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S. SENGA ET AL

FILAMENT SUPPLIER FOR SILK REELING SERVICE

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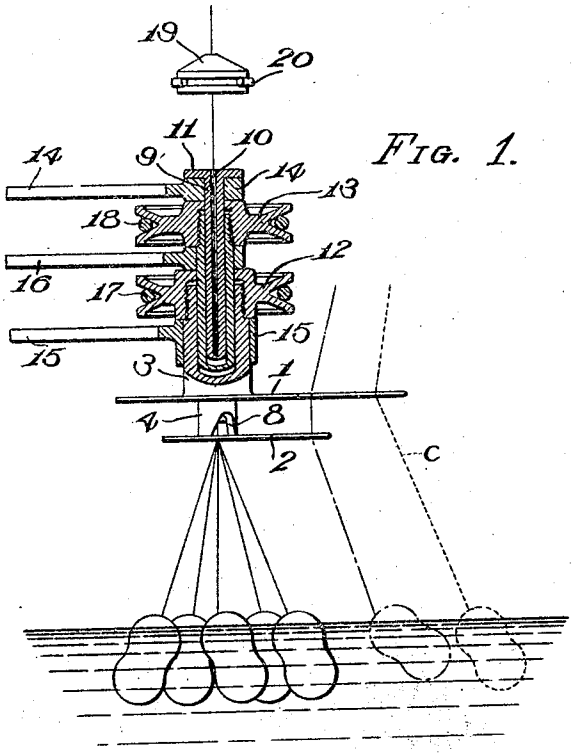


FIG. 1.

FIG. 3.

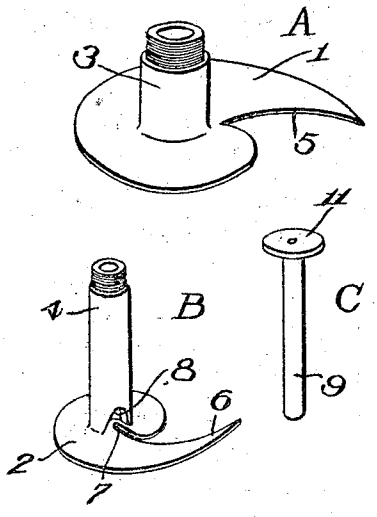
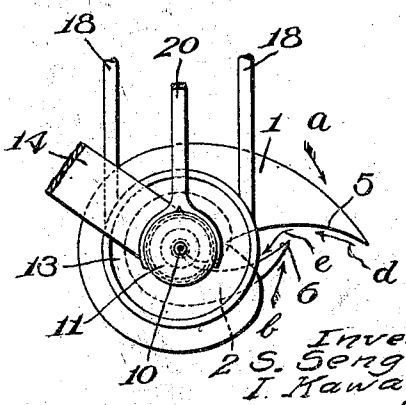


FIG. 2.



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UNITED STATES PATENT OFFICE.

SEIICHIRO SENGA, IWANE KAWATA, AND RYOICHI NAITO, OF KOBE, JAPAN, ASSIGNORS TO KANEGAFUCHI BOSEKI KABUSHIKI KWAISHA, OF TOKYO, JAPAN.

FILAMENT SUPPLIER FOR SILK-REELING SERVICE.

Application filed April 18, 1923. Serial No. 633,001.

To all whom it may concern:

Be it known that we, SEIICHIRO SENGA, IWANE KAWATA, and RYOICHI NAITO, subjects of the Empire of Japan, residents, respectively, in care of Business Department of Kanegafuchi Boseki Kabushiki Kwaisha, Higashi-Shiri-Ike, Kobe, Japan, have invented certain new and useful Improvements in Filament Suppliers for Silk-Reeling Services, of which the following is a specification.

Our invention relates to improvements in filament suppliers for silk reeling service, and has for its object to mechanically supply filaments to the silk reeling machine without forming knobs on the silk strand at the joining points of supplied filaments.

The accompanying drawing shows an improved filament supplier constructed in accordance with the invention. Fig. 1 is an elevation, partly in section, of same as applied to the silk-reeling machine and showing the operation of supplying filament. Fig. 2 is a plan view of Fig. 1. Fig. 3 is detailed perspective views of parts (A), (B) and (C) forming the essential part of the invention.

The improved filament supplier consists in the combination of three essential parts (A), (B) and (C) as shown in Fig. 3. (A) and (B) comprise curved pawls (1) and (2) respectively fixed at the ends of sleeves (3) and (4). These pawls are made of thin metal plate and one side (5) and (6) of each pawl is curved inwardly so as to engage and draw the filament toward the centre along said side while the pawls revolve. The pawl (1) is larger than the pawl (2) as shown and the latter is provided with a narrow slot (7) extending to the center of the pawl for the passage of the filament. The lower end of the sleeve (4) is provided with an opening 8 located above the opening (7). (C) comprises a vertical axle (9) provided with a fine hole (10) at its centre to permit the filaments or silk strand to pass through, and at the top of said axle a disk (11) is fixed.

These three parts (A), (B) and (C) are combined as shown in Fig. 1. The sleeve (4) of (B) is loosely fitted into the sleeve (3) of (A) whereby the smaller pawl (2) is disposed below the larger pawl (1) and at the top of each sleeve grooved pulleys (12) and (13) of equal diameter are tightly screwed. The sleeve (4) is loosely fitted on the vertical axle (9) of (C). The disk (11) of (C) is fixed on a supporting arm (14) of the frame work. The grooved pulleys (12) and (13) are respectively supported by arms (15) and (16) and are revolved in opposite directions by flexible power transmitting devices (17) and (18). (19) is the filament collector fixed on the arm (20) above the axle (9).

The pawls (1) and (2) are revolved in the direction of the arrows (*a*) and (*b*), respectively, as shown in Fig. 2. When a cocoon, with its filament unloosed and held above, is dropped beside the filament supplier in the position of (*c*) as shown in dotted line in Fig. 1, the filament is first engaged by the larger pawl (1) and while said pawl revolves in the direction of the arrow (*a*) the filament is taken toward the centre of the pawl along the curved side (5) as indicated by the arrow (*d*) in Fig. 2. As said filament moves inward it is then caught by the smaller pawl (2) revolving in the direction of (*b*) and it is carried towards the centre in the direction shown by the arrow (*e*) along the curved side (6) of the pawl (2). At the same time the filament is cut by the pawls revolving in opposite directions, the lower part of said cut filament moving toward the centre through the narrow opening (7) being brought together with the other filaments which are in the course of reeling. The pawls revolve very quickly, so that said operation of taking in and cutting the filament is performed rapidly, and the cut end of said filament being joined to other filaments is reeled up therewith through the centre hole (10) of the axle (9). According to the present invention therefore, filaments can be supplied to the silk reeling machine very easily and without the formation of knobs on the silk strand at the joining points of the supplied filaments.

We claim:—

A filament supplier for silk reeling machines comprising a plurality of pawls of different lengths, sleeves carried by the pawls and loosely fitted one within the other, the smaller pawl being provided with

a relatively narrow opening leading to the center thereof, an axle loosely received within the inner sleeve having a filament passage therethrough, said pawls being adapted to be revolved in opposite directions whereby the filament of a cocoon disposed adjacent the filament supplier is caught by the pawls, cut and supplied to the silk reeling machine.

In testimony whereof we have affixed our signatures in presence of two witnesses.

SEIICHIRO SENGA.
IWANE KAWATA.
RYOICHI NAITO.

Witnesses:
W. CHIHARATO,
ICHIRO LUDZUKI.