March 29, 1932. J. CRONK 1,851,812

WARP STOP SHIELD FOR SILK MILLS

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Fig. 1.

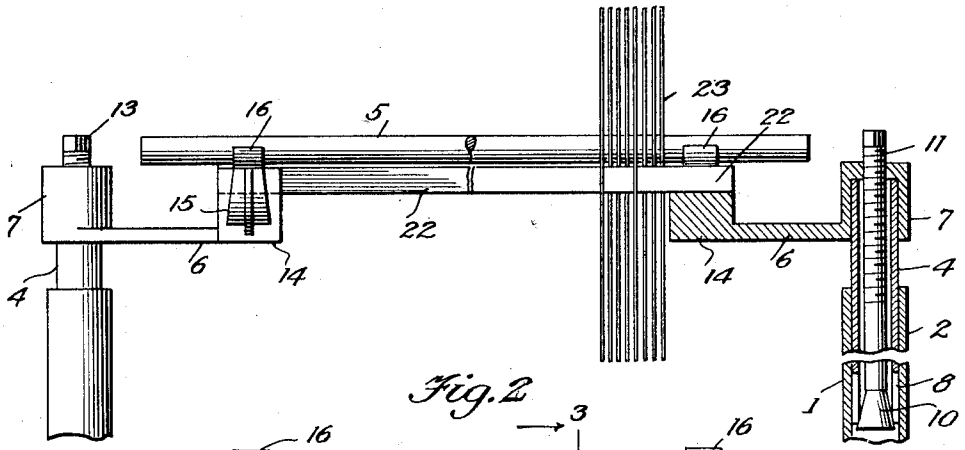

Fig. 2.

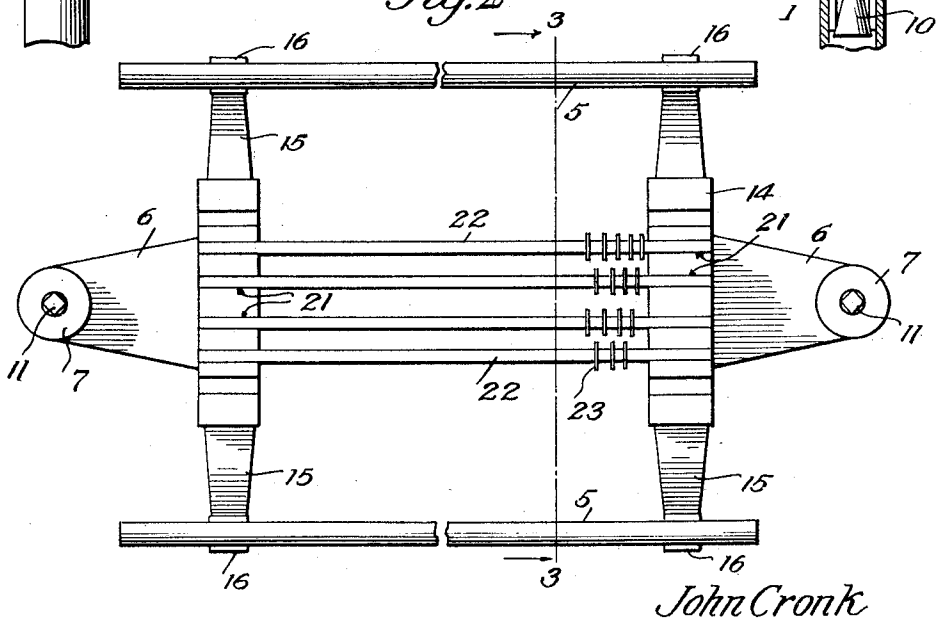

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Fig. 6.

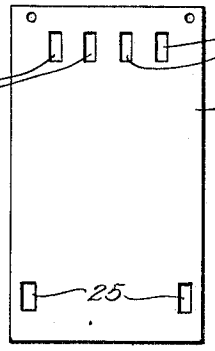


Fig. 4.

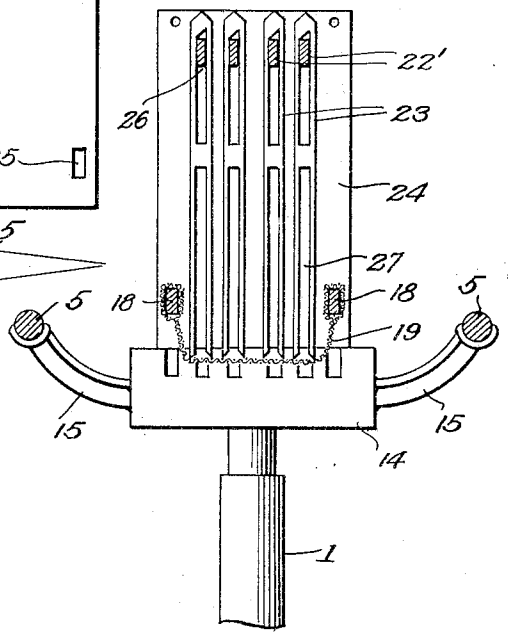


Fig. 3.

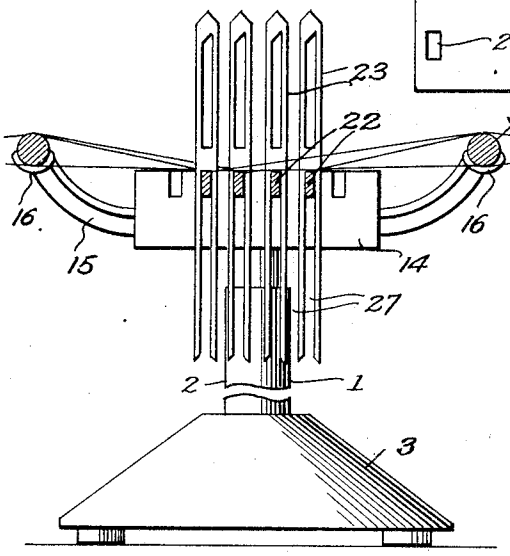
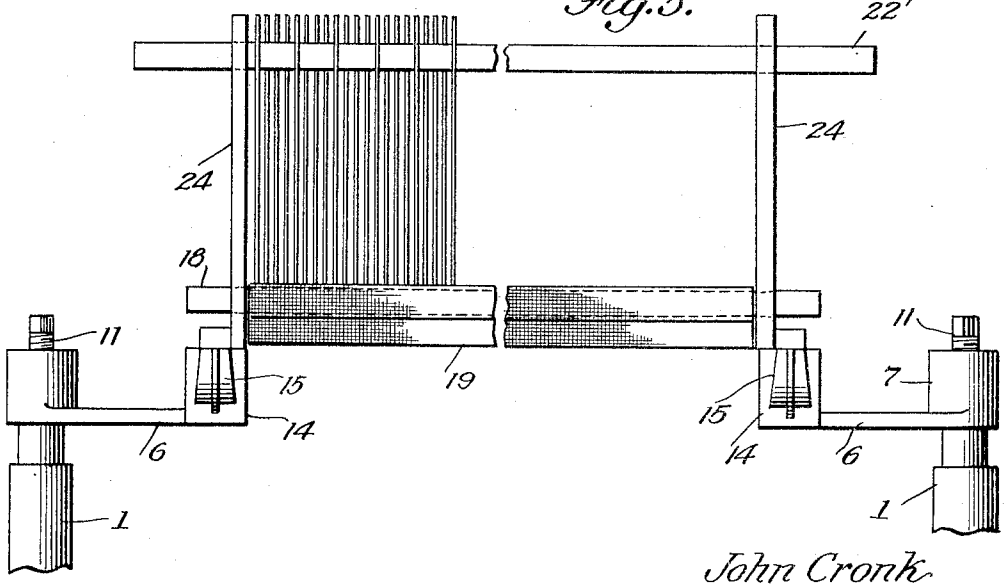


Fig. 5.



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Patented Mar. 29, 1932

1,851,812

UNITED STATES PATENT OFFICE

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WARP STOP SHIELD FOR SILK MILLS

Application filed February 7, 1930. Serial No. 426,670.

This invention relates to a device for use in the arrangement and laying of warp threads in weaving goods and, while intended primarily for use in connection with silk looms, the principles of the invention may be utilized in connection with looms for weaving other textiles.

It is a well known fact that in weaving silk, each time a new warp is fed into the loom, at least two hours is required in placing the drop wires over the warp threads, and frequently, if there are a great number of such threads, at least four hours may be required for this task. This of course means that the loom must remain idle while the drop wires are being assembled with the warp threads, inasmuch as when a set of warp threads has been nearly exhausted, it is necessary to remove all of the drop wires in order to feed a new set of warp threads to the loom, and the operation of individually dropping the drop wires into engagement with the respective warp threads must be repeated. This means a loss of time and it is therefore obvious that if a warp can be prepared for feeding to the loom so that all of the threads will be properly arranged at the time of feeding, it will be unnecessary to stop the loom for any period of time, such as set forth above. The invention therefore has as its primary object to provide a device by the use of which all of the threads of the warp of a fabric to be woven, may be properly arranged and the drop wires with the individual threads, and the assemblage then directly fed to the loom.

Another object of the invention is to provide a device of the character described above which will embody means for preventing any displacement of the drop wires or the threads so as to result in twisting of the threads.

Another object of the invention is to provide, in a device for the purpose stated, means which will hold the threads from dropping out from the drop wires after the drop wires have been applied thereto.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts to be hereinafter fully described, illustrated in the accompanying drawings, and specifically pointed out in the appended claims.

In describing my invention in detail, reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views, and in which:—

Figure 1 is a fragmentary view partly in elevation and partly in section of the device embodying the invention.

Figure 2 is a top plan view thereof.

Figure 3 is a detail vertical front to rear sectional view taken on the line 3—3 of Figure 1 looking in the direction indicated by the arrows.

Figure 4 is a similar view, illustrating the drop wires elevated on the stand and the end plates and bag applied, positioning the parts ready for transfer to a loom.

Figure 5 is a fragmentary side elevation illustrating the same.

Figure 6 is a detail view illustrating one of the end plates.

The device of the invention comprises two uprights which are indicated in general by the numeral 1 and each of which includes a tubular section 2 which is threaded or otherwise anchored in a peripheral conical base indicated by the numeral 3, which upright further includes a section 4 which is also tubular and which is slidably fitted into the upper end of a lower section 2. The uprights 1 support units which are designed, in turn, for the support of rods 5 over and beneath which warp threads are led, the threads being passed between the rods as shown in Figure 3 in crossed relation. Each of these units, which is indicated in general by the numeral 6, comprises a hollow cylindrical head 7, which is closed at its upper end, and which is fitted to the upper end of the section 4 of the respective upright and in order that the section 4 may be held in a desired position of adjustment within the sections 2, the lower end of each section 4 is preferably formed with a plurality of vertically extending slots 8, and a stem 9 is arranged to extend axially upwardly within the section 4, and is provided at its lower

end with a frusto-conical head 10, which engages in the lower end of the said section 4, and the upper end of each stem is threaded as indicated by the numeral 11 and fitted through a threaded opening 12 formed in the closed top of the member 7, the upper end of each stem, above the threads 11, being squared as indicated by the numeral 13, for the application of a wrench thereto whereby the respective rod may be adjusted upwardly so as to cause the head 10 to have wedging engagement in the lower end of the section 4, for the purpose stated, thus serving also to rigidly connect each unit 6 with the section 4 of the respective upright so as to prevent any rotative displacement thereof.

The body of each unit 6 is of the substantially triangular form shown in Figure 2 and heads 14 of oblong rectangular form are supported by the bodies of the units 6 at their relatively adjacent ends, and an arm 15 extends longitudinally from each end of each head 14 and is provided at its outer end with a substantially semi-cylindrical bearing head 16 of a diameter to adapt the end portion of the respective rod 5 to seat securely therein.

As shown in Figures 2 and 3, the heads are provided with grooves 21 to receive the bars 22 for supporting drop wires 23 of a well known type employed in looms now in use, and as shown in Figure 3 the drop wires straddle the bars in parallel relation to one another between the heads 14. By reference to Figures 2 and 3 it will be noted that the end grooves 21 are unoccupied by bars 22 and are merely provided for additional bars when the warp contains more threads than ordinarily and which would require the additional use of bars 22 for receiving additional drop wires.

Bars 18 are provided and extend through hems in a piece of fabric to provide a bag 19 for preventing the accidental displacement of the warp threads from the drop wires or the tangling of said threads with the lower ends of the drop wires when removing the drop wires from the device to a loom, and which will be hereinafter more fully described.

The drop wires 23 have the usual slots and bifurcated ends 27 which straddle the bars 22 and each thread of the warp is passed through a drop wire as shown in Figure 3, the threads first passing over and under the bars 5 for the purpose of permitting a person to easily and quickly pick up the threads of the warp for application to the drop wires. After the threads are applied to their respective drop wires as shown in Figure 3, electrode bars 22′ of the loom are passed through the slots of the drop wires and end plates 24 of rectangular shape and constructed from fibrous material are applied to the ends of said bars 22′ by extending the bars 22′ into the slots 26 provided therefor, and the plates are raised until their lower edges rest on the heads 14 elevating the drop wires therewith. The bars 18 carrying the bag 19 are inserted in the slots 25 adjacent the lower corners of said plates positioning the bag under the lower ends of the drop wires as shown in Figure 4, it being understood that the drop wires are now raised from the position shown in Figure 3 to the position shown in Figure 4. The bag prevents the threads of the warp from slipping off the drop wires or becoming tangled with the lower ends thereof. Prior to elevating the drop wires from the position shown in Figure 3 the bars 5 are removed and suitable flexible elements in the form of cords (not shown) are placed through the threads of the warp in place of the bars to render the handling of the device more convenient. With the device assembled as shown in Figure 4 the plates may be suitably tied together that the assemblage may be easily carried to the loom without becoming disarranged. The electrode bars are received in the loom in the usual way and the plates 24 and bag 19 are removed leaving the drop wires and threads of the warp applied thereto ready for weaving by the loom. It will therefore be seen that a device has been provided on which drop wires may be properly assembled to receive the threads of a warp and when the loom needs a new warp, the same may be easily and quickly applied to the loom from the stand without delaying the operation of the loom for any appreciable length of time. In the present practice or operation of looms, when the warp threads become exhausted, the loom must remain idle during the forming of a new warp, consequently causing a long delay before the loom may be again set in operation and which practice is extremely costly both as to the loss of time and the expense attached thereto.

What I claim is:—

1. A rack comprising spaced heads, means supporting the heads, removable bars carried by said heads to have threads of a warp passed over and under said bars, means removably secured to the heads and relatively spaced to support drop wires with the warp threads applied thereto, and means for retaining the drop wires with the threads applied in an assembled group ready for transfer to a loom.

2. A rack comprising spaced heads, means for supporting the heads, outwardly and upwardly curved arms formed on said heads and having seats in their ends, bars located in the seats to have threads of a warp passed over and under said bars, means removably secured to the heads and relatively spaced to support drop wires with the threads applied thereto, and means for retaining the drop wires with the threads applied in an assembled group for transfer to a loom.

3. The combination with drop wires having slots and electrode bars of a loom, of a sup-

port to receive and maintain the drop wires in grouped relation with warp threads applied thereto, said electrode bars positioned through the slots of the drop wires, plates having slots to receive the ends of the bars and resting on the support to retain the drop wires with the threads thereon ready to be placed within a loom, and means applied to the plates and underlying the ends of the drop wires.

4. The combination with drop wires having slots and electrode bars of a loom, of a support to receive and maintain the drop wires in grouped relation with warp threads applied thereto, said electrode bars positioned through the slots of the drop wires, plates having slots to receive the ends of the bars and resting on the support to retain the drop wires with the threads thereon ready to be placed in a loom, and a bag removably secured to the plates and underlying the lower ends of the drop wires.

In testimony whereof I affix my signature.

JOHN CRONK.