May 9, 1933. A. M. GUILLET 1,907,960

INTERCHANGEABLE JOURNAL BEARING

Original Filed Jan. 10, 1930

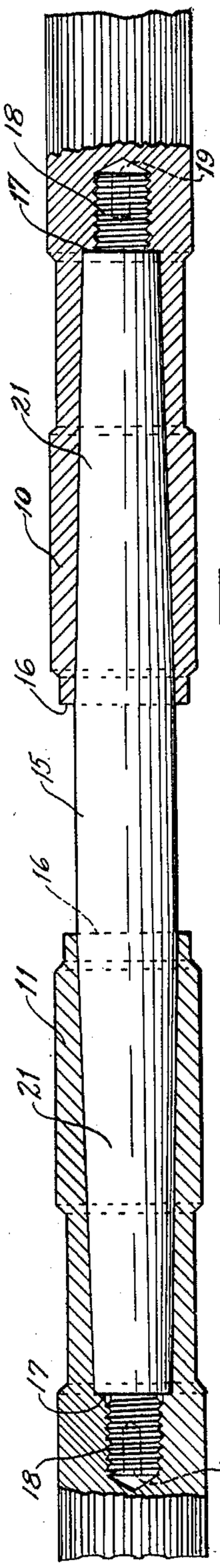

FIG. 1

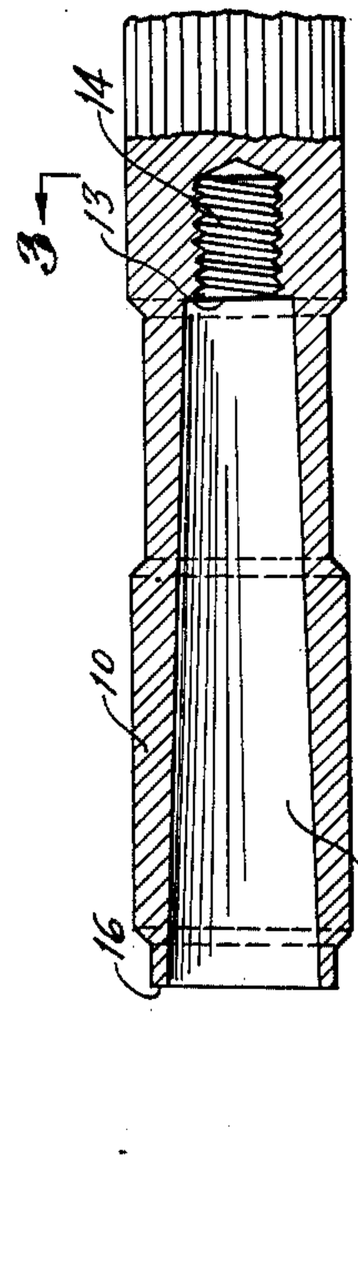

FIG. 2, 3

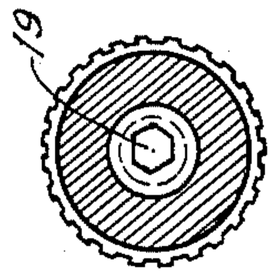

FIG. 3

A. M. GUILLET,
INVENTOR.

BY Paul B. Eaton

ATTORNEY.

Patented May 9, 1933 1,907,960

UNITED STATES PATENT OFFICE

ALBERT M. GUILLET, OF CHARLOTTE, NORTH CAROLINA

INTERCHANGEABLE JOURNAL BEARING

Application filed January 10, 1930, Serial No. 419,891. Renewed November 11, 1931.

This invention relates to spinning machinery and more particularly to a method of joining adjacent fluted rolls together so as to cause the rolls to function better than rolls equipped with square necks, and my invention is adapted to be used in the manufacture of new rolls as well as in the repair of old rolls.

All of the 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 male square end adapted to fit within a female 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 or cut 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 thereon and a squared portion must be driven into this bore until a driving fit is secured. Also it might be remarked that due to the vibration between the sections of rolls the squared portion becomes worn and allows play between the sections of rolls and this causes the rollers to be renecked as well as the wearing out of the journal portion. Both of the above causes contribute to the rapid deterioration of rolls in spinning frames and the like, and calls for an overhauling of the same. 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. Also by driving the new neck into the end of the old roll, if a driving fit is secured there is a tendency to swell the ends of the roll and therefore cause the end bosses thereof to become larger than the other bosses, thereby causing thin, uneven yarn.

The general object of my invention is to provide an interchangeable journal with a combination of a screw and a taper fit for fluted textile rolls and other shafts which may be desired to be secured to each other, which journal may be readily inserted into the extremity of the roll section or removed if necessary, it being an object of my invention to provide a very strong replacement part for joining the section of rolls and one that will not become broken, and also which will not interfere with the size of the rolls as there is no driving and swelling of the end bosses of the rolls.

Another object of my invention is to provide an interchangeable journal for textile rolls and the like which comprises a journal portion, with an elongated portion extending from the journal portion with a very slight taper thereto, which tapered portion of the section on which the journal portion appears being adapted to fit into the elongated tapered bores corresponding to the taper on the journal section, said bores being in the ends of the rolls, and providing a shoulder portion at the bottom of the tapered portion, and then providing a smaller bore and threading the smaller bore and providing a threaded smaller portion on the end of the journal portion to fit into this threaded bore in the roll. I obtain a screw threaded fit between the sections of rolls and the journal portion, and also obtain a tapered fit which will not allow side play between the roll sections and the journal sections.

In my Patent Number 1,659,261 of February 14, 1928, I show a very steep tapered portion, but this invention is an improvement over the structure set forth in said patent, in that I provide a tapered portion in addition to the thread which is a very much elongated taper, and prevents any play between the roll sections and the journal portion, and also provides a reinforcing portion of the roll section and the journal section over-lapping to strengthen the screw threaded fit.

Also in my patent application Serial Num-

ber 377,398 which was filed on July 11, 1929 I show an elongated journal portion extending into bores in the rolls with a steep taper thereon, and this invention is an improvement over that structure, in that in the structure set forth in said patent application I provide an extended bore which does not taper, and this untapered bore allows a certain amount of side play between these rolls and the journal section, and it is an object of this invention to eliminate this side play by having an elongated tapered portion of the journal section fitting into a corresponding tapered portion in the roll section.

Another object of my invention is to provide an interchangeable journal for joining rolls together with both ends of the journal alike, and thus causing it to be interchangeable under all conditions.

Some of the objects of my invention having been stated other objects will appear as the description proceeds, when taken in connection with the accompanying drawing, in which—

Figure 1 is a side elevation partially in cross-section showing my invention;

Figure 2 is a view showing one end of a roll mostly in cross-section after being bored out and threaded to fit my interchangeable journal;

Figure 3 is a cross-sectional view taken along the line 3—3 in Figure 2.

In rolls which are manufactured and placed on spinning machinery the structure which is the predominating and conventional structure, in which a section has a journal portion made integral therewith, which journal portion is squared and, this squared portion is adapted to be fitted into a square hole in the end of another section, and as pointed out in my objects of invention it has heretofore been necessary in replacing a worn out portion to saw off the neck and drill out and insert a new journal.

My invention can be applied to old rolls of this character or to new rolls, and in either case my invention is described best by stating that the rolls 10 and 11 are first bored out in the end portions thereof by the tapered cavity 12, which extends inwardly to the squared shoulder portion 13 and has the smaller bore 14 which is threaded and I then provide the journal member 15 which begins sloping at the point 16 and slopes gradually all the way to the point 17 where it has a shoulder at the point 17 and the smaller portion 18 which is threaded to fit into bore 14 in the sections 10 or 11 as the case may be. Each end of the member 15 has a key hole 19 into which a key can be inserted for removing the journal member 15 from the sections 10 or 11 as the case may be, it being evident that a suitable wrench may be used for removing one of the sections 10 or 11 but when one of the sections is taken off and the journal 15 does not readily come out of the other section, it is impractical to use a wrench unless it should be a friction wrench on the member 15 to cause the threads to disengage themselves from the sections 10 or 11 as the case may be, and in such case a suitable key can be inserted into the hole 19 to unscrew the section 15 from the other roll member 10 or 11 as the case may be.

It is seen that by providing the gradual tapered cavity 12 and providing the tapered portion 21 on each end of the journal portion 15 to conform to the bore 12, that when the threaded portion 18 is driven home in the threads 14 that a perfectly tight fit will be obtained which will prevent any side play whatever, and will insure that the rolls will be in perfect alinement when joined together by my new journal member 15.

This arrangement secures a tight fit between the roll section and the interchangeable journal member which to all intents and purposes is as tight as a drive fit, but the shoulder 17 prevents the swelling of the roll due to the fact that this shoulder limits the inward movement of the tapered portion 21 into the bore 12, and at the same time provides a very tight fit which insures that the entire length of rolls which in many cases are as long as forty feet will be in perfect alinement which would be impossible without this tapered fit extending in the elongated cavity from the edge of the bearing portion of the member 15 back into the roll for an appreciable distance.

In the drawing and specification I have set forth a preferred embodiment of my invention, and although specific terms are employed, they are used in a generic and descriptive sense only, and not for purposes of limitation, the scope of the invention being set forth in the appended claims.

I claim:

1. A detachable and interchangeable roller neck for use in joining textile rolls comprising a medially disposed, cylindrical journal portion having tapered end portions extending into tapered bores in the ends of adjoining rolls, a shoulder portion at the end of the tapered portions on the roller neck, a shoulder portion cut in the bore at the base of the tapered bore portion in the roll, said roll having a smaller threaded bore in the base of the tapered bore in the roll, and a smaller threaded portion on the ends of the roller neck being adapted to fit into the threads in the smaller bores in the roll sections to cause a tight fit between the tapered portions of the roller neck and the tapered bores in the roll member, the shoulder portions serving to limit the inward movement of said roller neck into the rolls.

2. An interchangeable roller neck for textile rolls comprising a journal portion, elongated tapered portions on each side of the journal portion, a smaller threaded portion

on each end of the roller neck, a shoulder portion between the tapered portion and the threaded portion, the adjoining rolls being bored with a tapered bore, a shoulder portion and a smaller threaded portion to conform with the shape of the roller neck and to receive the same to join the rolls together by means of the roller neck, said shoulder portions on said roller neck and in said bores being adapted to fit against each other to limit the inward movement of said roller neck with relation to the rolls.

3. A roll structure for textile machinery comprising rolls having an extended tapered bore in each end of the roll and a smaller bore in the central portion of the bottom portion of the first named bore, said smaller bore extending further into the roll, the smaller bore being threaded, a shoulder portion between the smaller bore and extended tapered bore, and a roller neck adapted to fit into the extended tapered bore, and to threadably engage the threads on the inner surface of the smaller bore, and having a shoulder adapted to fit against the shoulder portion in said bore.

4. A textile roll having an elongated tapered bore in the end thereof and a smaller bore extending from the base of the elongated tapered bore further into the roll, the smaller bore being threaded, a shoulder portion connecting the base of the tapered bore with the smaller threaded bore, and a roller neck adapted to fit into the tapered bore and having the ends thereof threaded to engage the threads in the smaller bore at the base of the tapered bore, said roller neck having a shoulder adapted to fit against the shoulder portion in said bore.

5. In a roller neck for joining sections of textile rolls, a journal portion, a slightly tapered and elongated section on each side of the said journal portion, a shoulder portion at the small end of said tapered portions, a smaller threaded portion extending from the end of said tapered portions, each of said sections having a slightly tapered bore adapted to accommodate one of the slightly tapered portions of said roller neck, each of said sections of rolls having a shoulder portion against which one of the shoulders on said roller neck is adapted to snugly fit to limit the inward movement of the journal with relation to the roll, and each section of roll having a smaller threaded bore adapted to threadably receive one of the smaller threaded portions of the said roller neck.

6. Means for joining sections of textile rolls together comprising an elongated and slightly tapering bore in the end of the roll, a shoulder portion extending at right angles to the longitudinal center of said roll, a smaller bore in the base of said tapered bore, said smaller bore being threaded, a roller neck adapted to fit into the end of said roll, said roller neck having a bearing portion and a shoulder portion, a slightly tapered portion extending from said bearing portion to said shoulder portion, said shoulder on the roller neck being disposed at right angles to the longitudinal center of said roller neck, a smaller portion on the end of said roller neck, the smaller portion being threaded, the slightly tapered portion of said roller neck being adapted to fit into the tapered bore, the shoulder on said roller neck being adapted to fit against the shoulder in said roll, and the threaded end of said roller neck being adapted to threadably engage the threaded bore in said roll.

7. Means for joining sections of textile rolls together comprising a roller neck having end portions extending into bores in the ends of proximate rolls, the extreme ends of said roller neck being threaded to engage internal threads in the bores, and said roller neck having on each end portion a shoulder whose face is disposed at approximately right angles to the longitudinal center of the roller neck and is adapted to fit against a portion of the rolls to limit relative longitudinal movement between the roller neck and the rolls.

8. Means for joining sections of textile rolls together comprising a roller neck having its extremities threaded, and a shoulder portion whose face is disposed at approximately a right angle to the longitudinal center of the roller neck, the sections having bores therein with internal threads in at least a portion of said bores to receive the threaded ends of said roller neck, and each roll having a portion adapted to engage said shoulder portions when the threaded ends of said roller necks are driven home in said internally threaded bores to limit relative movement between the sections and the roller necks.

9. Means for joining sections of textile rolls together comprising a roller neck having a bearing portion intermediate the ends thereof and each end of the roller neck being threaded, said end portions having a shoulder thereon whose face is approximately at right angles to the longitudinal center of the roller neck, said sections having bores in their ends disposed along the longitudinal center of the section, at least a portion of said bores being threaded to receive the threaded ends of the roller neck, and each of said sections having a portion whose face is approximately at right angles to the longitudinal center of the section against which the shoulders on the roller neck are adapted to fit to limit relative movement between the section and the roller neck.

In testimony whereof I affix my signature.

ALBERT M. GUILLET.