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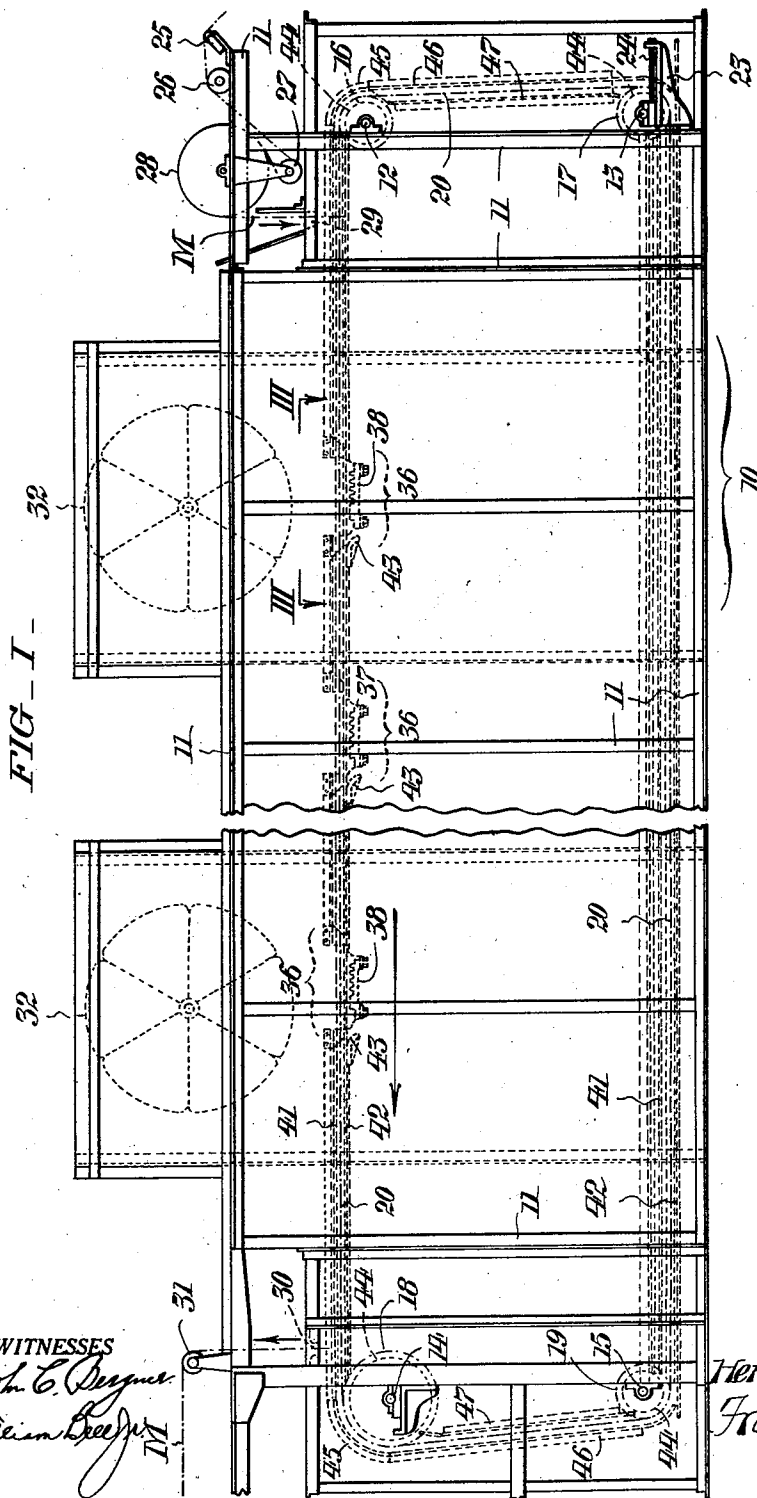
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1,989,977

MACHINE FOR TREATING FABRICS

Filed July 6, 1931

3 Sheets-Sheet 1



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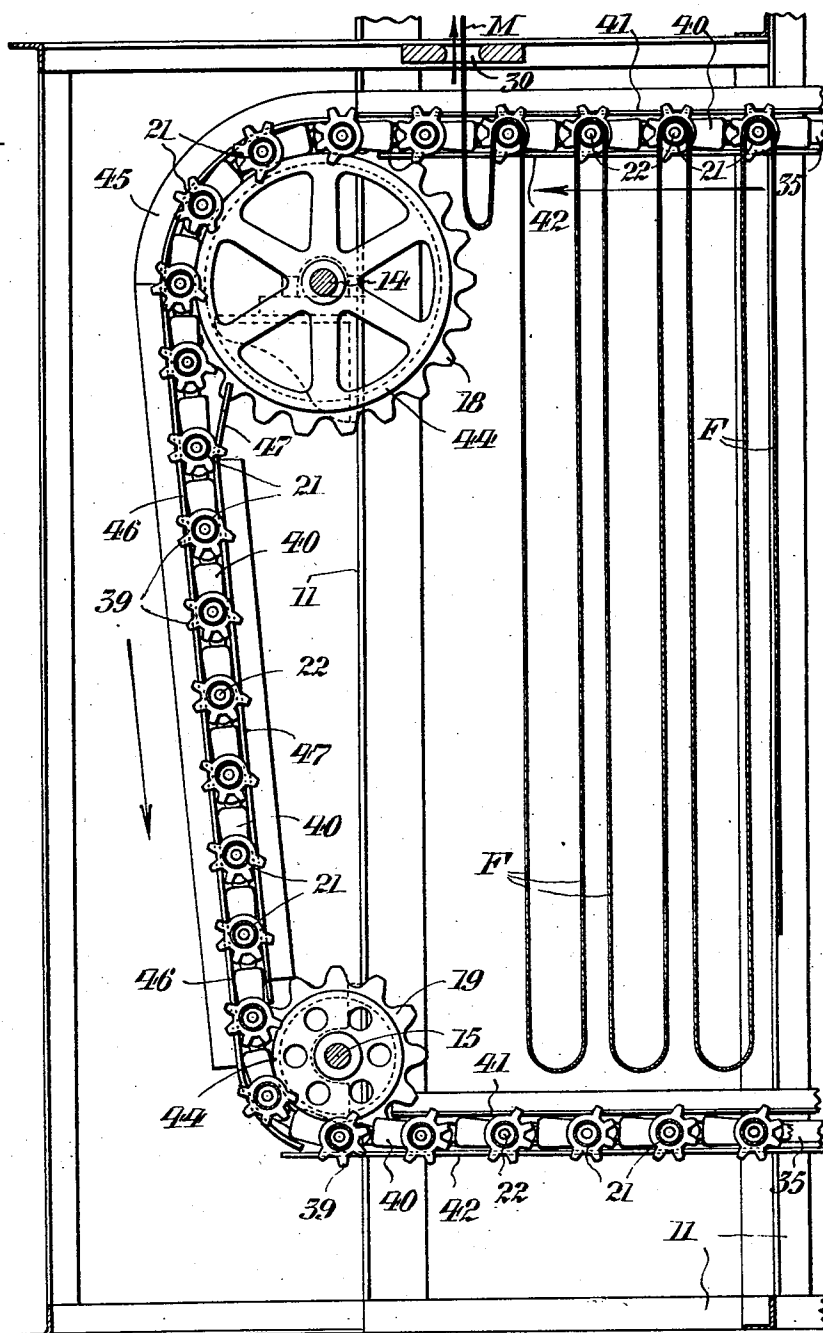
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3 Sheets-Sheet 2

FIG. II.



WITNESSES

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3 Sheets-Sheet 3

FIG. III -

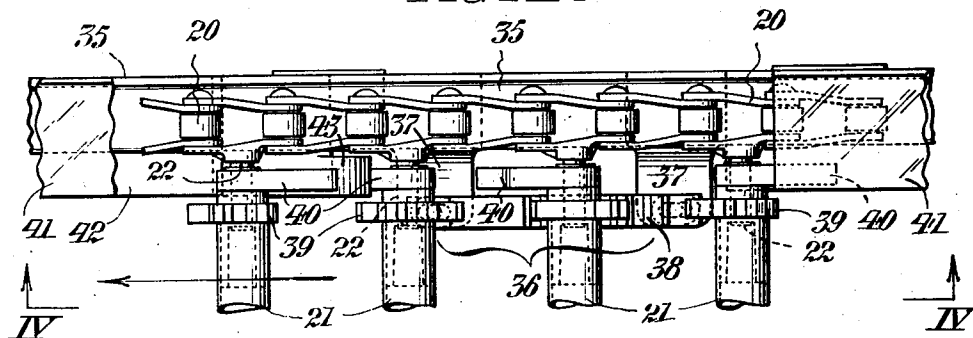


FIG. IV -

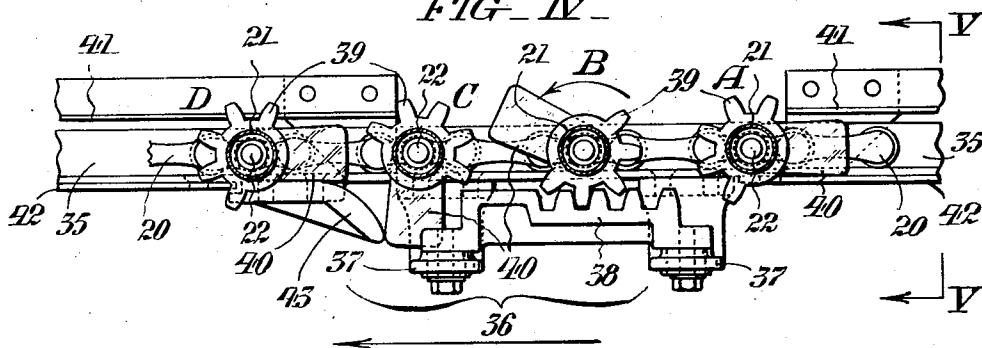
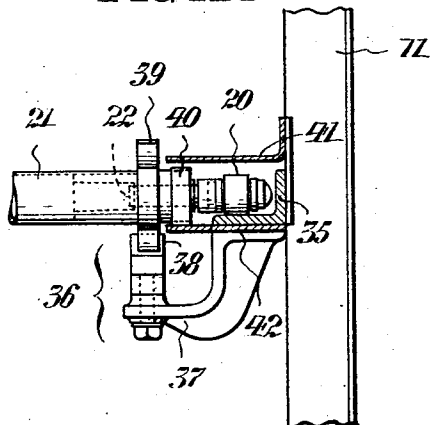


FIG. V -



WITNESSES

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MACHINE FOR TREATING FABRICS

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Application July 6, 1931, Serial No. 548,926

5 Claims. (Cl. 34—12)

This invention relates to machines for drying or otherwise treating fabrics in continuous lengths; and it has more particular reference to machines of the type in which the fabric is conveyed while supported in festoons on transverse poles of a conveyor incident to progression through a treating chamber.

In connection with a treating machine of the indicated type I aim to provide means whereby the conveyor poles are periodically rotated to change the position of the fabric progression through the chamber, thereby to avoid marring of the fabric by the poles and at the same time to ensure uniform lateral contraction thereof during the treatment.

A further object of my invention is to provide simple and reliable means to prevent rotation of the poles in the intervals intermediate the pole turning means, to prevent slippage and entanglement of the fabric, as well as during feeding and removal of the fabric from the conveyor.

Still other objects and attendant advantages will be manifest from the following description of the accompanying drawings, wherein Fig. I is a side elevation of a drying machine, with an intermediate portion thereof broken out, conveniently embodying the present invention.

Fig. II is a fragmentary longitudinal sectional view of the left-hand (as considered in Fig. I) or delivery end of the machine.

Fig. III is a fragmentary detail plan view taken as indicated by the arrows III—III in Fig. I showing the devices for rotating the conveyor poles.

Fig. IV is a fragmentary detail view taken as indicated by the arrows IV—IV in Fig. III; and,

Fig. V is a cross sectional view taken as indicated by the arrows V—V in Fig. IV.

As herein depicted, the machine comprises a horizontally elongate treating chamber 10 with a structural iron skeleton frame work 11 to support its side walls and roof, which latter are, in reality, constructed double from sheet metal with interposition of suitable thermo-insulation after common practice in this art. At opposite ends, the framework 11 supports bearings for transverse shafts 12, 13, 14 and 15, whereon respectively are mounted, in lateral spaced relation, pairs of sprocket wheels 16, 17, 18 and 19 over which conveyor chains are trained, one of such chains being indicated at 20. These chains 20 are of the roller link type, and, as determined by the sprockets 16—19 pass longitudinally through the upper part of the chamber 10, and then downward of the delivery (left hand) end of the ma-

chine returning through the lower part of the said chamber to the feeding (right hand) end of the machine where they travel upward within the said chamber. At uniformly spaced intervals, the conveyor chains 20 support crosswise between them poles 21 which are adapted to sustain the continuous material M being treated in festoons F, see Fig. II. As shown, the poles 21 are in this instance formed from tubing; and said poles are supported, with capacity for rotation, by inwardly projecting studs 22 of the conveyor chains 20, see Figs. III, IV and V. In order that the slack of the chains 20 may be taken up as may be required from time to time, the bearings for the shafts 13 of the sprocket wheels 17 at the feeding end of the machine are mounted on horizontal slideways 23 so as to be adjustable by means of screws 24. The material M is fed into the machine over a spreader bar 25 which is secured to the framework 11, and from this spreader bar passes over and under idler rollers 26, 27 enroute to a larger roller or drum 28. From this drum 28 the material M enters through an opening 29 in the roof of the enclosure 10 for descent between successive poles 21 of the conveyor, the speed of said drum being so ordered with relation to the travel of the conveyor as to predetermine the formation of festoons F of uniform lengths. After having traversed the chamber 10, the material M is withdrawn from the conveyor poles 21 vertically through an opening 30 in the roof of the treating chamber 10 at the delivery end and said material is finally directed, by a roller 31 horizontally to a suitable folding or packaging mechanism not illustrated. To facilitate drying, the air is circulated laterally within the chamber 10 by a series of fans 32 which are located at suitable intervals along said chamber above the upper run of the pole conveyor. The fans 32 may be driven by separate motors, or they may be belt coordinated with any other type of driving means as found convenient or desirable.

Incident to progression through the chamber 10, the upper and lower horizontal runs of the conveyor chains 20 are respectively supported against sagging by angle tracks 35 on which their rollers run, the said tracks being secured to the frame 11 of the machine along opposite sides of the treating chamber 10. At spaced points along the upper tracks 35 are devices 36 which are instrumental in turning the fabric poles 21 periodically during the treating period for the purpose hereinbefore mentioned. These devices 36 are exact duplicates of one another, and, as shown in Figs. III, IV and V, each com-

prises a pair of inwardly reaching drop brackets 37 which are secured in spaced relation to the underside of the track 35 and which support between them adjacent the track, a toothed gear rack 38. Secured to one end of each conveyor pole in line with the gear racks 38, are actuators in the form of mutilated gear pinions 39, i. e. gear pinions with teeth extending only half way around them. Also secured to the poles 21 at one end immediately outward of the pinions 39, are guide elements or radial lugs 40 which are normally confined between upper and lower guard plates 41 and 42 affixed to, and extending somewhat inward of the track 35 in the intervals between the devices 36, see Fig. V. The arrangement just described will obviously prevent the conveyor poles 21 from rotating while they travel between the devices 36, with the teeth of the gear pinions 39 disposed forwardly in the direction of travel of the conveyor as at A in Fig. IV. As each of the pinions 39 encounters the toothed rack of the device 36 it will be seen that the corresponding conveyor pole 21 is turned at B in Fig. IV through substantially three fourths of a revolution when its radial lug 40 will occupy a downward position as at C. Immediately upon disengagement of the pinion 39 from the rack 38, the lug 40 on the pole 21 encounters a cam 43, bolted to the track 35 in advance of said rack, with the result that the pole 21 is turned through a final quarter revolution, while the cam 43 at the same time guides the lug 40 between the next pair of the guard plates 41, 42 also after the manner shown at D in Fig. IV. Each of the devices 35 thus causes a complete rotation of the conveyor poles 21, as a consequence of which the width of material M previously in contact with the pole is advanced and brought into the clear for access of the circulated air to both of its sides. By repeated rotations of the conveyor poles 21 successively in the manner explained, it will be evident that the material M is accorded freedom for uniform lateral contraction at all points with attendant preclusion of wrinkles or blemishes which might otherwise result from contact with the poles 21.

The conveyor poles 21 are prevented from rotating incident to rounding the sprocket 18 through association with said sprocket of a disk 44 affording an annular tread, see Fig. II, which tread cooperates with an arcuate extension 45 of the contiguous guide plate 41 in confining the travel of radial lugs 40 on said poles. Provisions similar to the above are made in connection with the other conveyor sprockets 16, 17 and 19. During vertical travel of the conveyor chains 20 at opposite ends of the chamber 10, parallel guard plates 46 and 47, like the plates 41 and 42, operate in a like manner to confine the radial lugs 40 on the poles 21 thereby to keep the latter from rotating.

Having thus described my invention, I claim:

1. In a machine for drying or otherwise treating fabrics in continuous lengths, means for progressing the fabric comprising a pair of spaced sprocket chains supporting between them a succession of poles over which said fabric is festooned; mutilated pinions with individually associated radial lugs secured to the poles; guides confining the travel of the radial lugs; gear racks at intervals along the path of the sprocket

chains adapted to actuate the mutilated pinions and thereby effect a substantially three-quarter revolution of the poles; and fixed cams associated with the gear racks and coacting with the radial lugs to complete the revolution of said poles with corresponding change in the position of the fabric.

2. In a machine for drying or otherwise treating fabrics in continuous lengths, means for progressing the fabric comprising spaced conveyor chains trained about sprocket wheels and supporting between them a succession of poles, with individual actuators and spaced guide projections, over which the fabric is festooned; spaced means in the machine coacting with the actuators to effect periodic independent rotation of the poles incident to progression through the machine for changing the position of the fabric on said poles, and guard means normally engaged by the guide projections to prevent turning of the poles in the intervals between the rotating means and also during passage around the sprockets aforesaid.

3. In a machine for drying or otherwise treating fabrics in continuous lengths including means for progressing the fabric through the machine comprising a pair of spaced sprocket roller-link chains supporting between them, with capacity for independent rotation, a succession of poles over which the fabric is festooned; mutilated gear pinions with individually associated radial lugs respectively secured to the poles; toothed racks at intervals along the path of the conveyor chains to periodically actuate the pinions and rotate the poles, thereby to change the position of the fabric on said poles; and parallel guides confining the travel of radial lugs aforesaid to prevent rotation of the poles in the intervals between the pinion-actuating toothed racks.

4. The combination of claim 3 wherein the guides consist of angle-section track components for the conveyor chain rollers with associated upper and lower guard plates between which the pole radial lugs are normally confined.

5. In a machine for drying or otherwise treating fabrics in continuous lengths, means for progressing the fabric comprising a pair of spaced conveyor chains trained about sprocket wheels at opposite ends of said machine and supporting between them, on inwardly projecting studs and with capacity for independent rotation, a succession of tubular poles over which the fabric is festooned, each said pole having at one end a radial lug; a mutilated gear on each pole in proximate relation to the radial lug; rack and cam means at intervals along the path of the conveyor chains for periodically effecting a complete rotation of the respective poles to change the position of the fabric thereon; inner and outer paralleling guard plates normally engaged by the pole radial lugs to prevent turning of the poles in the intervals between the rack and cam means; a disk associated with each sprocket wheel providing an annular tread, and an arcuate extension of each contiguous outer guard plate for cooperation with said tread in confining the radial lugs to a path of travel concentric with the sprocket wheel when rounding the latter.

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