an apparatus for dyeing or otherwise treating fibrous materials with fluids, the combination of a kier having an opening in its bottom for supplying a treating fluid thereto, a hollow portable carrier adapted to be supported in the kier to form a false bottom therein, said carrier having an inlet in its bottom wall for cooperation with the opening in the bottom of the kier and a plurality of nozzles in its top wall for dispensing the fluid, hollow holders for mounting groups of packages in axial alinement to form self-contained units independent of the carrier or kier and adapted to be detachably mounted on the carrier, means at the ends of the holders for retaining the packages in place thereon, means engaging the upper ends of the holders for clamping them to the carrier in communication with the nozzles, and means for clamping the carrier in position in the kier.

2. In an apparatus for dyeing or otherwise treating fibrous materials with fluids, the combination of a kier having an opening in its bottom for supplying a treating fluid thereto, a hollow portable carrier adapted to be supported in the kier to form a false bottom therein, said carrier having an inlet in its bottom wall for cooperation with the opening in the bottom of the kier and a plurality of nozzles in its top wall for dispensing the fluid, each of said nozzles being formed with an annular seat, hollow holders for mounting groups of packages in axial alinement to form self-contained units independent of the carrier or kier, means on the holders for securing the packages in place thereon, said holders having annular seats for cooperation with the annular seats of the nozzles on the carrier, means for detachably clamping the holders to the carrier to maintain their annular seats against the seats of the nozzles to form liquid tight seals, and means for detachably clamping the carrier in the kier with a liquid tight seal between the inlet in the carrier and the opening in the bottom of the kier.

3. In an apparatus for dyeing or otherwise treating fibrous materials with fluids, the combination of a kier having an opening in its bottom for supplying a treating fluid thereto, a hollow portable carrier adapted to be supported in the kier to form a false bottom there-

in, said carrier having an inlet in its bottom wall for cooperation with the opening in the bottom of the kier and a plurality of nozzles in its top wall for dispensing the fluid, hollow holders for mounting groups of packages in axial alinement to form self-contained units independent of the carrier or kier, means for detachably mounting the package units on the carrier with their ends in communication with the nozzles, cooperating means on the kier and carrier for guiding the inlet in the carrier into register with the opening in the kier, and means extending through the carrier and engaging the guiding means on the kier for clamping the carrier in position in the kier.

4. In an apparatus of the type indicated, the combination of a kier, a hollow portable carrier adapted to be supported in the kier to form a false bottom therein, a plurality of holders each adapted to mount a group of packages to form a self-contained unit independent of the carrier or kier, means on each holder for compressing the packages carried thereon, means extending through the holder for detachably mounting the package units on the carrier while the latter is outside the kier, said carrier with the package units mounted thereon being adapted to be lowered into the kier, and means extending through the carrier for detachably connecting it to the kier.

5. In an apparatus of the type indicated, the combination of a kier, a hollow portable carrier adapted to be supported in the kier to form a false bottom therein, a holder adapted to mount a group of packages to form a self-contained unit independent of the carrier or kier, and a rod extending through the holder and having an abutment at one end for engaging the holder and means at its opposite end adapted to be connected to the carrier to detachably mount the package unit on the carrier, said carrier with the package unit thereon being adapted to be lowered into the kier, and a rod extending through the carrier to detachably mount the latter in the kier.

6. In an apparatus of the type indicated, the combination of a kier, a portable carrier adapted to be lifted into and out of the kier, a tubular rod extending upwardly from the carrier, a lifting bail pivotally mounted on the upper end of the rod and having extended ends, an attaching rod extending upwardly from the kier through the tubular rod on the carrier, a cap mounted on the end of the attaching rod having recessed sides for receiving the extended ends of the bail to lock it in inoperative position, and means for securing the cap on the rod.

7. In an apparatus of the type indicated, the combination of a kier, a portable carrier adapted to be lifted into and out of the kier, means for supporting the carrier, a lifting bail pivotally mounted on the supporting means, and means cooperating with the supporting means to lock the bail in inoperative position.

ROYAL LITTLE.
WILLIAM A. TRAVER.
JOHN M. WOOD.
FREEMAN W. FRAIM.