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APPARATUS FOR CUTTING TEXTILE FABRICS

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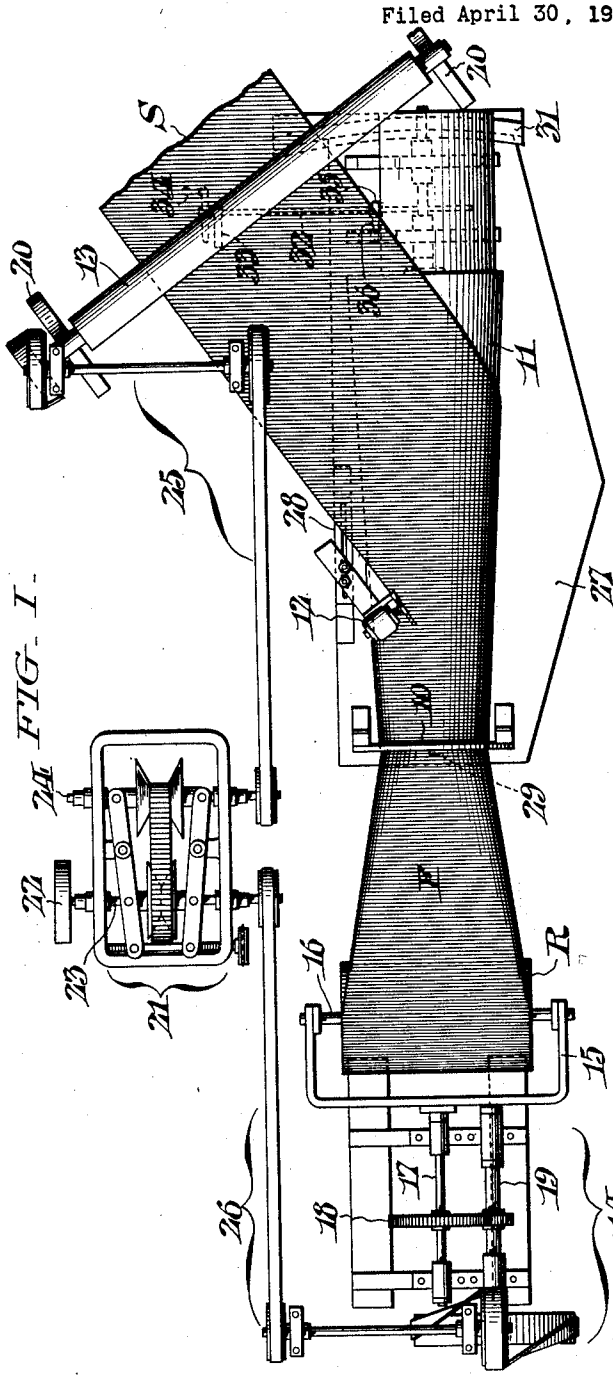


FIG. I.

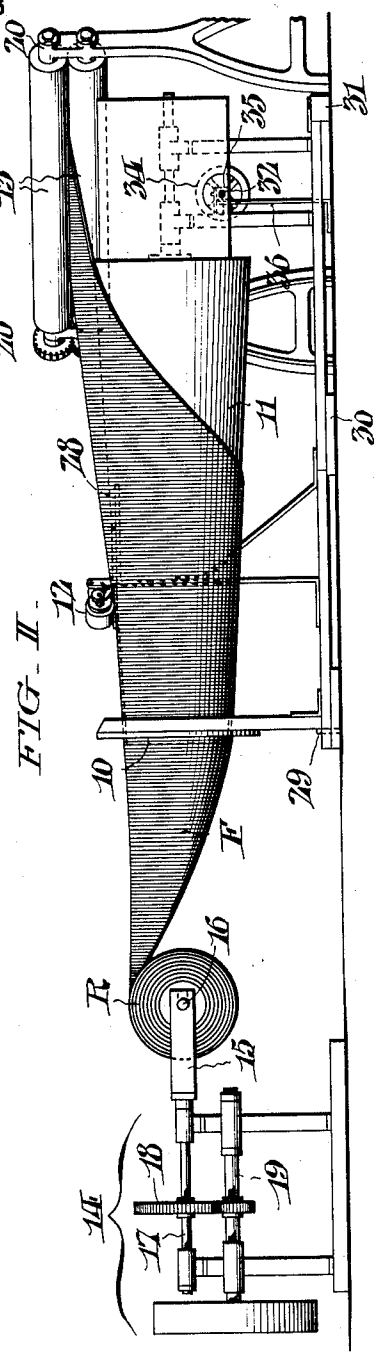


FIG. II.

WITNESSES

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UNITED STATES PATENT OFFICE.

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APPARATUS FOR CUTTING TEXTILE FABRICS.

Application filed April 30, 1925. Serial No. 26,833.

This invention relates to apparatus for cutting woven or knitted tubular fabric into a continuous bias strip, i. e., into a strip whereof the warp and weft threads, or the wales, as the case may be, occupy angular positions relative to its side edges. A typical apparatus of this sort includes a drum over and about which the tubular fabric is spirally drawn and incidentally cut at an angle to produce the continuous bias strip.

The purpose of my present invention is to enable very accurate determination of the angle of bias and the width of the cut strip, and to provide simple and efficient means to that end.

One way in which the foregoing desideratum may be easily attained will become apparent from the detailed description which follows of the typical embodiment of this invention illustrated by the drawings herewith, whereof—

Fig. I is a plan view of my improved cloth cutting apparatus; and

Fig. II, a side elevation.

In general, the cutting apparatus herein depicted is similar to that forming the subject matter of my pending patent application No. 689,350, filed January 29, 1924. In the organization illustrated, the tubular fabric F is continuously drawn from a bolt or roll R, passed through a spreader guide 10, and over and about a drum 11 at the periphery whereof is stationed a cutting means 12 that severs said fabric tube F into a continuous bias strip S as the latter is withdrawn from the drum 11 at an angle by obliquely-positioned draft rolls 13.

In the course of such operation of the apparatus, the bolt or roll R of fabric is bodily turned in a rotating holder device 14. As shown, this device 14 comprises a yoke 15 which receives between its ends, the spindle 16 upon which the fabric bolt or roll R is mounted with capacity for free axial rotation in accommodating the continuous pull on the cut strip S by the draft rolls 13. The yoke 15 is secured to one end of a shaft 17 journaled in appropriate bearings afforded by the frame of the device 14, said shaft 17 being in turn driven through the medium of a reducing gear couple 18 from a parallel driving shaft 19 also journaled on the frame aforesaid.

The draft rolls 13 are rotatively supported between suitable end frames or standards 20—20 intergeared in the usual manner for positive cooperation to the avoidance of relative surface slippage.

In order to prevent stretching or distortion of the fabric incidentally to its cutting, it is essential that the speed of the draft rolls 13 be maintained in absolutely synchronism with the bodily rotation of the bolt or roll R from which the tubular fabric F is supplied. For this purpose, an adjustable speed regulator or transformer 21 is employed in the transmission system provided for driving the apparatus. This speed regulator or transformer 21 will be observed as of standard construction and need not therefore be described in detail herein other than to point out that power is applied to a pulley 22 on its main shaft 23, and shared at differential speed rates, in accordance with adjustments, by a companion shaft 24. The differential speeds, thus derived, are in turn transmitted from the shafts 23, 24 of the transformer 21, to the draft rolls 13 and the rotating holder 14 by belt and pulley connections, respectively designated comprehensively at 25 and 26.

Assuming the general construction and operation of the apparatus to be now understood, I will proceed to describe those features which are novel in the present connection.

As hereinbefore stated, the object of the present invention is to enable accurate determination of the angle at which the strip S is cut, as well as its width. This end I accomplish by providing for relative positional adjustment of the drum 11 and the draft rolls 13, or in other words, by changing the angle between these elements by means and in a manner as follows:

Again referring to the illustrations, 27 indicates a platform whereon are mounted the spreader guide 10, the drum 11, and a bracket 28 for supporting the cutting means 12, so that these several parts may be moved together without disturbing their relative positions after having once been properly placed and adjusted. The platform 27 is pivoted on a stud 29 at its forward end, and is thus shiftable relative to the draft rolls 13 on transverse underlying skids 30, 31 fast to the floor, the rear-most of these skids 31 being recessed and curved on an arc,

struck from the stud center 29, so as to serve after the manner of a guide for the outer end of said platform. The means which I employ to shift the platform 27 and at the same time to maintain it in adjusted positions, include a threaded shaft 32 that is journaled, at one end, in a bracket or standard 33 rising from the floor immediately beneath the draft rolls 13 as shown in Fig. I. At the end just referred to, the shaft 32 is equipped with a hand wheel 34; while at its other end said shaft engages a nut 35 pivotally attached to an upstanding bracket 36 on the platform 27. Thus as the shaft 32 is rotated in one direction or the other, the platform 27 is correspondingly moved as desired to shift the drum 11 as well as the elements immediately associated therewith, relative to the draft rolls 13, for the purpose hereinbefore specified.

Having thus described my invention, I claim:

1. In a cutting apparatus of the type described, the combination of a platform affording common support for a spreader guide, a cutting means, and a drum over-and-about which tubular fabric is drawn for bias cutting by means of independently mounted draft rolls, said platform being capable of positional adjustment whereby the aforesaid guide, cutting means and drum are moved as a unit to vary the angle of the bias cut and width of strip severed.

2. In a cutting apparatus of the type described, the combination of a platform mounting the spreader guide, a cutting means, and a freely rotating drum over-and-about which tubular fabric is drawn for bias cutting, said platform being pivoted for arcuate movement whereby the aforesaid guide, cutting means and drum are movable as a unit to vary the angle of the bias cut and width of strip severed.

3. In a cutting apparatus of the type described, the combination of a stationarily positioned rotatable fabric-bolt holder; independently mounted draft means; and a pivotal common support for the spreader guide, cutting means, and a drum over-and-about which the fabric is drawn for bias cutting; said common support affording means whereby the angle and width of bias cut may be varied without disturbing the tension on the fabric feed.

4. In a cutting apparatus of the type described, the combination of a stationarily positioned rotatable fabric-bolt holder; independently mounted draft means; and a pivotal common support for the spreader guide, cutting means, and a drum over-and-about which the fabric is drawn for bias cutting; said common support having its pivot point located below the axis of the spreader guide whereby the angle and width of bias cut may be varied without interfering with the feed tension.

In testimony whereof, I have hereunto signed my name at Wilmington, Delaware, this 27th day of April, 1925.

WILLIAM BERRY.