Feb. 11, 1941. S. WATANABE 2,231,145

SPEED CONTROL DEVICE FOR REELING APPARATUS

Filed July 8, 1939

Fig. 1.

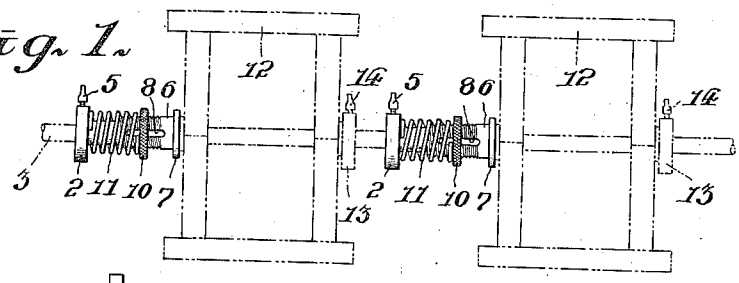


Fig. 2.

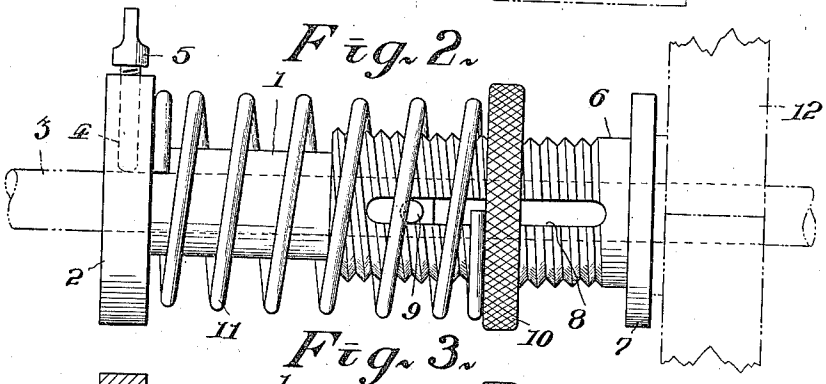


Fig. 3.

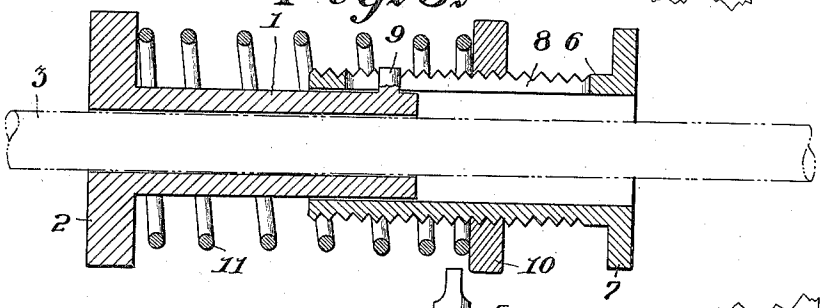


Fig. 4.

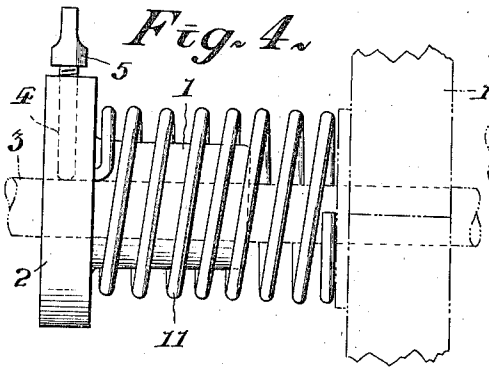
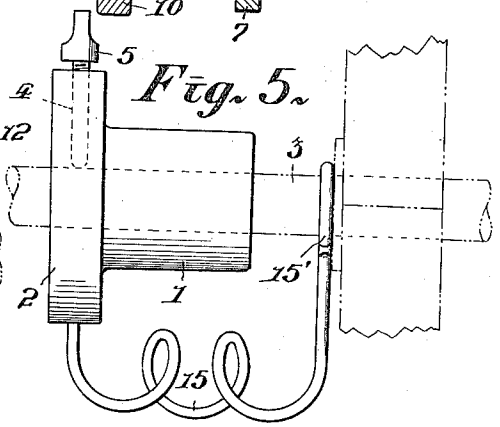


Fig. 5.



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Patented Feb. 11, 1941 2,231,145

UNITED STATES PATENT OFFICE

2,231,145

SPEED CONTROL DEVICE FOR REELING APPARATUS

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Application July 8, 1939, Serial No. 283,509
In Japan March 21, 1939

1 Claim. (Cl. 64—30)

This invention relates to speed control devices for reeling apparatus.

For example, on unknitting a knitted fabric comprising two or more yarns or threads of unequal length interknitted therein, it is desirable to have reels or bobbins revolving on a common shaft at unequal speeds corresponding to those at which the yarns or threads have to be drawn out from the fabric due to their unequal length interknitted therein, and in some case it is desirable that one of the reels of bobbins for the yarn or thread ceased to be drawn out from the fabric for a certain instant does not have a revolving movement on the shaft, while the other reels or bobbins for the yarns or threads which are continuing to be drawn out from the fabric are revolving on the shaft. For this purpose, it is desirable to movably mount the reels or bobbins on a common revolving shaft in such manner that the reels or bobbins may be driven by the shaft through the friction between the reels or bobbins and the shaft carrying them to exert on the yarns or threads a force sufficient to unknit the fabric and take up the unknitted yarns or threads but to allow the reels or bobbins to slip on the shaft to prevent the breakage of the yarns or threads when the yarns or threads are forcibly tensioned.

The object of the invention is to provide a device for individually and independently controlling the speed of a number of the reels or bobbins mounted on a common revolving shaft.

The invention will be better understood from the following description taken in connection with the accompanying drawing, in which:

Fig. 1 illustrates the application of speed control devices according to the invention;

Fig. 2 is a side elevational view of a speed control device embodying the invention;

Fig. 3 is a horizontal sectional view of the speed control device shown in Fig. 2;

Fig. 4 is a side elevational view of a modified form of the speed control device; and

Fig. 5 is a side elevational view of a further modification.

Referring to the drawing, 1 represents a tubular member having a flange 2 at one end adapted to be movably mounted on a revolving shaft 3 and secured thereon by means of a set screw 5 passing through a threaded hole 4 in the flange. Another threaded tubular member 6 having a flange 7 at one end and provided with a longitudinal slot 8 is connected with the tubular member 1 by means of the slot and a pin 9 provided on the tubular member 1 to engage in the slot. An adjusting spring bearing collar 10 is screwed over the thread on the tubular member 6, and a spiral spring 11 surrounding the tubular members between the flanges 4 and 10 is arranged so as to be adjusted by means of the collar 10.

As seen in Fig. 1, a number of reels 12 are movably mounted on a common revolving shaft 3, and each of them is held in position by means of a stop collar 13 mounted on the shaft and secured thereto by any suitable means, such as a set screw 14, and the speed control device according to the invention is mounted on the shaft and secured thereto by means of the set screw 5 with the flange 7 in contact with one end of the reel, the spring 11 being adjusted as desired by means of the collar 10. With this arrangement, if the spring is adjusted as desired differently for respective reels, it will be seen that the respective reels will be rotated on the common shaft 3 at respective speed different in accordance with the different adjustments of springs when the common shaft is rotated at a speed, due to different frictions between the reel and the shaft 3, and the flange 7 and the corresponding end of the reel, and under unduly excessive tension of the reeled yarn or thread the reel will be allowed to slip on the shaft, thereby the breakage of the yarn or thread being avoided.

In the modification shown in Fig. 4, the tubular member 6 and the adjusting spring bearing collar 10 are omitted, and one end of the spring is secured on one side of the flange 2 by suitable means, such as welding, the other end being abutted against one end of the reel.

In the further modification shown in Fig. 5, the tubular member 6 and the adjusting spring bearing collar 10 are omitted and the spring 15 is arranged outside the tubular member 1, instead of surrounding it, one end being secured on the flange 2 by suitable means, such as welding and the other end being bent to a ring form as shown at 15 and mounted on the shaft 3.

I claim:

A speed control device for reeling apparatus comprising a tubular member having a flange at one end and a pin near the other end adapted to be mounted and secured by means of a set screw on a revolving shaft, another threaded tubular member having a flange at one end and provided with a longitudinal slot engaging the said pin adapted to be connected with the first mentioned tubular member by means of the pin and slot connection, an adjusting spring bearing collar screwed over the thread on the second mentioned tubular member and a spiral spring encircling the connected tubular members between the first mentioned flange and said collar, the pin being visible in the slot and indicating the degree of compression of said spring.

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