July 1, 1930. W. G. TRAUTVETTER 1,769,244

TENSION INDICATOR AND COMPENSATOR FOR WARPING CARRIAGES

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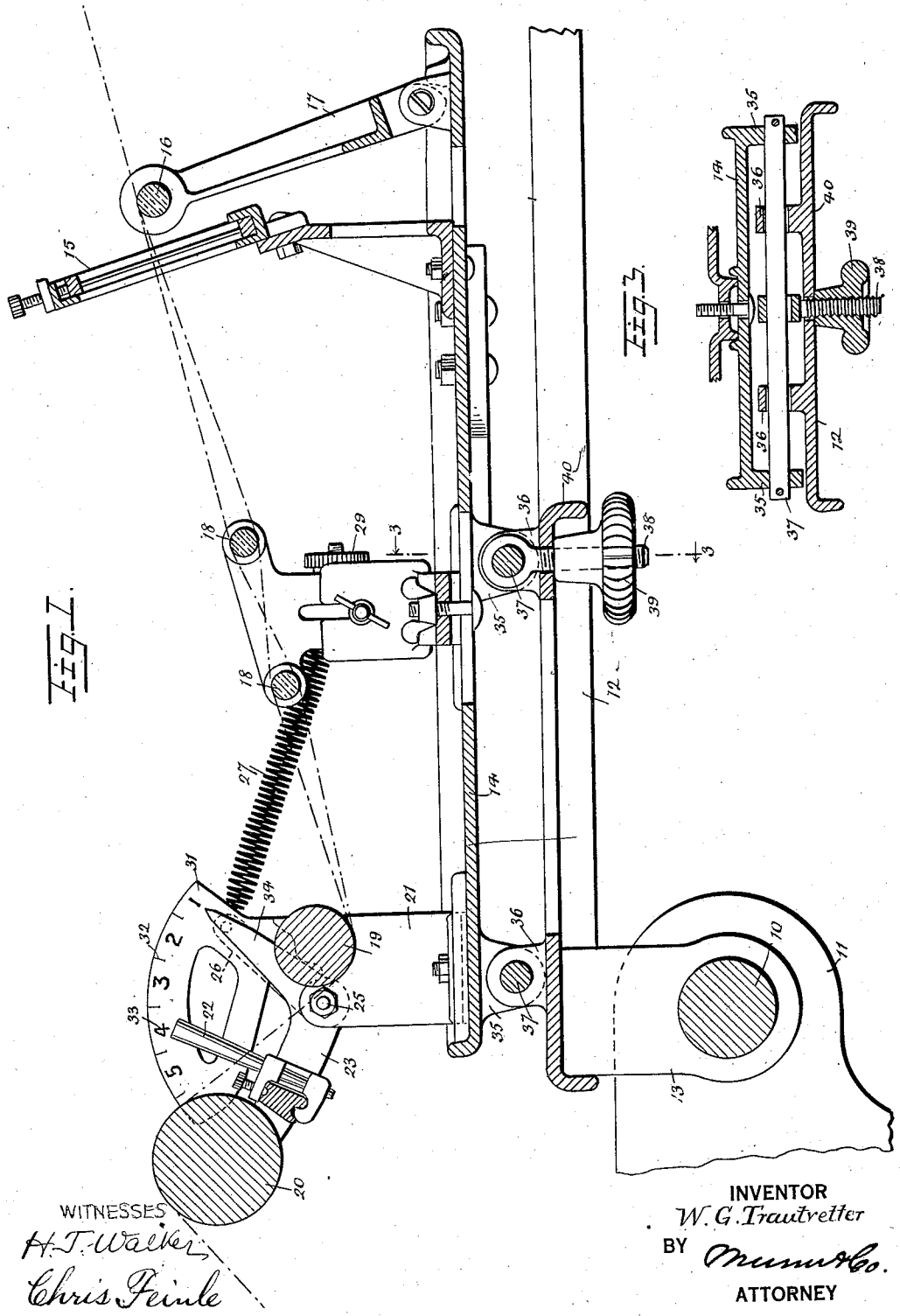


Fig. 1.

Fig. 2.

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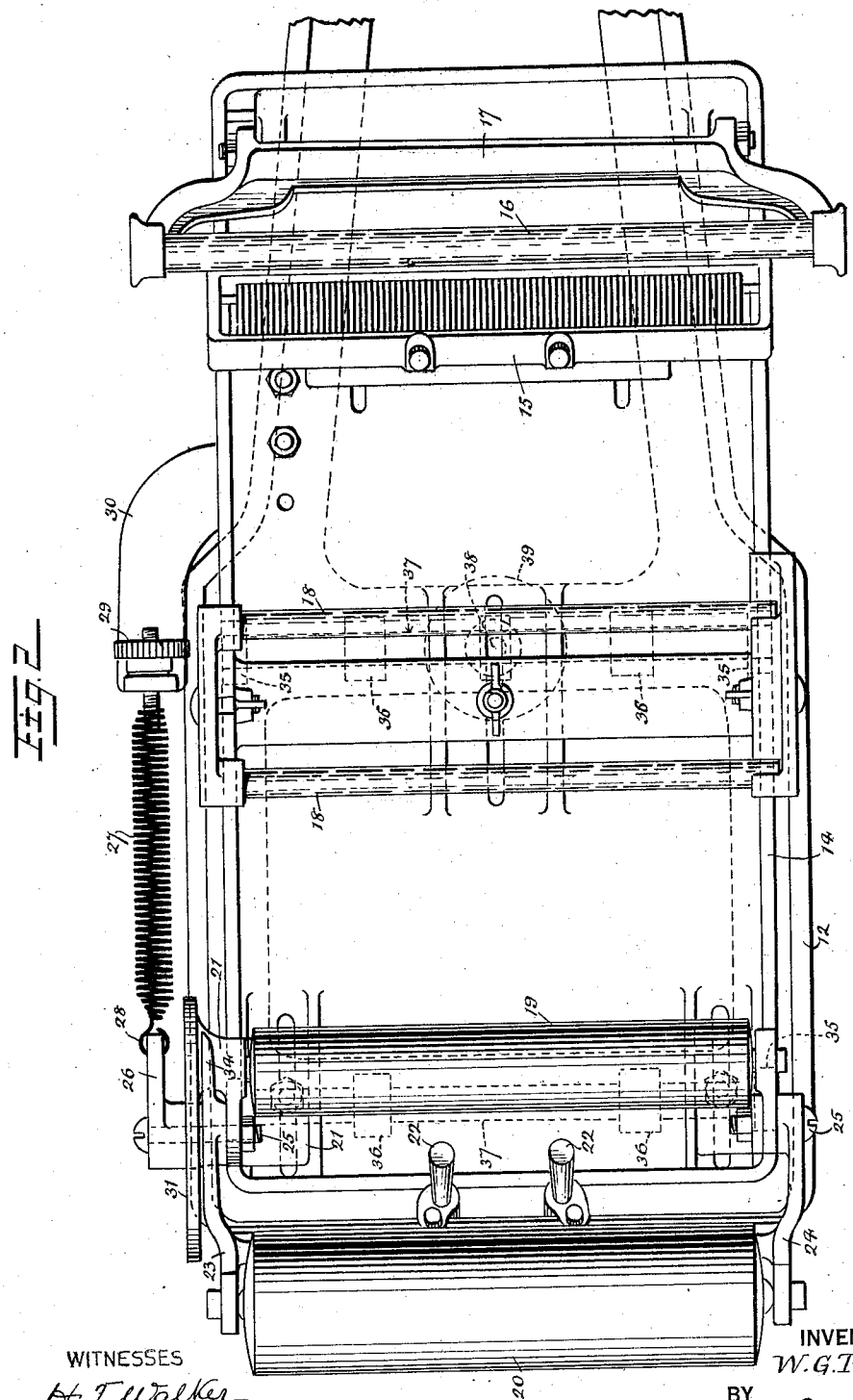


Fig. 2

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UNITED STATES PATENT OFFICE

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TENSION INDICATOR AND COMPENSATOR FOR WARPING CARRIAGES

Application filed December 6, 1927. Serial No. 238,117.

In producing a warp for textile fabric such as rayon, silk, and fine counts of cotton, etc., the operators must be constantly alert and must watch the threads as they pass from the creel bobbins in the form of warp sections, to the reel of the warper. It requires good eyesight and judgment on the part of an operator to keep the warp section firm, and tensioned at an exact pressure, at all times, without any let up, so that soft spots will not occur in a warp. Such soft spots result in section marks in the finished products. The section marks in cloth, when bad, often condemns a piece of goods, as not being of high grade. Furthermore, when the warp section runs too tightly, the life is stretched out of the threads which results in an inferior product. Under present methods, it is difficult to produce a perfect grade of goods because of guesswork on the part of an operator.

It is therefore the principal object of the present invention to eliminate guesswork on the part of an operator in producing a textile warp. In accordance with this object means is provided between the reel of a warper and the bobbins of a creel, to yieldingly support a warp section with a give and take effect to compensate excessive pulling or stretching strains on the warp section, and to indicate the degrees of such strains so that an operator may see at a glance the running condition of the warp section. The operator is thus given notice at the proper instant to take the necessary steps in relieving the warp section of the excessive strain by adjusting the creel. Rayon does not possess much elasticity. The present invention is especially designed for producing rayon because it overcomes the action of jerks on the warp section when starting and stopping the warper, and so avoids stretching.

Another object of the invention is the provision of means in conjunction with present warping carriages to increase their range so that warps of greater widths may be laid.

The nature of the invention and its distinguishing features and advantages will appear when the following specification is read in connection with the accompanying drawing, in which—

Figure 1 is a longitudinal sectional view of a portion of a warping carriage of a warper, embodying the present invention.

Fig. 2 is a plan view.

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 1.

In the drawings there has been illustrated parts of a known type warping carriage employed as an appurtenance of a warper. The said carriage is movable parallel with the axis of the reel of the warper to build up or lay a textile warp on the reel. The carriage moves on a shaft indicated at 10 supported by end portions of the frame of the warper, one of such end portions being indicated at 11. Among other things the carriage includes a support 12 having lugs on the under side thereof through which the shaft 10 extends, one of said lugs being indicated at 13. The carriage also includes a tray 14, which has arranged thereon a reed 15 through which the threads of the warp section pass, and a glass bar 16 carried by a pivotally mounted frame 17 adjacent the reed 15. The said bar 16 is located between the reed 15 and a larger reed, not shown, carried by the support 12. Also arranged for adjustment on the tray 14 are intermediate glass bars 18 around which the threads of the warp section pass in divided relationship. There is also provided a comparatively small roller 19, and a comparatively large roller 20. The roller 19 is journaled for rotation in bearing brackets 21 secured to the tray 14. The warp section passes under the roller 19 and over the roller 20 to the reel of the warp. Suitable adjustable guide pegs 22 are arranged between the rollers 19 and 20, and the warp section runs between the pegs 22 and is guided thereby.

In accordance with the present invention the roller 20 is supported by members 23 and 24 respectively connected with the brackets 21 for pivotal movement, the pivots being designated 25. The member 23 has formed therewith an arm 26. A tensioning

and compensating means in the form of a spring 27 is provided, and said spring has one end thereof connected with the arm 26 as at 28, and the opposite end thereof is connected with a device 29 for varying the tension of the spring 27. The device 29 is carried by a bracket 30 forming a part of the tray 14. It will now be apparent that the warping section which is indicated by dot and dash lines in Fig. 1 of the drawing is yieldingly supported with a give and take effect, due to the fact that the roller 20 is mounted for movement on a pivotal means. In this way excessive pulling or stretching strains to which the warp section is subjected will be compensated.

In order to indicate to an operator the degree of pressure or strain on the warp section there is provided a segment 31 formed on the bracket 21 with which the member 23 is connected. The said segment 31 has graduations 32 and numbers 33 which indicate the degree of tension, pressure or strain on the warp section, when read in conjunction with a pointer 34 forming an integral part of the member 23. It will be apparent that due to the fact that the warp section passes under the roller 19 and over the roller 20 any excessive tension or pulling strain on the warp section will cause the roller 20 to move on the pivotal connections 25 with a corresponding movement of the pointer 34 with respect to the graduations 32, thereby indicating the tension or pulling strain, which an operator may see at a glance. A warp will be made of a certain tension which will be indicated on the segment 31 by the pointer 34. When the tension indicated is greater than that required, the operator simply sets the creel in such position as to relieve the excess. When the tension indicated is less than that required, the operator simply sets the creel at less angle. It will therefore be understood that even an inexperienced operator may tend the warper and be able to produce a perfect warp.

In accordance with another feature of applicant's invention, the tray 14 is connected with the support 12 for relative movement with respect thereto. This is accomplished by providing pairs of spaced lugs 35 on the under side of the tray 14, and pairs of spaced lugs 36 on the upper side of the support 12. Each pair of lugs 35 has connected therebetween a shaft 37 which extends through the related pair of lugs 36 on the tray 14. The shafts 37 are arranged parallel to the shaft 10. Heretofore it was possible to move the carriage to opposite ends of the shaft 10 to points at which the lugs 13 encounter the end portions 11 of the frame of the warper. Under this condition it is not possible to cover the entire reel of the warper. Under the present arrangement it is possible to move the tray 14 relatively to the support 12 after the latter cannot be moved further, and in this way the warp section may be made to start at one extremity of the reel of the warper and be carried across the reel to the other extremity. Thus it is possible to produce warps of much greater widths than heretofore. In order to hold the tray in any desired adjusted position with respect to the support 12 there is provided a clamping means which consists of an eye bolt 38 and a nut 39. The clamping means is associated with one of the shafts 37 which extends through the eye of the bolt 38. The bolt 38 extends through a hole in a portion 40 of the support 12. The nut 39 is adapted for threading action on the bolt 38 and when brought against the portion 40 effectively clamps the tray 14 against movement.

It is to be understood that the invention is not restricted to the precise arrangement of parts shown and described, as details of construction may be modified and rearranged without departing from the spirit of the invention, the scope of which is limited only by the terms of the appended claim.

I claim:

In combination with a warping carriage of a warper, a main support, a tray, means on the tray adapted to guide a warp section, means connecting the tray with the main support for adjustment with respect thereto for the purpose of increasing the width of a warp, and clamping means for holding the tray in different adjusted positions.

Signed at New York in the county of New York and State of New York this 5th day of December, A. D. 1927.

WILLIAM GEO. TRAUTVETTER.