May 30, 1933. C. L. ELLIS 1,911,310

WIRE FACED ROLL FOR PAPER MACHINES

Filed Dec. 3, 1932 2 Sheets-Sheet 1

Fig. 1.

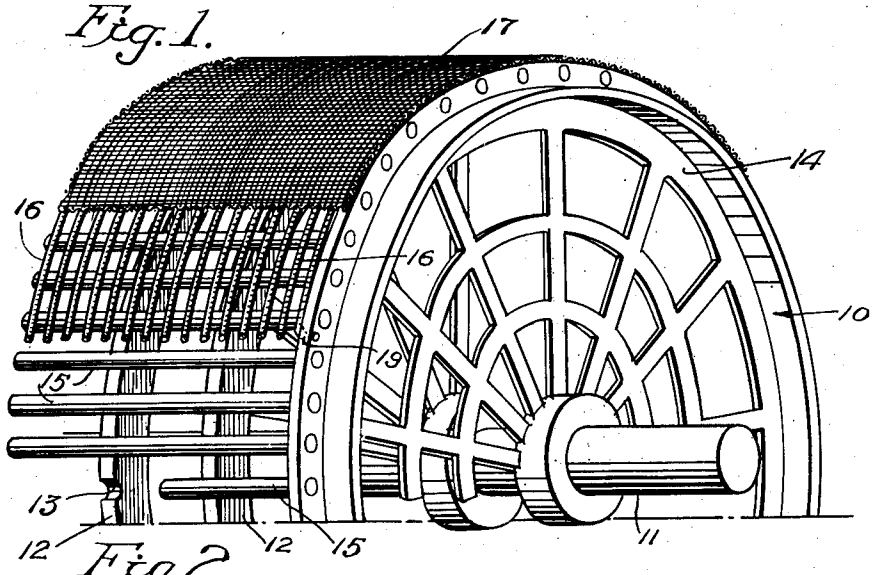
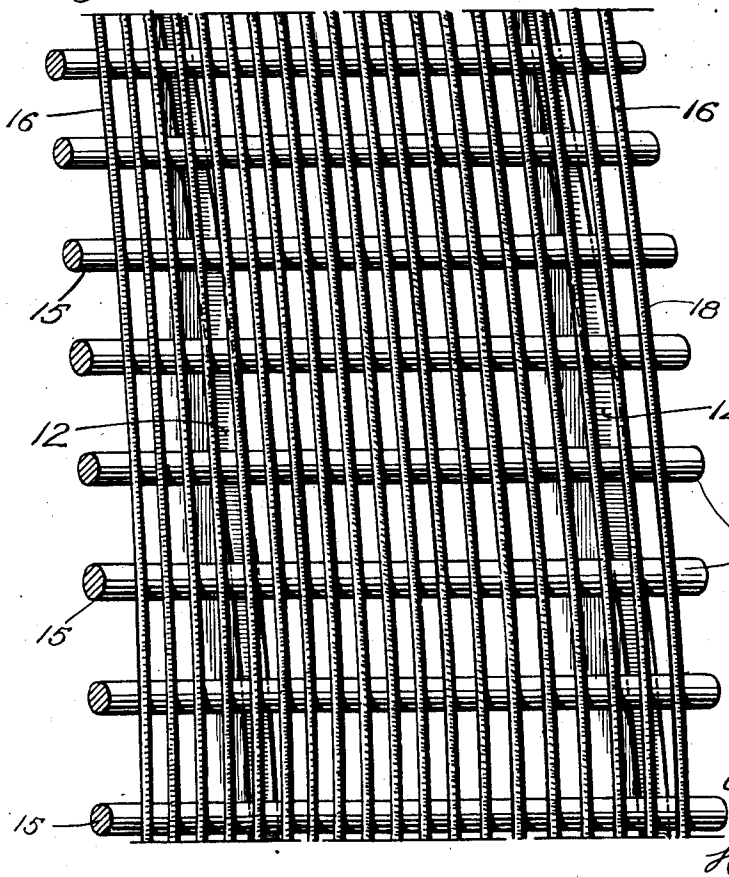


Fig. 2.



Inventor:—
Charles L. Ellis
by his Attorneys
Howson & Howson

May 30, 1933. C. L. ELLIS 1,911,310

WIRE FACED ROLL FOR PAPER MACHINES

Filed Dec. 3, 1932 2 Sheets-Sheet 2

Fig. 3.

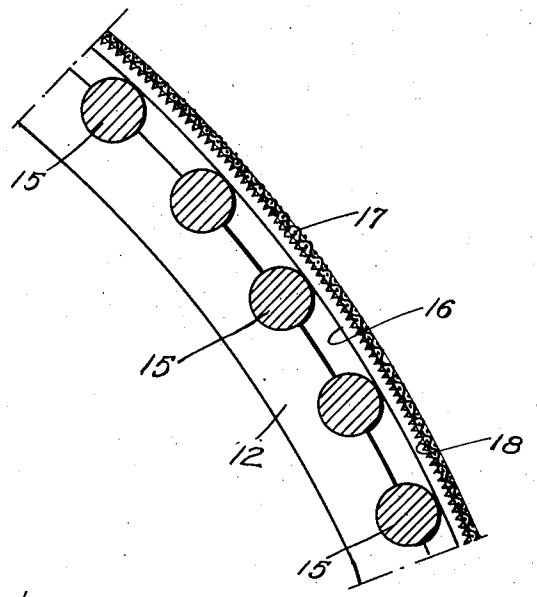
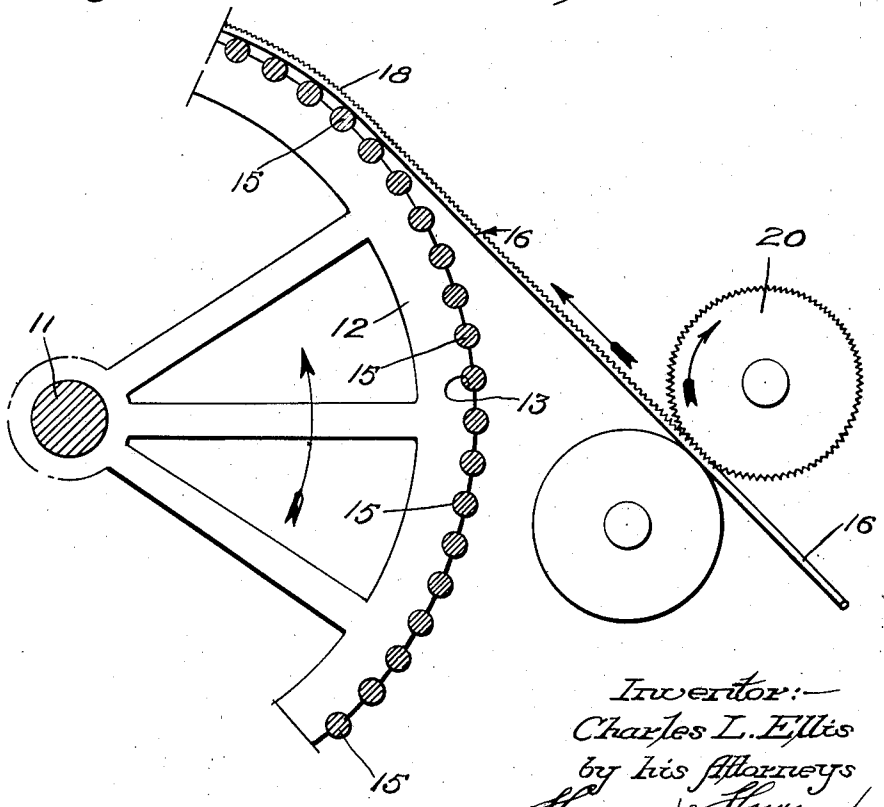


Fig. 4.



Inventor:—
Charles L. Ellis
by his Attorneys
Howson & Howson

Patented May 30, 1933 1,911,310

UNITED STATES PATENT OFFICE

CHARLES L. ELLIS, OF BRADFORD HILLS, PENNSYLVANIA, ASSIGNOR TO DOWNINGTOWN MANUFACTURING COMPANY, OF DOWNINGTOWN, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA

WIRE FACED ROLL FOR PAPER MACHINES

Application filed December 3, 1932. Serial No. 645,611.

This invention relates to screen faced rolls for paper machinery; and more particularly to a construction in such rolls preventing slipping of the screen facing.

Screen faced rolls of paper machinery as ordinarily constructed comprise a skeletonic core about which a winding wire is wrapped. This winding wire forms a direct support for either the facing screen wire of the roll or the backing screen wire of the roll, depending upon whether one or more layers of screen are employed on the roll. In the ordinary constructions of such rolls, the winding wire comprises a smooth round wire which in the completed roll provides a relatively smooth surface upon which the screen is mounted.

In operation of the rolls, the screen often slips circumferentially upon the roll. At times, only a portion of the screen will slip, so that there is an actual twist in the screen cover, and at other times the entire screen slips. Where the entire screen is slipping, due to the fact that the winding wire is spirally wound upon the core, the screen will often have in addition to its circumferential movement an endwise movement, causing it to project over one end or the other of the core. Any such occurrence seriously affects the operation of the machine, and ofttimes necessitates shut downs of the machine for relatively long periods until the trouble is repaired. Travel of the screen surface upon the core is particularly notable, where the screen faced roll is subjected to appreciable pressure.

An important object of this invention is the provision of a construction by which creeping of the screen surface is eliminated.

A further object of the invention is the provision of a method whereby the roughening of the winding wire at its outer surface takes place at application of the winding wire to the roll. In this connection, it may be pointed out that assuming that it is desirable to provide a roughened surface upon the outer face of the wire, this cannot be done by roughening the wire prior to application to the roll, for the reason that if the wire is roughened on only one surface, it will rotate upon its own axis in the course of winding, so that the roughened surface will not be outermost.

These and other objects I accomplish by the construction shown in the accompanying drawings, wherein, for the purpose of illustration, I have shown a preferred embodiment of my invention and wherein:

Figure 1 is a fragmentary perspective view of a screen faced paper machine roll, partially broken away to illustrate the method of constructing the same.

Fig. 2 is an enlarged perspective view showing the winding wire applied to the roll;

Fig. 3 is an enlarged detail view showing an elevation of a fragment of the applied winding wire with the screen in position thereon; and

Fig. 4 is a fragmentary detail view illustrating the method of providing for roughening of the outer surface of the winding wire.

Referring now more particularly to the drawings, the numeral 10 generally designates a core of screen faced paper machine roll, which includes a shaft 11 having mounted thereon a plurality of spiders 12 having aligned notches 13 in their peripheral edges, and end spiders 14 which mount the ends of longitudinally extending rods 15 which in their passage over the spiders 12 engage in the notches 13 thereof. About this skeletonic core, a winding wire 16 is spirally wound, this winding wire forming the supportng surface for a screen wire cover 17.

In accordance with my invention, the outer face of the winding wire, or that face thereof which is outermost when the wire is applied to the roll, is notched or roughened as indicated at 18, to form lugs inter-engaging in the meshes of the wire, so that the wire is held against either circumferential or longitudinal movement. For reasons hereinbefore stated, this roughening should be confined to the outer faces of the wire. This I accomplish by forming the roughness as the winding wire is applied to the roll. When the winding wire is applied, it is first

anchored to an end spider as indicated at 19 in Figure 1. The core is then rotated while the wire is held under tension and at a slight angle so that the wire is spirally wound upon the roll. The wire in its engagement with the roll is guided by a knurling roller 20, with the result that as it is laid against the roll, the outer face thereof is roughened without any chance of this roughened surface being displaced from its proper position.

In employing a structure of this character, it is found that not only is the slipping of the screen surface eliminated, but likewise it is possible to apply the screen much more tightly to the surface of the roll than has hitherto been possible, so that the roll surface is much firmer than in rolls of the ordinary construction. At the same time these results are accomplished without either increasing the time or cost of the usual process of applying the winding wire. Both the construction and method are adaptable for use in producing cylinder rolls, extractor rolls, dandy rolls and the like.

I claim:

1. A screen faced roll for paper machinery comprising a winding wire having a roughened exposed surface, and a screen facing stretched over the winding wire, the roughnesses of the winding wire inter-engaging with the screen to prevent circumferential or longitudinal movement thereof.

2. In a screen faced roll for paper machines, a skeletonic core, winding wire coiled thereabout and having its outer face roughened, and a screen facing tightly embracing the wire wound core.

3. In a screen faced roll for paper machines, a skeletonic core, a winding wire coiled thereabout and having its outer face only roughened, and a screen facing tightly embracing the wire wound core.

4. The method of producing screen faced rolls for paper machines, comprising, providing a suitable core, coiling a wire about the core while guiding the same to the core over a member roughening that face of the wire which is outermost in the completed roll, and then applying the screen facing to the wire wound core.

5. The method of producing screen faced rolls for paper machines, comprising, providing a suitable core, coiling a wire about the core, while roughening that face of the wire which is outermost in the completed roll, and then applying the screen facing to the wire wound core.

6. In a screen faced roll for paper machines, a winding wire, and a screen facing having portions interlocking with said wire preventing longitudinal or circumferential movement of the screen facing.

CHARLES L. ELLIS.