Nov. 29, 1932. H. M. BARBER 1,889,527

SELF ADJUSTING FEED ROLL

Filed Dec. 19, 1931

Fig. 1.

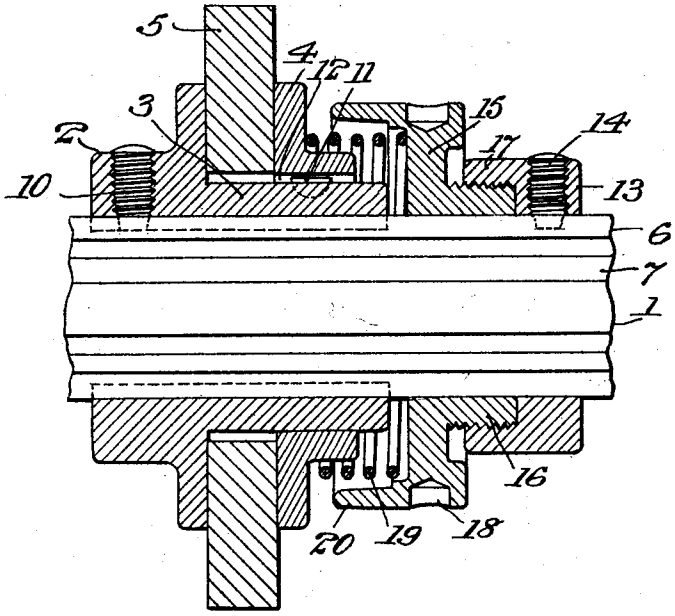
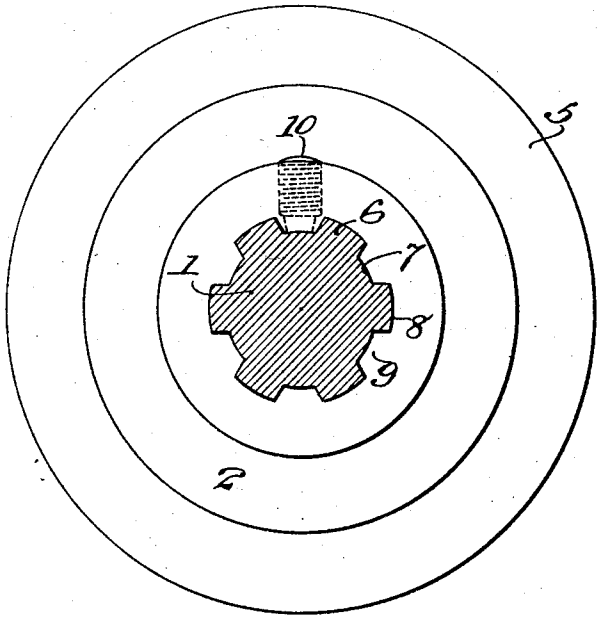


Fig. 2.



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SELF-ADJUSTING FEED ROLL

Application filed December 19, 1931. Serial No. 582,069.

The object of my invention is to provide a self-adjusting feed roll of novel construction, which feed roll is especially adapted for co-action 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 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, an interposed self-adjusting or floating annular feed roller and tension means carried by the shaft and acting upon the slidable collar to clamp the roller between the collars with an adjusted degree of friction, as required.

My invention also includes means for preventing rotative movement of the feed roller with respect to its shaft and collars where such a feature is desired.

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 shaft 1 carries an adjustable tension means acting on the slidable collar 4 to clamp the feed roller between the collars with the desired degree of friction.

The collar 2 with its sleeve may be interlocked to the shaft 1 against rotative movement thereon by any desired means, as for instance by providing the shaft with a circumferential series of longitudinal splines 6 and intermediate recesses 7 adapted to engage corresponding longitudinal recesses 8 and longitudinal teeth 9 along the bore of the collar and its sleeve.

The collar 2 may be secured in its desired position along the shaft 1 by means of a set screw 10. 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 11 and the bore of the collar 4 with a longitudinal key-way 12. 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 to frictionally clamp the roller between the slidable and fixed collars is shown herein as comprising the following elements:

A ring 13 may be secured to the shaft 1 by means of the set screw 14. An annular follower 15 is adjustable longitudinally with respect to the said ring 13, as for instance by providing a screw threaded engagement between a sleeve 16 of the follower with the bore of a circumferential flange 17 of the ring. This follower may be provided with means, such as spanner wrench holes 18 for readily adjusting the follower. A coil spring 19 is interposed between the slidable collar 4 and the annular follower 15. The follower may be provided with a circumferential flange 20 for substantially enclosing the coil spring 19.

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.

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 will also be seen that the tension means which acts upon the slidable collar is carried by the shaft, the coil spring being substantially enclosed by an overhanging portion of its annular follower.

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, said collar being provided with a sleeve, another collar slidable on the sleeve, a self-adjusting roller interposed between said collars and tension means carried by the said shaft and yieldingly engaging the slidable collar to frictionally clamp the feed roller between said collars, said tension means including a ring fixed to the shaft, an annular follower adjustable longitudinally with respect to the ring and a coil spring interposed between the follower and the slidable collar.

2. A feed roll shaft and a feed roller unit carried thereby comprising a collar fixed to the shaft, said collar being provided with a sleeve, another collar slidable on the sleeve, a self-adjusting roller interposed between said collars and tension means carried by the said shaft and yieldingly engaging the slidable collar to frictionally clamp the feed roller between said collars, said tension means including a ring fixed to the shaft, an annular follower having a screw threaded engagement with the ring and a coil spring interposed between the follower and slidable collar.

3. A feed roll shaft and a feed roller unit carried thereby comprising a collar fixed to the shaft, said collar being provided with a sleeve, another collar slidable on the sleeve, a self-adjusting roller interposed between said collars and tension means carried by the said shaft and yieldingly engaging the slidable collar to frictionally clamp the feed roller between said collars, said tension means including a ring fixed to the shaft, an annular follower having a screw-threaded engagement with the ring and a coil spring interposed between the follower and slidable collar, said follower having a circumferential flange substantially enclosing said spring.

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

HOWARD M. BARBER.