Aug. 15, 1939 G. H. MAGRATH 2,169,587

SPINNING SPINDLE

Filed April 23, 1937

Fig. 1.

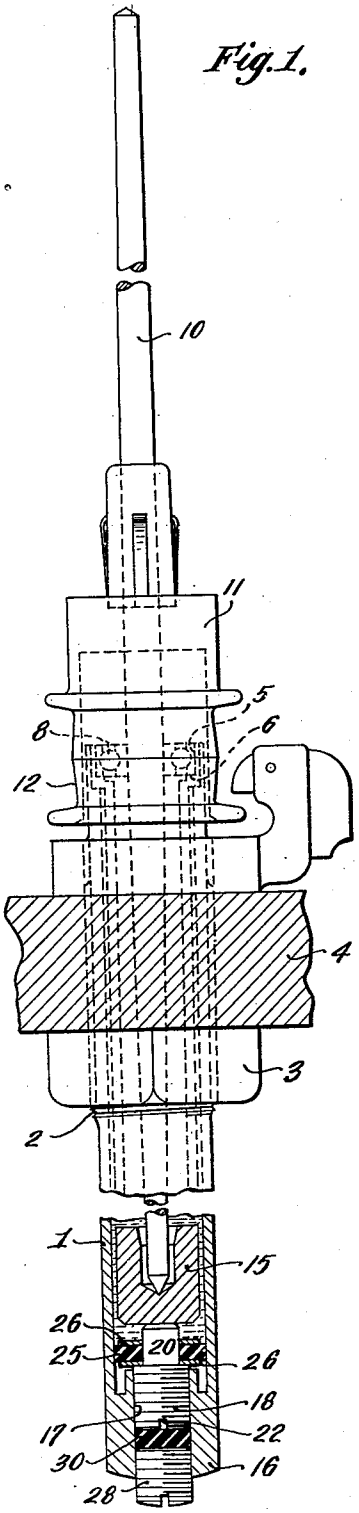


Fig. 2.

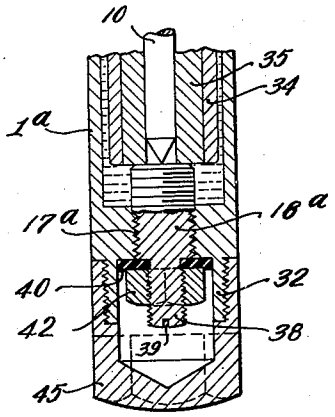
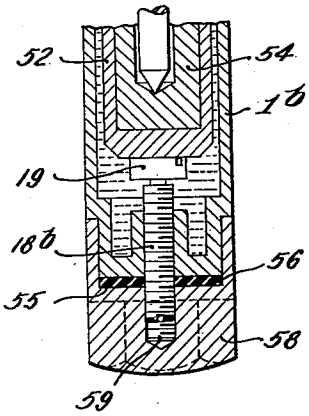


Fig. 3.



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SPINNING SPINDLE

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2 Claims. (Cl. 308—151)

This invention relates to spinning machines, and more particularly to a spindle mounting and associated parts.

In spinning machines it is the usual practice to provide upper and lower bearing members for rotatably supporting the blade and whirl, the lower bearing member usually consisting of a bearing mounted in or integral with the lower end of the bolster or case and arranged to support the blade and whirl at the proper elevation relative to stationary parts of the mounting. Due to the wear at the point of the blade, it is necessary periodically to regrind the end of the blade, and in order to compensate for the reduced length of the blade, there is usually provided an adjusting screw which is operative to raise the blade and whirl to their proper level. Such constructions are objectionable due to the fact that it is practically impossible to prevent an appreciable leakage of oil from the bolster or case, particularly when making an adjustment, and consequently there is not only a substantial loss of oil, but also a danger of the oil level in the bolster or case dropping off to an extent sufficient to impair proper operation.

The principal objects of the present invention are to overcome the aforementioned difficulties and to provide a spindle mounting which is of simple design and of strong and durable construction, embodying a minimum number of parts which may be easily dismembered and assembled, and which is reliable and efficient in operation.

Further objects will be apparent from a consideration of the folowing description and accompanying drawing which show different embodiments of the invention chosen for the purpose of illustration.

In the drawing:

Fig. 1 is an elevation, with parts broken away and shown in section, of a spindle and mounting therefor constructed in accordance with the present invention; and

Figs. 2 and 3 are fragmentary sectional elevations illustrating different modifications.

The embodiment shown in Fig. 1 comprises a bolster case 1 or the like tubular member having an exteriorly threaded periphery 2 which receives a nut 3 by means of which the bolster case may be firmly clamped or otherwise secured to the frame 4 of the spinning machine. The upper end of the bolster is formed with an enlarged bore 5 defining a flat annular shoulder 6 which supports the top bearing member, here shown as an anti-friction bearing 8, having an inner race which snugly fits about the blade 10 and an outer race which tightly fits within the upper end of the bolster, resting on the shoulder 6. The blade 10 carries a whirl 11 having a driving flange 12 which surrounds the upper end of the bolster and case. The lower end or point of the blade is supported by a step bearing 15 which is integral with the lower end of the bolster.

The lower end of the bolster case is provided with an end wall 16 of considerable depth and this end wall is formed with a threaded opening 17 which receives a threaded plug 18. The inner end of the plug is of reduced diameter and defines a neck 20 which projects inwardly into the interior of the case and provides an adjustable support for the step bearing or bolster 15. The inner end of the plug is formed with a diametrically extending recess 22 constituting a means by which the plug 18 may be rotated so as to vary the position of the step bearing 15 axially of the case. An oil-retaining gasket 25 tightly fits about the neck 20 with its outer periphery having a pressed fit against the inner wall of the case. The gasket 25 is preferably provided with stiffening plates or washers 26 which may be threaded or fitted tightly about the neck 20.

As here shown the plug is so designed that its outer end is normally spaced inwardly from the outer end of the opening 17, leaving a space which receives a screw-threaded cap or closure 28 and a gasket 30 is interposed between the inner end of the closure 28 and the outer end of the plug 18. The gaskets 25 and 30 are composed of an oil-resisting material such as vulcanized rubber, chloroprene, leather, treated fibre, or the like, and as they fit tightly within the case and opening, they prevent even a slight seepage of oil from the case.

In order to adjust the position of the stop bearing axially of the case, it is merely necessary to remove the closure 28 and gasket 30, and by means of a screw driver the plug 18 may be rotated in one direction or the other to vary the position of the step bearing 15. It will be noted that in making such adjustment it is unnecessary to remove the blade, and also that as the position of the gasket 25 is not disturbed to any material extent, there is no danger of leakage developing during or subsequent to such adjustment.

In the embodiment shown in Fig. 2, the lower end of the case 1a is formed with an exteriorly threaded extension 32 which projects beyond its threaded opening 17a and a bolster 34 carries a bearing member 35 which cooperates with the upper end of the plug 18a to support the blade 10 in a fixed position axially of the case 1a. The

outer end of the plug is provided with a threaded neck 38 which is of reduced diameter and having an outer end formed with a diametrically extending slot 39 by means of which the position of the plug 18a and bearing 35 may be varied as above described. An oil-retaining gasket 40 tightly fits about the inner end of the neck 38 and engages the marginal portion surrounding the opening 17a. A locking nut 42 is carried by the neck 38 and this nut is operative not only to hold the plug 18a in adjusted position, but also to clamp the gasket 40 against the end of the case, thus providing an effective seal for preventing leakage of oil from the case. The end of the case is enclosed by a removable cap 45 which has a screw-threaded engagement with the extension 32.

In the embodiment shown in Fig. 3 the lower end of the bolster case 1b is formed with a threaded opening which receives a screw-threaded plug 18b, as in the previously described embodiments, and a bolster 52 carries the usual step bearing 54. In this particular embodiment the length of the plug 18b is such that its outer end extends a substantial distance beyond the end of the case, and its inner end is provided with an enlarged head 19 which supports the bolster 52 and step bearing 54. The outer end of the plug 18b is provided with a diametrically extending slot by means of which the plug may be rotated to vary the position of the step bearing 54. The end of the case 1b is preferably formed with a flat outer surface 55 and an oil-retaining gasket 56, tightly fitting about the plug 18b, engages the surface 55. A removable cap or the like closure 58 is formed with a threaded opening 59 which engages the outwardly projecting end of the plug 18b and holds the cap in assembled relation with the case. The cap 58 not only acts as a check nut for the plug 18b, but also constitutes a jaw for clamping the gasket 56 firmly against the surface 55, thus providing an effective seal preventing leakage of oil from the case.

While I have shown and described different desirable embodiments of the invention, it is to be understood that this disclosure is for the purpose of illustration and that various changes in shape, proportion and arrangement of parts, as well as the substitution of equivalent elements for those herein shown and described, may be made without departing from the spirit and scope of the invention as set forth in the appended claims.

I claim:

1. An adjustable oil-tight spindle construction comprising a tubular member adapted to hold a fluid lubricant, said tubular member having at its lower end a threaded aperture, a bearing disposed within the tubular member and movable longitudinally thereof, said bearing being adapted rotatably to support the lower end of a blade, a screw-threaded plug disposed in said aperture with its upper end projecting into the lower end of said tubular member and supporting said bearing in substantially fixed position axially of the tubular member, means for rotating said plug so as to vary the position of said bearing axially of said tubular member, oil retaining means carried by said plug comprising a compressible gasket interposed between a pair of washers carried by the upper end of said plug, said gasket being spaced from the bearing and having its periphery engaging said inner wall of the tubular member in all positions of adjustment of said plug.

2. An adjustable oil-tight spindle construction comprising a tubular member adapted to hold a fluid lubricant, said tubular member having at its lower end a threaded aperture, a bearing disposed within the tubular member and movable longitudinally thereof, said bearing being adapted rotatably to support the lower end of a blade, a screw-threaded plug disposed in said aperture with its upper end projecting into the lower end of said tubular member and supporting said bearing in substantially fixed position axially of the tubular member, said plug having a reduced portion and means at its lower end for rotating it so as to vary the position of said bearing axially of said tubular member, and an oil-retaining gasket secured on said reduced portion of said plug, said oil-retaining gasket being spaced from said bearing and having its periphery engaging the inner wall of the tubular member in all positions of adjustment of said plug.

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