

H. A. KULJIAN
APPARATUS FOR TREATING THREAD

2 Sheets-Sheet 1

Fig.1

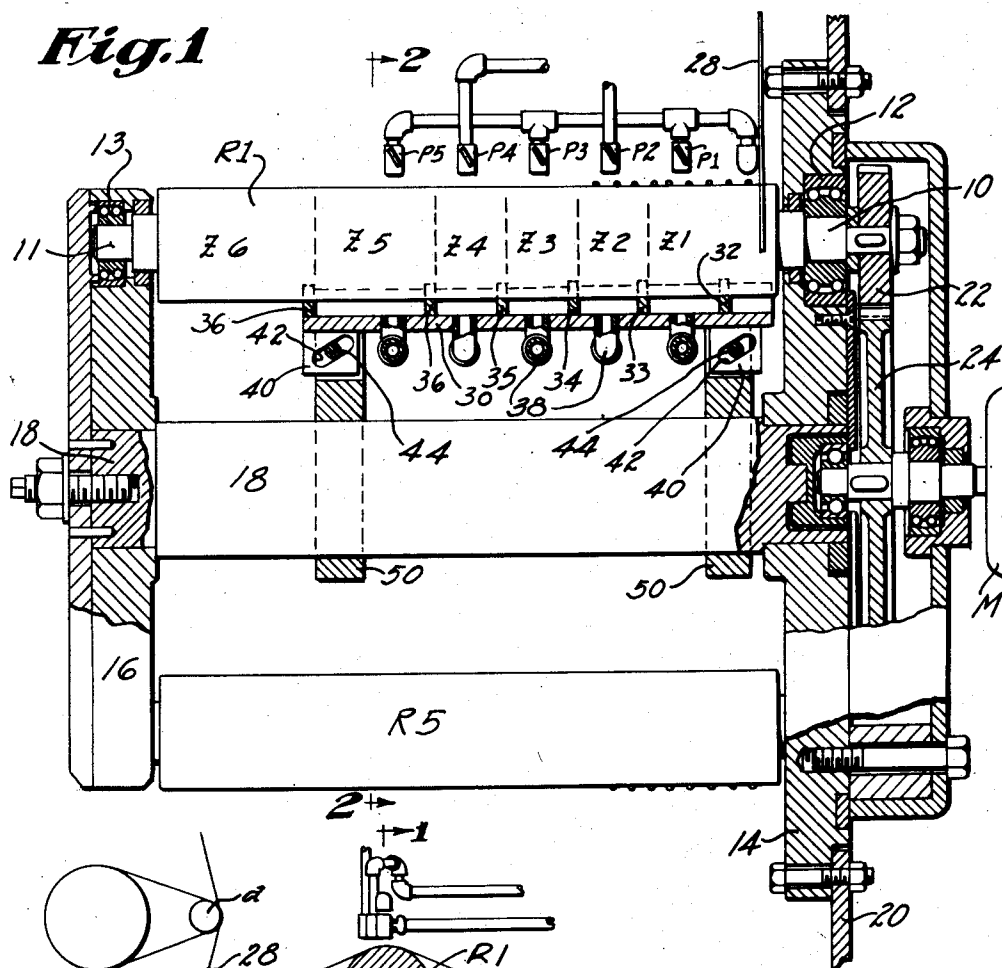
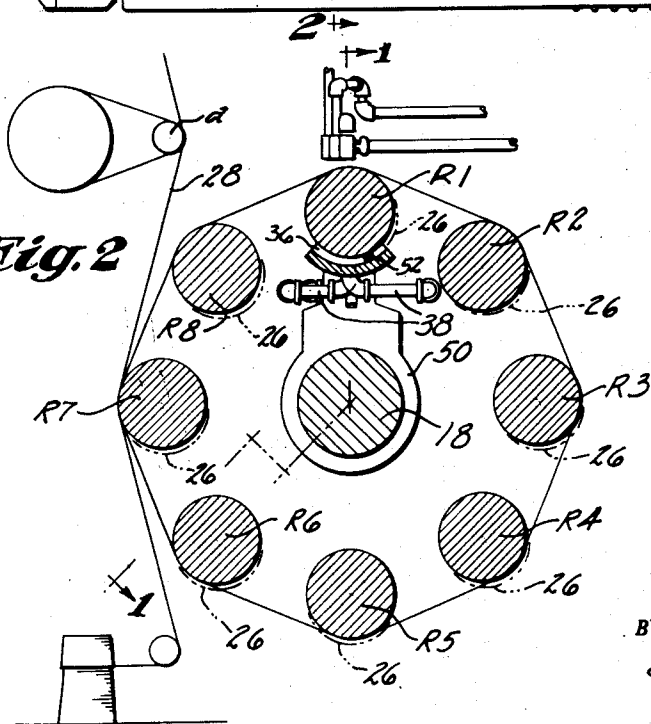


Fig. 2



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Fig. 3

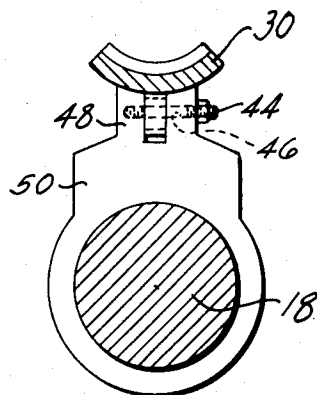


Fig. 4

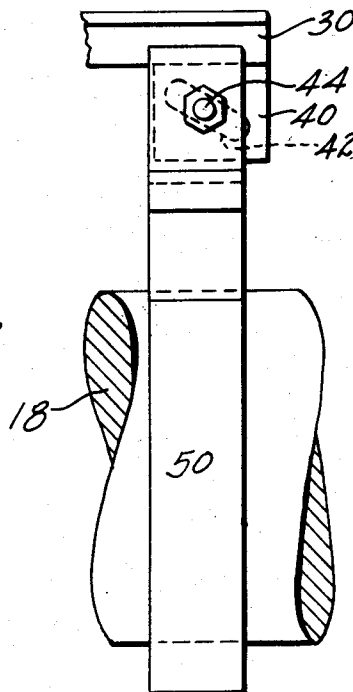


Fig. 5

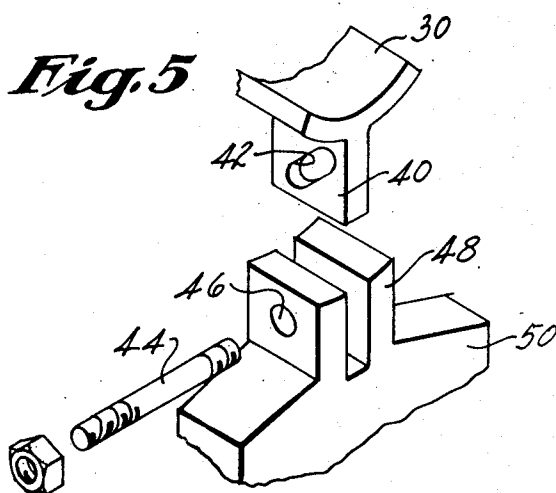
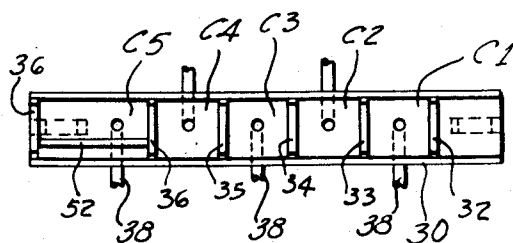


Fig. 6



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APPARATUS FOR TREATING THREAD

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4 Claims. (Cl. 68—205)

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This invention relates to the art of manufacturing synthetic thread and is a continuation in part of my copending application Serial No. 744,885 filed April 30, 1947, now Patent No. 2,616,155, and entitled "Apparatus for Manufacture of Thread."

The apparatus shown in the application referred to includes a thread storing and advancing reel, means for delivering various treating liquids to the filament as it passes through various zones on the reel, and wiping means for preventing or minimizing intermingling of said liquids on the reel and for removing the partly spent liquids, in a segregated manner, from the reel to corresponding points of reclamation or disposal.

The present application is directed to the improved wiping means.

In the accompanying drawings:

Fig. 1 is a view partly in longitudinal vertical section and partly in elevation, diagrammatically illustrating a thread storing and advancing reel to which the improved wiping means is applied.

Fig. 2 is a diagrammatic sectional view on line 2—2 on Fig. 1.

Figs. 3, 4 and 5 are fragmentary views showing details of construction.

Fig. 6 is a top plan view of the wiping means the same being shown detached.

The thread advancing reel shown in Figs. 1 and 2 includes a plurality of rolls R1, R2, R3, R4, R5, R6, R7 and R8 the opposite reduced ends 10 and 11 of which are journaled in self aligning bearings 12 and 13 which are carried by end plates 14 and 16. The end plate 16 is rotatably secured to a center post 18 by means of pins P which engage arcuate slots, not shown, which are formed in center post 18. The center post 18, in turn, is rigidly carried by end plate 14 which is mounted on any suitable frame or support 20. The ends 10 of the rolls are provided with gears 22 which mesh with a central gear 24, driven by a motor M, whereby the rolls R1 to R8 are rotated about their respective axes. By rotating the end plate 16 relative to the center post 18, the axes of the rolls are skewed relative to the axis of post 18 as shown at 26 in Fig. 2, whereby, when the end of a filament 28 is wound about the right hand end of the reel, as shown in Fig. 1, the filament will move in the form of a helix the convolutions of which circumscribe all of the rolls, from the right to the left hand end of the reel.

In order to treat an already manufactured thread, or to complete the regeneration of a freshly coagulated synthetic filament, various treating liquids, from pipes P1, P2, P3, P4 and P5, are brought to bear on the filament as it

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moves through zones Z1, Z2, Z3, Z4 and Z5 on the uppermost roll R1. The filament is dried, by means not shown, in left hand end zone Z6. The structure thus far described forms no part of the present invention.

The liquids used in treating the filament are necessarily supplied in quantities exceeding the absorption and carrying capacity of the filament. For best results, it is desirable that the intermingling of the various liquids be prevented or minimized on the reel and that the excess liquids be removed separately to separate points of disposal or of reclamation.

To this end, I have provided an elongated trough 30 which is divided by wipers 32, 33, 34, 35 and 36 into compartments C1, C2, C3, C4 and C5 which correspond to zones Z1 to Z5 and pipes P1 to P5. The wipers 32 to 36 are arcuate in cross section so as to fit against the arcuate surface of the roll R1, as shown in Fig. 2, and are made of rubber, felt, plastic or any other desired material which will not scratch the roll and which will wear out faster than the roll. As will be seen from Figs. 1 and 2, the trough 30 is so positioned that the partitions 32 to 36 will abut the under, or inner surface of roll R1 at points corresponding to the junctions of adjacent zones. In other words, partition 33 abuts the roll at the junction of zones Z1 and Z2 and the partition 34 abuts the junction of zones Z2 and Z3 and so on. Therefore liquid dripping off the roll, or wiped off the roll by partitions will fall into the corresponding compartments. Each compartment is provided with a drain 38 leading to a point of reclamation or disposal, not shown.

By constantly wiping the underside of the roll at the junctions of adjacent rolls, the movement of liquid from one zone to an adjacent zone is greatly reduced. For example, by constantly wiping the underside of the roll at the junction of zone Z1 and Z2, some of the liquid carried by the filament convolution leaving Z1 will be taken up by the relatively dry wiped area on the roll so that, by the time said convolution has traversed the wiped area on the roll, it will have lost a large amount of the liquid which the filament convolution would have carried from zone Z1 to zone Z2 in the absence of wipers 32 to 36. It will be noted that the thickness of the wipers is made such as to wipe a zone on the roll wide enough to effect removal of most of the liquid carried by the filament convolutions by the time such convolution has traversed said zone.

In order to insure adequate contact between the wipers and the underside of the roll, and to compensate for wear, the trough carrying the

wipers is adjustable relative to the roll. As shown in Figs. 1, 3, 4 and 5, the trough is carried by lugs 40 in which are formed elongated slots 42 for receiving bolts 44 which also pass through holes 45 in lugs 48 formed on or carried by collar or bracket 50 suitably mounted on center post 18 as best shown in Fig. 2. As the wipers wear out, the bolts 46 are loosened, the trough is moved from left to right as viewed in Fig. 1 until the wipers contact the roll with the desired pressure, and the bolts are again tightened. By this arrangement, the pressure of the wipers against the rolls can be regulated and the useful life of the wipers is increased.

The right hand side of the trough, as viewed in Fig. 2, is provided with an elongated wiper 52 which extends longitudinally of the roll and is adapted to wipe the entire surface of zone Z5 so as to remove as much liquid from the filament as possible prior to the entry of the filament into the drying zone Z6.

What I claim is:

1. For use in connection with a thread storing and advancing device of a type which includes at least one roll adapted to receive the thread, and

means for delivering various liquids to said thread as it moves through various zones on said roll, an elongated trough, means mounting said trough below said roll, spaced, transversely disposed wipers dividing said trough into separate compartments and abutting the underside of said roll, and separate drains leading from said compartments.

2. The structure recited in claim 1 together with means for adjustably mounting said trough relative to said roll to vary the pressure with which said wipers contact said roll.

3. The structure recited in claim 1 together with a longitudinally disposed wiper carried by one side of said trough.

4. The structure recited in claim 1 in which the wipers are made of a material which is softer than the material from which the rolls are made.

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References Cited in the file of this patent UNITED STATES PATENTS

Number	Name	Date
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