Nov. 26, 1935. C. W. SHUTE 2,022,258

CLOTH SPREADER OR EXPANDER

Filed Oct. 16, 1934

Fig. 1

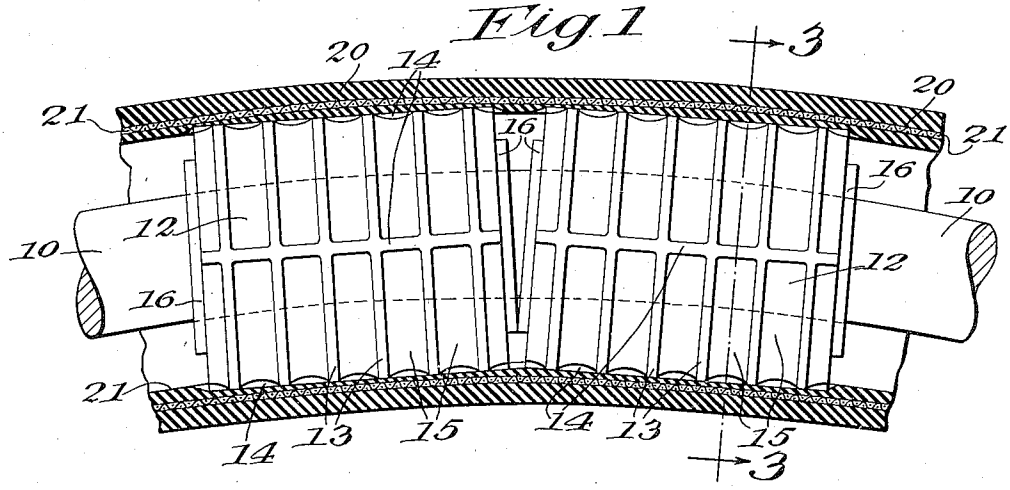


Fig. 2

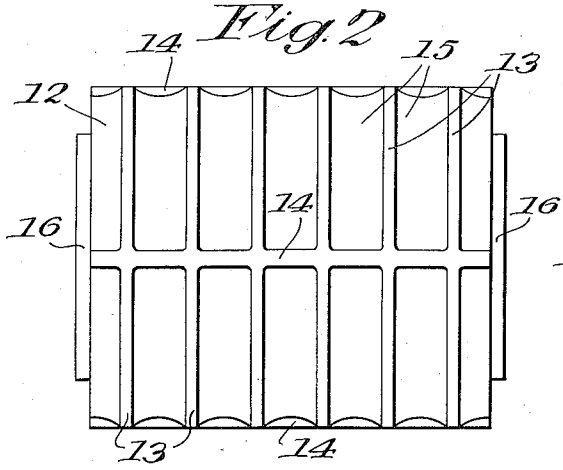


Fig. 3

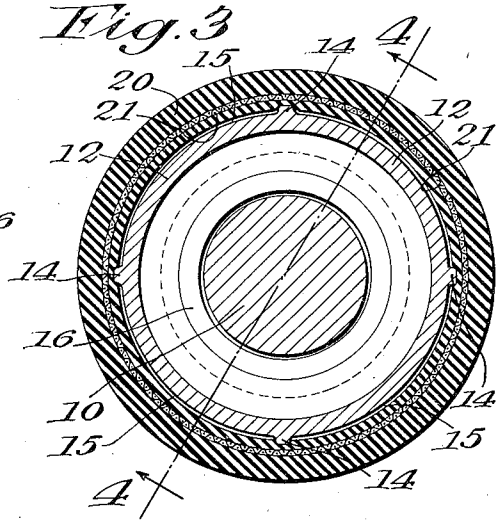
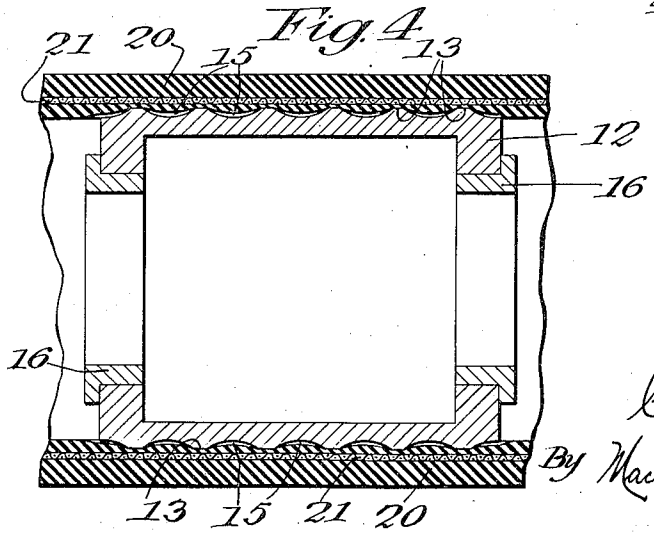


Fig. 4



Inventor:
Charles W. Shute
By Macleod Calvin Copeland & Dike
Attorneys.

Patented Nov. 26, 1935 2,022,258

UNITED STATES PATENT OFFICE

2,022,258

CLOTH SPREADER OR EXPANDER

Charles W. Shute, Boston, Mass., assignor to Frederick T. Walsh, Boston, Mass.

Application October 16, 1934, Serial No. 748,448

3 Claims. (Cl. 26—63)

This invention relates to cloth expanders or spreaders of the well known bent or curved bar type, used in the process of finishing cloth by stretching it widthwise to eliminate wrinkles in the cloth before passing into the next machine. A cloth expander of the type described is disclosed in the patent to Mycock No. 687,847, granted December 3, 1901. This invention relates more particularly to improvements in the roll-sections or bobbins used on such cloth spreaders or expanders and particularly those expanders in which the curved bar is covered with a heavy rubber sleeve or tube.

One of the objects of the invention is to improve the roll-section or bobbin, so that the rubber covering will be securely retained in place on the curved bar and prevented from creeping toward the center of the bar and working loose on the roll-sections during use.

A cloth spreader or expander of the Mycock type comprises a series of transversely extending curved, non-rotating supporting rods or bars. A series of cylindrical roll-sections, commonly called bobbins, are mounted end to end upon each rod or bar and are free to rotate thereon. In recent years it has been the practice, more particularly with light-weight goods to cover the roll-sections or bobbins with a heavy rubber tube or sleeve, for better engagement with the cloth. The rubber tube or sleeve engaging with the moving web of cloth rotates as a unit on the curved bar with the associated roll-sections or bobbins. With the rubber tube or sleeve, however, there is a tendency for the rubber tubing to creep inwardly and bulge toward the center of the curved bar. This results in injury to the cloth and rapid deterioration of the rubber covering. Efforts have been made in the past to prevent this creeping of the rubber tubing by various arrangements of the roll-sections or bobbins. These efforts, however, have not been satisfactory because the roll-sections or bobbins were provided with enlarged portions such as an annular band around the middle of the bobbin and these have distorted and caused unevenness in the rubber covering resulting in injury to the cloth and rapid wear of the covering itself.

I have overcome these difficulties and prevented creeping or movement of the rubber covering on the roll-sections both circumferentially and longitudinally by providing a series of longitudinal and circumferential ridges of even height, with intermediate grooves between. The rubber tubular covering is made with a normal interior diameter slightly less than the diameter of the roll-sections at the ridges, and the soft interior rubber extends into the intermediate grooves between the ridges producing a vacuum action whereby the tubular covering is gripped tightly onto the roll-sections or bobbins. I am thereby able to prevent both circumferential and longitudinal displacement of the rubber covering on the roll-sections or bobbins, at the same time providing an even surface on the outside of the rubber covering. The longitudinal and circumferential ridges are close enough together to prevent similar ridges on the exterior of the tubular covering.

Inasmuch as the present invention relates specifically to the roll-section or bobbin mounted on the curved bar of the cloth expanding machine, it is unnecessary to illustrate herein the complete machine and in the drawing I have shown merely a section of the curved roll or bar with my improved roll-sections or bobbins mounted thereon to illustrate my invention.

In the drawing:

Fig. 1 is a side elevation of a curved expander roll with two bobbins or roll-sections mounted thereon with the roll covering cut away to show the construction;

Fig. 2 is a side elevation of one of the roll-sections or bobbins;

Fig. 3 is an axial sectional view on line 3—3 of Fig. 1;

Fig. 4 is a longitudinal cross section through the roll-section on line 4—4 of Fig. 3.

In the drawing, 10 represents a portion of one of the steel curved supporting rods. Rotatably mounted thereon across the entire length is a series of roll sections or bobbins 12 of any suitable material, such as cast aluminum. The bobbins are mounted adjacent to each other without any interlocking devices. Each bobbin is provided on its exterior surface with a series of annular or circumferential ridges 13 and a series of intersecting longitudinal ridges 14 of equal height with the annular ridges 13. In the drawing I have shown the bobbin with six annular ridges and four longitudinal ridges, but it is obvious of course that the number may be varied as desired. Intermediate the ridges 13 and 14 are depressed portions or grooves 15. A bushing 16 may be inserted in each end of each roll-section or bobbin 12 and is replaceable when worn. The roll-sections 12 are then placed one at a time on the curved bar 10, and forced into the heavy rubber tubular covering 20. The interior diameter of the tubular covering 20 is preferably made slightly less than the diameter of the roll-section 12

at the ridges 13 and 14, and the tension of the rubber covering 20 will therefore force its interior surface into the depressions or grooves 15 on the bobbins 12 as shown in Fig. 4, providing a vacuum action. This holds the tubular covering 20 tightly on the roll-sections 12 and permits the covering 20 and roll-sections 12 to rotate as one unit on the curved bar 10. For reinforcement the covering 20 is preferably provided with a heavy strip of cloth, cut on the bias and inserted in the rubber as at 21. The tendency of the tubular covering 20 to creep toward the center of the bar is prevented by the annular or circumferential ridges 13 and intermediate grooves 15, and the tendency of the roll covering to slip circumferentially is similarly prevented by the longitudinal ridges 14 and intermediate grooves 15. Because the exterior surface of the roll sections 12 are of equal height at the ridges, and are near enough together, the exterior of the tubular covering 20 presents an even and regular surface, thereby avoiding wear on the tubular covering and unequal stresses on the cloth. Because the roll-sections 12 are a true cylinder on their exterior surface, with all ridges of equal height, and no raised annular bands, the roll-sections or bobbins can be forced into the sleeve 20 with a minimum of pressure in proportion to the tightness of fit. Because the bobbins 12 have no wings or fingers to interlock with complementary insets in the adjacent bobbin, there is no problem of aligning bobbins with respect to each other in forcing the curved bar 10 and bobbins into the sleeve 20. This construction allows a close fit of the sleeve 20 on the bobbins 12, and at the same time permits the sleeve to be easily replaced with less effort.

My improved roll-section is simple in construction and inexpensive to manufacture. Because of the ease with which it can be assembled with the tubular roll covering, it provides a satisfactory expander roll of the highest efficiency, long life and greatest economy.

I claim:

1. In a cloth expander having a non-rotating curved supporting rod, a plurality of roll-sections or bobbins rotatably mounted thereon, said roll-sections or bobbins having a plurality of longitudinal and circumferential ridges and intermediate grooves, and a tubular roll covering tightly enclosing said roll sections.

2. An expander roll for a cloth expanding machine, comprising a non-rotating curved supporting rod, a plurality of roll-sections or bobbins rotatably mounted on said rod, said roll-sections or bobbins having a plurality of longitudinal and circumferential ridges with intermediate grooves, and a tubular roll covering enclosing said roll sections having a normal interior diameter less than the diameter of the roll sections at the ridges.

3. An expander roll for a cloth expanding machine comprising a non-rotating curved supporting rod, a plurality of roll-sections or bobbins rotatably mounted on said rod, a tubular roll covering tightly enclosing said roll-sections, said roll-sections having a plurality of longitudinal ridges to prevent circumferential displacement of said covering on said roll-sections, and a plurality of circumferential ridges to prevent longitudinal displacement of said covering on said roll-sections.

CHARLES W. SHUTE.