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K. M. McLELLAN
 APPARATUS FOR THE FLUID TREATMENT
 OF THREAD OR THE LIKE
 Filed July 24, 1944

2,460,261

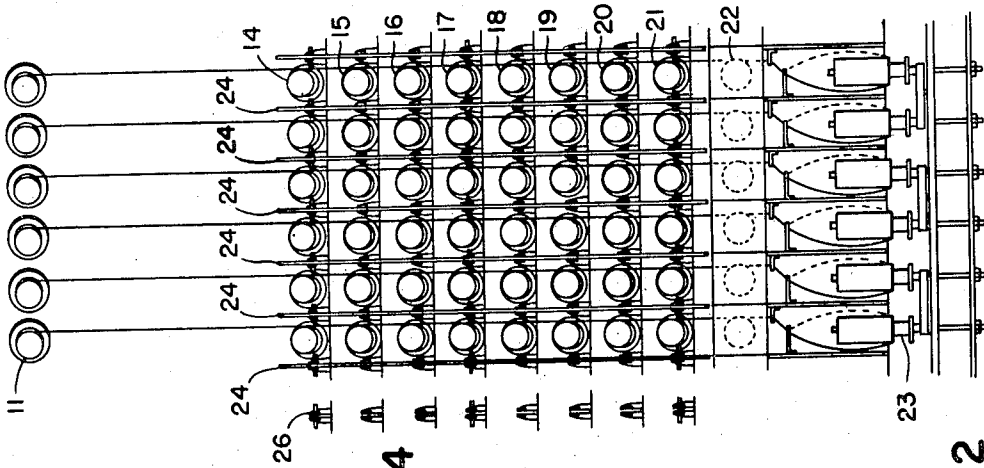


FIG. 2

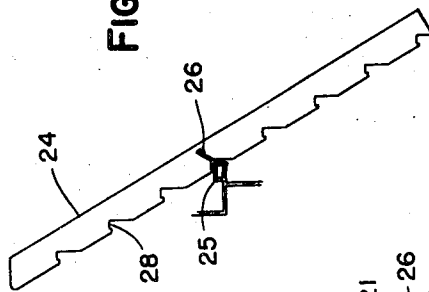


FIG. 3

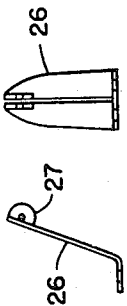


FIG. 5

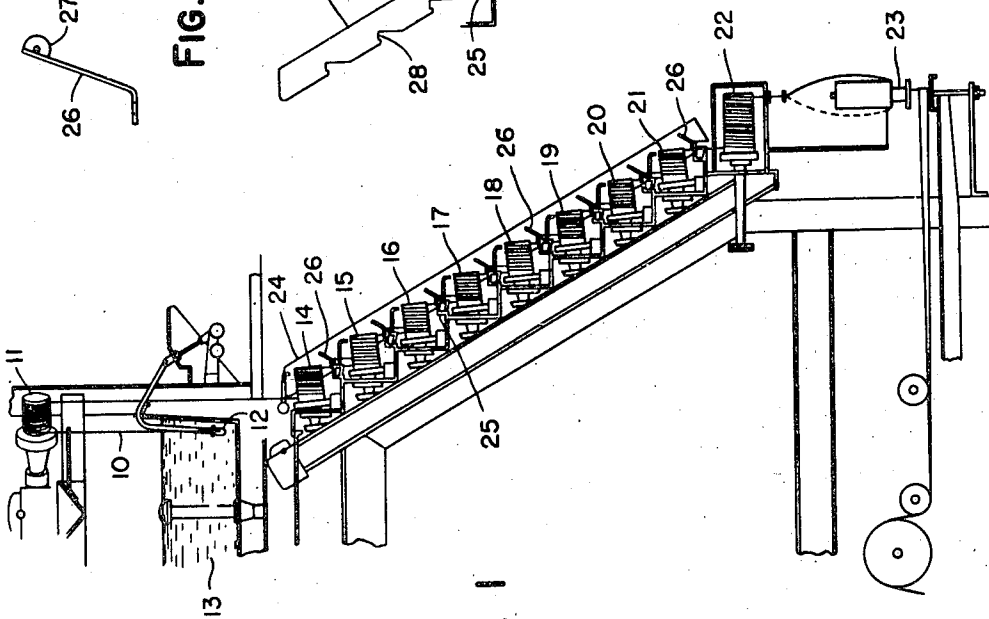


FIG. 1

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APPARATUS FOR THE FLUID TREATMENT
OF THREAD OR THE LIKEKenneth M. McLellan, Cleveland, Ohio, assignor
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4 Claims. (Cl. 68—200)

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This invention relates to an improvement in an apparatus for handling material of the nature of thread or the like and, particularly, in the continuous process apparatus disclosed in Patent 2,284,497 issued to G. P. Torrence et al.

This invention has a special adaptation to the above-mentioned apparatus when employed with thread-storage and thread-advancing devices of the type shown and disclosed in the Knebusch Patent 2,210,914. The particular advantages will be described hereinafter.

In producing thread and the like by the viscose process on an apparatus such as that described in the Torrence et al. patent, a cellulosic solution, usually termed "viscose," is extruded through spinnerets into a coagulating bath to form filaments. The filaments are gathered or bundled into thread. The thread is then forwarded to successive thread-collecting and advancing devices or reels arranged in a processing sequence upon which the thread is subjected to various liquid treatments as washing, desulphurizing, bleaching, etc. The thread is then dried and wound on a bobbin.

This entire operation is quite rapid, and the thread is continuously yet temporarily stored on the processing devices in a large number of helical turns. Occasionally, a thread will break during its processing sequence and the rapidly revolving reel will tend to throw the broken thread end about the reel in an erratic manner, frequently reaching into adjacently positioned processing reels to become entangled with the yarn on such reels. Where a great number of such thread-advancing and thread-storage devices are used and where the thread or yarn being processed is of a relatively high denier, a break in any one thread may cause several others to break by entanglement if means are not provided to restrict such breaks to the locality of the particular thread-advancing device or reel on which the break occurred. The present invention provides a means for limiting a broken thread to its processing locality, the means being a separating structure as a partition between each sequential series of processing reels. The partition structure also performs the additional function of returning processing fluids that have been thrown thereupon by the revolving reels to a proper trough.

These advantages will become readily apparent from the following description and drawing in which:

Figure 1 is a diagrammatic sectional end elevation of one of two duplicate sides of a continuous

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process spinning machine embodying my invention;

Figure 2 is a partial diagrammatic front elevation of the continuous process spinning machine of Figure 1;

Figure 3 is a side elevation of the separating structure; and

Figures 4 and 5 are diagrammatic representations of a holding means for the separating structure.

In Figure 1 is shown but one side of a continuous process spinning machine having an A-type frame in which, at its apex, is mounted a thread-collecting and forwarding reel 11, receiving thread or yarn 10 from a filament forming spinneret 12 immersed in a coagulating bath 13. The thread is forwarded to successive thread-storage and forwarding reels 14 through 21, inclusive, for sequential processing by treating fluids; and then it is forwarded to a drying reel 22 and collected on a bobbin 23.

Continuous process apparatuses of this type, as described in the Torrence et al. Patent 2,284,497, employ a great number of processing reels arranged in a plurality of vertical groups or series, each of which continuously processes a thread. It is obviously desirable that each series of reels be continuously operating without interruption, and in the event of a thread break it is desirable to restrict such break to the particular reel or reels. By isolating each series of processing reels, thread breakage is localized and can be rapidly remedied.

As shown in Figure 2, the reels are positioned in a compact manner, across the face of the spinning machine. The necessity for limiting a broken thread end to a specific area is particularly important where the machine is spinning thread of high denier. Ordinarily, thread of a low denier when broken somewhere between two successive reels will not, because of low weight and low centrifugal force, be thrown about but will usually, because of its wetness, adhere to the reel and pile up thereon until corrected. However, the broken ends of threads of a greater denier, due to increased weight and centrifugal force, will frequently be thrown outwardly in a somewhat erratic fashion and may become entangled with and thereby break adjacent threads. By inserting, therefore, suitable dividing partitions 24 between each vertical series of reels, a broken thread end will be restricted to the lateral area defined by such parallel dividing partitions.

The dividing partition 24 as shown in Figure 3 is desirably notched as indicated at 25 to permit

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greater coverage of the reels, also to prevent vertical slippage, the notched sections fitting over the edges of trough frames 25. The partition is advantageously of a length and width to substantially shield each series of thread-storage and thread-advancing reels. The length of the partition need only be such as to shield all of the processing reels.

Guides 26 as shown in Figures 4 and 5 are provided to prevent lateral displacement of the partitions. The guides may be of any suitable material which is resistant to the various processing fluids utilized. The guides are preferably of angular construction and are slit vertically to substantially their bases. They are bolted down to the troughs. The partition is then placed into the guide slits thus being held against lateral displacement. Further, the partitions being notched, all vertical displacement is also prevented.

As a safeguard against accidental lifting of a partition, it may be desirable to pass a pin through the guide and the partition. Usually the first, intermediate and last guide of a series are utilized for this purpose. Such guides are generally provided with a rearward extension at the slit as ears 27 through which a pin may be passed. Also, due to the angular construction of the guides, processing fluids which may have been thrown onto the partitions by the rotation of the reels or by a broken thread are redirected into their proper troughs.

I claim:

1. In combination with an apparatus for handling thread or the like including a panel, a plurality of adjacent downwardly extending series of thread-advancing thread store devices mounted on said panel; a dividing partition for said adjacent thread-advancing thread store devices and lateral and vertical supporting means for said partition.

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2. In combination with an apparatus for handling thread or the like including a panel, a plurality of adjacent downwardly extending series of thread-advancing thread store devices mounted on said panel, a plurality of troughs having substantially U-shaped frames on said panel and under said thread store devices for carrying away processing fluids; a dividing partition positioned between each vertical series of said thread-store devices notched to prevent its vertical slippage, the notches adapted to fit the upper forward edges of said trough frames, means on the trough frames for holding the partition against vertical displacement, and stationary split guides fixed on said trough frames for lateral support of said partition.

3. The combination described in claim 2 where said stationary split guides are angularly mounted on the forward side of the processing fluid trough frames so as to redirect fluid from the dividing strip into the troughs.

4. The combination described in claim 2 where said means for preventing vertical displacement of the dividing strip comprise an extension of each side of said split guides and means passing through said extensions and said dividing strip.

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

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