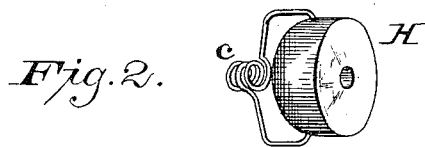
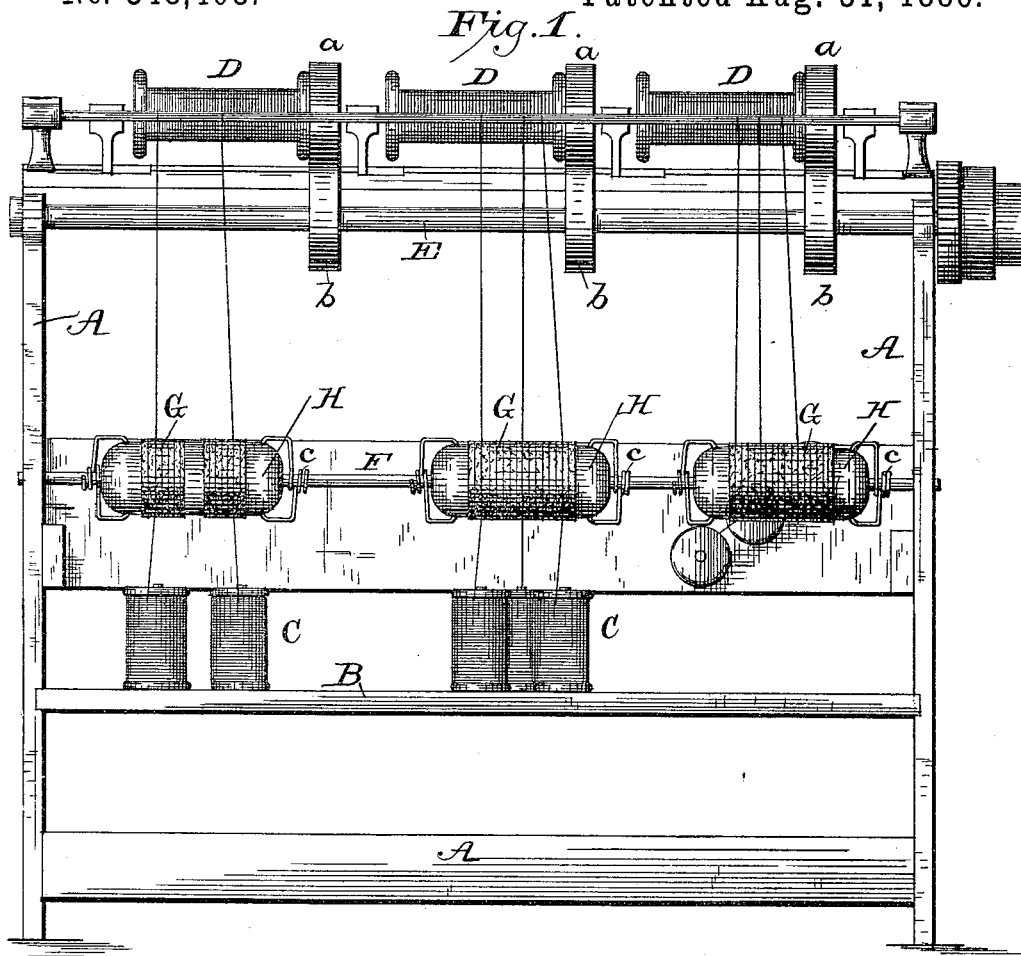


(No Model.)

A. MÜLLER.
CLEANING AND TENSION EQUALIZING DEVICE FOR SILK
DOUBLING FRAMES.

No. 348,408.

Patented Aug. 31, 1886.



Witnesses:
W. Burnham.
John Johnson

Inventor:
Andrew Müller
by *L. W. Sully*
Atty.

UNITED STATES PATENT OFFICE.

ANDREW MÜLLER, OF HAWLEY, PENNSYLVANIA, ASSIGNOR TO CATHOLINA LAMBERT, OF NEW YORK, N. Y.

CLEANING AND TENSION-EQUALIZING DEVICE FOR SILK-DOUBLING FRAMES.

SPECIFICATION forming part of Letters Patent No. 348,408, dated August 31, 1886.

Application filed February 12, 1885. Serial No. 155,693. (No model.)

To all whom it may concern:

Be it known that I, ANDREW MÜLLER, a citizen of the United States, residing at Hawley, in the county of Wayne and State of Pennsylvania, have invented certain new and useful Improvements in Cleaning and Tension-Equalizing Devices for Silk-Doubling Frames, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to the manufacture of silk, and more especially to that step in the process known as "doubling," wherein two or more threads or strands of silk are carried from as many filled bobbins and collected upon a single bobbin preparatory to being twisted for "tram" or "organzine," as the case may be.

The object of my invention is to abolish the rotating "flier" ordinarily used in doubling, and in its stead to substitute an automatic device of exceedingly simple construction, which not only equalizes the tension upon the strands of silk, but at the same time cleans them thoroughly from dirt, waste, and other impurities, preventing the formation of "loopy" or badly-doubled threads.

The invention consists in mounting upon the doubling-frame above or otherwise near to the bobbins from which the silk is unwound a series of washers, which are of cloth or felt, held in place by sectional buttons and springs mounted on a horizontal rod, such washers not only serving to regulate the tension of the threads, but to clean them in their passage.

In the accompanying drawings I have shown so much of a silk-doubling frame as is necessary for a full understanding of my invention.

Figure 1 represents a front elevation of one side of a doubling-frame with my invention in position. Fig. 2 shows a detail view of one of the buttons and its spring. Fig. 3 shows one of the washers.

A represents the main frame of the machine, and B are bobbin-boards containing the filled bobbins C C.

D D D represent winding-bobbins journaled in bearings in the frame-work, and having friction-disks *a a a*. These bobbins are rotated by the geared shaft E and disks *b b* in

the ordinary manner. The drop-wire, stops, and guiding-eyes are not shown.

F is a longitudinal rod secured removably in the frame-work above the bobbin-support B. Upon this shaft are mounted a number of washers, G, made from coarse felt or cloth. As shown in Fig. 1, these washers are arranged in groups strung on the rod. They are held in place by buttons H, mounted on the rod, and these buttons are pressed against the washers by springs *c*, also mounted on the rod, the arms of which springs, as shown, are hooked into holes in the button. The threads from the filled bobbins are brought directly up, each thread passing between two of these washers. They are then carried through the drop-wires and guiding-eyes to the winding-bobbins in the usual way. By the use of these washers the tension on the thread is so controlled that it is impossible to make loopy or badly doubled tram or organzine, as is not the case when the ordinary methods are used. The tension on any number of ends or threads doubled, whether fine, coarse, or assorted, is regulated by the expansion and contraction of the springs attached to the buttons which hold the washers in place. It must also be evident that the threads are cleansed from all impurities as they pass through the washers. It must also be noted that the regular and uniform supply of silk may be obtained without using the flier, and it is thus possible in a large mill to save considerable expense.

The device can be applied in a very short time to any form of doubling-frame, and this and the inexpensiveness of all the parts constitute two of the most obvious advantages resulting from its use.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

In combination with the rod F, the soft washers G, placed in contact, the buttons H, and the springs *c*, all mounted on said rod, substantially as set forth.

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

ANDREW MÜLLER.

Witnesses:

D. H. BROWN,
W. H. DIMMICK.