

April 12, 1966

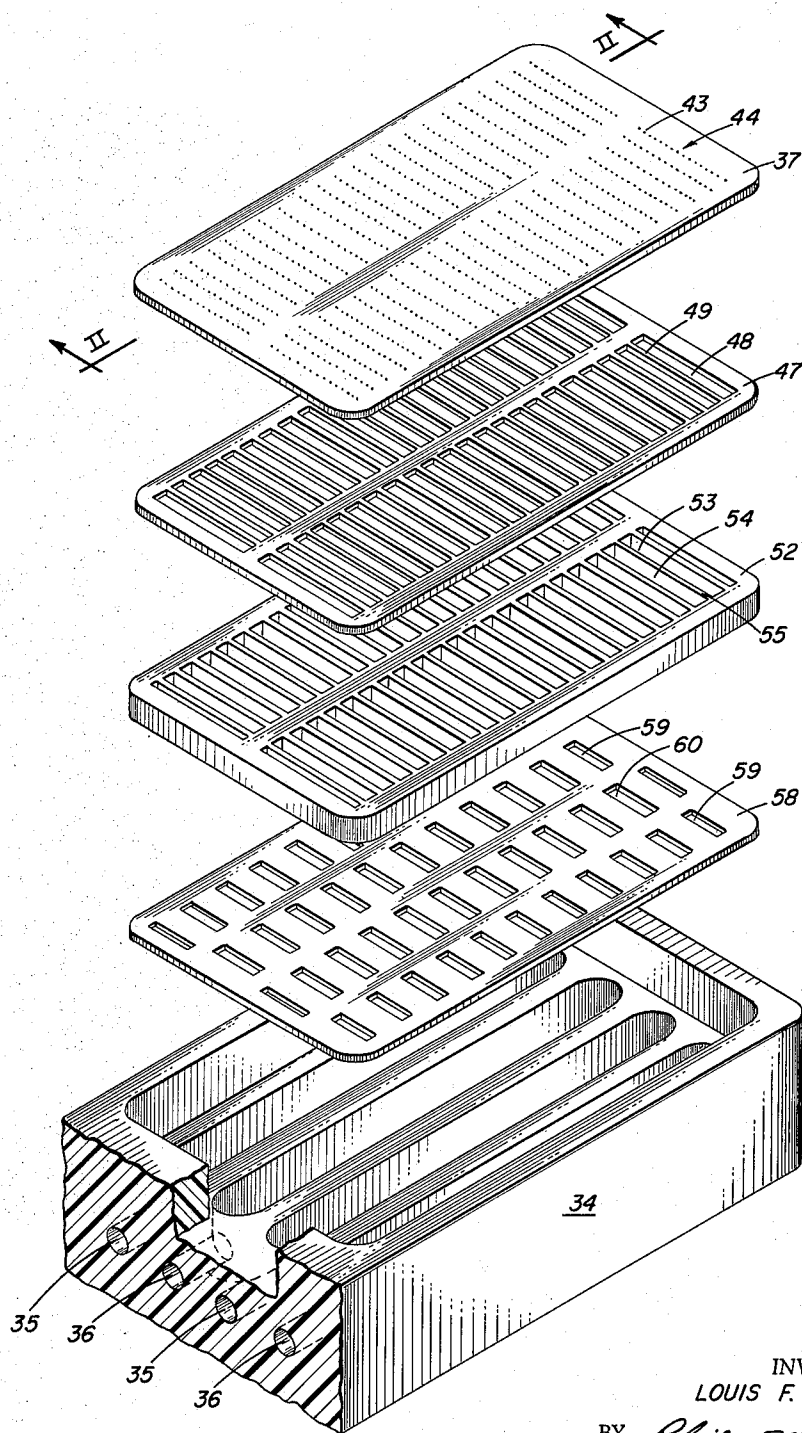
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3,245,113

APPARATUS FOR FORMING MULTI-COMPONENT FIBERS

Filed June 10, 1963

5 Sheets-Sheet 1



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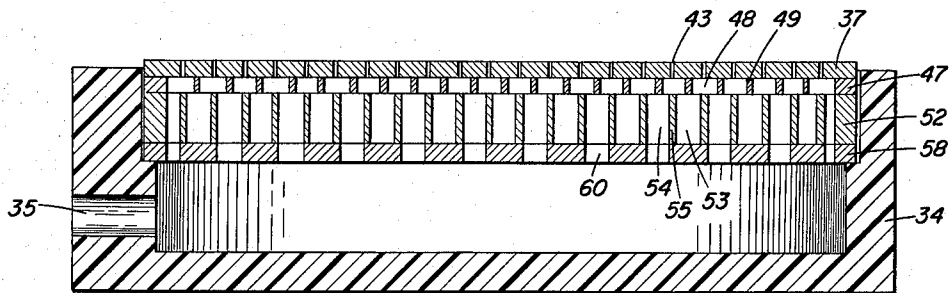


FIG. 2

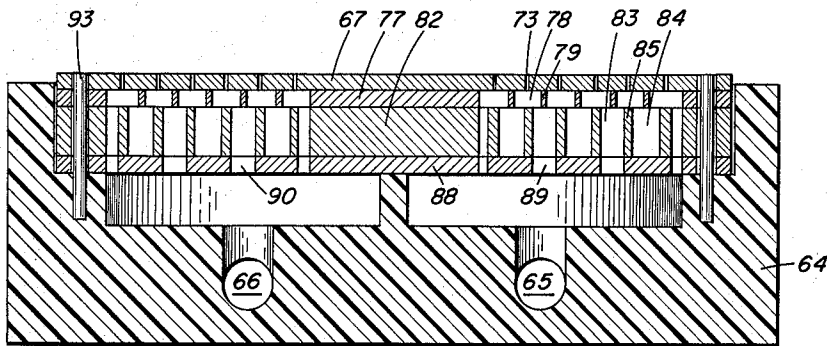


FIG. 5

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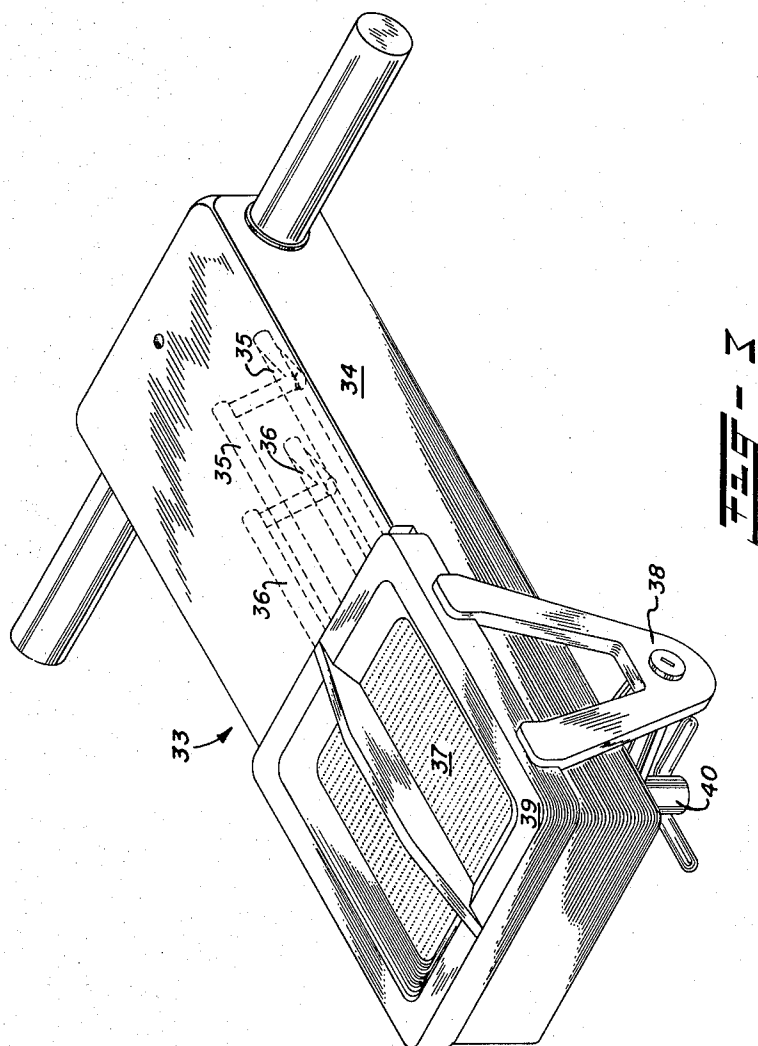
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5 Sheets-Sheet 3



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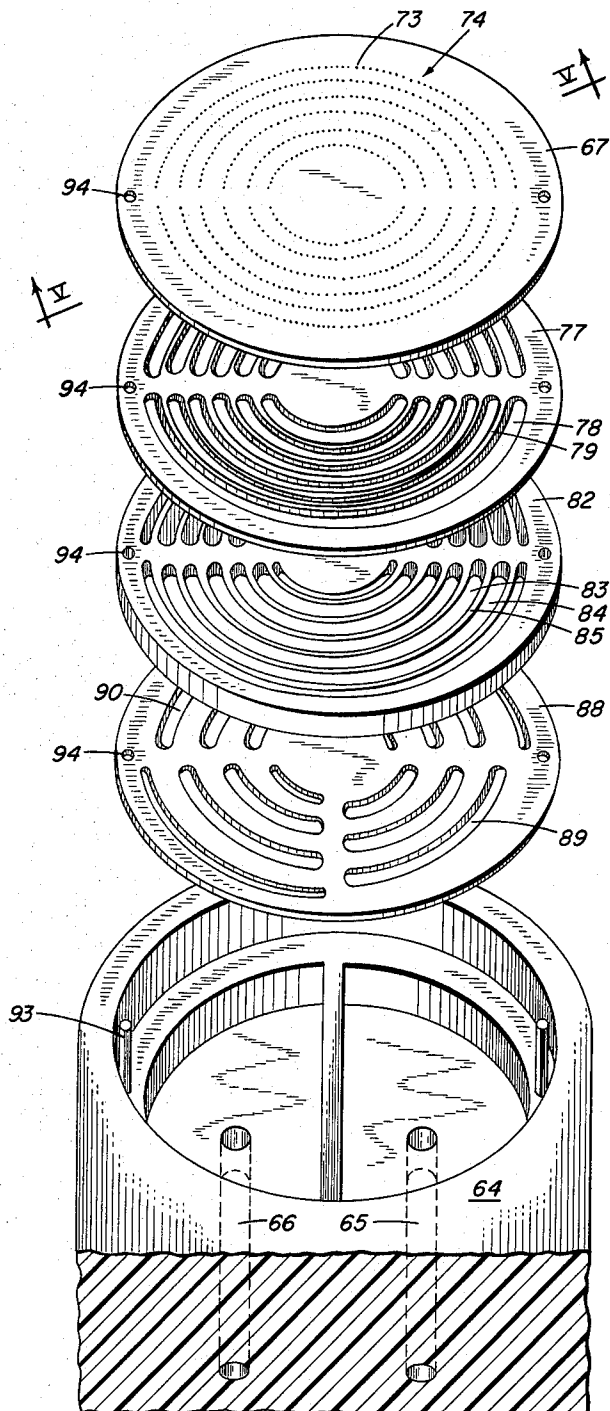


FIG. 4

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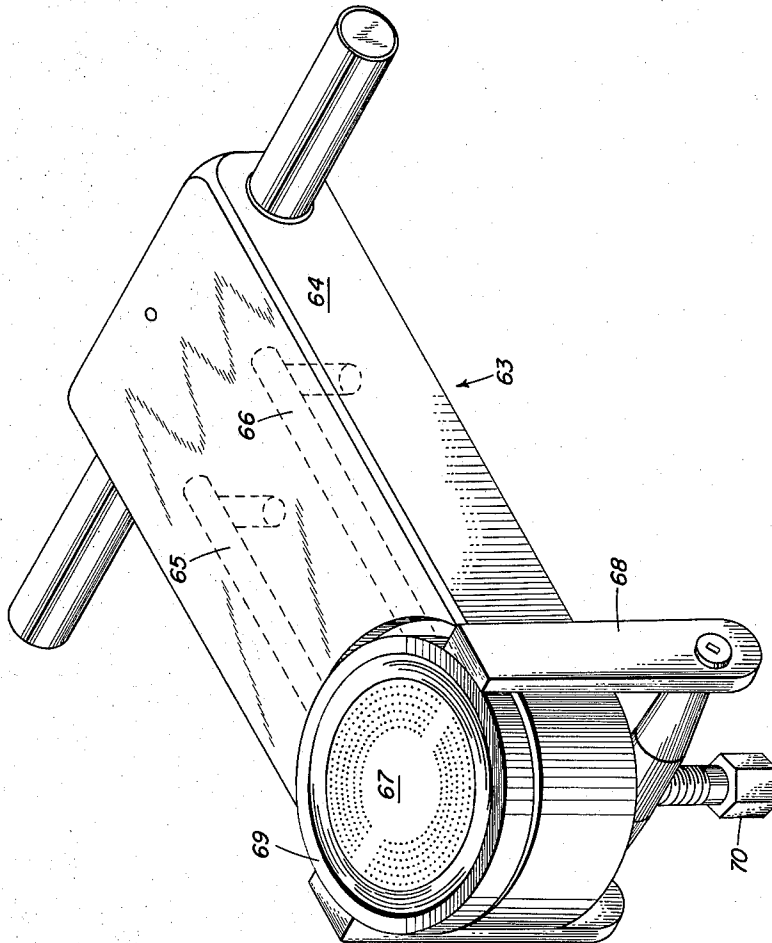


Fig. 6

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3,245,113 APPARATUS FOR FORMING MULTI-COMPONENT FIBERS

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7 Claims. (Cl. 18-8)

This invention relates to apparatus for spinning fibers, and more particularly to apparatus for spinning multi-component fibers.

It is known to produce fibers by processes wherein a plurality of spinning solutions are extruded through a common orifice either simultaneously or sequentially to produce special effects. For many purposes these special effect fibers are highly desirable but are economically not competitive with ordinary fibers due, in part, to the high costs and low productivity per spinning position of the known equipment necessary to perform such processes.

Recently, a major break-through was made permitting the production of spinnerette assemblies capable of producing a relatively large number of bi-component filaments (such as a tow) from a single spinnerette. This device is described and claimed in application Serial No. 249,203, filed January 3, 1963 by Douglas and Tonnie and assigned to the assignee of the present application.

Briefly, the spinnerette assembly there described and claimed comprises a plurality of plates secured together to form a stack which is associated with a spinnerette with each of the plates perpendicular to the face of the spinnerette. This stack may comprise plates of three or four different types; a first type for leading a first spin dope to a region near one side of each row of orifices; a second type for leading a second spin dope to a region adjacent the other side of each row of orifices; and a third type to separate the first and second types and isolate the two spin dopes from each other except for the region immediately adjacent to the spinnerette orifices (and, optionally, a fourth type to completely isolate each group of a first type, a second type, and a third type from each other such group). When assembled, it is essential that each plate of the "third type" be aligned accurately with its associated row of orifices in order to properly lead the interface between the two different spinning dopes through the central portion of each orifice in the spinnerette.

While the foregoing spinnerette assembly represents a major advance in the field of spinning bi-component fibers, certain inadequacies existed which the present invention is designed to overcome. The above-described spinnerette assembly is useful only for spinnerettes wherein the orifices are arranged in rows which are rectilinear and, preferably, are disposed in parallel rows in a rectangular spinnerette. The present invention provides a spinnerette assembly which is also useful for spinnerettes having orifices arranged in rows which are curvilinear as well as rectilinear or any other shape, regardless of how complex or how distributed over the face of the spinnerette. Also, while specifically developed for use with large spinnerettes (as was the above-described spinnerette assembly) the present invention is also very useful with even the smallest spinnerettes commercially used.

The above-described spinnerette assembly comprises a plurality of plates secured together with each of the plates perpendicular to the spinnerette face. Any error in the thickness of the plates will be cumulative from one end of the spinnerette to the other thereby requiring a very high degree of accuracy in obtaining plate material which is of an exact predetermined thickness and which is uniformly of that thickness in order to insure that the com-

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plete spin dope distribution assembly will match the spinnerette with which it is to be associated and have all of the "third plates" exactly centered under their respective orifice rows. Also, it was discovered that there exists a certain springiness to a stack of plates having a relatively large number of plates and, therefore, the tightness with which such plates are secured together is a critical variable in securing reproducibility of the dimensionality of the stack. While this springiness has turned out to be a benefit for experimental designs, it is seen as a detriment to commercial production units due to the difficulties in reproducibly reassembling such distribution assemblies after they have been disassembled for cleaning. In the present invention, these difficulties are obviated by having all the critical dimensions built right in to the spin dope distribution assembly so that the interface determinant cannot deviate from a position properly aligned with a row of spinnerette orifices.

It is an object of this invention to provide means for extruding a plurality, and more specifically, two different spinning solutions through common orifices of a multi-orifice spinnerette.

It is another object of this invention to provide economical and easily fabricated distribution means for distributing each of such spinning solutions to each of a relatively large number of orifices in a single spinnerette.

It is yet another object of this invention to provide such apparatus in such form as to permit the carrying out of the known processes of spinning multi-component fibers where such apparatus may be constructed inexpensively and is adaptable for use in spinning tows comprising large numbers of filaments.

It is a further object to provide such apparatus for use with spinnerettes of any desired shape having orifices in rows of any desired configuration arranged in the face thereof in any desired pattern.

It is a still further object to provide such an apparatus constructed of a relatively few parts having dimensions accurately pre-determined and wherein the thickness of the sheet stock selected for fabricating such parts is not a critical factor in the operability of the completed apparatus so long as reasonable approximations to the desired dimensions are achieved.

In accordance with this invention, the novel spinnerette assembly comprises generally a spinnerette holder and a stack of at least two plates. These plates, which are held in accurate alignment in the spinnerette holder, are (a) a spinnerette of any desired shape having at least one row of orifices therein, (b) optionally, a spacer plate adjacent the spinnerette having at least one slot therein arranged to underly the corresponding row of spinnerette orifices, (c) a distributor plate having a plurality of elongated slots separated by dividing walls or septa, each such septum underlying the center line of its corresponding spinnerette orifice row, and, if desired, (d) a splitter plate for guiding the streams of spin dope to the proper slots in the distributor plate. Where a spacer plate is not used, it is necessary that each distributor septum be narrower than the maximum diameter of the spinnerette orifices (located at that face of the spinnerette within the spinnerette holder) and accurately aligned therewith so each orifice is in communication with a distributor slot on each side of such septum. Where a spacer plate is used, it may have a large opening therein underlying many orifices in a plurality of rows or, preferably, it may have a separate opening for each corresponding row of orifices of a width greater than its associated distributor septum.

These plates have any shape to conform with the shape of the spinnerette face, and preferably are either all circular or all rectangular, and have their slots configurated to conform with the rows of orifices in the spinnerette

plate which, preferably, are all circular or rectilinear. Since these plates all lie parallel to the spinnerette plate, the thickness of these plates is not crucial and, since there are only three or four of them, no great accumulation of slight deviations over large numbers of plates can occur. Since each plate is a unitary structure, its dimensions will not change when the spinnerette assembly is disassembled for cleaning and reassembled. Also, since each plate can be readily produced by mass production techniques, it is readily apparent that large numbers of each plate can be produced dimensionally identical to each other for use in preparing interchangeable assemblies, and the accuracy of the critical dimensions of the spinnerette assembly can be built-in by careful control of the accuracy of the master types, punches, masks, etc., utilized to manufacture such plates.

For a clearer and more detailed understanding of this invention, particularly with reference to preferred embodiments thereof, reference may be had to the following description read in conjunction with the drawings wherein:

FIGURE 1 is an exploded view of the spinnerette assembly for use with a rectangular spinnerette;

FIGURE 2 is a cross-sectional view taken along line II—II of FIGURE 1 showing the spinnerette assembly assembled with the clamp arrangement omitted for clarity;

FIGURE 3 is a perspective view of the complete spinnerette assembly of the embodiment of FIGURES 1 and 2;

FIGURE 4 is an exploded view of the spinnerette assembly for use with a circular spinnerette;

FIGURE 5 is a cross-sectional view taken along line V—V of FIGURE 4 showing the spinnerette assembly assembled with the clamp arrangement omitted for clarity;

FIGURE 6 is a perspective view of the complete spinnerette assembly of the embodiment of FIGURES 4 and 5.

Referring next to the drawings, and more particularly to FIGURES 1, 2, and 3 thereof, there is illustrated a spinnerette assembly 33 which comprises generally a spinnerette holder 34, provided with conduits 35 and 36 for leading a pair of spinning solutions toward spinnerette 37. Spinnerette 37 is clamped in spinnerette holder 34 as the top plate of a stack of other plates (to be described hereinafter) by means of clamp 38 which includes a picture-frame-like retainer 39 which presses against spinnerette 37 by means of screw 40. If desired, a suitable gasket may be placed between spinnerette 37 and retainer 39 to preclude leakage of spinning solution from the spinnerette assembly in operation.

Spinnerette 37 is provided with a plurality of orifices 43 arranged in rows 44 which may be in any configuration, but which preferably are in a plurality of parallel rectilinear rows. Each orifice 43 is configured so that its maximum diameter is at the face of spinnerette 37 which is within the spinnerette assembly and each orifice is tangent in its maximum diameter to the adjacent orifices in the same row 44. This configuration of orifices and disposition thereof in their rows is preferred for best control of the interface between the two spinning solutions being concurrently extruded through each of said orifices 43.

Immediately adjacent spinnerette 37 is a spacer plate 47 which is provided with a plurality of elongated spacer slots 48 separated by dividing ribs 49. Each spacer slot 48 is associated with a corresponding row 44 of orifices 43 in spinnerette 37 in the following manner. The center line of spacer slot 48 is positioned directly beneath the row of spinnerette orifices and the length of slot 48 is at least as long as the row 44 of orifices with which it is associated. The thickness of spacer plate 47 is not critical, but for best results, it is preferred that spacer

plate 47 have a thickness between about .03 to about .25 inch.

Alternatively, spacer plate 47 may have some or all of dividing ribs 49 omitted so a single spacer opening 48 underlies a plurality of rows 44 of orifices 43. In the ultimate, all dividing ribs 49 may be omitted so spacer plate 47 resembles an open frame having one or two large rectangular slots coextensive with the area covered by all the orifices 43 in spinnerette 37. However, the specific configuration of spacer plate 47 illustrated (a separate spacer slot 48 for each row 44 of orifices 43) is preferred to give better control of the distribution of components in the bi-component fibers produced from this device.

Immediately adjacent spacer plate 47 there is provided a distributor plate 52 which is provided with a plurality of elongated distribution slots 53 and 54. These distribution slots 53, 54 may be considered as belonging to a first group to which all the distribution slots 53 belong and whose function is to distribute a first spinning solution and belonging to a second group to which distribution slots 54 belong and whose function is to distribute a second spinning solution. Between any two adjacent distribution slots belonging to different groups, there is provided a septum 55 which serves to keep the two different spinning solutions separated as they flow through the elongated distribution slots 53, 54. Each septum 55 is positioned adjacent the center line of its associated elongated spacer slot 48 in spacer plate 47 and is coextensive in length with but narrower than its associated spacer slot 48. Thus, at least a portion of a distribution slot 53 and at least a portion of a distribution slot 54 are operatively associated with the elongated spacer slot 48 so as to permit flow of spinning solutions from a distribution slot of each group to each elongated spacer slot 48 and thence to each orifice 43.

In the particular embodiment shown the distribution slots 53 and 54 are shown alternating along the length of the distributor plate 52 with a septum 55 between each pair of slots. It will be noted that each distribution slot 53 or 54 (except for the extreme end slots on the distributor plate 52) underlies a portion of two adjacent elongated spacer slots 48. This is a preferred construction but it is to be understood that each elongated distribution slot 53 and 54 may, if desired, be provided with supporting ribs (not shown) which underlie the dividing ribs 49 separating the adjacent elongated spacer slots 48. Such additional supporting ribs (not shown) may appear like additional septa, but since they serve merely to divide a single elongated distribution slot into two isolated halves and thereby strengthen the spinnerette assembly, they are not to be considered the same as a septum 55.

The thickness of distributor plate 52 is not critical, so long as it is thick enough to provide distribution slots 53 and 54 which are deep enough to provide a uniform distribution of the flow of spinning solutions therethrough to each orifice 43 of row 44 served thereby. However, excessive thickness of distributor plate 52 adds to the weight of the final assembly and increases the difficulties in manufacturing this part. Thus, it is preferred that distributor plate 52 have a thickness between about .06 to about 1.00 inch. Where distributor plate 52 is made from thin sheet stock, a plurality of identical distributor plates may be mounted adjacent each other to build up the desired thickness of distributor plate 52.

Where desired spacer plate 47 may be omitted, but in that event, it is necessary that each septum 55 be narrower than the maximum diameter of the orifices 43 with which it is aligned to provide communication for each orifice 43 with distribution slots 53 and 54 of each group. In this case, the maximum diameter of orifices 43 may be further increased by countersinks in the face of spinnerette 37 within spinnerette holder 34, which countersinks may be provided for each orifice 43 individually or for groups of orifices collectively, such as for a complete row 44

thereof. However, omission of spacer plate 47 is generally not preferred as the device thereby becomes more difficult and/or expensive to manufacture.

As previously described, spinnerette holder 34 is provided with a plurality of conduits 35 and 36 for conveying two different spinning solutions to the spinnerette. In the particular embodiment illustrated in FIGURES 1 to 3, it will be noted that conduits 35 and 36 terminate as elongated openings in spinnerette holder 34 immediately below the location of the stack of plates, i.e., spinnerette 37, spacer plate 47, and distributor plate 52.

In order to assist with directing the two different spinning solutions from conduits 36 and 35 into elongated distribution slots 53 and 54 respectively and to prevent the wrong spinning solution from getting into the wrong distribution slot, there is provided a means, such as splitter plate 58, for keeping the two spinning solutions separate while properly guiding them from the conduits 35 and 36 in the spinnerette holder to the appropriate distribution slots 54, 53. A preferred means is splitter plate 58 which is adjacent distributor plate 52 and which is provided with a plurality of splitter openings which may be considered as belonging to a first group to which all the splitter openings 59 belong and a second group to which all the splitter openings 60 belong. The dimensions of the splitter openings 59 and 60 are not critical so long as each splitter opening 59 interconnects conduit 36 with a distribution slot 53 without permitting any communication between conduit 35 or with elongated distribution slot 54. In a similar manner, the dimensions of splitter opening 60 are not critical so long as each splitter opening 60 permits communication between conduit 35 and elongated distribution slot 54 without permitting any communication with either conduit 36 or distribution slot 53. Preferably, each splitter opening has the dimensions of its associated distribution slot and its associated conduit which ever is the smaller. Thus, as in FIGURE 1, each splitter opening is as wide as its associated distribution slot and is as long as the width of the opened portion of its associated conduit. The thickness of splitter plate 58 is not critical so long as it is thick enough to withstand the pressure drop across it. This pressure drop is relatively slight and can be easily withstood since splitter plate 58 is clamped tightly between distributor plate 52 and spinnerette holder 34. Accordingly, while the thickness is not critical, it is preferred that splitter plate 58 have a thickness between about .01 to about .06 inch.

If desired, splitter plate 58 may be omitted and other suitable means may be provided for separately supplying the two spinning solution to the two groups of distribution slots 53 and 54. For example, conduits 35 and 36 in spinnerette holder 34 may be closed on the top (instead of open as illustrated in FIGURE 1) and the holder 34 may be suitably drilled in a number of preselected spots to provide communication between conduits 35 and distribution slots 54 and between conduits 36 and distribution slots 53. Thus, the functions of splitter plate 58 can be built into spinnerette holder 34.

In operation, a first spinning solution enters spinnerette holder 34 through a flexible conduit, not shown, which communicates with conduit 36. This spinning solution flow through conduit 36 through spinnerette openings 59 into distribution slots 53 and thence to one side of each spacer slot 48 and through each orifice 43. Also, a second spinning solution enters spinnerette holder 35 through another flexible conduit, not shown, communicating with conduit 35. This spinning solution flows through conduit 35 through splitter openings 60 and into distribution slots 54 and thence to the opposite side of each spacer slot 48 and through orifice 44.

When it is desired to make fibers having two components extending side-by-side throughout the length of the fiber, the first spinning solution and the second spinning solution are fed concurrently and continuously to spinnerette assembly 33 and, by following the route pre-

viously indicated, these spinning solution are extruded concurrently and continuously in a side-by-side relationship through each orifice into a suitable coagulating medium. When it is desired to produce fibers having segments of one composition alternating with segments of another composition, the two different spinning solutions are flowed alternately through the two routes previously described to extrude alternately through each orifice 43 into a suitable coagulating medium.

Of course, should it be desired, the flow rates of either or both of the spinning solutions may be altered to produce novel effect fibers, such as varying denier fibers, fibers containing alternate crimped and uncrimped sections, fibers having alternating sections dope-dyed different amounts, etc. This spinnerette assembly may be used for spinning any of the above types of multi-component fibers by wet spinning, dry spinning, or melt spinning techniques such as are well known in the art.

Referring next to FIGURES 4, 5, and 6 there is shown another embodiment of this invention for use with a round spinnerette having a plurality of orifices disposed in circular rows. This spinnerette assembly 63 comprises generally a spinnerette holder 64 provided with conduits 65 and 66 for leading a pair of spinning solutions toward spinnerette 67. Spinnerette 67 is clamped in spinnerette holder 64 as the top plate of a stack of other plates (to be described hereinafter) by means of clamp 68 which includes a retainer 69 which is pressed against spinnerette 67 by means of screw 70. If desired, a suitable gasket may be placed between spinnerette 67 and retainer 69 to preclude leakage of spinning solution from the spinnerette assembly in operation.

Spinnerette 67 is provided with a plurality of orifices 73 arranged in rows 74 which may be of any configuration, but which preferably are in a plurality of concentric circular rows. Each orifice 73 is configured so that its maximum diameter is at the face of spinnerette 67 which is within the spinnerette assembly and each orifice is tangent in its maximum diameter to the adjacent orifices in the same row 74. This configuration of orifices and disposition thereof in their rows is preferred for best control of the interface between the two spinning solutions being concurrently extruded through each of said orifices 73.

Immediately adjacent spinnerette 67 is a spacer plate 77 which is provided with a plurality of elongated spacer slots 78 separated by dividing ribs 79. Each spacer slot 78 is associated with a corresponding row 74 of orifices 73 in spinnerette 67 in the same manner as was previously described for the rectangular spinnerette assembly of FIGURES 1 to 3. The thickness of spacer plate 77 is not critical, but for best results, it is preferred that spacer plate 77 have a thickness between about .03 to about .25 inch. In the manner previously described for the rectangular spinnerette assembly of FIGURES 1 to 3, some or all of the dividing ribs 79 may be omitted, or even the entire spacer plate 77 may be omitted, but these modifications are not preferred.

Immediately adjacent spacer plate 77 there is provided a distributor plate 82 which is provided with a plurality of elongated distribution slots 83 and 84. These distribution slots 83 and 84 may be considered as belonging to a first group and to a second group, respectively, whose functions are the same as the elongated distribution slots described in connection with the embodiment of FIGURES 1 to 3. Between any two adjacent distribution slots belonging to different groups, there is provided a septum 85 whose function, configuration, and such orientation relative to the spacer slots correspond to that of septum 55, previously described.

In the same fashion as was described in connection with distributor plate 52, distributor plate 82 may be provided with supporting ribs (not shown) underlying dividing ribs 79 of spacer plate 77 to strengthen the assembly. The thickness of distributor plate 82 is not

critical, so long as it is thick enough to provide distribution slots 83 and 84 which are deep enough to provide uniform distribution of the flow of spinning solutions therethrough. However, excessive thickness of distributor plate 82 adds to the weight of the final assembly and increases the difficulties in manufacturing this part. Thus, it is preferred that distributor plate 82 have a thickness between about .06 to about 1.00 inch. Where distributor plate 82 is made from thin sheet stock, a plurality of identical distributor plates may be mounted adjacent each other to build up the desired thickness of distributor plate 82. Where spacer plate 77 is omitted, the relationship between the width of septum 85 and the maximum diameter of orifices 73 must be as explained in connection with septum 55 and orifices 43 of FIGURES 1 to 3.

As previously described, spinnerette holder 64 is provided with a plurality of conduits 65 and 66 for conveying two different spinning solutions to the spinnerette. In the particular embodiment illustrated in FIGURES 4 to 6 it will be noted that conduits 65 and 66 terminate as semicircular recesses in spinnerette holder 64 immediately below the location of the stack of plates, i.e., spinnerette 67, spacer plate 77, and distributor plate 82.

In order to assist directing the two different spinning solutions from conduits 65 and 66 into elongated distribution slots 83 and 84, respectively, and to prevent the wrong spinning solution from getting into the wrong distribution slot, there is provided a means, such as splitter plate 88, for keeping the two spinning solutions separate while properly guiding them from conduits 65 and 66 in the spinnerette holder to the distribution slots 83, 84. Splitter plate 88 is provided with a plurality of splitter openings which may be considered as belonging to a first group to which all the splitter openings 89 belong and which interconnect conduit 85 with distribution slots 83 and to a second group to which all the splitter openings 90 belong and which interconnects conduit 66 and elongated distribution slots 84. The dimensioning, positioning, and configuration of splitter openings 89 and 90 relative to each other and to the distribution slots in distributor plate 82 corresponds to those of splitter openings 59 and 60 in splitter plate 58 described in connection of the embodiment of FIGURES 1 to 3. While the thickness of splitter plate 88 is not critical, it is preferred that it be between about .01 to about .06 inch.

In order to provide accurate alignment of the rows of orifices and the various slots in the stack of plates of the spinnerette assembly, it is desirable to provide a mechanical alignment means such as pins 93 which coact with holes 94 through each of the various plates, and which preclude rotation of the plates during the assembly of this device.

The operation of the embodiment of FIGURES 4, 5, and 6 is the same as the operation of the embodiment of FIGURES 1, 2, and 3 previously described. The two spinning solutions enter conduits 65 and 66, passed separately through splitter openings 89 and 90, respectively, through distribution slots 83 and 84, respectively, and thence to spacer slot 78.

When it is desired to make fibers having two components extending side-by-side throughout the length of the fiber, the two spinning solutions are continuously and concurrently fed to spinnerette assembly 63 and, by following the route previously indicated, these spinning solutions are extruded concurrently in a side-by-side relationship through each orifice 73 into a suitable coagulating medium. When it is desired to produce fibers having segments of one composition alternating with segments of another composition, the two different spinning solutions are flowed alternately through the two routes previously described to extrude alternately through each orifice 74 into a suitable coagulating medium.

Numerous modifications of the foregoing specific illustrative examples can be made within the scope of this

invention and would be readily apparent to one skilled in the art after reading the preceding description. For example, immediately adjacent the face of the spinnerette which is within the spinnerette holder may be interposed a fine mesh screen to slightly disturb the sharp interface between the two components extruding side-by-side through a common orifice. This slight disturbance of the interface causes a slight comingling of the two components at the interface so as to produce a more gradual change from the composition in the bulk area of one portion of the bi-component fiber to the composition in the bulk area of the other portion thereof. This reduces the stress gradient existing due to the differential dimension changes in these two components (which differential produces a highly desirable helical crimp) and thereby serves to reduce the tendency of the two components of a bi-component fiber to split apart.

Also, where desired, any given plate in the spinnerette assembly can be composed of a plurality of identical plates mounted together as a single unit so as to act as though they were a single plate of their combined thickness. Further, while spinnerettes having rectilinear and circular rows of orifices have been illustrated, it is readily apparent that other configurations such as spirals, radial lines (such as spokes of a wheel), nonparallel lines, etc., may be used. Additionally, while the foregoing description has been primarily concerned with assemblies wherein each orifice has a circular cross-section perpendicular to the flow of spinning solution therethrough, it is readily apparent that orifices of other cross-sectional shapes may be used where desired to produce fibers of noncircular cross-sections, as is well known in the art. Yet another modification of this invention is to prepare the entire stack, exclusive of the spinnerette, as a unitary piece since, in operation, the entire stack acts as a rigid unit with no relative movement among the parts thereof.

I claim:

1. A spinnerette assembly comprising, in combination:
 - (a) a spinnerette holder including means to secure thereto a plurality of plates disposed in a stack accurately positioned with respect to each other;
 - (b) a spinnerette mounted in said spinnerette holder, said spinnerette having a plurality of orifices disposed in at least one row in the face thereof;
 - (c) a spacer plate mounted in said spinnerette holder adjacent said spinnerette, said spacer plate having at least one spacer slot, each such spacer slot being positioned adjacent and communicating with a corresponding row of spinnerette orifices and being of a length at least as long as its corresponding row of spinnerette orifices;
 - (d) a distributor plate mounted in said spinnerette holder adjacent said spacer plate, said distributor plate having a plurality of elongated distribution slots divided into a first group and a second group and having a septum between each adjacent pair of distribution slots; one from each group, positioned immediately adjacent a corresponding spacer slot, said septum being coextensive with but narrower than its associated spacer slot and aligned with its corresponding row of spinnerette orifices; and
 - (e) means to supply a first spinning solution to the distribution slots in said first group and a second spinning solution to the distribution slots of said second group.

2. A spinnerette assembly as defined in claim 1 wherein said spinnerette, said spacer plate, and said distributor plate are all rectangular plates.

3. A spinnerette assembly as defined in claim 2 wherein the rows of orifices in the face of said spinnerette are disposed in parallel rectilinear rows and the spacer slots in the spacer plate and the distribution slots in the distributor plate are parallel rectangular slots.

4. A spinnerette assembly as defined in claim 1 wherein said spinnerette, said spacer plate, and said distributor plate are all circular plates.

5. A spinnerette assembly as defined in claim 4 wherein the rows of orifices in the face of said spinnerette are disposed in circular rows and the spacer slots in said spacer plate and the distribution slots in said distributor plate are a plurality of arcuate slots concentrically disposed.

6. A spinnerette assembly as defined in claim 1 wherein said means to supply a first spinning solution to the distribution slots in said first group and a second spinning solution to the distribution slots of said second group includes a splitter plate mounted in said spinnerette holder adjacent said distributor plate, said splitter plate having a plurality of elongated splitter slots divided into a first group of splitter slots underlying the first group of distribution slots and a second group of splitter slots underlying the second group of distribution slots, said first group of splitter slots being operatively associated with a first conduit in said spinnerette holder and isolated from a second conduit in said spinnerette holder while said second group of splitter slots is operatively associated with a second conduit in said spinnerette holder and is isolated from said first conduit in said first spinnerette holder.

7. A spinnerette assembly as defined in claim 1 wherein said distributor plate comprises a plurality of substantially identical plates disposed immediately adjacent each other to function as a single distributor plate of greater thickness.

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