April 18, 1950 J. NOGUERA 2,504,571

ONE-WAY BRAKE FOR TEXTILE MACHINERY

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Fig. 1.

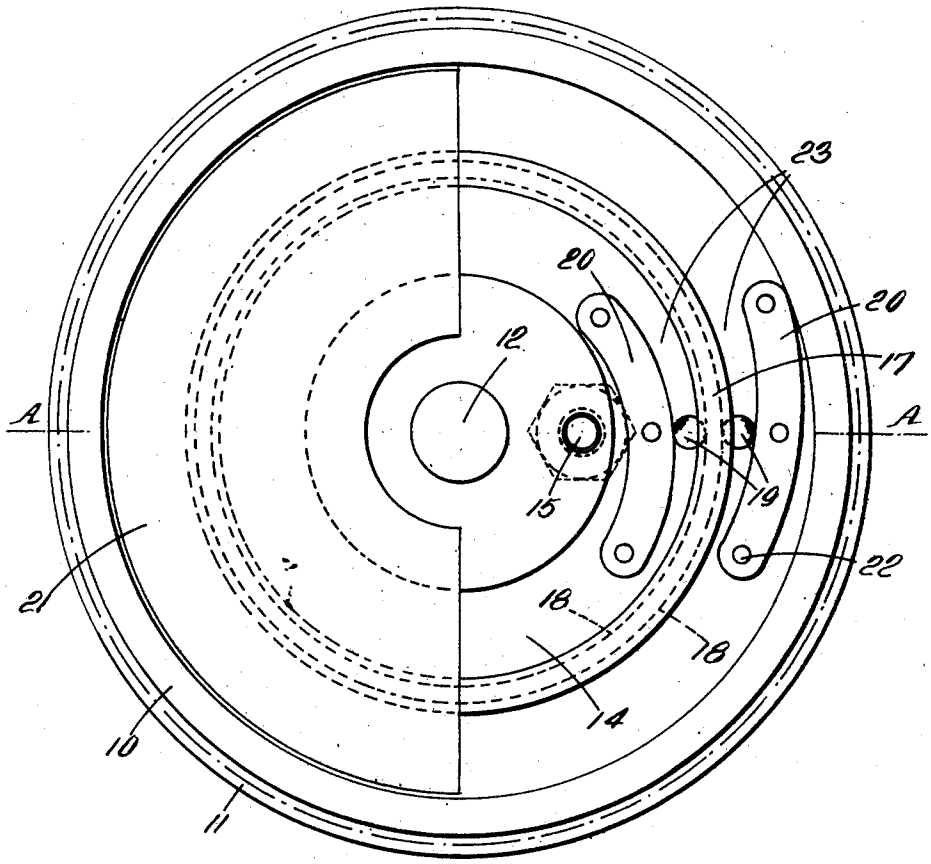
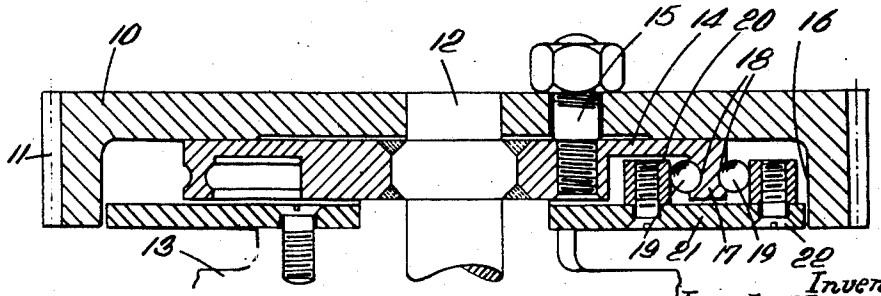


Fig. 2.



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Fig. 3.

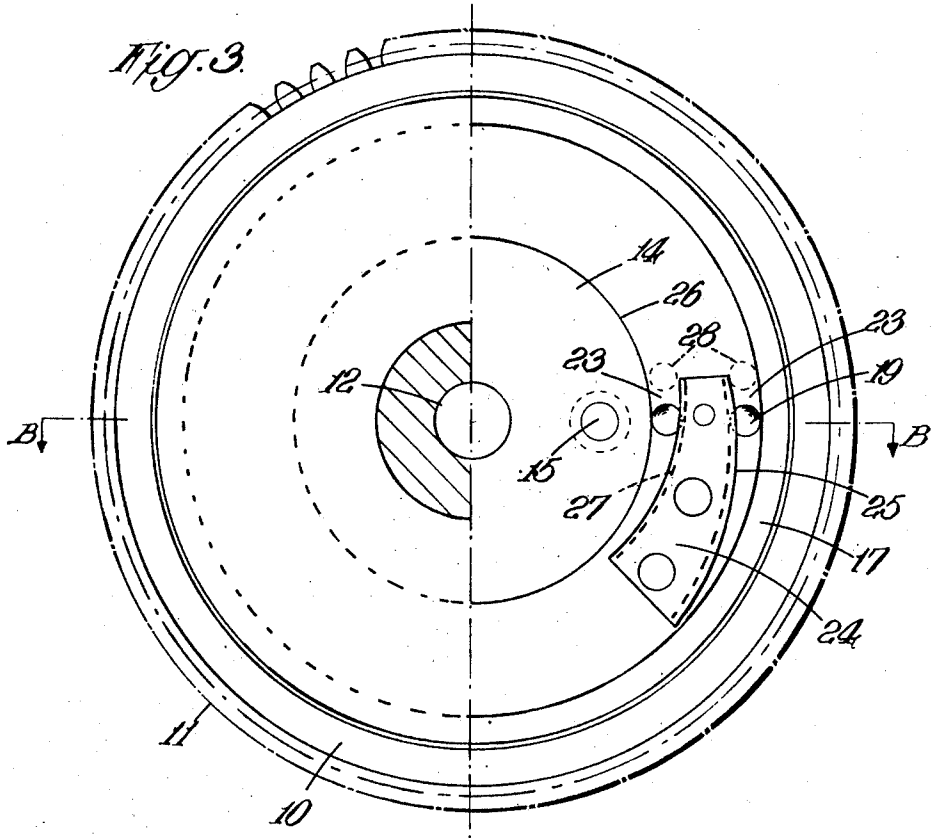


Fig. 4.

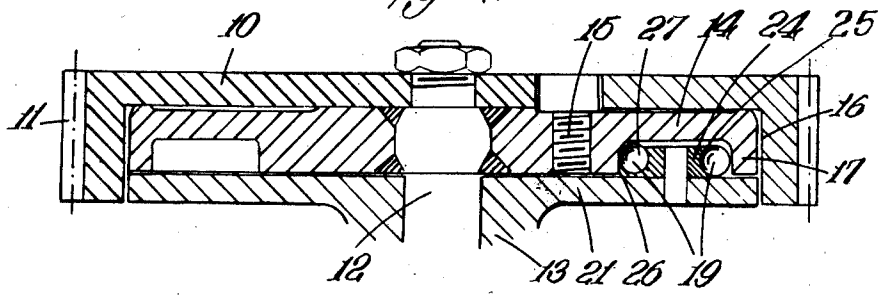
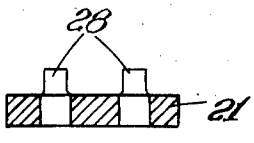


Fig. 5.



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Patented Apr. 18, 1950

2,504,571

UNITED STATES PATENT OFFICE

2,504,571

ONE-WAY BRAKE FOR TEXTILE MACHINERY

Joseph Noguera, Manchester, England, assignor to Casablancas High Draft Company Limited, Manchester, England, a British company

Application November 13, 1945, Serial No. 628,045
In Great Britain November 13, 1944

1 Claim. (Cl. 188—81)

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This invention relates to the gearing associated with the drafting rollers of drafting mechanism for textile fibres.

Such gearing comprises a back roller wheel which is driven by the change draft pinion and it is well known that the torsional stress of the back bottom roller causes the back roller wheel to spring backwards when the change draft pinion is disengaged for the purpose of changing the gearing ratio or draft. Such backward movement of the back bottom roller causes an attenuation of the fibre strand which although it may not result in immediate rupture of the strand, frequently leads to such rupture in subsequent drafting stages.

According to the present invention, the back roller wheel comprises an annular member concentrically and rotatably associated with the wheel, segmental members which are fixedly secured on each side of said annular member so as to form with said annular member channels which are divergent in the direction of rotation of the wheel, and spherical members which ride under gravity in said channels.

According to a modification, a single segmental member is fixedly secured between annular bearing surfaces on the wheel so as to form said divergent channels.

While the wheel is rotating normally, the spherical members ride freely in the channels and exert no braking effect on the wheel. Immediately the wheel tends to reverse however, the spherical members become wedged in the channels and exert a braking effect on the annular member associated with the wheel. It is noteworthy that substantially equal and opposite forces are applied to said annular member so that any eccentricity in the mounting of the wheel, or any play between the wheel shaft and its bearing, does not impede its effective braking.

One embodiment of the invention will now be described by way of example with reference to the accompanying drawings, in which:

Figure 1 is an elevation of the wheel with half of the segment plate removed to expose the segments; Figure 2 is a section on the line A—A of Figure 1; Figure 3 is an elevation of another embodiment of the wheel with half the segment plate removed; Figure 4 is a section on the line B—B of Figure 3; and Figure 5 is a vertical section of a pin mounting as employed in accordance with the present invention.

The back roller wheel comprises a shell 10 having teeth 11 on its outer periphery, said shell being freely mounted on the driving shaft 12

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which is supported in a carrier bracket 13. A driving plate 14 of hollow form is fixedly mounted on the driving shaft 12 and is located within the shell 10 to which it is secured by means of a screw 15. Said driving plate 14 terminates short of the inner periphery 16 of the shell and is formed with a peripheral flange 17 which is channelled at 18 on either face to provide guiding surfaces for steel balls 19 as hereinafter explained. Segmental members 20 are attached to a segment plate 21 by means of screws 22, the plate 21 being in turn attached to the carrier bracket 13, said segmental members 20 being disposed on each side of the peripheral flange 17 on the driving plate in such manner that channels 23 are formed between said segmental members and the peripheral flange which are divergent in the direction of rotation of the wheel i. e. counter-clockwise. A steel ball 19 is located in each of said channels 23 and the balls are guided in said channels by engagement with the channels 18 in the peripheral flange. The segmental members 20 are made of hardened steel and by forming the back roller wheel with the driving plate as above described, it is possible to make the wheel shell of cast iron in the usual way while making the driving plate with the peripheral bearing flange of steel.

Referring to Figures 3–5, the driving plate 14 extends substantially to the inner periphery 16 of the shell. A single segmental member 24 is secured to the segment plate 21 and is formed with curved surfaces 25 such that channels 23 are formed between member 24 and the flange 17 and the inner periphery 26 of the driving plate respectively, said channels being divergent in the direction of rotation of the wheel i. e. counter-clockwise. Said curved surfaces 25 are channelled at 27 to form guiding surfaces for the balls 19. Pins 28 are secured to the segment plate 21, as shown more particularly in Figure 5, to facilitate the assembly of the balls 19 in the channels 23 and to act as retaining members therefor.

I claim:

In drafting mechanism of the character described, a shaft, a toothed roller wheel fast on said shaft, said toothed roller wheel being recessed laterally, an annular flange within said recess concentric with said roller wheel and rotatable with said roller wheel, the depth of said flange being less than that of the recess, support means mounted on a fixed part of the drafting mechanism and lying within said recess, segmental means carried by said support means

and so positioned with respect to said annular flange as to afford channels which are divergent in the normal direction of rotation of said roller wheel, and spherical members which ride under gravity in said channels and react in opposite directions therein to perform a wedging action on said annular flange if said roller wheel tends to reverse its direction of rotation.

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