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S. COHN ET AL

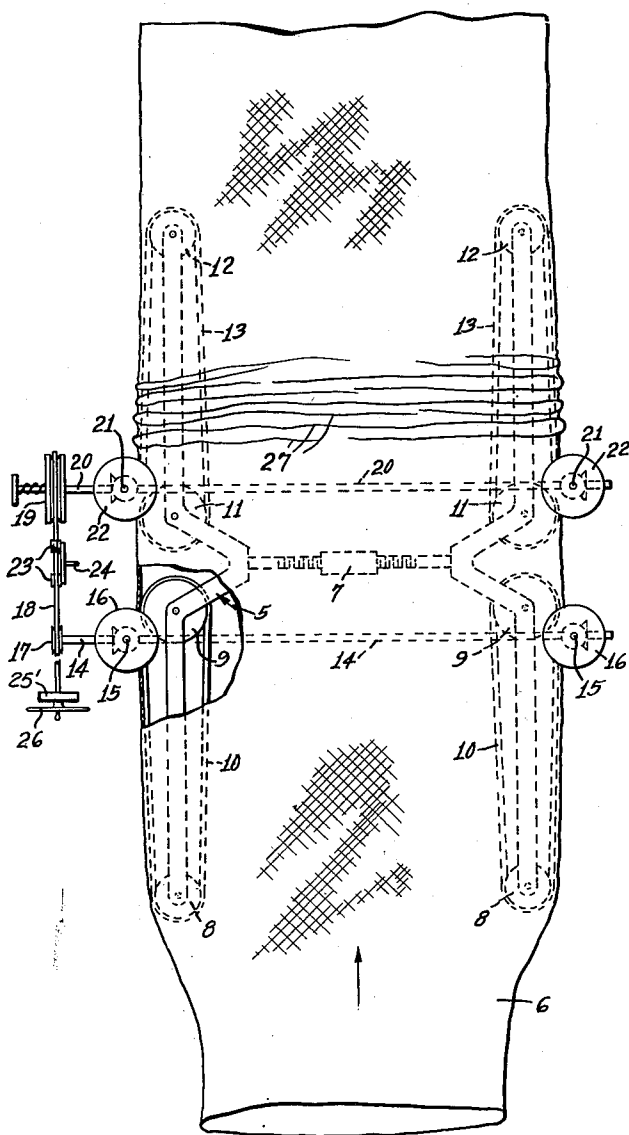
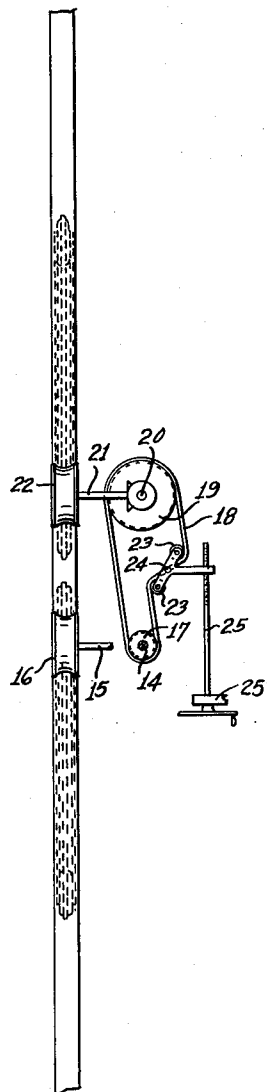
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APPARATUS FOR HANDLING TUBULAR TEXTILE FABRIC

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FIG. 1

FIG. 2



INVENTORS
Samuel Cohn
Jules G. Walter
Eugene Cohn
BY *Samuel Cohn, Jules G. Walter, Eugene Cohn*
ATTORNEYS

UNITED STATES PATENT OFFICE

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APPARATUS FOR HANDLING TUBULAR
TEXTILE FABRIC

Samuel Cohn, Jules G. Walter, and Eugene Cohn,
New York, N. Y., assignors to Sameco Holding
Corporation, Woodside, N. Y., a corporation of
New York

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4 Claims. (Cl. 26—55)

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This invention relates to the treatment of tubular textile fabric and particularly to improved mechanism for advancing the tubular fabric in preparation for further treatment thereof, such as steaming or the like.

In such operations, it is desirable to spread the fabric and at the same time to propel it positively so that it may be withdrawn from a source, usually in rope form or roughly spread in a pile or on a roll. In numerous cases, it is also desirable to relax the fabric, that is to eliminate longitudinal tension thereon during the further treatment. Propellers for the purpose have been devised heretofore, and the present invention is intended to effect improvements permitting adjustment during operation to ensure that the fabric is delivered in proper condition.

It is the object of the invention to provide a propeller for tubular textile fabric which will advance the forward and rearward portions thereof at differential speeds and also permit variation in the relative speeds of the portions of the fabric while the machine is in operation.

Other objects and advantages of the invention will be apparent as it is better understood by reference to the following specification and the accompanying drawing, in which

Fig. 1 is a plan view of mechanism embodying the invention; and

Fig. 2 is a side elevation thereof illustrating particularly the means for adjusting the relative speeds of travel of the two portions of the fabric.

Referring to the drawing, 5 indicates a frame which is adapted to be inserted within the tubular fabric 6 and supported in the manner hereinafter described to advance the fabric. The frame 5 consists of opposite sections of similar construction connected by an adjustable member 7 so that the frame may be contracted or expanded to meet the requirements with respect to spreading of the fabric 6. The adjustable member 7 may be of the nature of a turnbuckle or similar device which will readily expand or contract the frame for the purpose indicated.

The frame 5 on each side of the mechanism carries pulleys 8 and 9 supporting belts 10, the outer edges of which engage the fabric 6 and cause it to advance as the pulleys 9 are rotated in the manner hereinafter described.

The frame 5 also carries pulleys 11 and 12 supporting belts 13 which similarly engage and advance the forward portion of the fabric. It is the primary purpose of the invention to drive the belts 13 at a speed somewhat lower than the belts 10 so that as the fabric passes onto the belts 13

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it is relaxed and free from longitudinal tension.

To drive the mechanism, the main drive shaft 14 is connected to any suitable power mechanism such as a motor (not shown). It carries bevel gears meshing with bevel gears on the upright shafts 15 carrying rollers 16 which engage the pulleys 9 and belts 10 through the fabric disposed thereon and thus advance the rearward portion of the fabric.

The shaft 14 carries a pulley 17. A V-belt 18 connects the pulley 17 to a variable speed pulley 19 on a shaft 20 which drives vertical shafts 21 through bevel gears on the respective shafts. The shafts 21 carry rollers 22 which engage the pulleys 11 and belts 13 through the fabric disposed thereon and thus advance the forward portion of the fabric.

Adjustment of the speed of shaft 20 is effected by adjustment of the tension of the V-belt 18. A mechanism consisting of pulleys 23 on a frame pivoted at 24 is controlled by a screw 25 supported in a fixed frame member 25' and operated by hand wheel 26 to adjust the tension of the V-belt 18 and thus vary the speed of the shafts 20 and 21 and consequently of the rollers 22. Thus the rollers 22 may be operated at a speed lower than that of the rollers 16. The fabric is thus advanced, but at a lower rate of speed than the rearward portion thereof. The fabric is freed from longitudinal tension as is evident by ripples 27 appearing in the surface thereof. The relative speeds of the rearward and forward portions of the fabric may be adjusted readily during the operation of the machine by manipulating the hand wheel 26. It is not necessary to stop the machine in order to adjust the relative speeds of the rearward and forward portions of the fabric as has been necessary in mechanisms heretofore employed for similar purposes.

The mechanism as described affords a substantial improvement, since the operator may readily adjust the relative speeds of the rearward and forward portions of the fabric to ensure freedom from longitudinal tension in the forward portion while the machine is in operation and, in the event that the differential speed is not sufficient, we may make further adjustment while the machine is operating to effect the desired result.

Various changes may be made in the details of the structure as described without departing from the invention or sacrificing the advantages thereof.

We claim:

1. In an apparatus for advancing tubular textile fabric, a frame, two sets of pulleys sup-

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ported on each side of the frame, a belt on each set of pulleys adapted to engage the inner surface of the fabric and to advance the fabric, supporting rollers engaging one of each set of pulleys through the fabric, and means for driving the forward and rearward supporting rollers at differential speeds.

2. In an apparatus for advancing tubular textile fabric, a frame, two sets of pulleys supported on each side of the frame, a belt on each set of pulleys adapted to engage the inner surface of the fabric and to advance the fabric, supporting rollers engaging one of each set of pulleys through the fabric, means for driving the forward and rearward supporting rollers at differential speeds, and means for adjusting the speed of the forward supporting rollers independently of the rearward supporting rollers.

3. In an apparatus for advancing tubular textile fabric, a transversely adjustable frame, two sets of pulleys supported on each side of the frame, a belt on each set of pulleys adapted to engage the inner surface of the fabric and to advance the fabric, supporting rollers engaging one of each set of pulleys through the fabric and means for driving the forward and rearward supporting rollers at differential speeds.

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4. In an apparatus for advancing tubular textile fabric, a frame, two sets of pulleys supported on each side of the frame, a belt on each set of pulleys adapted to engage the inner surface of the fabric and to advance the fabric, supporting rollers engaging one of each set of pulleys through the fabric, means for driving the forward and rearward supporting rollers at differential speeds, and means for adjusting the speed of the forward supporting rollers independently of the rearward supporting rollers, including a variable speed pulley, a driven pulley, a belt connecting the driven and variable speed pulleys, and means for adjusting the tension of the belt.

SAMUEL COHN.
JULES G. WALTER.
EUGENE COHN.

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