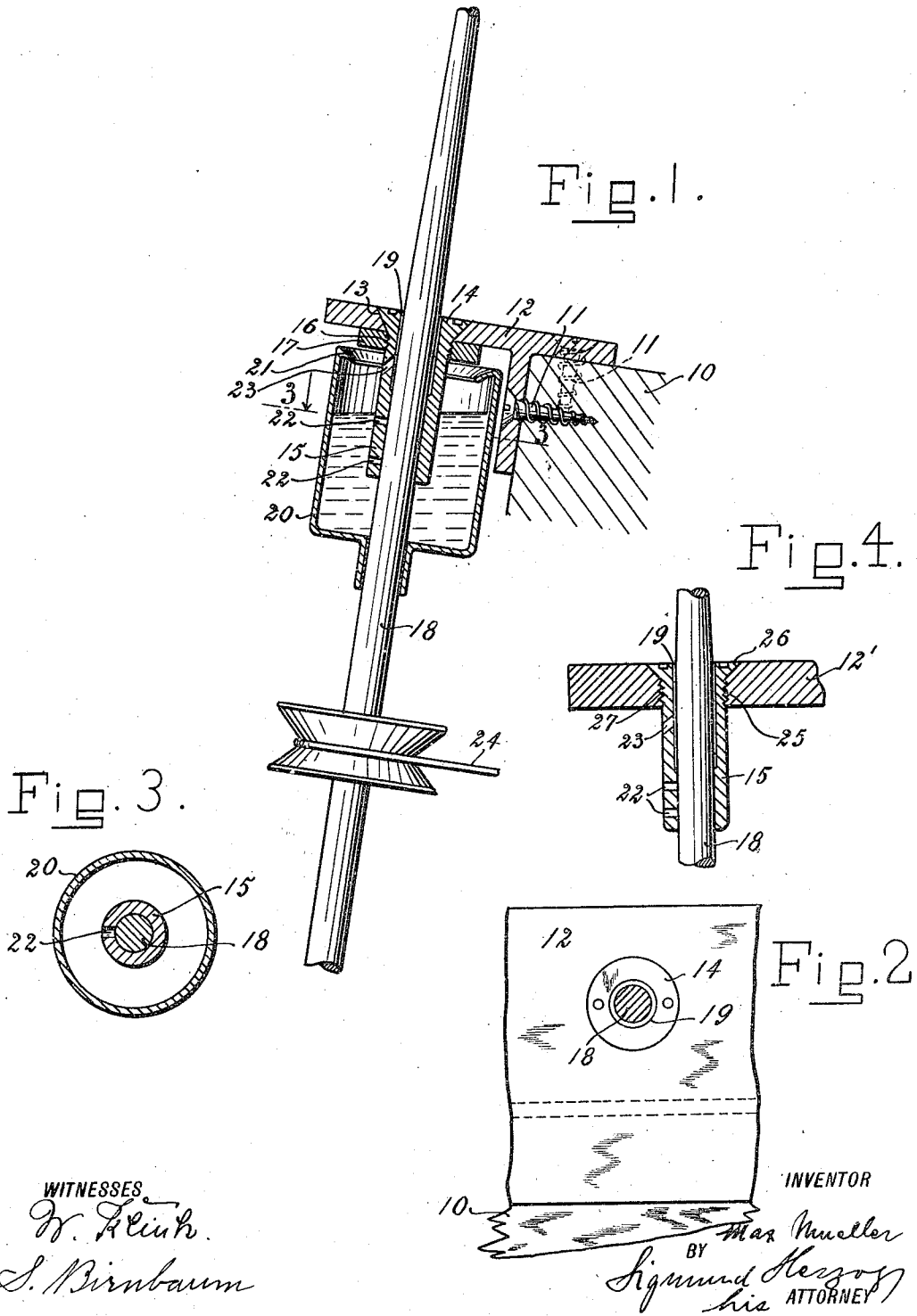


1,065,066.



WITNESSES
W. Link.
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INVENTOR
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SPINDLE BEARING.
APPLICATION FILED DEC. 26, 1911.

1,065,066.

Patented June 17, 1913.

2 SHEETS—SHEET 2.

Fig. 5.

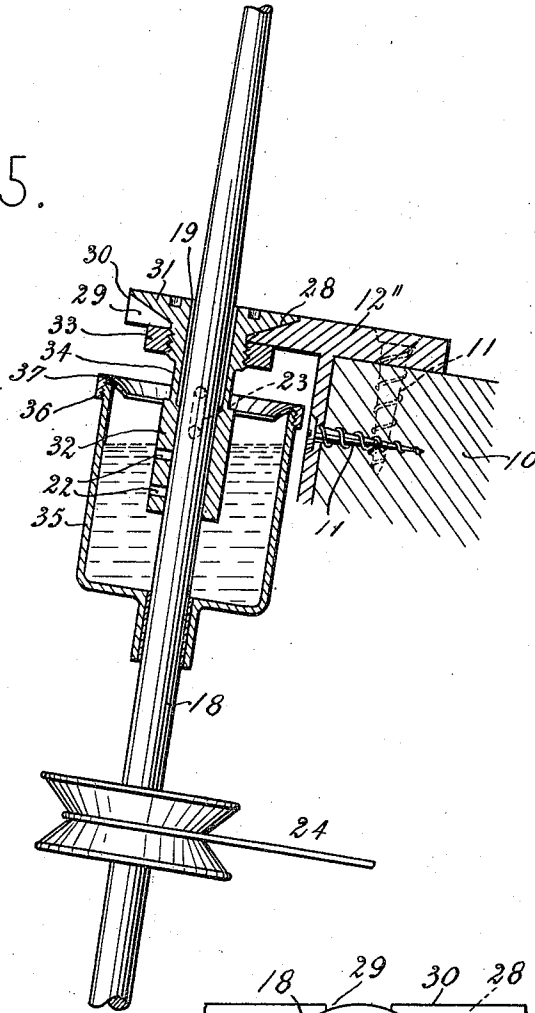
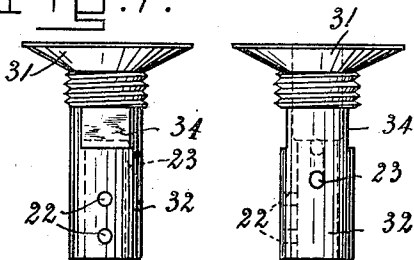


Fig. 7.

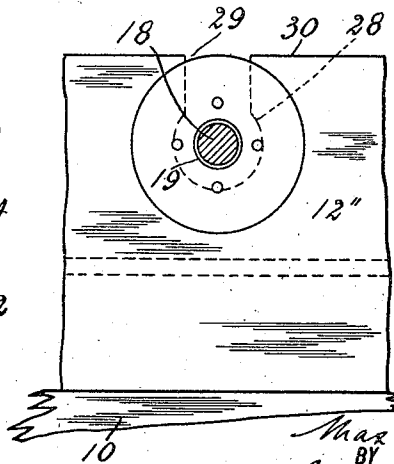


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Fig. 8.

Fig. 6.



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SPINDLE-BEARING.

1,065,066.

Specification of Letters Patent.

Patented June 17, 1913.

Application filed December 26, 1911. Serial No. 667,901.

To all whom it may concern:

Be it known that I, MAX MUELLER, a subject of the German Emperor, and resident of Clifton, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Spindle-Bearings, of which the following is a specification.

The present invention relates to bearings for spindles of spinning machines, and has for one of its objects to provide a simple, efficient and inexpensive middle or bolster bearing for use in connection with the bolster rail of the mule of a spinning machine.

Another object of the invention is to provide a bolster bearing which can be easily replaced when worn out.

A further object of the invention is to provide a bolster bearing with a simple and inexpensive lubricating means which furnishes a continuous stream of oil to the bearing.

With these and other objects in view, which will more fully appear as the nature of the invention is better understood, the same consists in the combination, arrangement and construction of parts hereinafter fully described, pointed out in the appended claims and illustrated in the accompanying drawings, it being understood that many changes may be made in the size and proportion of the several parts and minor details of construction within the scope of the appended claims without departing from the spirit or sacrificing any of the advantages of the invention.

A few of the many possible embodiments of the invention are illustrated in the accompanying drawings, in which:—

Figure 1 is a vertical sectional view of a spindle bearing forming part of a mule carriage, the bearing being constructed in accordance with the present invention; Fig. 2 is a plan view of the supporting rail and bearing; Fig. 3 is a section taken on line 3—3 of Fig. 1; Fig. 4 is a modification of the invention; Fig. 5 is a vertical sectional view of a spindle and a modified bearing; Fig. 6 is a plan view thereof; Fig. 7 is a front elevation of the bolster bearing; and Fig. 8 is a side elevation of the device shown in Fig. 7.

Referring now more particularly to Figs. 1 to 3, inclusive, the numeral 10 indicates a portion of the mule carriage of the usual construction, to which is fastened, for in-

stance by means of screws 11, 11, or otherwise, a, preferably, T-shaped bolster rail 12. This rail is provided with a series of conical apertures 13. In each of these apertures is seated the conical head 14 of a bolster bearing 15, which is made in the form of a tubular member, provided below its conical head 14 with screw threads 16, engaged by a nut 17, which latter bears against the lower surface of the rail 12, and is adapted to hold the bolster bearing rigidly in its proper position. In the bearing 16 is rotatably journaled a spindle 18, the upper portion 19 of the bore of the bearing being of a larger diameter than the spindle 18. A cylindrical oil cup 20 is attached concentrically to the spindle 18, the upper end of said cup being arranged immediately below the nut 17 and provided with a flange 21 bent inwardly toward the longitudinal axis of the spindle and downwardly, for a purpose which will be hereinafter described. The bearing 15 is provided with oil passages or ducts 22, 22, which extend through the bearing from the outer surface thereof to the surface of the revolving spindle 18. An outlet passage 23 leads in a downwardly inclined direction from the enlarged bore 19 of the bearing to the outer surface of the latter, through which the oil, accumulating in the enlarged bore 19, is adapted to return to the cup.

The operation of this device is as follows: Normally the cup is filled with oil to reach a level above the upper oil duct 22. As the spindle rotates during the spinning operation, the oil cup will revolve therewith, imparting thereby a motion to the oil contained in the cup. The oil passes constantly through the oil ducts 22 to the surface of the revolving spindle, which carries it up into the enlarged bore 19 of the bearing. As soon as the oil collects in this enlarged bore up to the level of the inclined return passage 23, it will flow back into the cup. It will be observed that a continuous lubricating operation is thus automatically obtained, whereby an undue wear of the bolster bearing or spindle is effectively prevented. Should, however, the bolster bearing be worn out, it can be easily replaced, as it does not form an integral part of the rail 12. The rotary motion of the oil cup tends to throw the oil by centrifugal force toward the inner face of the wall of the oil cup and also toward the upper end of the latter.

The inwardly and downwardly projecting flange 21 prevents, however, the oil from leaving the oil cup.

It is to be observed that the oil cup may be easily filled during the running of the machine, and that an entirely stainless product can be obtained upon the machine provided with the present invention, for the reason that the oil cannot rise above the level of the return passage 23, and cannot come thus into contact with the thread. The oil can neither affect the driving cord 24 of the spindle 18, which cord remains thus in its proper condition to give an even drive.

A modification of the bolster bearing is shown in Fig. 4 of the drawings, in which case it is provided with screw threads 25 below its conical head 26, said screw threads meshing with threads 27 in the rail 12'.

A further modification of the device is shown in Figs. 5 to 8, inclusive, in which the rail 12" is provided with conical seats 28, to which lead slots 29 from the outer edge of the rail. In each seat is arranged the conical head 31 of a bolster bearing 32, which is held in position upon the rail by means of a nut 33 in the same manner as the bearing shown in Figs. 1 to 3, inclusive, is kept thereon. Below the screw threaded portion the bearing is reduced in diameter, as clearly shown at 34, said reduced diameter being somewhat smaller than the width of the slot 29 in the rail, whereby, upon disengaging the nut 33 from the threads of the bearing, the latter together with the spindle can be easily taken off the rail, for instance, in order to refill the cup with oil or to clean the oil ducts and return passage in the bearing. The oil cup is made in this case of two parts, and consists of a cylindrical vessel 35, fixedly attached to the spindle 18, and of a part 36, held upon the cylindrical vessel in any suitable manner, said part 36 being provided with an inwardly and downwardly extending flange 37, for the purpose described in connection with Figs. 1 to 3, inclusive, of the drawings. The operation of this device is in all respects identical with that described hereinbefore.

What I claim is:—

1. In a device of the character described, the combination with a bolster rail provided with a conical aperture, of a bolster bear-

ing having a conical head seated in said conical aperture and extending downwardly, means engaging said bearing for attaching the same rigidly to said rail, the upper portion of the bore in said bearing being enlarged in diameter, said bearing being provided with ducts which extend through the lower portion of the same and with a downwardly inclined passage which leads from the enlarged portion of the bore to the outer portion of said bearing, a spindle rotatably mounted in said bearing, and an oil cup concentrically attached to said spindle below said rail extending upward toward said rail and being provided at its upper end with an inwardly and downwardly extending flange, said bearing attaching means permitting said spindle and the oil cup attached thereto to be lifted without first changing the position of said bearing upon said bolster rail.

2. In a device of the character described, the combination with a bolster rail provided with a conical aperture and a slot leading from said aperture to the outer edge of said rail, of a bolster bearing having a conical head seated in said conical aperture and extending downwardly, said bolster bearing having a portion reduced in diameter adapted to be accommodated by said slot, means engaging said bearing for attaching the same rigidly to said rail, the upper portion of the bore in said bearing being enlarged in diameter, said bearing being provided with ducts which extend through the lower portion of the same and with a downwardly inclined passage which leads from the enlarged portion of said bore to the outer portion of said bearing, a spindle rotatably mounted in said bearing, and an oil cup concentrically attached to said spindle below said rail extending upward toward said rail and being provided at its upper end with an inwardly and downwardly extending flange, substantially as and for the purpose specified.

Signed at New York, in the county of New York and State of New York, this 22nd day of December, A. D. 1911.

MAX MUELLER.

Witnesses:

SIGMUND HERZOG,
S. BIRNBAUM.