

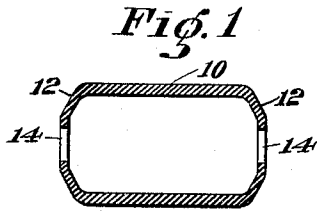
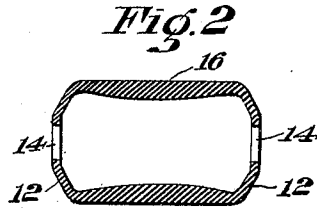
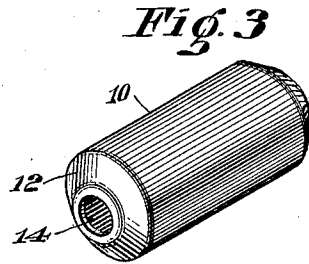
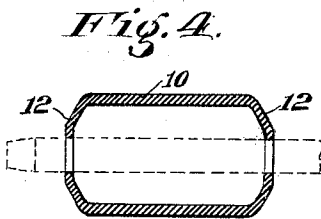
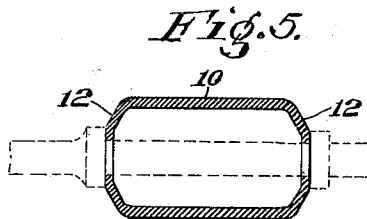
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J. PFLIMLIN

1,809,252

DRAWING DEVICE FOR SPINNING FRAMES AND FOR PREPARATORY MACHINERY

Original Filed Nov. 10, 1928



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## UNITED STATES PATENT OFFICE

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DRAWING DEVICE FOR SPINNING FRAMES AND FOR PREPARATORY MACHINERY

Original application filed November 10, 1928, Serial No. 318,558, and in Great Britain and France May 29, 1928. Divided and this application filed January 6, 1930. Serial No. 418,712.

This invention relates to sliver or roving drawing devices devised for the drawing effected by spinning frames, as also by preparatory machines and for drawing frames. More particularly it relates to an improved drawing roll, especially effective for middle top rolls.

This application is a division of my U. S. patent for improvements in drawing devices for spinning frames and for preparatory machinery No. 1,749,393, dated March 4, 1930, in which the greater efficiency of drawing rolls having great resiliency and compressibility or suppleness is set forth, and in which is claimed a deformable sleeve for drawing rolls characterized by a hub and an outer skin with partitions forming a number of hollow compartments therebetween.

My present invention is particularly concerned with a form of sleeve or working member for drawing rolls which is so constructed as to provide a single hollow compartment between the working member and the arbor which supports said member. The single hollow compartment is, in effect, an air cushion for supporting the working portion of the drawing roll, greatly increasing the suppleness and compressibility of the roll over other forms while maintaining a uniform degree of compressibility about its whole circumference and throughout its length.

The nature of my invention will be understood from the following description of the accompanying drawings in which:

Figure 1 is a cross-sectional view of the preferred construction of the drawing roll sleeve;

Fig. 2 is a cross-sectional view of a slightly modified form of the drawing roll sleeve;

Fig. 3 is a view, in perspective, of the sleeve before assembly on a metal arbor; and

Figs. 4 and 5 illustrate, in longitudinal cross-section, two ways in which the sleeve may be mounted on an arbor.

The sleeve is a moulded product and preferably is formed of soft rubber having a high degree of resiliency. The mould is formed to produce a cylindrical envelope having a comparatively thin circumferential or tubu-

lar wall 10 the ends of which are closed by disks or walls 12 each having a central, circular aperture 14 for receiving the shaft of a metal arbor as usually employed in the manufacture of drawing rolls. The end walls 12 may be made thinner than the wall 10 and are dished, giving the sleeve slightly bulged ends preferably with a flat center, to induce an even resistance to pressure and consequently a constant degree of deformation throughout the length of the sleeve when pressed against a co-acting drawing roll. The end walls, having relatively less strength than the central working portion of the sleeve, act as flexible joints or hinges on which the stiffer working portion may move in and out freely in response to deforming pressures under working conditions. The circular apertures 14 serve to seat the sleeve concentrically to the shaft of the arbor and the diameter of the sleeve is so much larger than that of the shaft that an annular air chamber is formed between the shaft and sleeve of greater depth than the greatest degree of deformation. In Figs. 4 and 5 I have indicated two of the ways in which the sleeve may be mounted on an arbor, in Fig. 4 on a collarless arbor and in Fig. 5 between a pair of collars. It will be understood that the rubber sleeve will be covered by a cot of some thin and flexible leather the ends of which are secured to the arbor, as practiced in this art, to protect the rubber and to provide the drawing roll with a surface best suited to engagement with the sliver and to draft the same with the greatest efficiency.

Fig. 2 shows the sleeve modified by increasing the thickness of the circumferential or working portion 16 progressively toward the middle thereof to further compensate for any stiffness at the ends of the working portion that may be offered by the end walls 12.

Those skilled in the art will recognize the great increase in suppleness of drawing rolls formed in accordance with my invention over rolls comprising a sleeve of solid material on an arbor however elastic said material may be, and also over rolls having the working surface of the sleeve supported by either longitudinal or radial partitions which break up

the interior air chamber. A single, unbroken air cushion affords the least resistance possible to deformation and insures, when the material of the sleeve is sufficiently supple and its working face is adequately spaced from the arbor, a belt-like grip on the co-acting drawing roll throughout the entire length of the working portion of the sleeve during its continued rolling pressure against the co-acting roll.

I believe that I am the first to devise a completely air-cushioned and longitudinally deformable working cover or sleeve for the drawing rolls or spinning frames and the like, or for preparatory machines and drawing frames. I also believe that I am the first to devise a drawing roll having great suppleness due to a material longitudinally depressible thickness provided between the metal arbor and the outer sheath or skin, a portion of said thickness comprising a single annular chamber of air and a portion comprising a flexible sleeve.

The drawing roll of this invention is particularly useful as a middle top roll but its use is not restricted thereto.

The nature and scope of my invention having been indicated, and its preferred embodiments having been specifically described, what is claimed as new, is:—

1. A drawing roll for spinning frames and preparatory machines comprising a resilient, hollow cylindrical sleeve member having provided integrally therewith at its ends lateral disks, constituting supple end walls partially closing the sleeve member and forming hubs to receive an arbor.

2. A drawing roll for spinning frames and preparatory machines according to claim 1 in which the circumferential wall of the sleeve member is of inwardly increasing thickness from its ends toward its middle.

3. A drawing roll for spinning frames and preparatory machines according to claim 1 in which the strength of the end walls of the sleeve member is less than that of its circumferential wall.

4. A drawing roll for spinning frames and preparatory machines according to claim 1 in which the lateral disks constituting end walls are dished to bulge outward.

5. A drawing roll adapted to be mounted on an arbor comprising a tubular sleeve of material readily deformable under pressure, the internal diameter of said sleeve being much greater than the diameter of the arbor, and said sleeve having flexible end walls to engage the arbor and hold the circumferential working portion of the roll in spaced concentric relation to the arbor whereby to form an annular air cushion between said working portion and the arbor.

6. A drawing roll for spinning frames and the like comprising a tubular sleeve having a working portion of flexible material adapted

to extend axially of a supporting arbor and out of contact therewith, said sleeve having annular end walls engaging said arbor that are more flexible than said working portion.

7. In a drawing roll for spinning frames and the like, a flexible hollow sleeve having a relatively strong central working portion and end walls of relatively less strength to act as hinges on which the working portion may move in and out in response to deforming pressures under working conditions.

In testimony whereof I affix my signature.

JULES PELIMLIN.

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