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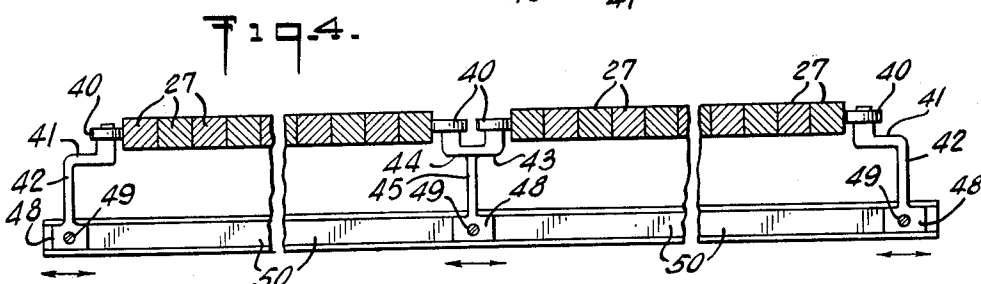
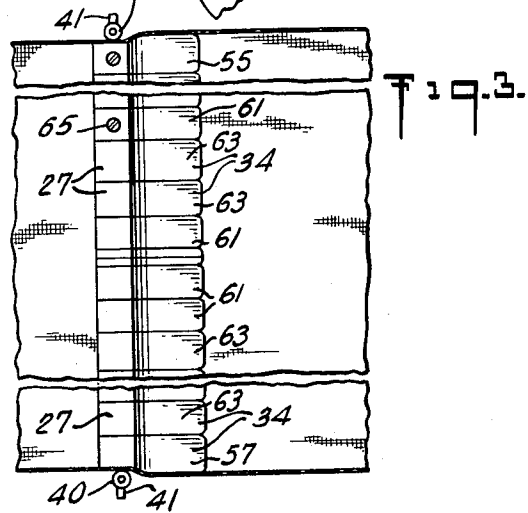
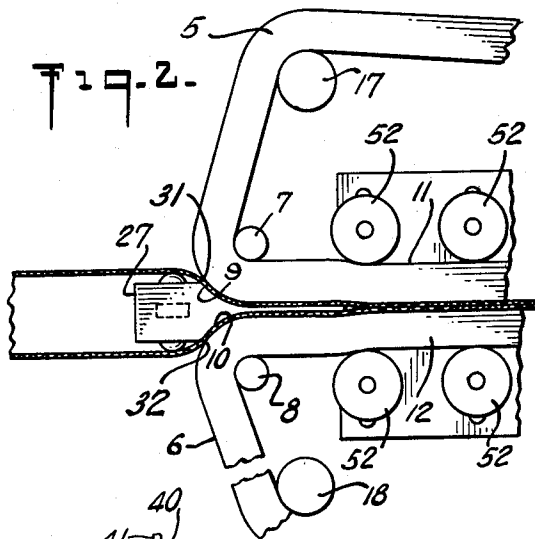
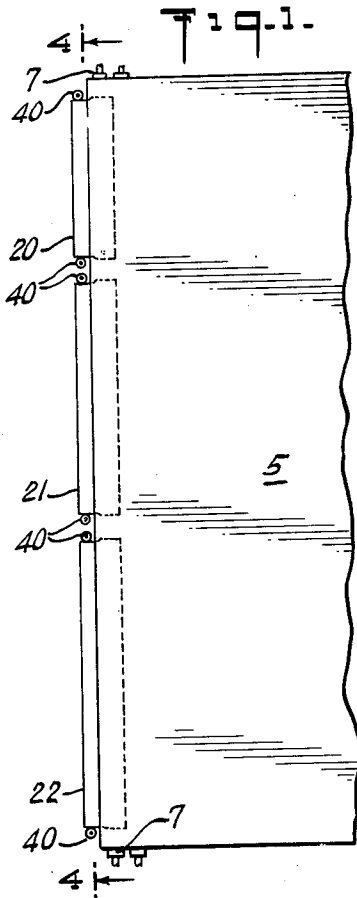
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3,195,213

APPARATUS FOR GUIDING FABRICS IN A PRE-SHRINKING OPERATION

Original Filed April 10, 1963

2 Sheets-Sheet 1



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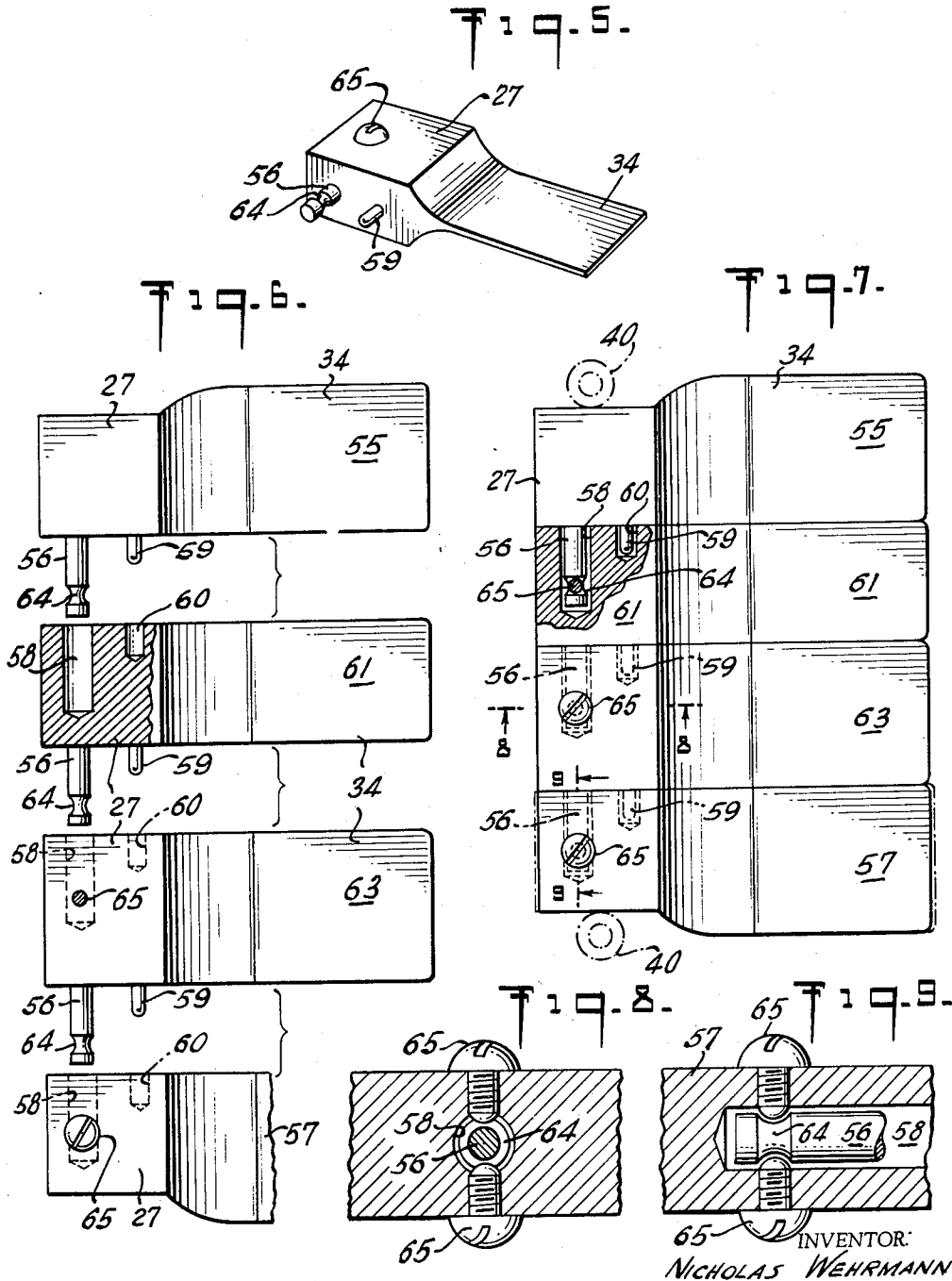
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1

3,195,213

APPARATUS FOR GUIDING FABRICS IN A PRE-SHRINKING OPERATION

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Original application Apr. 10, 1963, Ser. No. 272,079.
Divided and this application Oct. 9, 1964, Ser. No. 402,771

3 Claims. (Cl. 26—18.6)

This application is a division of my copending application Serial No. 272,079, filed April 10, 1963, and relates to apparatus for pre-shrinking fabrics, and, more particularly, for pre-shrinking or otherwise treating tubular fabrics.

In my Patent 3,007,223, dated November 7, 1961, I have shown a type of apparatus wherein a tubular fabric is pre-shrunk by an operation which involves pressing the fabric by a form against the outer surfaces of the converging surfaces of the rearward turns of a pair of endless belts of substantial thickness.

Such forms may each be suitably milled from aluminum or suitably formed from other metal, or other material such as solidified plastic, and may be composed of sectional units such as described and claimed in my copending application Serial No. 66,816, filed November 2, 1960. In carrying forward this concept, the present invention contemplates the provision of forms composed of a plurality of interchangeable laterally-disposed sectional units each of at least certain of which are formed with a lateral hole extending at least part way thereinto and at least one of which has affixed thereto a laterally-extending element extending into a hole in at least one other unit. Various of these sections may be of different widths than various of the others thereof—as herein exemplified.

The invention accordingly comprises the features of construction, combinations of elements, and arrangement of parts, which will be exemplified in the constructions hereinafter set forth and the scope of the application of which will be indicated in the claims.

For a fuller understanding of the nature and objects of the invention, reference should be had to the following detailed description taken in connection with the accompanying drawings, in which:

FIGURE 1 is a somewhat diagrammatic plan view of one form of apparatus embodying the invention;

FIG. 2 is an enlarged-scale fragmental side view with the fabric shown in section;

FIG. 3 is a view similar to FIG. 1 on a larger scale and partly broken away;

FIG. 4 is a section on the line 4—4 of FIG. 1 on an enlarged scale and partly broken away;

FIG. 5 is a perspective view of a section of the form;

FIG. 6 is a plan view of a plurality of form sections ready to be joined to provide a form;

FIG. 7 is a plan view of the sections of FIG. 6 when joined to provide a form;

FIG. 8 is a vertical section on the line 8—8 of FIG. 7 on an enlarged scale; and

FIG. 9 is a similar view on the line 9—9 of FIG. 7.

The exemplified device comprises a pair of endless rubber belts 5 and 6 five-eighths of an inch thick and forty-eight inches wide and running over a pair of rollers 7 and 8, respectively, to provide converging rearward turns 9 and 10 from which straight-run portions 11 and 12 extend forwardly in close proximity, as exemplified in said Patent 3,007,223, to which reference may be had for details not disclosed herein. In the present instance, the belts run to the rollers 7 and 8 (which are one-half inch in diameter) from guide rollers 17 and 18. The belts run over for-

2

ward rollers (not shown). A desired pair of rollers are driven by suitable means (not shown).

Pursuant to the invention in certain of its aspects a plurality of forms are provided to serve as guides for a similar number of fabrics and to individually press the sides of these fabrics against the rearward turns of the belts 5 and 6. In the present instance there are provided three forms 20, 21 and 22, the form 21 being wider than the form 20 and narrower than the form 22, so as to snugly accommodate tubular fabrics of different lateral extents, but it will be understood that each of any plurality of forms used may be of the same width as the others so that a plurality of fabrics of the same lateral extent may be run thru the machine at one time.

In the present instance each of the forms 20, 21 and 22 is relatively thick at 27, becomes thinner, in curves generally corresponding to the curves of the belts as they go over rollers 7 and 8, from lines 31 and 32 wherein they first press against the surfaces of the belts to lines substantially in the plane extending thru the axes of the rollers 7 and 8, and then extends forward as a thin strip 34 part way between the straight-run portions 11 and 12 of the belts; and the portion 31 widens forwardly conformably with the decreasing thickness thereof so that the peripheral extent thereof is at all points substantially the same as the peripheral extent of the portion 27, and the peripheral extent of the strip 34 is similarly substantially the same as that of the forward end of the portion 27.

In order to prevent lateral shifting of the forms and to maintain the same in spaced relationship, there is provided at each edge of each form a roller 40 between which and the edge of the form an edge of the fabric passes freely. Each exterior roller 40 is rotatably mounted on a bracket 41 carried by a post 42. Each pair of interior rollers 40 are mounted in spaced relationship laterally of the belts by one of a pair of brackets 43 and 44 both mounted on a post 45. Each of the posts 42 and 45 is removably secured on one of a plurality of plates 48 by a set screw 49. Each plate is slidably mounted on a track 50 running laterally of the machine, and each set screw 49 is arranged to engage the track to hold the plate and post in an adjusted position. In this manner various pluralities of forms, which may be of various widths can readily be held in position and in spaced edge-to-edge relationship, and both the number and the width of the forms utilized may be readily varied to suit the requirements of a particular case.

Rollers 52 similar to the rollers 52 of said patent and similarly mounted are provided to hold the straight-run portions of the belts against the fabric.

Pursuant to the invention in certain of its aspects each form is composed of a plurality of sections extending in the direction of travel of the fabric thereover and having mating lateral-extension means and lateral hole means for holding said sections together. Each such form comprises a side section 55 having a generally cylindrical lateral extension 56 and a side section 57 formed with a generally cylindrical hole 58 adapted to receive an extension such as 56, but larger in diameter than the extension 56 so as to allow slight relative shifting movements of the sections relative to each other in both a direction longitudinal of the belts and of the fabric movement and in a direction transverse thereof in the present instance. As exemplified, the section 55 is also provided with a pin 59 which mates with a bore 50, the diameter of which is as much larger than that of the pin as the diameter of the hole 58 is larger than that of the extension 56. In the present instance the play between the mating members is one sixteenth of an inch. For small tubular fabrics the form may consist only of the side sections, but ordinarily there is provided also one or more intermediate

3

sections each of which are formed with extensions 56 and pins 59 on one side and with holes 58 and bores 60 on the other side. As exemplified in connection with the form 20, a plurality of such sections 61 are provided in addition to the sections 55 and 57 all of which in the present instance are one-and-one-quarter inches in width at their rearmost portions. In addition the form 20 contains a plurality of such sections 63 one inch in lateral extent and similarly carrying extensions 56 and pins 59 at one side thereof and formed with holes 58 and bores 60 extending inwardly from the other side thereof.

In order to hold the sections properly in place, each extension 56 is formed with an annular groove 64 and there is threaded into each section which is formed with a hole 58 one or more screws 65, which when seated on the section extend into the annular groove 64 on an adjacent section sufficiently to prevent lateral movement of the sections but terminate short of the base of the groove sufficiently to permit the same play between the end of the screws and the base of the groove as permitted between the outer surface of the extension on each side of the grooves and the inner surfaces of the hole.

Since certain changes may be made in the above constructions and different embodiments of the invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

I claim:

1. A form for conducting a forwardly-moving tubular fabric in a shape having spaced sides toward and engaging the spaced sides thereof with the turns of driving

4

means between which a fabric is to be moved forwardly and comprising a multiplicity of alined sections disposed laterally of said form, each of at least certain of said sections being formed with a lateral hole extending at least part way thereinto, and at least one laterally-extending element fixedly mounted on at least one of said sections and extending into a hole in at least one other section and being of less extent than said hole in a forward direction, to permit said sections to adjust themselves to variations in the contour of said fabric.

2. A form for conducting tubular fabric in a shape having spaced sides toward and engaging the spaced sides thereof with the turns of driving means between which a fabric is to be moved forwardly and comprising a multiplicity of alined sections, and means to hold said sections together and comprising mating lateral extensions and lateral holes in said sections, the relative size and contour of said extensions and said holes being such as to permit slight relative movement of said sections in a forward direction to permit said sections to adjust themselves to variations in the contour of the fabric.

3. Apparatus as in claim 2 having means for maintaining said extensions in said holes.

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