April 24, 1934. W. DE W. LEINBACH 1,956,449

SPINDLE SWING FOR SPINNING MACHINES

Filed Oct. 1, 1932

Fig. 1.

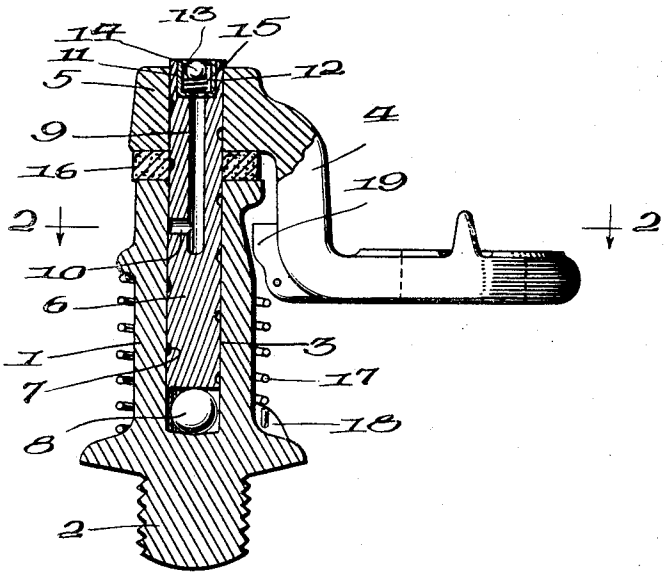


Fig. 2.

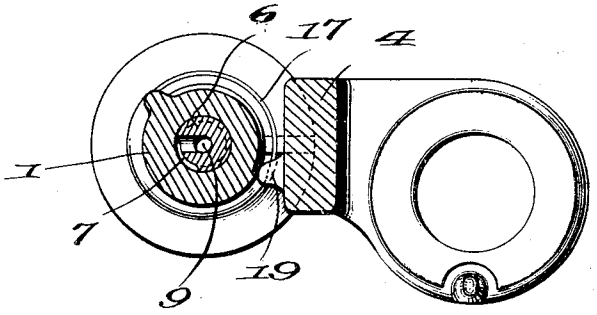
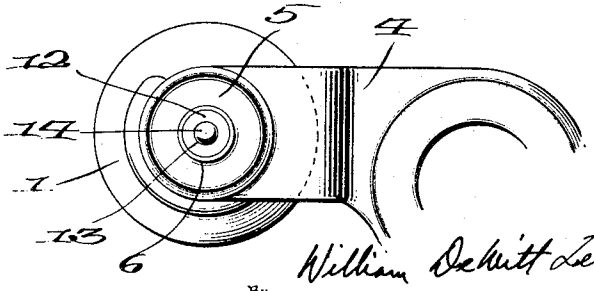


Fig. 3.



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SPINDLE SWING FOR SPINNING MACHINES

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7 Claims. (Cl. 118—1)

This invention relates to an improvement in spindle swings for spinning machines.

The object of my invention is to improve the manner of lubricating the stem of the swing, so as to keep said stem lubricated and to protect it from dust and humidified air of the silk mill which thereby prevents rusting or corroding of the bearing.

This object is accomplished by applying the lubricating oil through an opening in the end of the stem where it may flow down into the peripheral groove thereof and protecting said opening by means of a spring-pressed ball or the like, which will keep it normally closed to thereby exclude dust and humidifying air from gaining access to the periphery of the stem and the bearing thereof in the well. A washer of felt or other absorbent material is placed between the well and the swivel to protect the bearing from dust and humidified air and consequently prevent rusting or corroding thereof. This washer also prevents dirt or lint from lodging in the joint as well as preventing the oil from working up the stem and splashing over outside of the spring. I provide a ball thrust bearing in the bottom of the well to be engaged by the lower end of the stem in order to give point contact therewith, and to allow positive free movement of the stem.

In the accompanying drawing,

Fig. 1 is a partial sectional view through my improved spindle swing;

Fig. 2 is a horizontal sectional view therethrough on the line, 2—2, of Fig. 1; and

Fig. 3 is a top plan view thereof.

I refer to the patent to Bradley, No. 1,616,949, February 8, 1927, as illustrating the general form and arrangement of spindle swings that have been used heretofore; that illustrates the manner of use of the swing and since it is well-known in the art, I have not shown my swing applied to the rail of a spinning machine since it would be used in the general manner disclosed in the Bradley Patent referred to.

Referring to the drawing, the well 1 is of the usual construction and is provided with a threaded lower end 2, adapted to be screwed into the spindle rail of the spinning machine, and this well is provided with an internal recess 3, forming a bearing therein which extends downwardly from its upper end.

The spindle supporting arm is designated 4 and is of the usual construction for supporting the spindle in the outer free end thereof, the inner end being provided with a hub 5 in which is rigidly fixed a stem 6 having a peripheral spiral lubricating groove 7 therearound from the lower to the upper ends thereof. The stem 6 has a turning fit in the bearing 3 of the well and the lower end of the stem rests on a ball thrust bearing 8 placed loosely within the bottom of the bearing 3, so as to give point contact for the lower end of the stem and very free movement thereof in its bearing.

The upper end portion of the stem has an oil hole 9 extending downwardly therein communicating at its lower end with a lateral passage 10 which leads from the oil hole 9 into a portion of the peripheral groove 7, so as to supply lubricating oil thereto. This enables the oil for the bearing of the stem to be applied through the stem, so as to insure that all of the oil reaches the bearing without any of it splashing over on the outside of the well or the spring. The upper end of the stem 6 is counterbored as at 11 to receive a housing 12 having an orifice 13 through the upper end thereof and through which the oil is inserted for lubricating the bearing of the stem.

A ball check valve 14 is provided for normally closing this orifice 13, said check valve being supported by a spring 15 which acts thereon and being interposed between the check valve and the lower end of the housing 12. This check valve allows the bearing to be oiled through the upper end of the stem, but it keeps the oil hole normally closed to prevent dirt, lint, or moisture from passing into the bearing through the oil hole.

Interposed between the hub 5 and the upper end of the well 1, is a washer 16 of felt or other absorbent material which protects the bearing from the humidified air of the silk mill and consequently prevents rusting or corroding of the bearing. This washer also prevents dirt or lint from lodging at this joint, as well as preventing the oil from working up the stem and splashing over outside the well.

The usual spring is designated 17 and has one end secured to a rib 18 on the side of the well, while its other end is secured to a rib 19 on the inner side of the arm 4. This spring acts to normally hold the whirl of the wind-up spool carrying the spindle in driving contact with a belt.

From the foregoing description, it will be seen that I have materially improved the spindle swing particularly in the manner in which the stem is lubricated and the lubrication protected and the provision of a ball thrust valve for the lower end of the stem which effects free movement thereof, which results have been demonstrated by the actual use of these swings. In view of the improved results, the trade has recog-

nized the superiority of my swing and it is already replacing others that have been used heretofore.

My improvements may be used either in the manufacture of new swings or may be applied to the old type of swings which may be reconditioned with these improved features at comparatively small cost.

I claim:

1. A spindle swing comprising a well, an arm, a stem connected with the arm and extending into the well, said stem having an oil hole extending through the upper end thereof and having lateral communication with a side of the stem within the well, a housing enclosed within the upper end portion of the oil hole, a valve in the housing in position to be seated therein, and a spring normally tending to hold the valve seated for closing the oil hole.

2. A spindle swing comprising a well, an arm having a hub, a stem secured to the hub and extending into the upper end of the well, said stem having an oil hole through the upper end thereof communicating with its periphery, and a washer of absorbent material interposed between the hub and the end portion of the well and closing the space therebetween in position to prevent splashing over of lubricant from within the well onto the outside thereof.

3. A spindle swing comprising a well, an arm, a spring coiled about the well and having opposite ends connected with the well and arm, a stem connected with the arm and extending into the well, said stem having a spiral lubricating groove in the periphery thereof extending to a point above the well, and having an oil hole through the upper end thereof communicating with said groove, and an absorbent washer interposed between the upper end of the well and the arm in position to prevent splashing over of lubricant from the groove onto the spring and to protect the bearing from dust and humidified air.

4. A spindle swing comprising a well, an arm, a stem secured to the arm and extending into the upper end of the well, said stem having a peripheral lubricating groove extending along the length thereof, a washer of absorbent material interposed between the arm and the upper end of the well and closing the space therebetween in position to prevent splashing over of lubricant from the groove onto the outside of the well and to protect the bearing from dust and humidified air, and a ball freely disposed in the bottom of the well and supporting the lower end of the stem by direct contact therewith.

5. A spindle swing comprising a well, an arm, a stem connected with the arm and extending into the well, said stem having an oil hole through the upper end thereof communicating with the periphery of the stem, and an absorbent washer surrounding the stem between the upper end of the well and the arm in position to exclude dust and humidified air from the well.

6. A spindle swing comprising a well, an arm, a stem connected with the arm and extending into the well, said stem having an oil hole approximately through the center thereof with lateral communication with the periphery of the stem at a point within the well, and an absorbent washer fitting around the stem at the top of the well and beneath the arm in position to exclude dust and humidified air from within the well and prevent splashing of lubricant.

7. A spindle swing comprising a well, an arm, a stem connected with the arm and extending into the well, said stem having a spiral lubricating groove in the periphery thereof extending to a point approximately at the upper edge of the well, said stem having an oil hole approximately through the center thereof with lateral communication with the spiral groove at a point within the well, and an absorbent washer fitting around the stem at the top of the well and beneath the arm for protecting the well and confining lubricant therein.

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