June 28, 1932. F. TANDEL 1,864,681

APPARATUS FOR FEEDING KNITTED GOODS MADE FROM RAYON OR ARTIFICIAL SILK TO TENTERING MACHINES

Filed Oct. 20, 1930 3 Sheets-Sheet

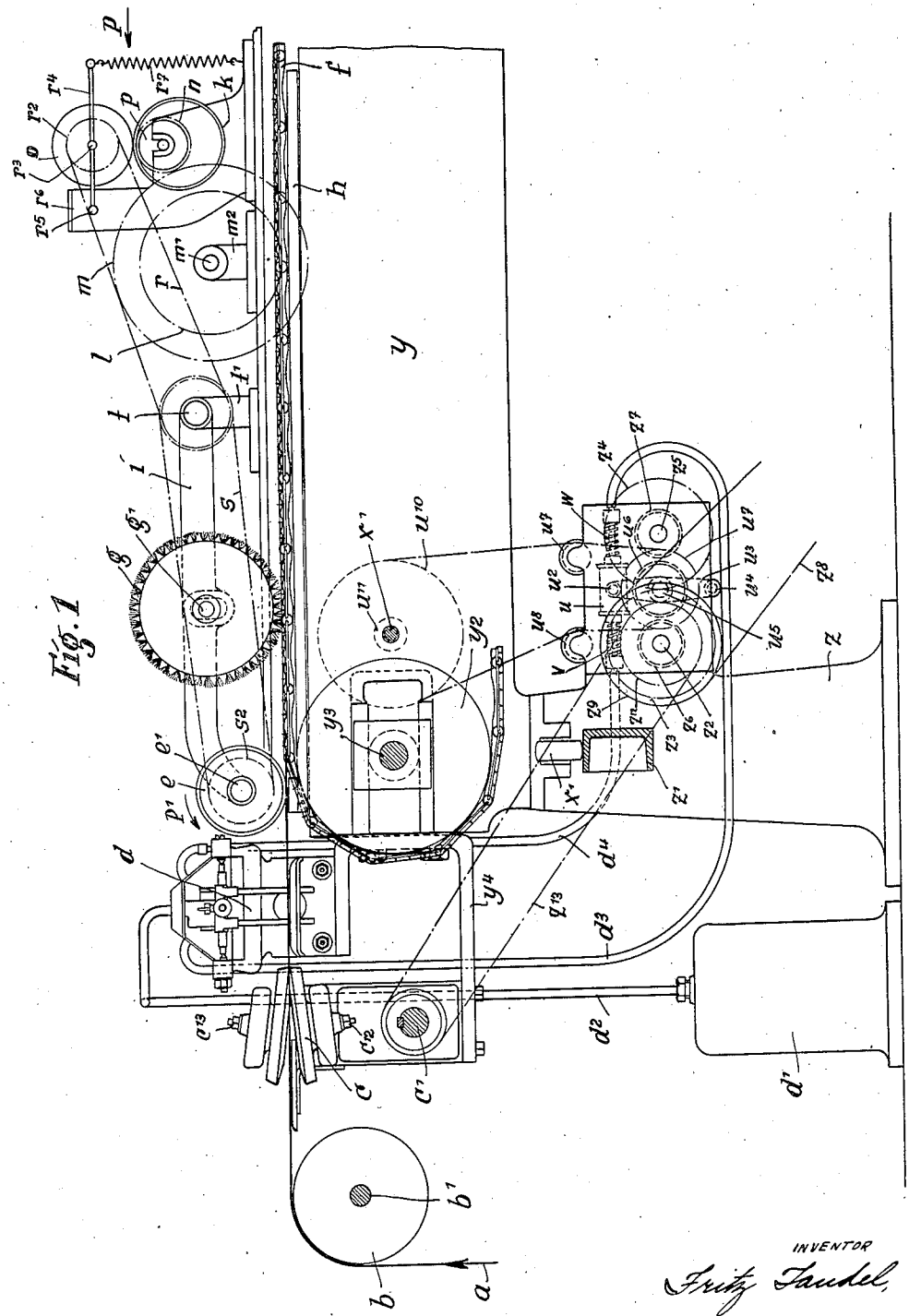


Fig. 1

INVENTOR

Fritz Tandel,

By Watson, Cole, Morse & Grindle

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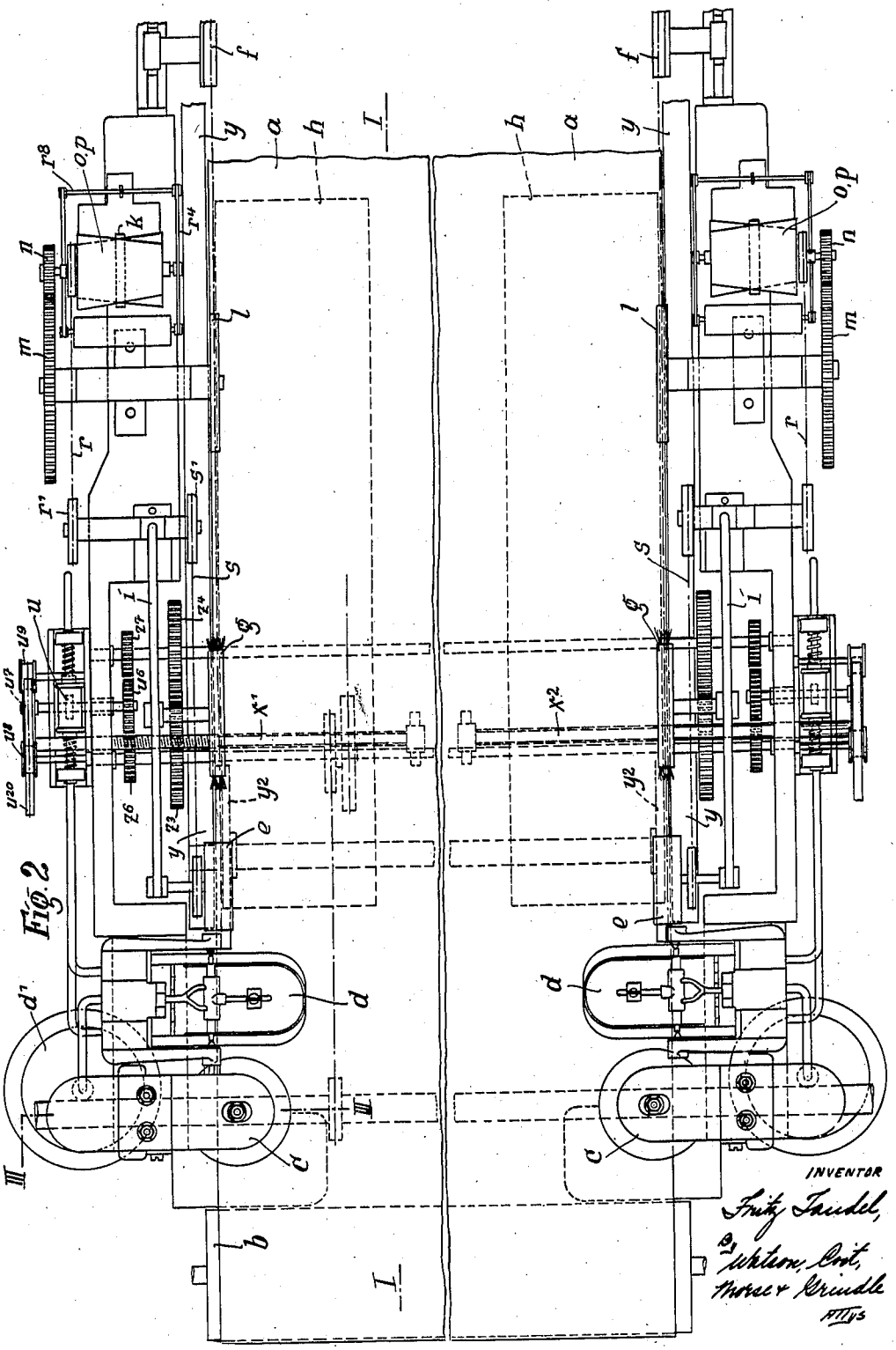


Fig. 2

INVENTOR

Fritz Tandel,

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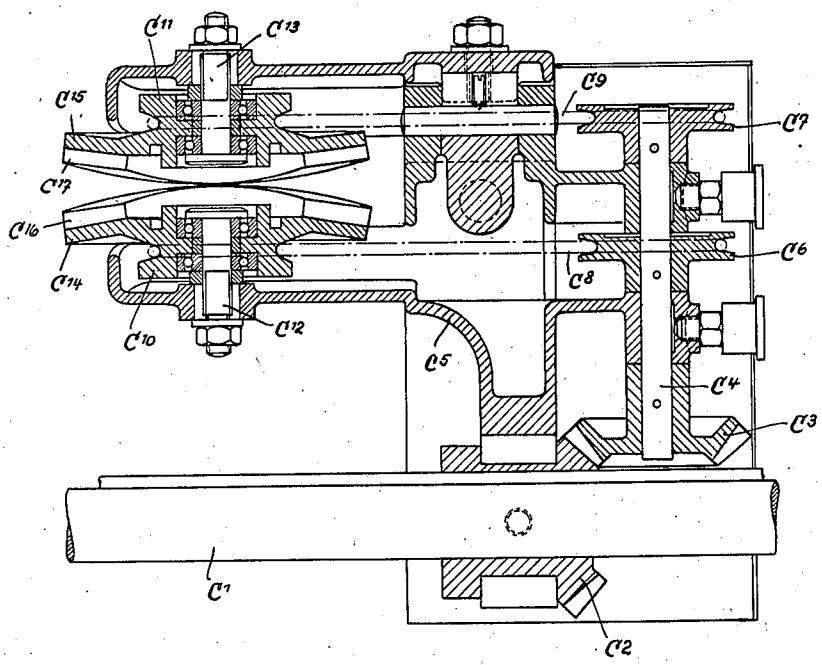
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Fig. 3



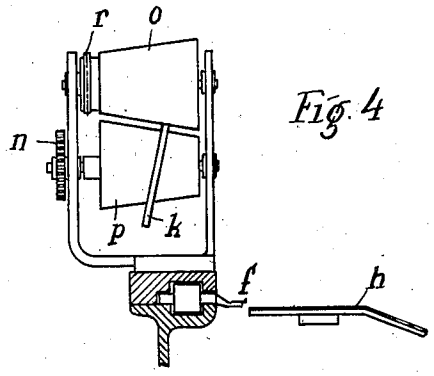


Fig. 4

INVENTOR

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Patented June 28, 1932 1,864,681

UNITED STATES PATENT OFFICE

FRITZ TANDEL, OF CHEMNITZ, GERMANY, ASSIGNOR TO C. G. HAUBOLD A. G., OF CHEMNITZ, GERMANY, A JOINT-STOCK COMPANY OF GERMANY

APPARATUS FOR FEEDING KNITTED GOODS MADE FROM RAYON OR ARTIFICIAL SILK TO TENTERING MACHINES

Application filed October 20, 1930, Serial No. 490,065, and in Germany October 22, 1929.

My invention relates to improvements in the method of and apparatus for feeding knitted goods made from rayon or artificial silk to tentering machines, and the object of the improvements is to provide a method in which the edges of such goods have a correct action on the feeler controlling the side members of the needle chain. With this object in view my invention consists in first rolling out the edges of the goods before they act on the feeler and thereafter passing the same through a stretching device. By thus putting the edges under tension their resistance is sufficient for properly acting on the feelers.

For the purpose of explaining the invention an example embodying the same has been shown in the accompanying drawings in which the same reference characters have been used in all the views to indicate corresponding parts. In said drawings

Fig. 1 is an elevation showing the feeding mechanism,

Fig. 2 is a top plan view of Fig. 1,

Fig. 3 is a sectional elevation on an enlarged scale taken on the line III—III of Fig. 2, and

Fig. 4 is a partial side elevation showing the conical pulleys controlling the operation of the stretching device.

In the example shown in the drawings the frame z of the apparatus comprises a transverse member z^1 on which the walls y for guiding the needle chains are rockingly supported by means of a roller x^1. In the said walls y plates y^2 providing guides for needle chains f are mounted, which needle chains are trained on shafts y^3. This part of the apparatus is known in the art, and it has been described for example in the patent of United States No. 1,615,415 granted January 25, 1927 to Fritz Tandel, and I deem it not necessary to describe the same in detail. The object of the chains f is to have the fabric a attached to the needles thereof.

The fabric a passes from the intake side of the apparatus over a drum b mounted on a shaft b^1 and rotated at uniform velocity, the driving mechanism and the bearings of the shaft b^1 having been omitted in Fig. 1. It will be understood that the bearings of the shaft are mounted on the frame of the machine. Before the fabric a gets on the needle chains its edges must be smoothed out and put under tension. For rolling out the edges an apparatus c is provided which is supported on a bracket y^4 secured to the walls y and taking part in the movement thereof. The construction of the apparatus c will be described hereinafter. After passing through the apparatus c the fabric passes with its edges along feeling devices d which are likewise mounted on the bracket y^4 and which will be described hereinafter. The said feeling devices are not new and they have been described in the aforesaid patent to Tandel.

At the rear of the feeding devices the knitted fabric a made from rayon is passed to a roller e the shaft e^1 of which is mounted on a lever i. The roller bears on the fabric a and it is supported on a table h located below the fabric. The roller e is rotated in the manner to be described hereinafter in the direction of the arrow P^1, its circumferential velocity being such that it has a stretching action on the fabric a. By first rolling out the edges of the fabric by means of the apparatus c and thereafter putting the same under tension by means of the roller e, its edges have sufficient rigidity between the apparatus c and the roller e for safely acting on the feeling device d.

On a pivot bolt g^1 projecting from the lever i a cylindrical brush g is mounted which is adapted to press the fabric a into engagement with the needles of the chain f. The lever i is rockingly mounted on a shaft t supported on bearing members t^1. At both ends the shaft t carries chain wheels s^1 and r^1 (Fig. 2). The chain wheel s^1 is connected by a chain s with a chain wheel s^2 secured to a shaft e^1, and the chain wheel r^1 is connected by a chain r with a chain wheel r^2 secured to a shaft r^3. The said shaft is mounted on levers r^4 jointed at r^5 to a bearing member r^6. The levers r^4 are connected with each other by a rod r^8 and they are acted upon by a spring r^7. On the bearing members r^6 the conical pulley p is mounted which cooperates with a conical pulley o, the said pulleys having their apices located at oppo-

site sides. Between the said pulleys there is a ring k which is in frictional engagement with the walls and which is adapted to be shifted in axial direction for varying the gear ratio of the pulleys o and p and the circumferential velocity of the roller e. The lower pulley p carries a gear wheel n which is in mesh with a gear wheel m mounted on a shaft m^1. The shaft m^1 is mounted on a member m^2, and it has secured to its opposite end a chain wheel l in driving engagement with the chain f.

Through the walls y spindles x^1 and x^2 are passed which are mounted on the frame z. Constructions of this type are known in the art and therefore they have not been illustrated in the drawings. The feeler d operates in the manner described in the aforesaid patent to Tandel, and it is adapted to direct compressed air taken from a container d^1 through a pipe d^2 to pipes d^3 and d^4, according to the position of the edges of the fabric acting thereon, or to disconnect the pipe d^2 from the pipes d^3 and d^4, if the fabric is in correct position. The pipes d^3 and d^4 act respectively on piston rods v and w having a single piston within a casing u. The said casing u is axially shiftable on the piston rods v and w and at both sides it carries a pivot bolt u^2 engaging in the upper bifurcated end of a lever u^3. The said lever is jointed to a pivot bolt u^4 secured to the frame z, and it carries a shaft u^5. At one of its ends the said shaft carries a gear wheel or pulley u^6 and at its opposite end a cord wheel u^7, a sprocket wheel or the like. The chain or cord trained on the wheel u^7 is trained on guide rollers u^8, u^9 and a disk u^{10} the hub u^{11} of which screws on a spindle x^1. It will be understood that similar mechanism has been provided at the opposite side of the apparatus, which mechanism acts on a spindle x^2.

On a shaft z^2 mounted on the frame z a gear wheel z^3 is mounted which is in mesh with a gear wheel z^4 carried by a shaft z^5 mounted on the drum z, the said gear wheels having equal diameters. Further, the shaft z^2 carries a gear wheel or friction wheel z^6, and the shaft z^5 carries a gear wheel or friction wheel z^7.

In the position of the parts shown in Fig. 1, the friction wheel or gear wheel u^6 is disconnected from the friction or gear wheels z^6 and z^7. If however compressed air is supplied to the pipe d^3 or the pipe d^4 by the mechanism controlled by the feeler d, as has been described in the aforesaid patent to Tandel, the cylinder u is shifted either to the right or to the left, and therefore the friction or gear wheel u^6 mounted on the lever u^3 is thrown into engagement with the right hand friction or gear wheel z^7. The shaft z^2 is continuously rotated at uniform and high velocity from a source of power (not shown) through the intermediary of a pinion z^8 and a disk z^9, and it is coupled by means of the wheel z^3 and z^4 with the shaft z^5. Therefore the shaft u^5 is rotated in the other direction and it drives the disk u^{10} mounted on the spindle x^1 or x^2 through the intermediary of the chain and sprocket gearing described above, so that the corresponding walls y guiding the chains are rocked outwardly or inwardly.

The shaft z^2 carries a wheel z^{12} connected by means of a cord gearing or a chain and sprocket gearing z^{13} with a shaft c^1. The said shaft c^1 operates the apparatus c for rolling out the edges of the fabric, which apparatus has been shown in detail in Fig. 3. As shown in the said figure the shaft c^1 drives a shaft c^4 mounted in a casing c^5 by means of bevel gear wheels c^2, c^3. The said casing c^5 and the casing carrying the feeler d are mounted on one of the walls y. The shaft c^4 is provided with two cord pulleys c^6 and c^7 connected by cords c^8 and c^9 with pulleys c^{10} and c^{11}. The said pulleys are supported by means of anti-friction bearings on studs c^{12} and c^{13} mounted on the casing c^5 and disposed angularly of each other as is shown in Fig. 2. The pulleys c^{10} and c^{11} are made integral with disks c^{14} and c^{15} disposed angularly of each other and having conical roughened faces c^{16} and c^{17} holding the edge of the fabric between the same for rolling the same out.

I claim:

1. The herein described mechanism for automatically feeding knitted fabrics made from rayon, comprising a conveying device, a feeler controlling said conveying device, an apparatus located at the intake side of the said feeler for rolling out the edges of the fabric, and an apparatus located at the delivery side of the said feeler for stretching the fabric at its edges.

2. The herein described mechanism for automatically feeding knitted fabrics made from rayon, comprising a conveying device, a feeler controlling said conveying device, an apparatus located at the intake side of the said feeler for rolling out the edges of the fabric, and an apparatus located at the delivery side of the said feeler for stretching the fabric at its edges, said apparatus comprising a table, a rotary roller in position for clamping the edge of the fabric between the same and said table, and means for rotating said roller at a velocity exceeding that of the feed of the fabric.

In testimony whereof I hereunto affix my signature.

FRITZ TANDEL.