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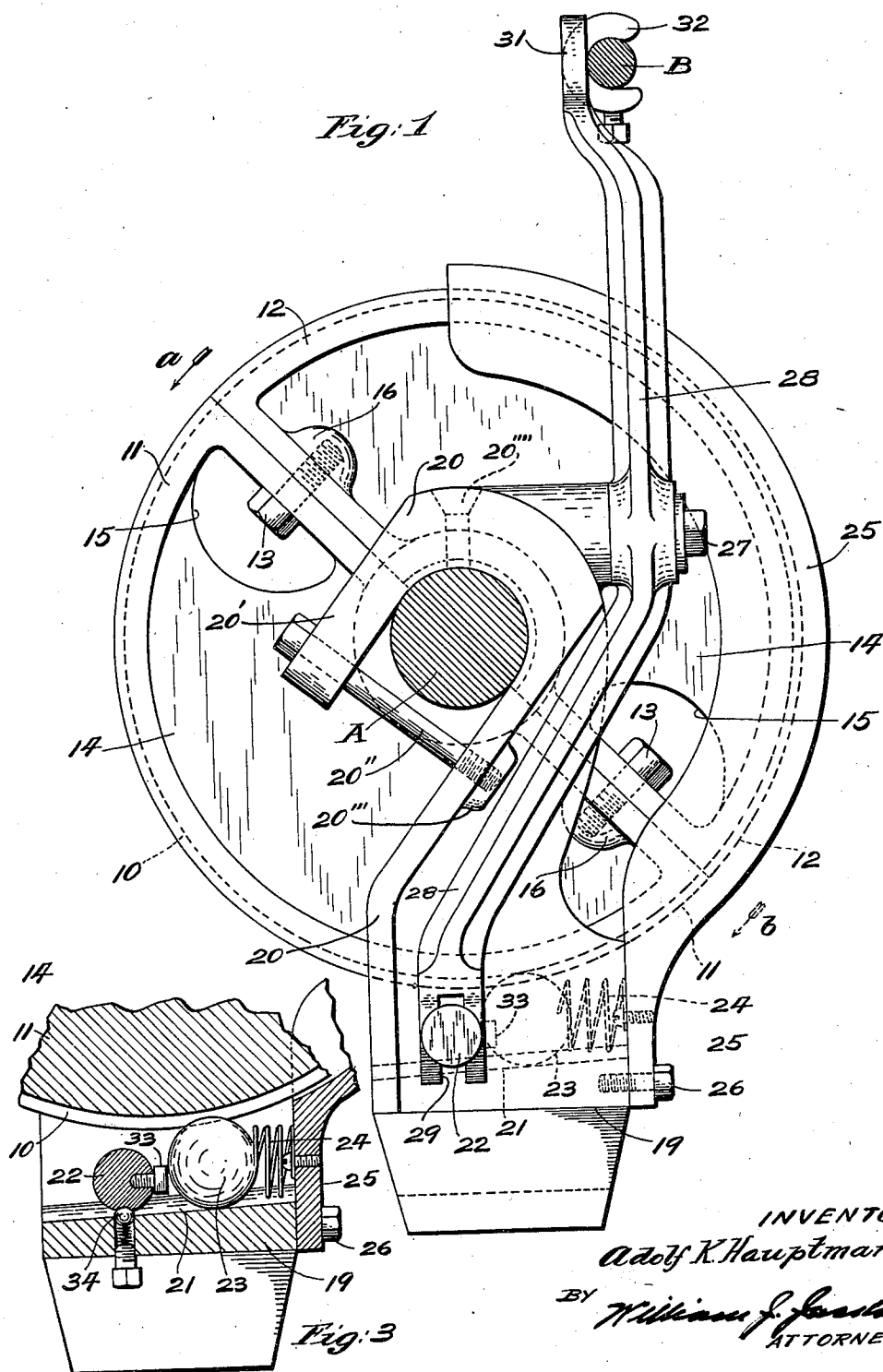
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STOP MECHANISM FOR KNITTING MACHINES

Filed Nov. 3, 1922

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

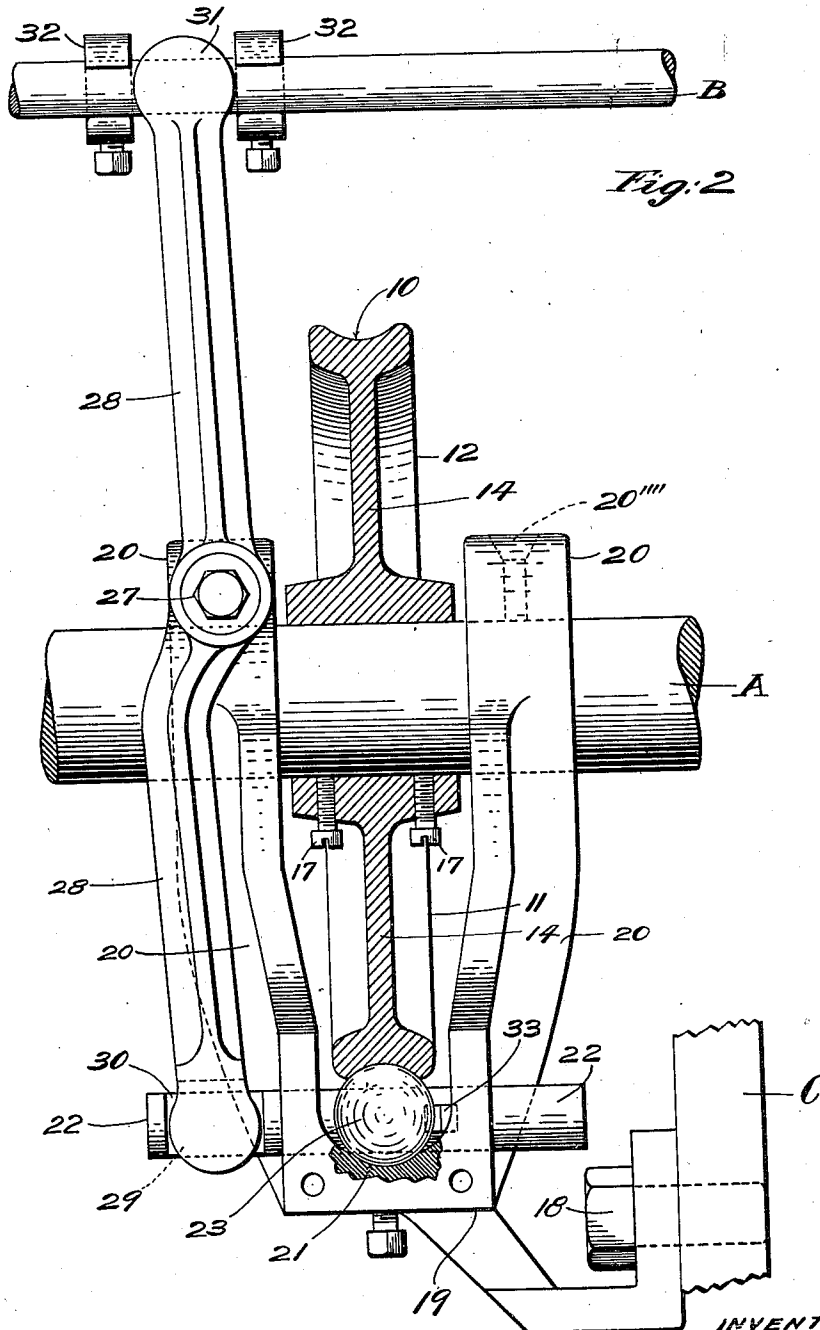


Fig. 2

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UNITED STATES PATENT OFFICE.

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STOP MECHANISM FOR KNITTING MACHINES.

Application filed November 3, 1922. Serial No. 598,833.

To all whom it may concern:

Be it known that I, ADOLF K. HAUPTMANN, a citizen of the United States, residing at the city of Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented a certain new and useful Improved Stop Mechanism for Knitting Machines, of which the following is a specification.

10 This invention, generally stated, relates to straight-bar knitting machines upon which full-fashioned hosiery or the like is manufactured and has more especial relation to an attachment therefor designed to
15 prevent retrograde movement of the machine parts at a stopping period.

Practice dictates that in stopping a knitting machine of the type under consideration there is a tendency of the machine parts to assume a retrograde or backward movement. Specifically stated when the starting rod of the machine is shifted to "off" position there is a tendency of the starting shaft to partially rotate in a retrograde
25 manner which causes the thread carriers to jam the needles, among other things, resulting in the ruining of such "work" as may be upon the machine at the time.

The leading object of the present invention is to overcome this disadvantageous feature and provide an attachment for preventing retrograde movement of knitting machine parts during a stopping operation. A further object is to provide an efficient arrangement and connection of parts for attaining the results sought by said leading object which may be readily assembled upon conventional straight-bar knitting machines without mechanical alteration thereof in
40 any respect. A further object is to provide an arrangement and combination of parts which when adjusted to neutral position will permit of the starting shaft of the knitting being moved forward or backward by hand.
45 Other and further objects not at this time more specifically stated will appear from the description following.

The invention consists of the improvements hereinafter described and finally
50 claimed.

The nature, characteristic features and scope of the invention will be more fully understood from the following description taken in connection with the accompanying

drawings forming part hereof, and in 55 which:

Fig. 1, is a view in side elevation of an attachment embodying features of the invention and attached to knitting machine parts.

Fig. 2, is a view in front elevation of Fig. 1, certain of the parts being removed for the sake of clearer illustration, and

Fig. 3, is a fragmentary view, principally sectioned of certain of the parts shown at 65 the lower portion of Fig. 1, but showing the same in neutral position.

For the purpose of illustrating my invention I have shown in the accompanying drawings one form thereof which is at present preferred by me, since the same has been found in practice to give satisfactory and reliable results, although it is to be understood that the various instrumentalities of which my invention consists can be variously arranged and organized and that my invention is not limited to the precise arrangement and organization of the instrumentalities as herein shown and described.

Since the attachment of the present invention is assembled upon a conventional straight-bar knitting machine without mechanical change or alteration thereof illustration of such a machine is unnecessary. In the drawings a fixed and two movable 85 parts of such machine are indicated however in order to better understand the assembling of the attachment thereon. A designates what is termed in the trade as the starting shaft of a conventional straight-bar knitting machine; B designates the starting rod; and C designates a fixed part, as the frame of the machine. Fixed to and rotatable with shaft A is a wheel the periphery of which is grooved as at 10. This wheel is made up of flanged sections 11—12 clamped together as by bolts 13 in order that the wheel may be positioned upon shaft A without removal of any conventional knitting machine parts. As shown in Fig. 1, the web 14 of each section is cut away as at 15 in order that the bolts 13 may be secured in place and the web of each section is provided with a re-inforced portion 16 into which said bolts 13 are screwed. The hub of one of said sections is tapped to accommodate set-screws 17, see Fig. 2, so that the wheel as a whole may be clamped to 105

shaft A. Clamped to the fixed part or frame C of the machine, as by bolt 18, is a fixed structure comprised of a base 19 which terminates in a pair of arms 20 which straddle the grooved wheel above described and engage, hook-fashion, the starting shaft A. That part of base 19 immediately beneath the grooved wheel inclines in a lateral direction, see Fig. 3, and is grooved in a similar direction, as at 21, in alignment with groove 10 of said wheel. Movable longitudinally through base 19 and intersecting groove 21 is an endwise shiftable bolt 22 operatively connected, in a manner hereinafter to appear with starting rod B. Bolt 22 serves to limit the rearward movement of a spherical body, as a ball 23, accommodated between the groove 21 of base 19 and groove 10 of the wheel upon shaft A. In its forward movement the ball impinges against a cushion in the form of a spiral spring 24 fixed to the wheel guard 25. This wheel guard is fixed to the forward portion of base 19, as by bolts 26, and partially encircles the grooved wheel as clearly shown in Fig. 1. In operation the starting shaft A normally moves in the direction of arrow *a* in Fig. 1, as does the grooved wheel thus causing ball 23 since it is in contact with the groove of said wheel to revolve in a similar direction with a tendency to move outward against the action of spring 24. However both the spring and the incline of the base serve to maintain the ball in contact with the bolt 22. Thus when forward rotation of shaft A is stopped any tendency thereof to retrograde movement, as indicated by arrow *b* in Fig. 1, causes the grooved wheel to impinge wedge-fashion upon ball 23 in its abutting relation with bolt 23 thus immediately holding shaft A against backward movement. Having fulcrumed relation, as at 27, with one of arms 20 is a lever 28 the lower end of which is forked as at 29 and engages the notched portion 30 of bolt 22 and the upper end of which is disc-shaped, as at 31, and engages between a pair of split rings 32 fixed to starting rod B. By using split rings the same may be caused to engage over starting rod B without removal of any of the conventional parts employed in connection with such rod. It is thus obvious that shifting of rod B moves bolt 22 endwise. Intermediate the ends of bolt 22 it is provided upon its forward face with a fixed stop 33. When the rod B is shifted to neutral position this stop is caused to assume a position directly in the rear of ball 23 instead of upon one side or the other of said ball as in a starting or stopping position. This neutral position of parts is shown in Fig. 3, where it is seen that ball 23 is moved forward and free of contact with the grooved wheel. In this neutral position the shaft A may be moved

backward or forward by hand as in conventional knitting machines in order that the needles may be properly positioned with work being done. In order that the operator may readily determine neutral position of bolt 22 an adjustable, spring pressed detent 34 is arranged in base 19, see Fig. 3, and the underside of the bolt is notched to cooperatively engage with said detent. In the normal shifting of the starting rod B the belt readily passes over the detent 34 and the stop 33 readily passes ball 23.

Because of the construction of the grooved wheel, arms 20, and the arrangement of lever 28 with split rings 32 it is possible to assemble the above described stop mechanism upon a conventional straight-bar knitting machine without in any way altering or adjusting the machine parts. This is important because the attachment may be manufactured and sold as a unit for immediate and ready application to existing types of knitting machines. In order to maintain arms 20 in proper position upon shaft A the hook-like end 20' of each arm 20 may be connected to the flanged body part thereof by a bolt 20'', see Fig. 1. A flanged portion is re-inforced as at 20''' in order to accept such bolt 20''. Each arm 20 may be provided with an oil hole 20'''' in order to provide for lubrication of shaft A.

It will now be apparent that I have devised a novel and useful construction which embodies the features of advantage enumerated as described in the statement of the invention and the above description and while I have in the present instance shown and described the preferred embodiment thereof which has been found in practice to give satisfactory and reliable results, it is to be understood that the same is susceptible of modification in various particulars without departing from the spirit or scope of the invention or sacrificing any of its advantages.

What I claim is:

1. Stop apparatus for straight-bar knitting machines comprising in combination, a starting shaft, a wheel fixed thereon having a grooved periphery, a fixed base having an inclined, transversely disposed groove therein arranged beneath and in alignment with the wheel groove, a wheel guard carried by said base, a shiftable bolt carried by said base in parallelism with said shaft, a ball arranged between the said grooves and a spring carried by said guard for normally pressing said ball against said bolt to arrest retrograde movement of said wheel.
2. Stop apparatus for straight-bar knitting machines comprising in combination, a starting shaft, a wheel having a grooved periphery fixed to said shaft, a fixed base having an inclined, transversely disposed

groove therein arranged beneath and in alignment with said wheel groove, a pair of arms extended upwardly from said base for engaging hook-fashion over said shaft and straddling said wheel, an endwise shiftable bolt having a stop mounted in said base, a starting rod, a lever one end of which is connected to said bolt and the other end to said rod and a ball arranged between and normally engaging both grooves but adapted to be held free of the wheel groove by said stop.

3. Stop apparatus for straight-bar knitting machines comprising in combination a starting shaft, a starting rod, a fixed frame part, a wheel having a grooved periphery fixed to said shaft, a base clamped to said fixed frame part said base terminating in a pair of arms which straddle said wheel and engage said shaft hook-fashion, an endwise slidable bolt having a stop arranged in said base in parallelism to said shaft, a grooved way in said base which inclines toward said bolt, a ball arranged between the wheel and base groove, a guard for said wheel carried by said base, a spring for pressing said ball against said bolt and a lever fulcrumed to one of said arms and connecting with said starting rod and said bolt for shifting said stop in the path of said ball.

4. A device of the character stated comprising a two-part wheel having a grooved periphery adapted to be clamped to a starting shaft, a base having a pair of hook-shaped arms for straddling said wheel and

engaging over the starting shaft, a bolt having a stop slidable through said base in parallelism with said shaft, a groove in said base inclined toward said bolt in alignment with the wheel groove, a ball arranged between said grooves and normally tending to abut against said bolt and means for shifting said bolt to cause said stop to lie in the path of said ball and maintain same free of the wheel groove.

5. A construction as described in claim 4, having in addition a spring pressed detent carried by the base for cooperatively engaging with said bolt when said stop is positioned in the path of said ball.

6. A construction as described in claim 4, having in addition a wheel guard secured to said base said guard carrying a spiral spring for normally pressing said ball against said bolt.

7. A construction as described in claim 4, characterized by the parts of said wheel being secured together by bolts the web of said wheel being cut away to accommodate the bolt heads and also re-inforced to accept the bolt ends.

8. A construction as described in claim 4, characterized by said arms having oil holes for shaft lubricating purposes.

9. A construction as described in claim 4, characterized by the free ends of said arms being clamped to the body parts of said arms by means of bolts.

In testimony whereof, I have hereunto signed my name.

ADOLF K. HAUPTMANN.