G. L. COWAN.

SHAFT COLLAR.

APPLICATION FILED MAR. 11, 1914.

1,124,707. **Patented Jan. 12, 1915.**

Fig. 1

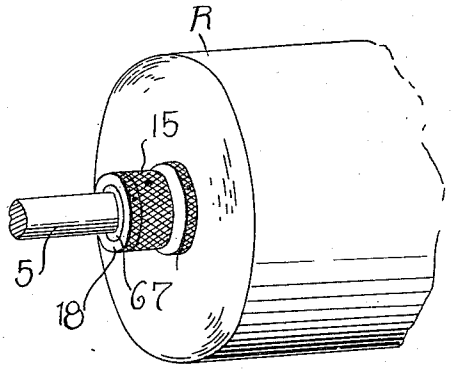


Fig. 2

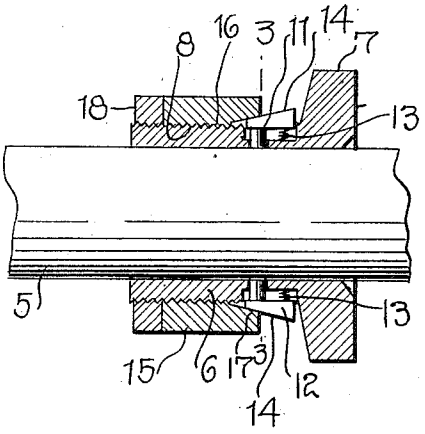


Fig. 3

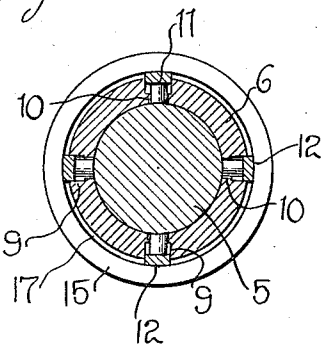
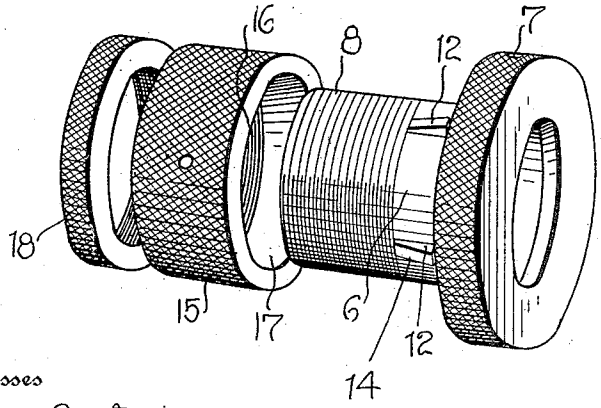


Fig. 4



Witnesses

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UNITED STATES PATENT OFFICE.

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SHAFT-COLLAR.

1,124,707. Specification of Letters Patent. Patented Jan. 12, 1915.

Application filed March 11, 1914. Serial No. 824,020.

To all whom it may concern:

Be it known that I, GEORGE L. COWAN, citizen of the United States, residing at East Ryegate, in the county of Caledonia and State of Vermont, have invented certain new and useful Improvements in Shaft-Collars, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to an improved shaft collar and has for its primary object to provide a device of this character particularly designed for use in paper mills to absolutely prevent longitudinal shifting movement of a paper roll upon its shaft so that the edges of the convolutions after the roll has been completed and removed from the shaft will be even or flush.

The invention has for another of its objects to provide an improved sectional collar, which may be easily and quickly adjusted and tightened upon the shaft without interrupting the operation of the machine.

The invention has for a further object to generally improve and simplify the construction of such machine elements and to increase their efficiency and general reliability in practical use.

With the above and other objects in view as will become apparent as the description proceeds, the invention consists in certain constructions, combinations and arrangements of the parts that I shall hereinafter fully describe and claim.

For a full understanding of the invention, reference is to be had to the following description and accompanying drawing, in which—

Figure 1 is a perspective view showing one end of a paper roll and my improved sectional collar applied to the roller shaft; Fig. 2 is an enlarged longitudinal section; Fig. 3 is a section taken on the line 3—3 of Fig. 2; Fig. 4 is a perspective view of the several parts of the device disassembled.

It is a common practice in paper mills, in order to prevent longitudinal shifting movement of the paper roll upon the winding shaft, to tightly wind a stout twine around the shaft closely against the stop collars arranged at opposite ends of the roll. It frequently happens that this twine becomes loosened and tangles itself in the machinery, or loops around the operator's hand and results in serious injury to the latter. My invention is designed with a view to overcoming the necessity of employing this twine or cord to prevent shifting movement of the stop collars upon the winding shaft, and thereby obviate the occurrence of the incidents above referred to.

Referring now to the accompanying drawings, wherein I have illustrated the present preferred embodiment of the invention, 5 designates the winding shaft upon which the paper is wound from the machine into a roll indicated at R. It is essential, in order to obviate injury to the paper in shipment that the edges of the paper convolutions at the ends of the roll be even or flush, and it is obvious that in order to wind the paper in this manner, the roll R must be absolutely held against longitudinal shifting movement upon the shaft 5. For this purpose, I provide the collar proper 6 which is provided with a smooth bore to receive the shaft 5 and has a flange 7 formed upon one end. Adjacent to this flange, the periphery of the body 6 is smooth or unthreaded but for the remaining portion thereof, the same is provided with the exterior screw threads 8. In the unthreaded portion of the body 6, diametrically opposed elongated recesses 9 are formed, and circular openings 10 connect these recesses at one of their ends with the bore of said body. In the openings 10, the pins 11 are loosely disposed and are adapted for binding engagement upon the periphery of the shaft 5. Upon the outer ends of these pins, lugs 12 are formed, said lugs being disposed in the respective recesses 9. Coil springs 13 are arranged in said recesses and bear against the inner faces of the lugs 12, said springs normally acting to force the pins 11 outwardly through the openings 10. The outer faces of the lugs 12 are beveled or inclined as at 14 toward the threaded portion 8 of the collar body. A sleeve 15 is provided with interior threads 16 for engagement with the threads 8 of the body 6. At one end of this threaded portion 16 of the sleeve, the inner face thereof is outwardly beveled as shown at 17, and is adapted for engagement upon the beveled faces 14 of the lugs 12, for a purpose to be later referred to.

An annular lock nut or washer 18 is also adapted to be engaged upon the threaded end 8 of the collar body to prevent turning movement of the sleeve 15 upon said body out of engagement with the lugs 12.

In the application of my improved collar to the shaft 5, the sleeve 15 and the locking washer 18 are arranged upon the threaded portion of the collar body 6 and said body then inserted upon the shaft 5. The pins 11 being arranged in the openings 10, the sleeve 15 is further adjusted upon the collar body so that the beveled face 17 thereof will engage upon the beveled surfaces of the lugs 12 and force said lugs inwardly into the recess 9 against the action of the springs 13. It will be obvious that the pins 11 carried by said lugs will also be forced through the openings 10 and into tight binding engagement upon the periphery of the shaft 5. The locking washer 18 is then adjusted into engagement against the end of the sleeve 15 to hold the same against shifting movement upon the collar body. One of these sectional collars being arranged upon the shaft at each end of the paper roll R, it will be apparent that said roll is absolutely held against longitudinal movement upon the shaft. The sleeve 15 may be turned upon the collar body so as to permit of the sliding movement of said body upon the shaft when it is necessary to adjust the position of the collar, without stopping the operation of the machine. This adjustment may be easily and quickly effected in accordance with the width of the paper to be wound upon the roll.

From the foregoing description taken in connection with the accompanying drawings, it is believed that the construction, manner of operation and several advantages of my invention will be clearly and fully understood.

The several parts of the device are all of extremely simple form, and it will therefore be appreciated that the same is highly durable in practical use and may be manufactured at comparatively small cost.

While I have referred to my improved shaft collar as particularly applicable to paper roll shafts, it will be understood that the device may also be advantageously employed upon the shafts of machines used for various purposes where such a device might be particularly advantageous. The number of locking pins 11 might be multiplied as found necessary or desirable. It will also be manifest that the invention is susceptible of a great many other modifications in the form, proportion and arrangement of the several parts and I therefore reserve the privilege of resorting to all such legitimate changes as may be fairly embodied within the spirit and scope of the appended claim.

Having thus described the invention, what is claimed is:

A shaft collar comprising a tubular body having an exteriorly threaded portion and longitudinal recesses formed in the body at one end of said threaded portion, said body being further provided with openings connecting said recesses at one of their ends with the bore of said body, pins movable through said openings and provided with rectangular lugs on their outer ends, springs arranged in said recesses bearing against the lugs to normally force the pins outwardly, a sleeve threaded upon said body and having an annular beveled face, said lugs being provided with outer inclined faces for engagement by the beveled face of said sleeve whereby the pins are forced inwardly into binding engagement upon the shaft, and a locking washer threaded upon said body to lock the sleeve thereon against turning movement.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

GEORGE L. COWAN.

Witnesses:
ANNIE MAY ROCHELLE,
DELIA D. WALLACE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."