Jan. 6, 1925. 1,522,372

T. KISHIMOTO

COCOON SUPPLIER

Filed April 18, 1923

FIG. 1.

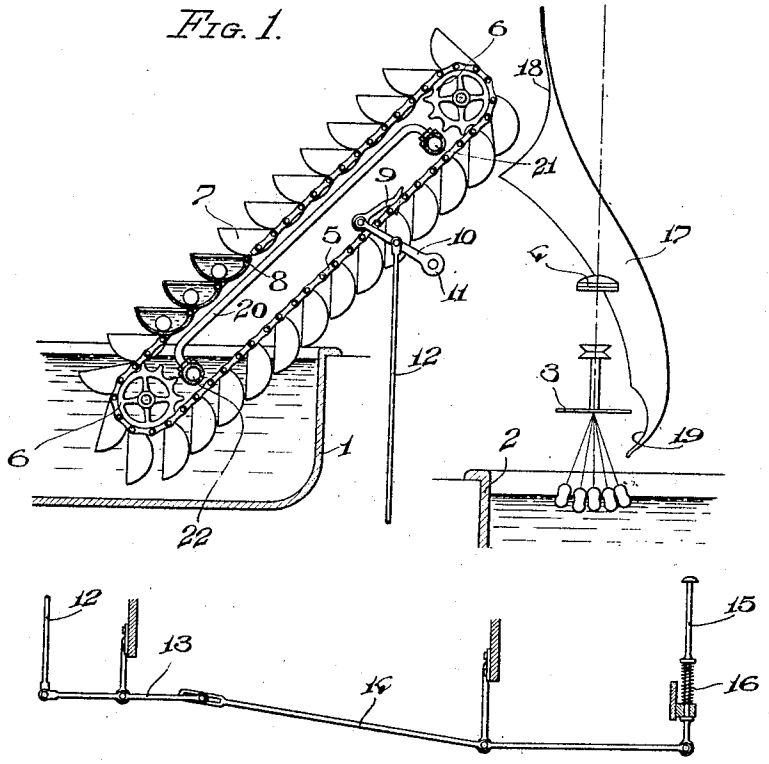
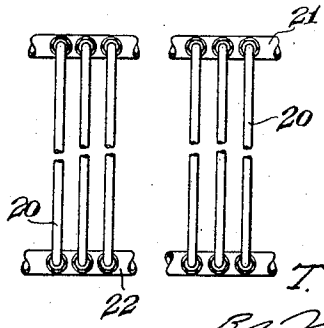


FIG. 2.



Inventor:
T. Kishimoto
By Marks & Clerk
Attys.

Patented Jan. 6, 1925.

1,522,372

UNITED STATES PATENT OFFICE.

TAKEO KISHIMOTO, OF KOBE, JAPAN, ASSIGNOR TO KANEGAFUCHI BOSEKI KABUSHIKI KWAISHA, OF TOKYO-FU, JAPAN.

COCOON SUPPLIER.

Application filed April 18, 1923. Serial No. 632,995.

To all whom it may concern:

Be it known that I, TAKEO KISHIMOTO, a subject of the Empire of Japan, and resident in care of Business Department of the Kanegafuchi Boseki Kabushiki Kwaisha, Higashi-Shiri-Ike, Kobe, Japan, have invented certain new and useful Improvements in Cocoon Suppliers, of which the following is a specification.

My invention relates to improvements in a device for feeding a cocoon with its filament unloosed to a filament supplier in a silk reeling machine and has for its object to provide means for expeditiously feeding cocoons mechanically to the filament supplier.

The device constituting the invention is designed to be applied to a silk reeling machine of the type provided with a filament gathering basin apart from the reeling basin. Said device consists in the combination of an elevator provided with buckets hinged at equal distances on an endless chain or belt and arranged at an inclination above the filament gathering basin into which the elevator extends, said elevator having associated therewith a heating device and an operating device for moving it along step by step. Filaments of cocoons in the gathering basin are previously gathered, and one cocoon is put in each bucket of the elevator while it ascends, each bucket scooping up a quantity of hot water from the basin. When the bucket reaches the top of the elevator and starts to descend it overturns and the cocoon together with hot water drop into a guide leading to the filament supplier. Thus cocoons are fed to the supplier and supplied to the silk reeling machine mechanically one by one as the elevator is moved step by step by the operator.

According to the present invention, possibility of the cocoons or the filaments thereof drying before their delivery to the filament supplier is eliminated and hence the efficiency of the latter is naturally enhanced.

The accompanying drawing shows an example of the improved device. Fig. 1 is a side elevation of the invention as applied to a silk reeling machine only a part of which latter is shown. Fig. 2 is a detailed view of the heating means provided inside the elevator.

In the drawing (1) is the filament gathering basin; (2) is the reeling basin; (3) is the filament supplier; (4) is the filament collector having a fine hole at its centre. These parts are common in a silk reeling machine hitherto in use.

According to the present invention a set of endless chains or a belt (5) is supported at an incline above the filament gathering basin (1) on two sets of sprocket wheels (6) (6) the lower set of which is submerged in the water of the basin (1) as shown in Fig. 1. Uniformly spaced buckets 7 are pivotally secured to the chains (5) by pins (8). A pawl (9) engaging the chain (5) is pivoted to the end of an arm (10) pivoted at (11) on the frame work. A link (12) is connected with the arm (10) and its lower end is connected in turn through levers (13) and (14) to the lower end of a plunger (15) which latter is normally held in elevated position by a spring (16).

A guide tube (17) is arranged between the elevator and the filament supplier. The upper open end (18) of said tube is suitably flared and is so located as to receive each cocoon and the water dropping from the bucket as the latter overturns at the top of the elevator. The lower end (19) of the tube (17) is slightly curved toward the supplier (3) and terminates at the side of the latter.

A heating means (20) is arranged inside the elevator (5) for heating the buckets and the water contained therein. An example of a suitable heating means which may be used where many silk reeling machines are arranged in a line is shown in Fig. 2. It consists of a group of steam pipes (20) arranged side by side throughout the width of each elevator (5) between main pipes (21), and (22) the lower one (22) being located within the water in the basin (1). Steam is supplied to the upper main pipe (21), and while flowing through the pipes (20) heats the ascending buckets (7). The steam and condensate flowing into the lower pipe (22) is utilized for heating the water in the filament gathering basin (1).

When it is desired to supply filaments to the silk reeling machine, the operator pushes down the plunger (15). The arm (10) swings downward through the action of the levers (13) (14) and link (12) so that the pawl (9) acts on the chain (5) and moves the elevator one step. The buckets at the lower part of the elevator turn around the

wheel (6) and ascend in turn at the left side of the elevator scooping up water from the basin, and maintaining a horizontal position so as to keep the water therein, said water being heated by the steam pipes (20) while ascending. The filaments of cocoons in the basin (1) are previously gathered and the end of each gathered filament is held on a hook. One cocoon is put into each bucket while the latter is ascending as shown in Fig. 1. The bucket at the top of the elevator turns around the wheel (6) to the right side and thereby the cocoon, with its filament and held on the hook, falls into the guide tube (17) together with the water carried by the bucket, and drops from the lower end of the tube (17) into the reeling basin (2) over the side of the filament supplier (3). The filament of the dropping cocoon is caught by the teeth of the supplier and is supplied to the silk reeling machine. When the plunger 15 is released, it is returned to its initial position together with the pawl (9) by the spring (16) without acting on the elevator. Thus cocoons may be fed to the silk reeling machine as often as the key is pushed.

According to the present invention cocoons are elevated with the water in the bucket and dropped one by one into the guide tube together with said water, the solidification of sericine which usually occurs with apparatus hitherto in use owing to the drying of cocoon before being fed to the silk reeling machine is entirely avoided so that filaments are supplied in good condition and the quality of the raw silk is improved.

I claim—

1. In combination, a filament gathering basin, an inclined elevator extending into said basin and arranged to carry cocoons placed thereon from the basin to a reeling basin, said elevator including a plurality of hinged buckets adapted to receive individual cocoons and arranged to scoop up a quantity of water from the filament gathering basin so as to deliver the cocoons with a quantity of water into the reeling basin, and heating means associated with said elevator.

2. An arrangement as claimed in claim 1 characterized in that the elevator is of the endless conveyor type and the heating means is arranged within the same.

3. An arrangement as claimed in claim 1 characterized by the provision of means for manually effecting a step by step movement of the elevator.

4. An arrangement as claimed in claim 1 characterized in that the heating means is so arranged as to be partially submerged in the water in the filament gathering basin whereby to maintain said water in a heated condition.

In testimony whereof I have affixed my signature in presence of two witnesses.

TAKEO KISHIMOTO.

Witnesses:

W. ABIHARAH,

ICHIRO LUDUK.