

June 5, 1956

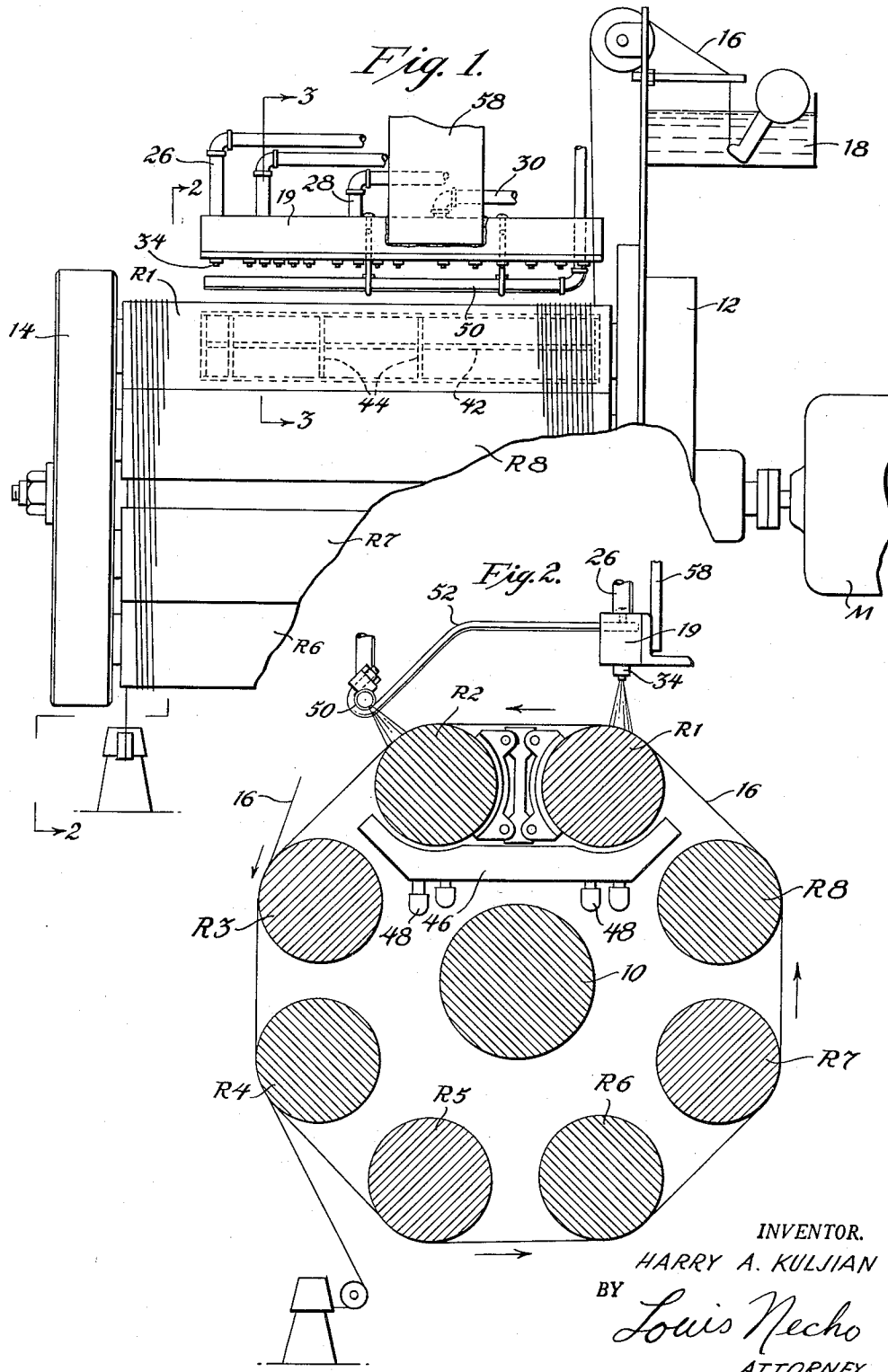
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2,748,588

REEL FOR THE FLUID TREATMENT OF THREAD

Filed March 2, 1954

2 Sheets-Sheet 1



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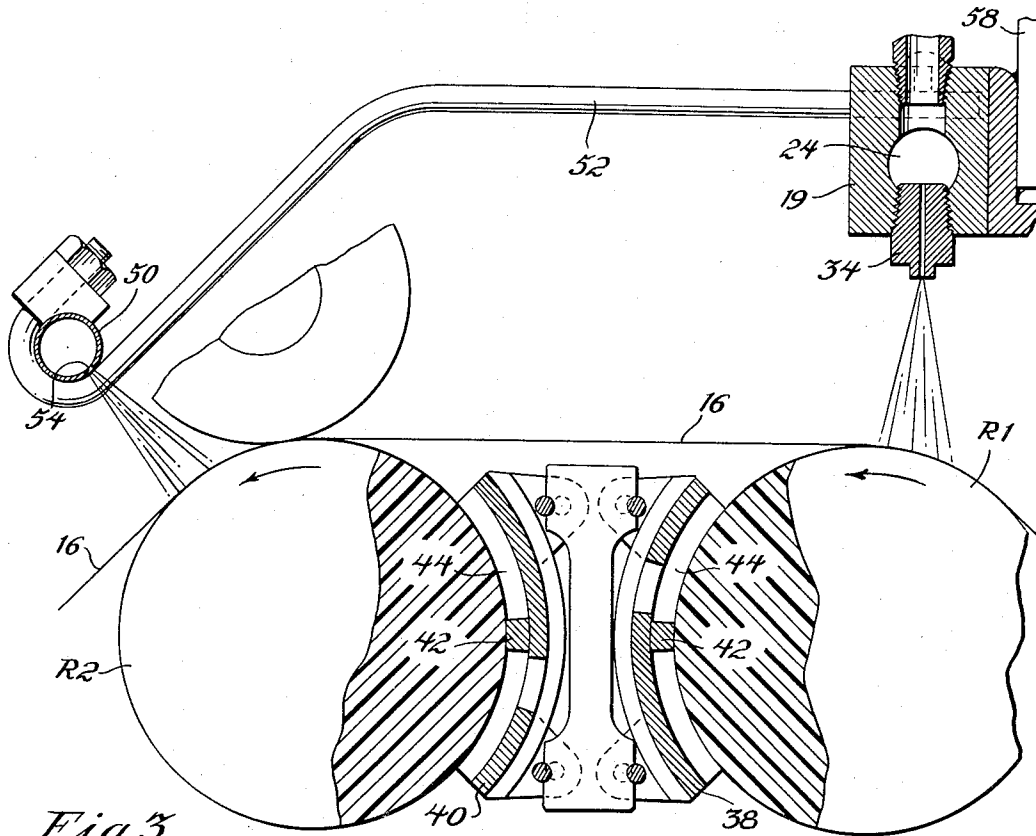


Fig. 3.

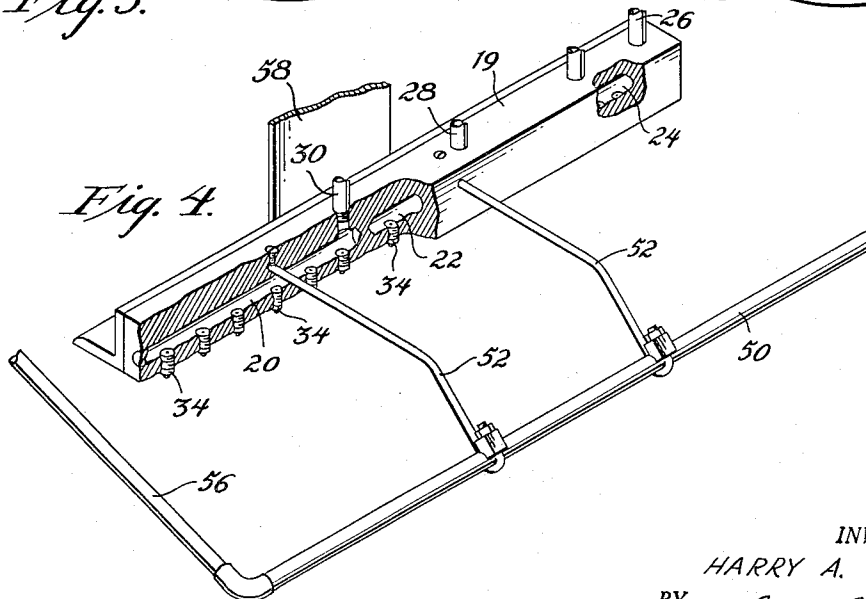


Fig. 4.

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REEL FOR THE FLUID TREATMENT OF THREAD

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1 Claim. (Cl. 68—205)

My invention relates to a thread storing and processing apparatus of the type used for manufacturing or processing thread.

One object of the invention is to produce an improved apparatus of the type set forth.

In the manufacture or processing of thread on a reel of the type set forth, various liquids are applied, in generous quantities, to the thread as it moves across the reel and in order to remove excess liquids, scrapers or wipers are provided, as shown, for example, in my prior Patent No. 2,634,449 issued on April 14, 1953, entitled Thread Manufacturing Apparatus.

In applicant's patent referred to, the treating liquids are applied to one of the uppermost rolls in generous quantities and large amounts of said liquids are carried, by the movement of the thread, to the adjacent roll and, in lesser amounts, to the remaining rolls. In order to reclaim the excess liquids, and in order to regulate the amount of liquid allowed to act on the thread as it moves over the reel, scrapers are associated with said uppermost two rolls. In order to lace the reel, that is, to start the thread on the reel, the rolls must be set rotating before the thread is brought into contact with the reel. The first roll on which the treating liquids are poured presents no problem. But the second, adjacent roll which also has a scraper associated with it must revolve dry until the convolutions of the thread have carried over liquids from the first roll enough to lubricate the surface of the second roll. Quite some time elapses before the thread convolutions cover all of the reel and this means that the second roll will run dry against its scraper for a progressively longer time from the end of the roll to which the thread is first delivered and which is first covered with thread, to the end of the roll which is last covered with thread and from which the thread moves off the roll. This second roll will therefore be tapered outwardly by wear and its engagement with its scraper will cease to be uniform.

It is therefore a further object of the invention to provide an improved reel in which the second of said upper rolls is lubricated immediately upon rotation of the rolls so as to prevent damage to said roll and its scraper by running dry against each other.

The full nature of the invention will be understood from the following specification and the accompanying drawings in which:

Fig. 1 is a fragmentary and diagrammatic view of a thread storing and advancing reel embodying my invention.

Fig. 2 is a fragmentary sectional view looking in the direction of line 2—2 on Fig. 1.

Fig. 3 is an enlarged sectional view taken on line 3—3 on Fig. 1.

Fig. 4 is a perspective view showing details of construction.

In the drawings there is shown a thread storing and advancing reel which may be constructed as disclosed in my aforesaid patent. However, in order to make

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reference to said patent unnecessary, so much of the reel as is necessary for a proper disclosure of the present invention is now described as follows:

The reel includes a number of rolls R-1 to R-8 which are arranged in a circle about center post 10. The center post 10 is carried, cantilever fashion, by any suitable frame and it supports end plates 12 and 14 in which the rolls R-1 to R-8 are journaled for rotation about their individual axes. End plate 14 is rotatable slightly relative to end plate 12 so as to skew the axes of the rolls relative to the axis of center post 10 so as to provide a thread advancing reel such that a thread 16 wound about the receiving, supported end of the reel will move in the form of a helix toward the unsupported, delivery end of the reel. The thread may be of any origin but, as shown, it is formed by extruding viscose or the like, into a coagulating bath 18. The rolls are rotated about their axes by a motor M which turns a planetary gear, not shown, which meshes with gears, not shown, carried by the ends of the rolls. In order to process the thread, various treating liquids are applied to it as the thread moves through successive longitudinal zones on uppermost roll R-1. For this purpose, I provide a hollow elongated member 19 the interior of which is divided into a number of compartments 20, 22, 24, etc. which correspond to the various zones on roll R-1. Pipes 26, 28, 30, etc. supply various liquids to the compartments 20, 22, 24 etc., said liquids flowing out through apertures or nozzles 34 which lead from the various compartments. The hollow member 19 in this construction is in improvement on the separate nozzles shown in the prior patent above mentioned.

It will be noted that hollow member 19 is located above roll R-1 and that liquids discharged from nozzles 34, will fall on roll R-1 only.

In order to remove excess liquids I provide scrapers which engage inner portions of roll R-1 and R-2. These scrapers include arcuate shells 38 and 40 each of which is provided with horizontal members 42 for scraping liquids off the rolls and with vertical member 44 for minimizing the creeping of liquids delivered from one zone to another. The liquids scraped from the rolls are collected in a compartmented trough 46 from which pipes 48 conduct the various liquids to various receivers not shown.

When the thread covers the entire reel, or at least that portion thereof which corresponds to the scrapers 42, roll R-2 will be lubricated by liquids carried over to it from roll R-1. But, when the reel is run dry, as between successive operations, or cycles, or when the rolls are rotated while the thread is being wound about the reel, roll R-2, or a progressively decreasing portion thereof, will run dry and will be damaged by, or will damage, the scraper which engages it.

To overcome this difficulty I provide an auxiliary spray device which is disposed above roll R-2 and is adapted to lubricate this roll with water, or any other desired liquid. This auxiliary spray device includes a pipe 50 which is carried by arms or brackets 52 and is provided with holes 54 which are so arranged as to deliver the lubricating liquid to the outer portion of roll R-2 to lubricate the latter while preventing the lubricating liquid from splashing on to roll R-1. See Fig. 3. The pipe 50 is supplied with liquid from a suitable source 56. Conveniently, brackets 52 are carried by elongated member 19 which in turn, is carried by a bracket or arm 58 which is secured to the frame of the machine, not shown. The particular manner in which these parts are mounted is not material and forms no part of the present invention it merely being necessary to mount member 19 above roll R-1 and member 50 in the approximate relation to roll R-2 which is shown in Fig. 3.

Before the rolls are rotated liquids are delivered to

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roll R-1 and R-2 through pipes 19 and 50, respectively, so as to prevent the rolls running dry against the scrapers.

When a thread is wound up on the reel, liquid will be delivered through pipe 50 only until the thread has reached the left hand ends of the scrapers which, as can be seen from Fig. 1 are coextensive with member 19. The flow of liquid from pipe 50 is now stopped because roll R-2 will now be lubricated by liquids carried over from roll R-1 by the convolutions of the thread.

What I claim is:

A thread storing and advancing reel including a number of elongated rotary rolls arranged in a circle about a central horizontal axis and adapted to receive a thread to be treated in the form of a helix, the convolutions of which encompass all of said rolls, means for rotating said rolls about their individual axes, the two uppermost of said rolls being horizontally spaced from each other and having their axes in the same horizontal plane, a first means for delivering treating liquid to the first of said

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uppermost rolls, whereby liquid is carried by said thread convolutions from said first to said second roll, a first scraper frictionally engaging said first roll for removing some of the liquid therefrom, a second scraper frictionally engaging the second of said uppermost rolls, and means for supplying liquid directly to said second roll to lubricate the same in the absence of movement of thread from said first to said second roll.

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