March 22, 1938. F. HOFFMANN 2,112,095

ROLLER

Filed Nov. 11, 1936

Fig. 1

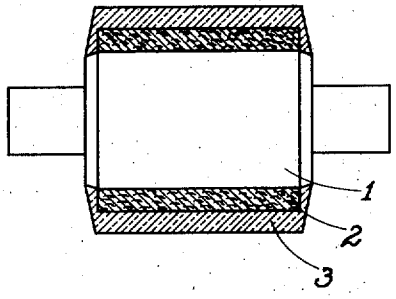


Fig. 2

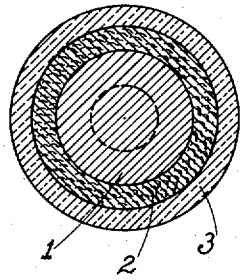
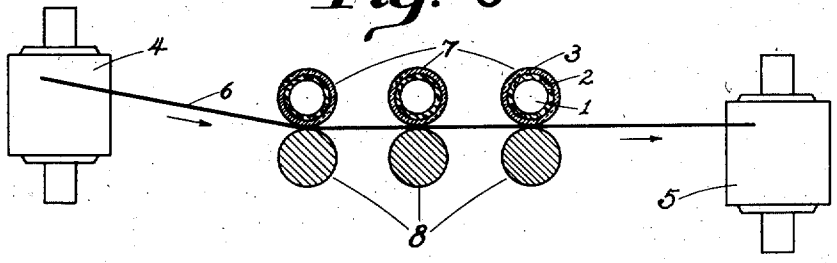


Fig. 3



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ROLLER

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Application November 11, 1936, Serial No. 110,287
In Germany November 15, 1935

8 Claims. (Cl. 19—143)

The present invention relates to rollers, more particularly rollers of the kind used in spinning mills for working up fibre prior to spinning or twisting.

It is known in spinning mills to pass the fibres prior to spinning or twisting through several pairs of rollers rotating with different speeds, for the purpose of stretching, smoothing or otherwise treating them. Generally, one of the rollers of each pair of rollers is driven, whilst the other is carried by friction. As a rule the latter roller is positioned above the first.

One object of the invention is a roller which is well suitable for such devices, more particularly, as upper roller. The new roller is distinguished by particular surface properties which are of importance for its technical application. In the first instance, a slight roughness of the surface, as well as elasticity of the surface are of importance.

Further features of the invention will appear from the following description.

The invention is illustrated in the accompanying drawing, in which:

Fig. 1 is a front view, partly in section and

Fig. 2 a side view of the new roller in section,

Fig. 3 shows a complete drawing set in which the rollers illustrated in Figs. 1 and 2 are employed.

In the drawing 1 is a core of rigid and solid material, for instance metal, particularly iron. Upon this core there is a stuck-on cloth layer 2, which preferably consists of felt. Upon this felt layer there is a further layer 3 which consists of a cellulose film, i. e. a tough, dense, non-fibrous and elastic cellulosic mass. Regenerated cellulose is particularly suitable; but difficultly ignitible cellulose esters, for instance partially saponified cellulose esters, or cellulose ethers may be used instead. In the cellulose film, grains, fibres or other fine particles of an elastic material, for instance, cork flour particles, are embedded. Instead of cork flour, for instance leather flour, wood flour, fine wood fibres and the like may be used. These finely divided bodies may constitute about 5%, 10% or 20% of the cellulosic mass. These numbers are only mentioned by way of example. If desired, the content may, for instance, be higher. By suitable choice of the fineness of granulation and the quantity added, it is possible to give the coat any desired degree of resiliency and surface roughness. The thickness of the cellulosic mass may, for instance be ¼ mm., ½ mm. or 1 mm., but may, if desired, be greater or even somewhat smaller. It is an advantage if the layer is not too thick, as otherwise the elasticity is impaired. Preferably, a seamless cellulose cover is used. When the cover is worn-out, it can be re-ground.

The manufacture of the described roller is best carried out by slipping an annular body of regenerated celulose or a similar cellulosic mass capable of swelling in water, containing a filling of cork or the other mentioned materials, in the swollen condition upon a cylinder or a roller of rigid material and allowing it to shrink on by drying. The manufacture of the cellulose body is effected in a manner known per se in the manufacture of cellulose tubes or the like for example by spinning cellulose solutions from annular nozzles into precipitation baths or by covering formers with cellulose solution and by treating the obtained bodies in precipitation baths or allowing the solvent to evaporate from them. It is best to start from viscose mixed with cork flour.

Fig. 3 shows a complete drawing set, which consists of the feeding device 4, the delivery device 5 and the draw passage comprising the upper rollers 7 and the lower rollers 8. 6 designates the fibre to be drawn. In the illustrated device the upper rollers 7 are constructed according to Figs. 1 and 2.

I claim:

1. A textile-fibre drawing roll characterized thereby that the material forming its curved surface consists of a non-fibrous difficultly ignitible cellulosic mass which encloses a finely divided elastic material.

2. A textile-fibre drawing roll comprising a rigid core and a covering of a non-fibrous difficultly ignitible cellulosic mass which encloses small grains of an elastic material.

3. A textile-fibre drawing roll comprising a covering film consisting of a mass selected from the group consisting of cellulose hydrate, cellulose ester and difficultly ignitible cellulose ether which film encloses a finely divided elastic material.

4. A textile fibre-drawing roll comprising a rigid core and a covering consisting of a mass selected from the group consisting of cellulose hydrate, difficultly ignitible cellulose ester and cellulose ether which film encloses cork flour.

5. A roller comprising a rigid core and a covering of cellulose hydrate, which covering encloses cork flour.

6. A roller comprising a metal core and on this metal core a seamless cellulose hydrate covering, the covering containing cork flour.

7. A roller comprising a metal core, a felt layer on this metal core and a seamless cellulose hydrate covering on the said felt layer, the cellulose hydrate covering containing cork flour.

8. A drawing set for spinning mills comprising several pairs of rollers, each pair consisting of a driven roller and a non-driven roller which latter coacts with the driven roller by friction, the non-driven roller comprising a covering of cellulose hydrate which covering encloses cork flour.

FRITZ HOFFMANN.

CERTIFICATE OF CORRECTION.

Patent No. 2,112,095. March 22, 1938.

FRITZ HOFFMANN.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 1, second column, line 42, claim 3, strike out the words "difficultly ignitible" and insert the same before the syllable "cellu-" at the end of line 41, same claim; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 28th day of June, A. D. 1938.

Henry Van Arsdale,
Acting Commissioner of Patents.

(Seal)

7. A roller comprising a metal core, a felt layer on this metal core and a seamless cellulose hydrate covering on the said felt layer, the cellulose hydrate covering containing cork flour.

8. A drawing set for spinning mills comprising several pairs of rollers, each pair consisting of a driven roller and a non-driven roller which latter coacts with the driven roller by friction, the non-driven roller comprising a covering of cellulose hydrate which covering encloses cork flour.

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