

March 21, 1950

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2,501,413

MACHINE FOR EQUALIZING TENSION IN RUBBER THREADS BEFORE
FEEDING THE THREADS TO THREAD COVERING MACHINES

Filed Oct. 20, 1948

3 Sheets-Sheet 1

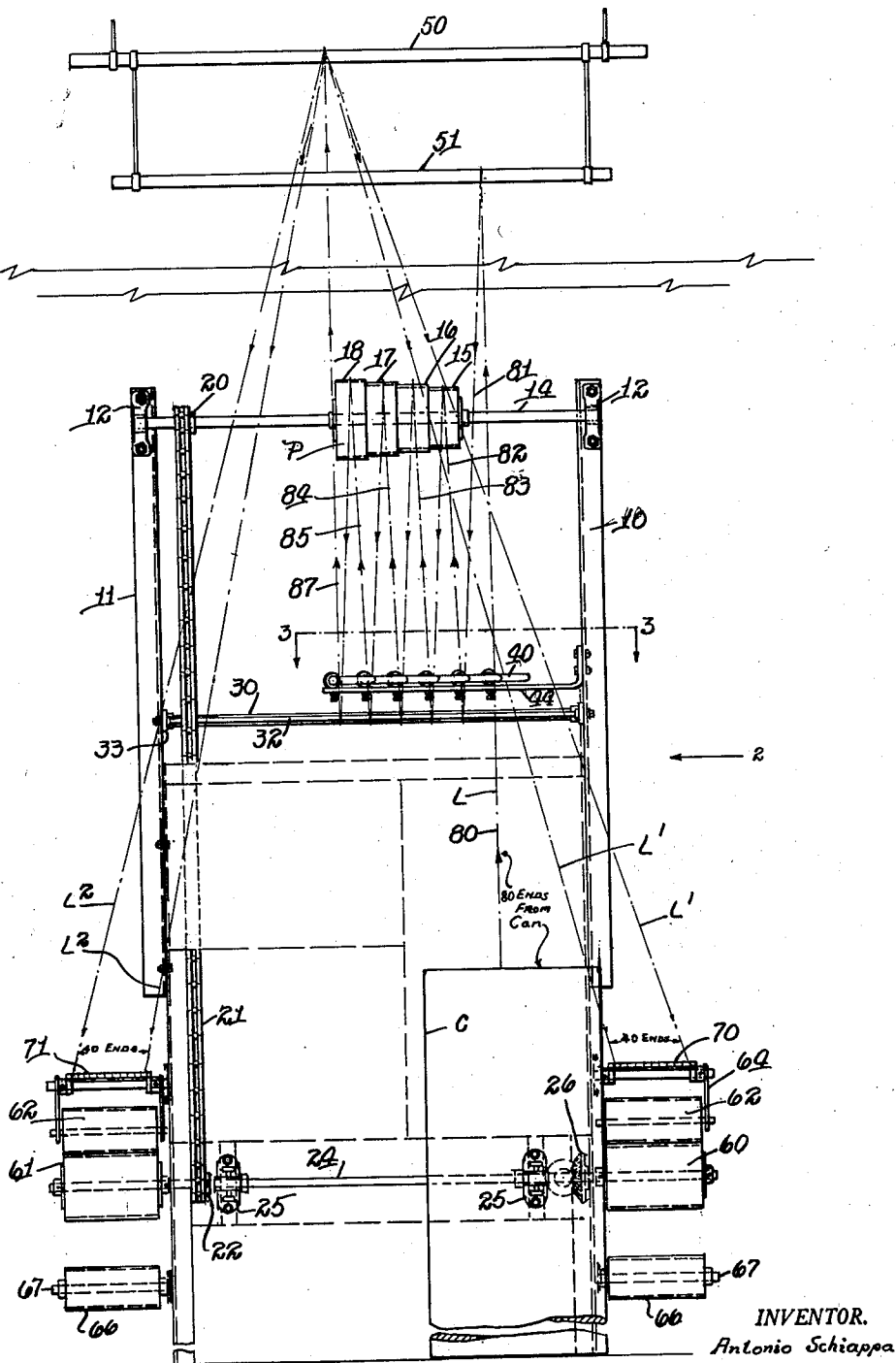


Fig. 1

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3 Sheets-Sheet 2

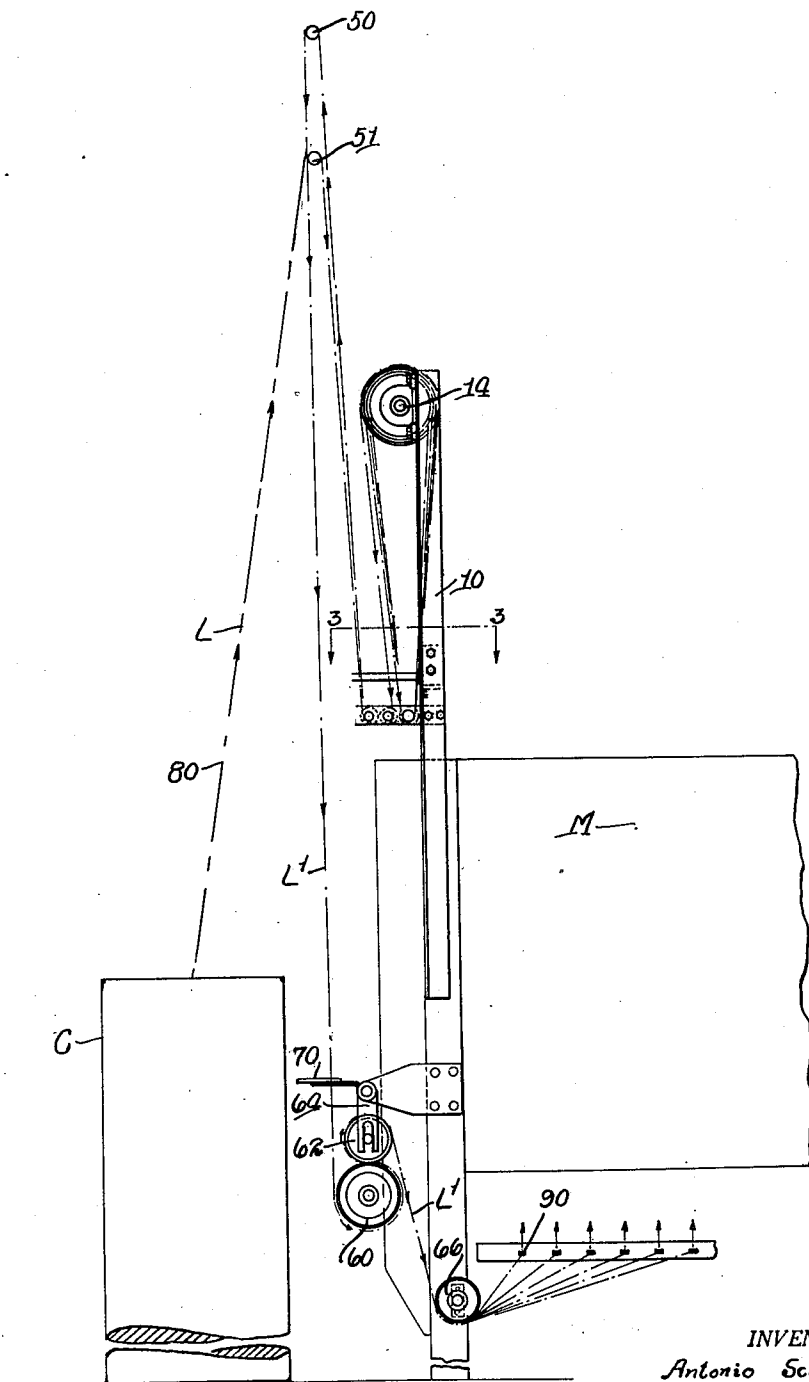


Fig. 2

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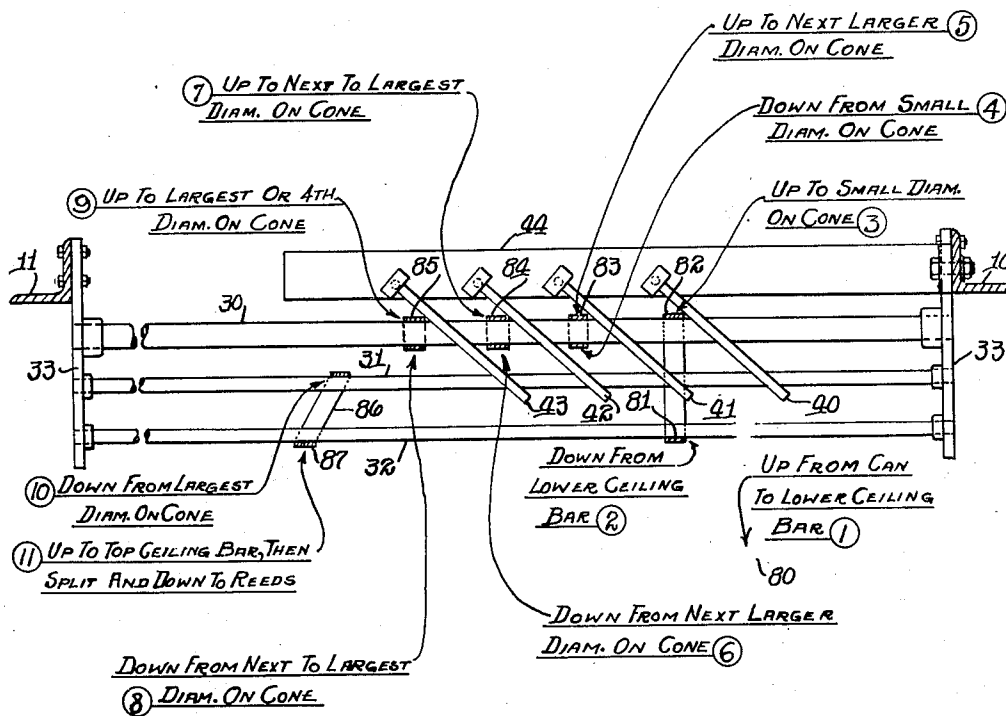
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MACHINE FOR EQUALIZING TENSION IN RUBBER THREADS BEFORE FEEDING THE THREADS TO THREAD COVERING MACHINES

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4 Claims. (Cl. 57—3)

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This invention relates to machines in which covered rubber threads are produced. It has been customary to provide a bunch of threads equal in number to a selected set of covering spindles, and such bunches of threads have commonly been shipped in large cans in which they were loosely coiled. It has also been customary to separate and rewind these threads on winding drums, and to thereafter deliver the separated threads from the drums to the covering spindles.

More recently, it has been proposed to omit the rewinding and to deliver the threads direct from the can to the spindles. With this latter procedure, however, it has been found necessary to provide means for equalizing the tension in the different threads in a bunch of threads before delivering the threads for covering.

It is a major object of my present invention to provide improved mechanism for thus equalizing the thread tension in a bunch of threads just prior to delivery of said threads to a set of covering spindles.

I also provide a single tension mechanism for all of the threads to be supplied to a double covering machine, together with means for dividing the threads for two separate sets of spindles. I also provide an improved, simplified and direct drive for the tensioning pulley and for the delivery rolls.

My invention further relates to arrangements and combinations of parts which will be hereinafter described and more particularly pointed out in the appended claims.

A preferred form of the invention is shown in the drawings, in which

Fig. 1 is a front elevation of my improved tensioning machine;

Fig. 2 is a side elevation thereof; and

Fig. 3 is an enlarged sectional plan view, taken along the line 3—3 in Fig. 2.

Referring to the drawings, the rubber threads to be covered are supplied in a bunch which is loosely coiled in a relatively large can C which may be placed on the floor adjacent my improved tensioning and equalizing mechanism, which mechanism is preferably mounted at one end of a commercial covering machine M.

The tensioning and equalizing mechanism includes fixed upright frame members 10 and 11 which support bearings 12 for a shaft 14 which is continuously rotated and which is provided with a cone pulley P having steps 15, 16, 17 and 18 of progressively increasing diameter.

The shaft 14 has a sprocket 20 connected by a chain 21 to a sprocket 22 on a lower shaft 24

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mounted in fixed bearings 25 and continuously rotated through bevel gears 26 from any convenient source of power, such as the main spindle drive shaft of the covering machine M.

A plurality of guide-bars 30, 31 and 32 are mounted in brackets 33 secured to the upright frame members 10 and 11 and substantially below the bearings 12 for the shaft 14. A plurality of guide rods 40, 41, 42 and 43 are mounted on a supporting arm 44 which is bolted to the upright 10 and which is positioned above but adjacent to the guide-bars 30, 31 and 32.

The guide-rods are fixed in position during the operation of the machine but are so mounted on the arm 44 that their angular positions may be adjusted.

An upper guide-bar 50 is mounted substantially above the shaft 14 and the cone pulley P, and may conveniently be supported from the ceiling of the covering room. A second upper guide-bar 51 is mounted adjacent but below the guide-bar 50 and may be suspended therefrom.

Delivery rolls 60 and 61 are fixed to the opposite ends of the lower shaft 24 and are positively rotated thereby. Pressure rolls 62 are positioned above the rolls 60 and 61 and rest thereon. The rolls 62 may be vertically guided by slotted depending arms 64. Lower guide rolls 66 are rotatably mounted on studs 67 secured to the uprights 10 and 11. Combs 70 and 71 are mounted in fixed position above the rolls 62.

The path of the bunch of rubber threads is shown in Figs. 1 and 2 by a broken line L, and the paths of delivery of the tensioned and separated threads to the combs 70 and 71 are indicated by the broken lines L' and L2.

Referring to the drawings, it will be seen that the bunch of threads L is drawn upward from the can C to the lower ceiling bar 51 as indicated at 80. These threads are then drawn downward as shown at 81 and pass under the front guide-bar 32 and also under the rear guide-bar 30. These threads then pass upward as indicated at 82 and are guided by the guide-rod 40 to the smallest step 15 of the cone pulley P. The threads then descend from the cone step 15 and pass under the guide-bar 30 and are again guided upward to the cone step 16 by the guide-rod 41 as indicated at 83.

The threads from the step 16 are again passed under the guide-bar 30 and are guided upward by the guide-rod 42 to the cone step 17 as indicated at 84. The threads are then passed once more under the guide-bar 30 and are directed upward

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by the guide-rod 43 to the cone step 18 as indicated at 88.

From the cone step 18 the threads are directed under the guide-bars 31 and 32 as indicated at 88 and then pass upward at 87 to the top ceiling bar 50 where they are separated into two groups.

These groups of threads then pass downward as indicated at L' and L2 to the combs 70 and 71 and to the delivery rolls 60 and 61. The separated threads then pass under the lower guide-rolls 66 and are drawn upward through spaced guide-eyes 90 (Fig. 2) to the covering spindles (not shown).

With thread-tensioning mechanism operating as above described, the rubber threads are uniformly tensioned without imparting twist to the threads at any point, and the threads are delivered in separated and uniformly tensioned condition through the combs 70 and 71 to the delivery rolls 60 and 61 and thence to the covering spindles.

My improved tension mechanism is simple in construction and operation and has been found very effective and reliable in actual use.

Having thus described my invention and the advantages thereof I do not wish to be limited to the details herein disclosed, otherwise than as set forth in the claims, but what I claim is:

1. In a thread tensioning machine, a cone tensioning pulley having steps of progressively greater diameter toward the delivery end thereof and each step being adapted to support a plurality of threads, means to rotate said pulley, a guide-bar parallel to the axis of said pulley and mounted in fixed and substantially spaced relation thereto and at one side thereof, and a series of diagonally disposed guide-rods mounted between said guide-bar and said pulley in the path of thread travel and relatively close to said guide-bar, whereby the threads are guided from one cone step to the next in untwisted relation.

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2. In a thread tensioning machine, a cone tensioning pulley having steps of progressively greater diameter toward the delivery end thereof and each step being adapted to support a plurality of threads, means to rotate said pulley, a guide-bar parallel to the axis of said pulley and mounted in fixed and substantially spaced relation thereto and at one side thereof, a series of diagonally disposed guide-rods mounted between said guide-bar and said pulley in the path of thread travel and relatively close to said guide-bar, whereby the threads are guided to successive cone steps in untwisted relation, and means to secure said guide-rods in selected angular positions and all in one horizontal plane.

3. In a thread tensioning mechanism for a double covering machine, means to equalize the tension in a bunch of rubber threads, a pair of delivery rolls, one at each side of said double covering machine, means to rotate said rolls, and means to guide a portion of said bunch of threads to each delivery roll.

4. In a thread tensioning mechanism for a double covering machine, means to equalize the tension in a bunch of rubber threads, a pair of delivery rolls, one at each side of said double covering machine, a comb for each delivery roll, and means to rotate said rolls, and a portion of said bunch of threads being guided to and drawn through each comb by each delivery roll.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
2,462,043	Neldel	Feb. 15, 1949