Feb. 14, 1928. 1,659,261

A. M. GUILLET

INTERCHANGEABLE JOURNAL FOR TEXTILE FLUTED ROLLS

Filed Nov. 7, 1925

Fig. 1.

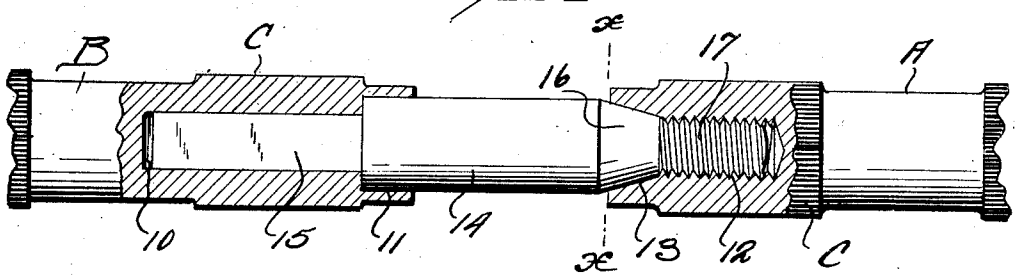


Fig. 3.

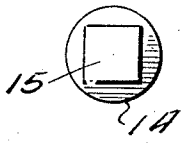


Fig. 2.

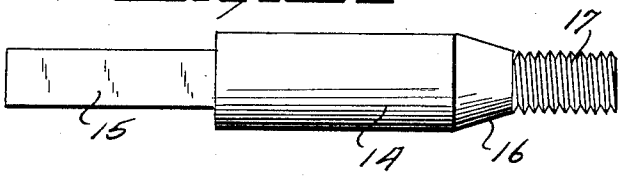


Fig. 4.

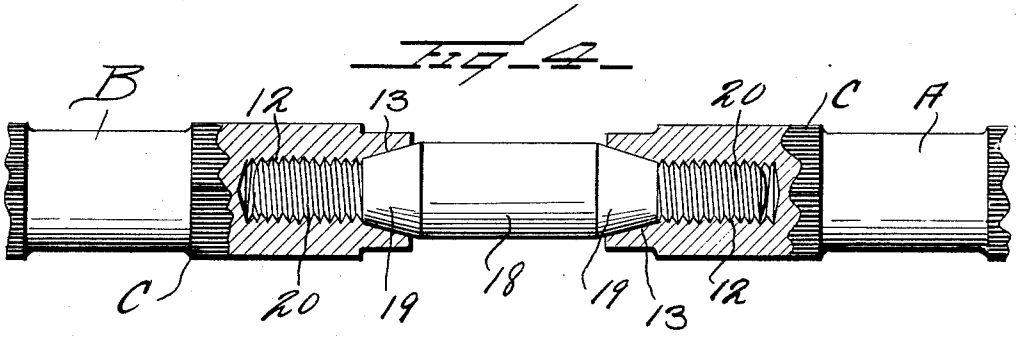


Fig. 6.

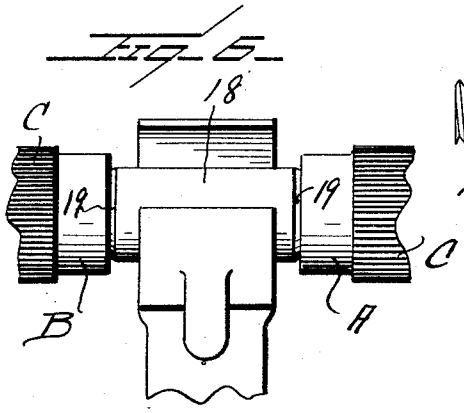
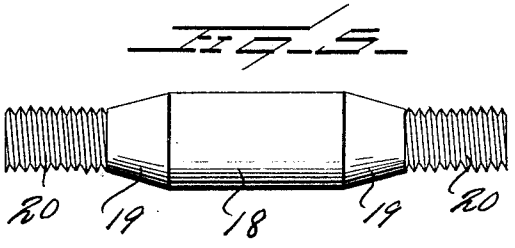


Fig. 5.



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UNITED STATES PATENT OFFICE.

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INTERCHANGEABLE JOURNAL FOR TEXTILE FLUTED ROLLS.

Application filed November 7, 1925. Serial No. 67,644.

This invention relates to spinning machinery, and particularly to the fluted rolls thereof.

The lower rolls of spinning machines which carry fluted bosses are usually made in sections, each section carrying upon it a plurality of fluted bosses and the sections being joined by a neck which forms a journal bearing for the series of rolls and which is formed beyond the journal bearing with a square end adapted to fit within a square or many-sided socket formed in the adjacent end of the next adjacent roll section. Each of these necks, as before remarked, is provided with a journal bearing rotating within a roll stand, and when the journal bearing of a section becomes worn it is necessary that it shall be renecked, which means that the section must be removed from the roll stand, sent to a machine shop, the neck must be sawed off adjacent the junction of the journal portion with the body of the section, then the end of the body section must be bored out, and a new neck having a journal portion and a squared portion must be driven into this bore until a driving fit is secured. This is a more or less expensive operation and it is not very satisfactory for the reason that it is difficult to get a perfect drive fit between the new neck and the body of the section and one that will not permit the neck to become loose.

The general object of my invention is to provide an interchangeable journal with a combination screw and taper fit for textile fluted rolls, which journal may be readily inserted into the extremity of the roll section or removed if necessary.

A further object is to provide an interchangeable journal which has screw-threads whereby it may be engaged with a screw-threaded bore extending longitudinally into the section to be repaired, these screw-threads being so directed that the rotation of the rolls in the spinning machine will cause the interchangeable journal to tighten up within the bore of the section so that there is no chance for the journal to become loose therein.

A still further object is to provide a preferable form of interchangeable journal which is formed alike on both ends so that it will have screw-threaded engagement and a tapering fit within the adjacent ends of two sections of the roll shaft, thus permitting the journal to be readily removed from between the sections and a new journal inserted at any time and doing away with any chance of lost motion or wear in the connection between the journal and the adjacent sections of the roll shaft.

Other objects will appear in the course of the following description.

My invention is illustrated in the accompanying drawing, wherein:—

Figure 1 is an elevation partly in section of one form of my interchangeable journal and allied roll sections;

Figure 2 is an elevation of the form of the interchangeable journal shown in Figure 1;

Figure 3 is an end elevation of Figure 2;

Figure 4 is a sectional view of another form of interchangeable journal;

Figure 5 is an elevation thereof;

Figure 6 is a fragmentary view of the roll stand with the journal in place.

Referring to this drawing, and particularly to Figure 1, A and B designate two adjacent sections of a roll shaft, these sections of the roll shaft having upon them at intervals the fluted bosses C. The section B is illustrated as formed as a female member providing the longitudinally extending socket 10 and a circular countersink 11 at the forward end of the socket. This is the ordinary manner of forming the section B. The ordinary manner of forming the section A is to provide the end of the section with a cylindrical journal portion and a square male member which will fit within the socket 10. There is great likelihood of play between the male member and the socket 10 and if there is any play there is bound to be wear. This, however, is the standard practice today.

If now the journal portion of the shaft should wear, the journal portion is cut off on the line x—x and the shaft is bored to provide the interiorly screw-threaded bore 12, the outer end of this bore being outwardly flared, as at 13, and an interchangeable journal, as shown in Figure 2, is then used comprising the cylindrical bearing portion 14, the male portion 15 which is square in cross section to fit within the socket 10, the tapered portion 16, and the screw-threaded portion 17. This screw-threaded portion 17 has engagement with the screw-threads 12 and the tapered portion 16 bears against the flared portion 13 of the bore. The screw-threads 17 are so directed that the normal rotation of the shaft sections A and B will cause the section A to move inward on the

screw-threads 17 and to bear more and more tightly against the tapered portion 16 and thus practically lock the journal 14 upon the shaft section A. Of course, the extremity of the journal 14 fits loosely within the countersunk portion 11.

In Figure 5, I show another embodiment of my invention in which the journal is formed with a journal portion 18 cylindrical in crosssection, oppositely disposed tapered portions 19 which taper inward and away from each other, and screw-threaded portions 20 at opposite ends. In this case both of the shaft sections A and B are formed with the screw-threaded bores 12 and the flared or conical entrance portions 13. The journal is screwed into engagement with the opposite, interiorly screw-threaded sockets of the shaft sections, and the normal rotation of the roll shafts A and B will cause the roll shafts to screw inward on the screws 20 until the conical portions 19 of the journal fit tightly and have wedging engagement with the flared sockets 13 of the roll sections.

It will be seen that I have provided means which may be used either on old roll shaft sections requiring repair or which may be used on new roll shaft sections where the sections are formed at their adjacent ends with the screw-threaded bores 12 and the flaring sockets 13. It will be seen that these journals are interchangeable and may be used anywhere along the roll shaft and that by using these interchangeable journals it is not necessary to take out the roll shaft section and send it to the repairer but that a mill having my improved journals in stock may readily remove a worn journal and put a new journal in place at a small expense.

The construction shown in Figures 4 and 5 is preferable to that shown in Figure 2 inasmuch as there is a chance for wear between the male member 15 and the socket 10, but all mills are provided with the section B having the sockets 10 and, therefore, unless the mill is to be newly equipped with the sections A and B constructed as in Figure 4, it is necessary to provide interchangeable journals which will fit in the female members 10.

It will be seen that this device is simple and eliminates very great expense. It is difficult to cut off a worn journal from the end of a shaft and substitute a new journal therefor by drilling into the end of the shaft and forcing the new journal into place and, as a matter of fact, a very powerful hydraulic press must be used for this purpose and even then it is oftentimes necessary to pin the inserted end of the journal to the adjacent end of the shaft to prevent any lost motion. It is to be understood that this journal is applicable not only to spinning machinery but to all spinning and card room textile fluted rolls.

I claim:—

1. A detachable and interchangeable journal for use in joining fluted textile rolls comprising a medially disposed, cylindrical journal portion having a uniform diameter throughout its length, inwardly tapered portions extending from opposite ends of the journal portions, and having longitudinally extending screw-threaded extremities.

2. The combination with two spinning rolls, each roll having an inwardly extending, screw-threaded bore at one end and the bore being outwardly flared and unscrew-threaded adjacent the outer end of the roll, of an interchangeable and detachable journal for connecting said rolls formed to provide a cylindrical, medially disposed journal portion of uniform diameter throughout its length, tapering portions extending centrally and longitudinally from the journal portion, and screw-threaded extremities fitting the screw-threaded bores of the rolls, the screw-threads on the extremities being inclined in such direction as to cause them to screw into the screw-threaded bores of the rolls when the rolls are rotating under service conditions.

3. The combination with two spinning rolls, of a relatively short journal member disposed between the two rolls and locking the two rolls together for unitary rotative movement, said journal member having a middle journaled portion, the extremities of the journal member being formed to have detachable locking rotative engagement with the adjacent ends of the spinning rolls.

4. The combination with a plurality of drawing rolls, of relatively short journal members connecting and rotatively locking the adjacent ends of each pair of rolls to each other, each journal member having a middle journaled portion and having its extremities formed to have detachable locking rotative engagement with the rolls for common rotative movement therewith.

In testimony whereof I hereunto affix my signature.

ALBERT M. GUILLET.