

May 3, 1932.

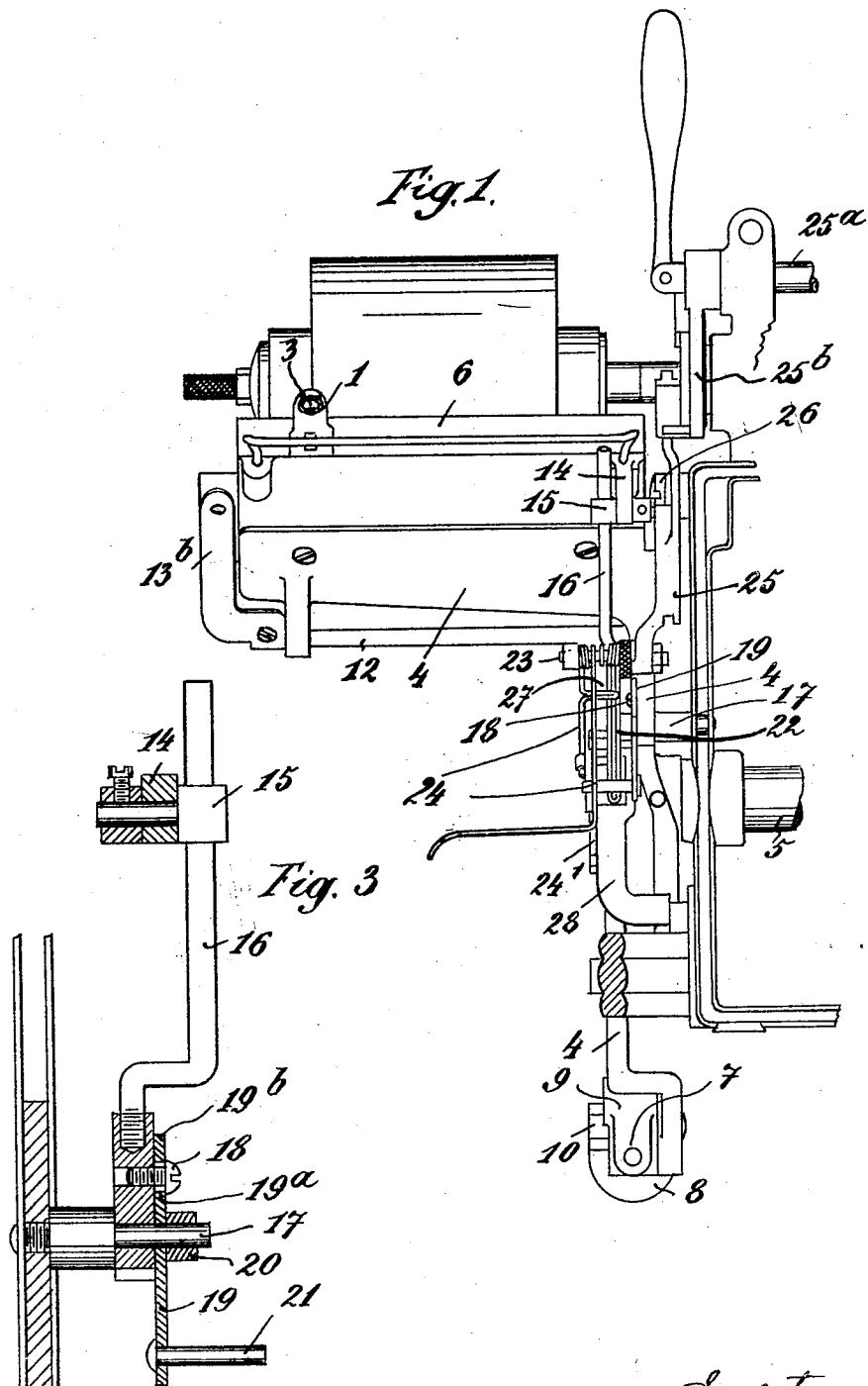
H. SCHWEITER

1,856,513

CROSS WINDING FRAME

Filed Feb. 25, 1930

2 Sheets-Sheet 1



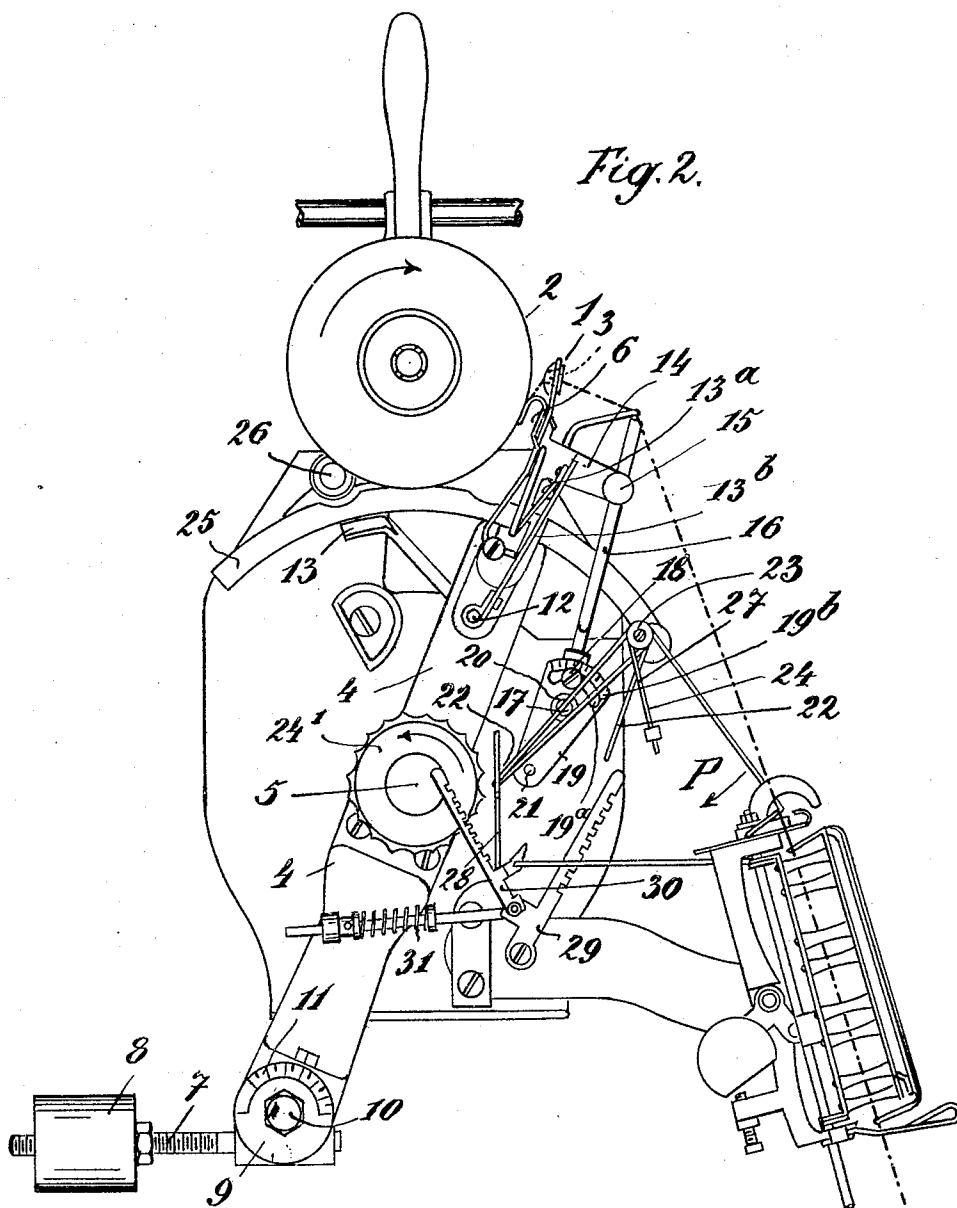
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## UNITED STATES PATENT OFFICE

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## CROSS WINDING FRAME

Application filed February 25, 1930, Serial No. 431,290, and in Switzerland March 2, 1929.

The invention relates to a regulating and stop mechanism for cross winding frames having a weight-loaded thread guide frame and intended to wind quite soft bobbins, e. g. for dyeing purposes.

In order that the invention can be more readily understood, a preferred embodiment of the same is illustrated by way of example in the accompanying drawings in which  
10 Figure 1 is a front view of the mechanism, Figure 2 a corresponding side view, and Figure 3 is a detail thereof.

Referring to these figures, 1 denotes the thread guide shiftable along the spool or bobbin 2 and having a tapered closed bore 3 which considerably facilitates threading and protects the thread from springing out during the winding operation.

4 denotes the thread guide frame adapted to swing on the shaft 5 and carrying besides the thread guide 1 a bent bar 6 adapted to abut on the spool 2. In order to regulate the pressure under which bar 6 abuts on the spool, the following means are provided: A counterweight 8 is adjustably mounted on a threaded bolt 7 which is fixed in a block 9. The latter can be exactly adjusted on a pin 10 mounted on the lower portion of the thread guide frame 4, and fixed by this pin in the desired position. A scale 11, provided on frame 4, allows the angular position of the counterweight 11 to be read off. The pressure exerted by the bent bar 6 upon the spool can thus be exactly set and balanced, any return movement of bar 6 during increase of the spool being impeded by a locking pin 13 known per se and rockingly mounted on a shaft 12 carried by the thread guide frame 4. The locking pin 13 is held in locking position by a flat spring 13<sup>a</sup> that acts upon the releasing lever 13<sup>b</sup>, so that only the motion to the right of the thread guide in accordance with the increase of the spool is admitted. To release the locked state, a slight pressure exerted by hand on the lever 13<sup>b</sup> to the left will do.

The thread guide frame 4 has projecting from it an extension 14 which carries a pin 15 having a transverse bore wherein a small bar 16 is shiftable guided. This bar 16 can swing

about a pin 17 mounted on the machine frame and is connected by means of a screw 18 to a regulating segment 19 having an arcuate slot 19<sup>a</sup> and a scale 19<sup>b</sup>. The segment 19 and the bar 16 are secured against axial displacement by an adjustable collar 20 carried by pin 17. The segment 19 carries a pin 21 intended to shift the point of the detector wire 22 of the broken end stop motion 24 swinging on pin 23 into the path of the knurled stop button 24<sup>1</sup> which in known manner revolves with the eccentric shaft and is mounted on the thread guide frame 4. The segment 19 can be set on pin 17 according to the desired diameter of the spool and fixed by screw 18.

25 denotes a sector adapted to rock on pin 26 and serving to disengage the driving coupling. As soon as sector 25 is rocked by the described releasing device about pin 26 in a counterclockwise direction, Figure 1, arm 25<sup>a</sup> of sector 25 releases the starting lever 25<sup>b</sup>. This latter lever is under the action of the coupling spring (not shown) and is swung by it about the axis 25<sup>c</sup> whereby the coupling is disconnected in the known manner. The operation of this portion of the apparatus is well known in the prior art, of which the patent to Wardwell, No. 801,941, October 17, 1905 is illustrative.

The broken end stop motion 24 possesses a laterally bent projection 27 intended to bring the detector wire 22 into the path of the knurled stop button 24<sup>1</sup>, as this is the case when the spool is fully wound. 28 denotes a guide for the detector wire; 29, 30, and 31 denote members that belong to the automatic thread tension appliance of the machine.

The described regulating and stopping mechanism operates as follows:

By shifting the counterweight 8 on the threaded bolt 7 and by angular adjustment of the block 9 that carries bolt 7 with the counterweight 8, relatively to the thread guide frame 4 a double adjustment of the bent bar 6 on the spool 2 is possible. With increasing diameter of the spool 2 the thread guide frame 4 with the bar 16 and pin 21 of segment 19 are swung to the right until pin 21 brings the detector wire 22 of the

stop motion 24 into the path of the stop button 24<sup>1</sup> that revolves with the eccentric shaft. In this instant the point of wire 22 is caught by the knurled circumferential surface of button 24<sup>1</sup> and sector 25 suddenly swung out to disengage the driving coupling. The disengagement takes place this instant; and thereby the size of the spool can be finely adjusted by suitable adjustment of segment 19.

Upon breakage of the thread, the stop motion 24 becomes free and swings in the direction of arrow P, Figure 2, the projection 27 rocks the detector wire 22 in a similar manner as described when stopping the fully wound spool, and the driving coupling is disengaged.

What is claimed is:—

1. In the combination of a cross winding frame, driving means therefor, a regulating and stop mechanism comprising a pivoted thread guide frame, adjustable loading means therefor upon the side of the pivot opposite to the thread guide, a swing bar shiftably connected to said thread guide frame, a pivoted segment adjustably connected to said swing bar, a pin mounted upon said segment, and means actuated by said pin, when said guide frame reaches a predetermined position, for arresting said driving means.

2. In the combination of a cross winding frame, driving means therefor, a regulating and stop mechanism comprising a pivoted thread guide frame, adjustable loading means therefor upon the side of the pivot opposite to the thread guide, a swing bar shiftably connected to said thread guide frame, a segment pivoted on the machine frame, a slot concentric to the pivotal axis of said segment, a scale marked at said slot, means for adjustably connecting said swing bar and said segment at said slot, a pin mounted upon said segment, and means actuated by said pin, when said guide frame reaches a predetermined position, for arresting said driving means.

The foregoing specification signed at Zurich, Switzerland, this 10th day of February, 1930.

HANS SCHWEITER.