Feb. 5, 1924. 1,482,590

P. J. THOMAS

THREAD SPREADER FOR DOUBLING MACHINES

Filed Jan. 31, 1922

Fig. 1.

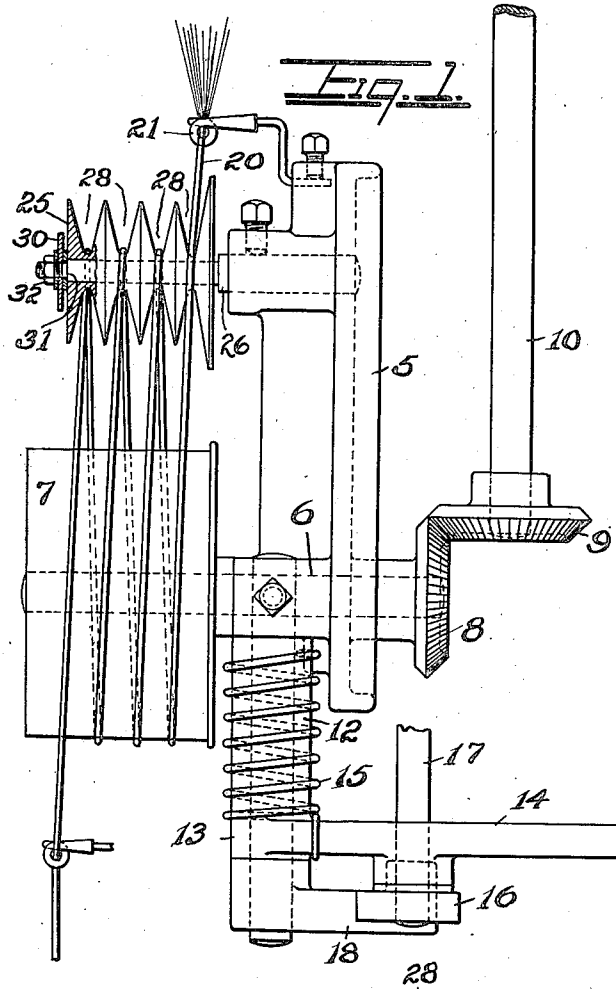


Fig. 2.

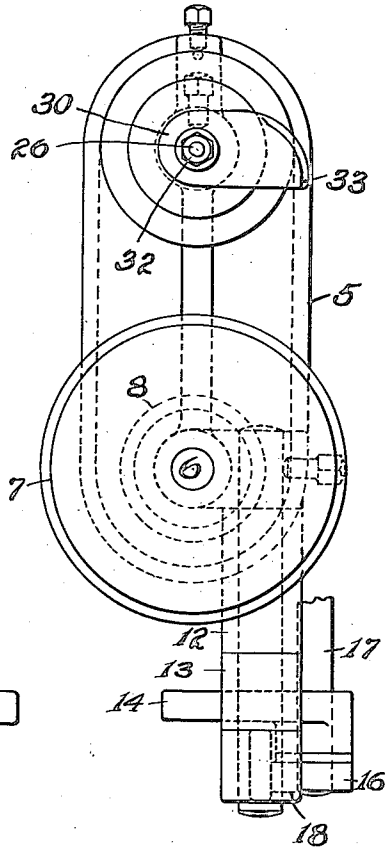
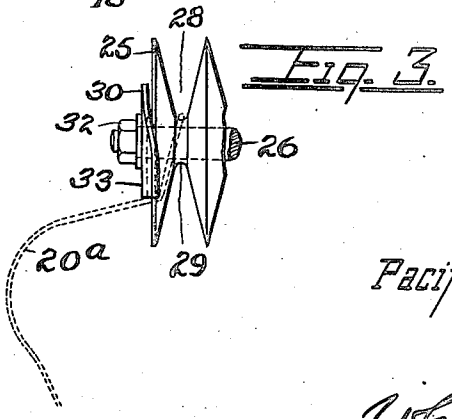


Fig. 3.



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UNITED STATES PATENT OFFICE.

PACIFIC J. THOMAS, OF PITTSTON, PENNSYLVANIA.

THREAD SPREADER FOR DOUBLING MACHINES.

Application filed January 31, 1922. Serial No. 532,970.

To all whom it may concern:

Be it known that I, PACIFIC J. THOMAS, a citizen of the United States, residing at Pittston, in the county of Luzerne and State of Pennsylvania, have invented certain new and useful Improvements in Thread Spreaders for Doubling Machines, of which the following is a specification.

My invention relates particularly to thread-spreading mechanisms employed in connection with doubling and twisting machines, and my object is to provide simple and improved means adapted to positively maintain definite spreading of the thread convolutions upon a driven roll and permit of easy repairing of any break in the threads passing therefrom to the twisting spindle. The invention is fully described in connection with the accompanying drawing and is clearly defined in the subjoined claims.

Fig. 1 is an elevation of my improved device, showing a portion of the spreader roll in section; such known cooperating mechanism as will enable a clear explanation of the invention being indicated.

Fig. 2 is an end view.

Fig. 3 illustrates the use of the thread-guard arm.

In the roll-carrying frame 5 is mounted a horizontal shaft 6 upon which is fixed a smooth-surfaced cylindrical take-up 7 and, on its oppositely extending portion, a bevel gear 8. This gear is normally in mesh with a bevel gear 9 on a fixedly mounted vertical drive shaft 10, but is automatically thrown out of mesh in known manner by any breakage of thread. This is accomplished, as indicated, by pivotally mounting the frame post 12 in the boss 13 of a suitably fixed supporting arm 14, so that it may be turned upon the latter against the action of a spring 15, to disengage the roll gear 8 from the driving shaft gear 9; the disengaging movement being effected by contact of a cam 16 on stop shaft 17 with an arm 18 of the frame post 12, whenever there is a break in one of the threads 20 running through the common guide eye 21 to take-up roll 7. A stop mechanism such as is thus briefly referred to has been commonly employed, and the arrangement of known cooperating machine parts need not be further set forth as my invention relates entirely to the special thread-spreading means provided in connection with the described construction.

Interposed between the common guide eye 21 and the roll 7, is a spreader roller 25 loosely mounted upon a horizontal axle or stud 26 fixed to the frame 5. This roller, which is parallel with the roll 7 and of approximately the same length, is formed with a series of separate circular grooves 28, 28, 28, each V-shaped, and of a depth greater than the diameter of the reduced central portions 29 of the roller as shown, and the successive convolutions of thread bear upon these reduced portions 29 in passing over the roll 7 and roller 25 as indicated. The walls of each of these deep grooves diverge outwardly, so that the thread convolutions may be readily entered and made to bear upon the reduced roller portions 29 without slack and in positively spaced and safely retained relation.

Upon the projecting outer end of the fixed roller axle or stud 26 is fixedly secured a thread-guard arm 30, seated against a shoulder 31 on the axle by a nut 32, and extending radially beyond the outer diameter of the roller so that its end portion 33 will be adapted to retain in the grooves of the roller a thread that is passed outwardly under it, as indicated by the dotted line 20^a in Fig. 3; the purpose and effect of this device being to enable the operator to quickly and satisfactorily repair a broken thread while safely retaining the convolutions of thread in tautly spaced relation upon the roll 7 and grooved spreader roller 25.

What I claim is:

1. In a thread-spreading mechanism, the combination with a fixed thread-guide, a smooth-surfaced cylindrical roll, and driving means for said roll arranged to be automatically thrown out of operation by the breakage of a thread; of an interposed roller cooperatively mounted parallel with said smooth surfaced roll to positively spread successive convolutions of thread upon the latter, said interposed roller being provided with a series of deep V-shaped circular grooves whereby the diameter at the base of said grooves is greatly reduced relative to the diameter of said smooth-surfaced roll.

2. In a thread-spreading mechanism, the combination with a fixed thread-guide, a smooth-surfaced cylindrical roll, and driv-

ing means for said roll arranged to be automatically thrown out of operation by the breakage of a thread; of an interposed spreading roller having a series of deep V-shaped circular grooves, a fixed axle upon which said roller is loosely mounted parallel with said driven roll to positively spread successive convolutions of thread upon the latter, and a radially extending thread-guard arm fixed to the projected axle beyond the roller substantially as set forth.

In testimony whereof I affix my signature.

PACIFIC J. THOMAS.