Nov. 29, 1932. H. M. BARBER 1,889,528

SELF ADJUSTING FEED ROLL

Filed Dec. 19, 1931

Fig. 1.

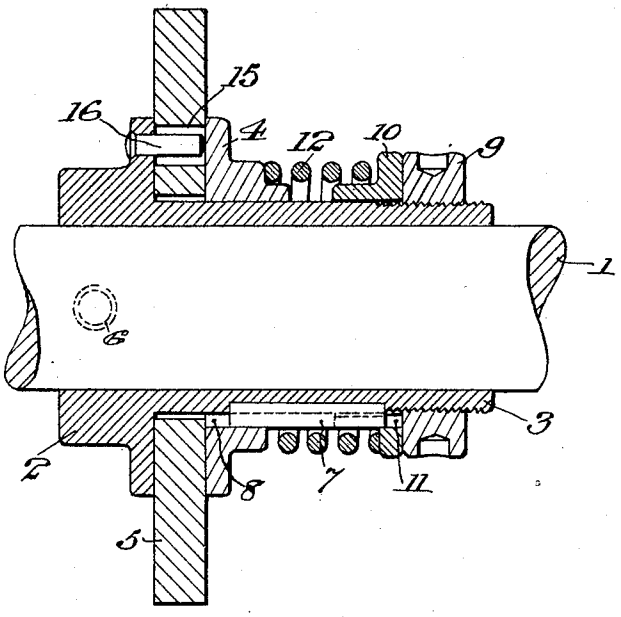
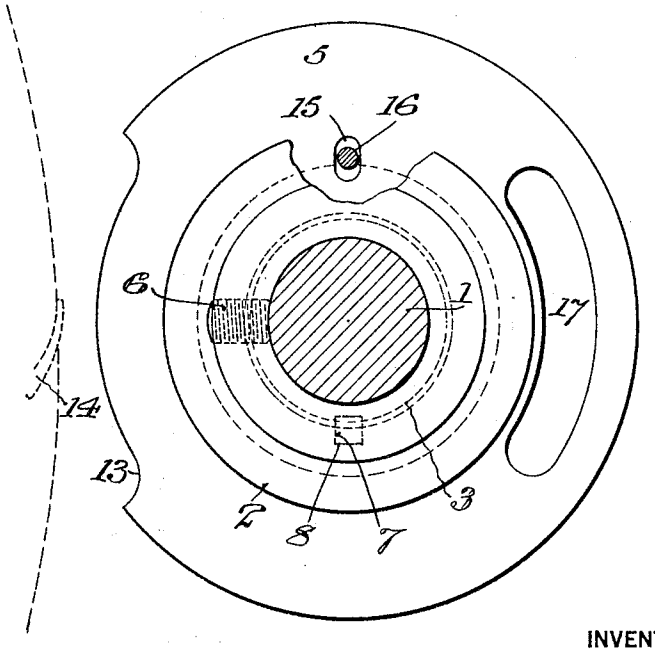


Fig. 2.



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SELF-ADJUSTING FEED ROLL

Application filed December 19, 1931. Serial No. 582,070.

The object of my invention is to provide a self-adjusting feed roll of novel construction, which feed roll is especially adapted for coaction with another roll to feed paper or other fabric, the adjustability of one of the feed rolls permitting the even feeding of the material though it should vary in thickness or have any other inequalities therein.

A further object of my invention is to provide a self-adjusting feed roll comprising a shaft and one or more feed roller units adapted to be adjustably positioned along the shaft according to varied requirements.

My invention consists generally in a feed roller unit comprising a fixed collar provided with a sleeve, another collar slidable on the sleeve and interlocked therewith and an interposed self-adjusting or floating annular roller; tension means being provided to frictionally clamp the feed roller between the said collars. Means are also provided for preventing rotative movement of the feed roller with respect to its collars and shaft.

My invention also includes such a unit in which the tension means is carried by the fixed collar sleeve, said tension means including an adjusting nut, an annular follower and a coil spring surrounding the sleeve and interposed between the annular follower and the slidable collar.

A practical embodiment of my invention is represented in the accompanying drawing in which:

Fig. 1 represents my feed roller unit in central longitudinal section in position on its shaft; and

Fig. 2 represents the roller unit in end elevation, the shaft being shown in cross section.

The shaft of the self-adjusting feed roll is denoted by 1, on which shaft any desired number of feed roller units may be mounted.

Each feed roller unit comprises a fixed collar 2 provided with a sleeve 3, a collar 4 slidable on the sleeve and an interposed self-adjusting or floating annular feed roller 5.

The sleeve 3 of the fixed collar 2 carries an adjustable tension means acting on the slidable collar 4 to clamp the feed roller 5 between the collars with the desired degree of friction.

The collar 2 with its sleeve may be secured in its desired position along the shaft by means of a set screw 6. This fixed collar 2 is shown as presenting an extended frictional bearing surface beyond its sleeve 3 to one side of the annular feed roller 5.

The collar 4 may be slidably interlocked with the sleeve 3 of the fixed collar 2, as for instance by providing the sleeve with a key 7 and the collar 4 with a longitudinal key-way 8. This slidable collar 4 also presents an extended frictional bearing surface to the opposite side of the annular feed roller 5.

The means for exerting tension to act on the slidable collar for frictionally clamping the roller between the slidable and fixed collars is herein shown as comprising the following elements:

A tension adjusting nut 9 is threaded on to the end of the sleeve 3 of the fixed collar. An annular follower 10 is slidably mounted on the sleeve and is engaged by the inner face of the adjusting nut 9. This follower may be slidably interlocked with the sleeve by providing the follower with a key-way 11 engaged by the sleeve key 7. A coil spring 12 surrounds the sleeve 3 of the fixed collar 2 and is interposed between the slidable collar 4 and the follower 10.

The diameter of the bore of the annular feed roller 5 is somewhat greater than the outside diameter of the fixed collar sleeve 3 to permit the roller to float or yield under friction between the inner faces of the fixed and slidable collars.

The face of the self-adjusting roller 5 may be cut away as shown at 13 to clear a projecting part of the cylinder with which it coacts. Such projecting part may be a gripper 14 as illustrated in dotted lines on Fig. 2 of the drawing.

To ensure the cut away portion of the roller coming opposite the gripper 14 or other projecting portion of the coacting cylinder, means are provided for preventing rotative movement of the roller 5 with respect to its collars. In the present instance the roller 5 is shown as provided with a slot 15 into

which a pin 16 projects from the inner face of the fixed collar 2, the slot being somewhat larger than the pin to permit the self-adjusting or floating movement of the feed roller. To properly balance the self-adjusting feed roller 5 where its face is cut away as at 13, I provide a slot 17 in the roller diametrically opposite the cut away portion 13.

From the above description it will be seen that I have provided a feed roller unit which is extremely simple and which is readily adjustable not only along its shaft but also as to its frictional contact with the feed roller which is interposed between the fixed and slidable collars of the unit.

It is evident that various changes may be resorted to in the construction, form and arrangement of the several parts without departing from the spirit and scope of my invention, and hence I do not intend to be limited to the particular embodiment herein shown and described, but what I claim is:

1. A feed roll shaft and a feed roller unit carried thereby comprising a collar fixed to the shaft and provided with a sleeve, another collar slidable on the sleeve and interlocked therewith, a self-adjusting feed roller interposed between said collars, tension means yieldingly engaging the slidable collar to frictionally clamp the roller between the collars, said means including an adjusting nut threaded on the sleeve, an annular follower slidable on the sleeve and interlocked therewith, said follower being engaged by said nut and a coil spring surrounding the sleeve and interposed between the follower and the slidable collar and means preventing rotative movement of the roller with respect to its collars.

2. A feed roll shaft and a feed roller unit carried thereby comprising a collar fixed to the shaft and provided with a sleeve, another collar slidable on the sleeve and interlocked therewith, a self-adjusting feed roller interposed between said collars, tension means yieldingly engaging the slidable collar to frictionally clamp the roller between the collars, said means including an adjusting nut threaded on the sleeve, an annular follower slidable on the sleeve and interlocked therewith, said follower being engaged by said nut and a coil spring surrounding the sleeve and interposed between the follower and the slidable collar and means preventing rotative movement of the roller with respect to its collars, said means including a slot in the roller and a pin projecting from one of the collars.

In testimony, that I claim the foregoing as my invention, I have signed my name this 15th day of December, 1931.

HOWARD M. BARBER.