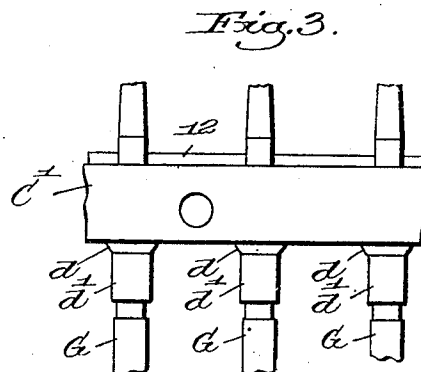
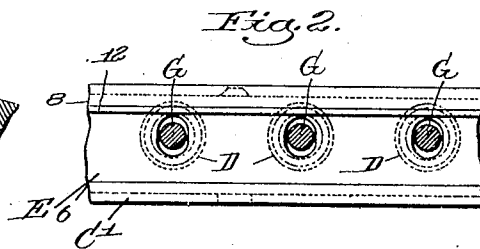
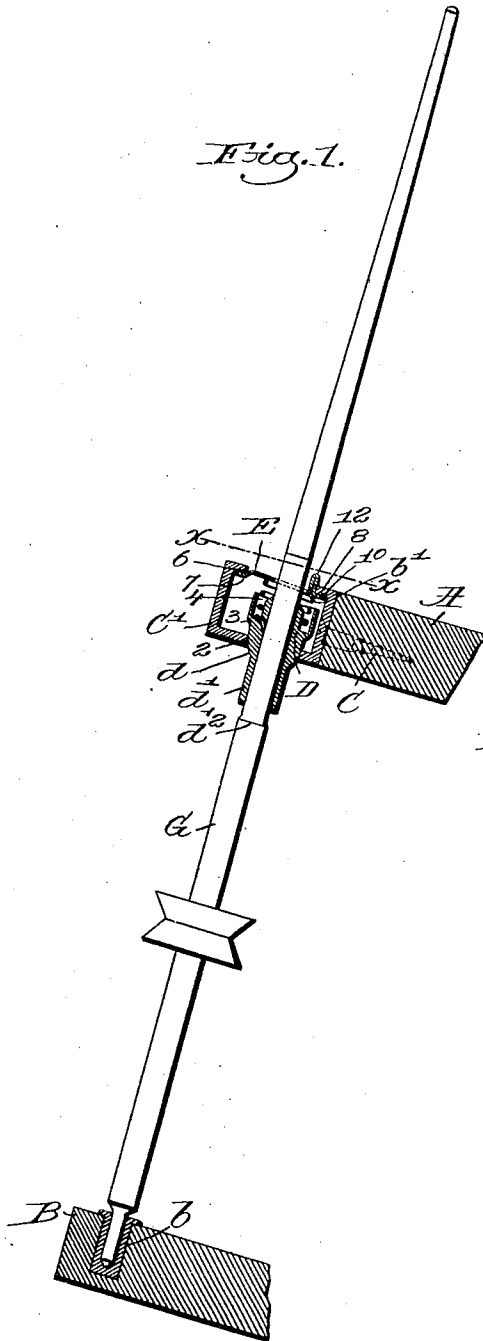


No. 876,246.

PATENTED JAN. 7, 1908.

F. C. STEVENS.
SPINDLE BEARING.
APPLICATION FILED JULY 15, 1907.



Witnesses:
Fried. S. Grunhof
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Inventor,
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UNITED STATES PATENT OFFICE.

FRANK C. STEVENS, OF NORTH ANDOVER, MASSACHUSETTS, ASSIGNOR TO DAVIS & FURBER MACHINE COMPANY, OF NORTH ANDOVER, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

SPINDLE-BEARING.

No. 876,246.

Specification of Letters Patent.

Patented Jan. 7, 1908.

Application filed July 15, 1907. Serial No. 383,731.

To all whom it may concern:

Be it known that I, FRANK C. STEVENS, a citizen of the United States, and a resident of North Andover, in the county of Essex and State of Massachusetts, have invented an Improvement in Spindle-Bearings, of which the following description, in connection with the accompanying drawing, is a specification, like letters on the drawing representing like parts.

This invention has for its object the production of a novel bearing for spindles of spinning machines, the invention being shown as embodied with a middle or bolster bearing for use in connection with the bolster rail of a mule, the bearing receiving a spindle, but it will be understood that the invention hereinafter to be described and claimed is applicable in connection with any bearing of any spindle.

The bearing shown is provided externally midway its ends with a curved spherical neck that rests in a conical or spherical seat connected with or forming part of the rail, the diameter and shape of the neck being such that when resting in its seat the bearing is free to move that the spindle may adjust itself to the proper alinement without vibration.

Each bearing is acted upon at one end by a spiral spring that maintains the neck of the bearing in its seat and in the present embodiment of my invention the rail is shown as of trough shape and the springs surround each one of the spindles. A cover or device acting on the upper end of the spring keeps the bearing seated yieldingly in its seat in the rail.

Figure 1 in elevation and partial section shows a spindle and bearing forming part of a mule carriage, the bearing embodying my invention; Fig. 2 is a top or plan view of the bearing-supporting rail below the dotted line *x*, Fig. 1, and Fig. 3 is a detail looking at the front of the rail and showing three bearings and parts of three spindles therein.

In the drawing, A represents portions of a mule carriage of usual construction, B representing a portion of the carriage sustaining the spindle steps *b*.

The carriage has connected to it in suitable manner, as by screws C a rail C' shown as of trough shape and as having a series of conical or spherical seats 2. Each seat receives and sustains a bearing D shaped as shown best in vertical section Fig. 1, the exterior of

the bearing having a shoulder 3 and below the same a vertically curved or spherical portion *d* constituting a neck, the neck being prolonged by a tubular portion *d'*. The upper end of the bearing presents an annular groove 4 that receives the lower end of a spring *b'*, the upper end of which is acted upon by a spring holder or depressor E shown as a cover detachably connected to the upper side of the trough-shaped rail. The pintle of each spindle G enters a hole in a step *b* and from the tip or point of the spindle to just above the upper end of the bearing D the spindle is tapered and from that point substantially to the shoulder *d'* of the spindle the latter is preferably cylindrical, or shaped to have a running fit in the bearing.

Viewing Fig. 1, it will be seen that the cone-shaped neck of the bearing rests in the conical or spherical seat 2 and the vertically curved spherical neck resting thereon is so sustained as to be free to oscillate or adjust itself to the requirements of the spindle running at speed, enabling the spindle to come into proper alinement and overcome any tendency of the spindle to vibrate; or in other words, the bearing moves to the requirements of the spindle. The cover E is herein shown as having a series of holes G for each spindle. The rail has at one edge a lip 6 that may be engaged by a shoulder 7 at one edge of the cover and the opposite edge of the rail has a lip 8 that may be engaged by a lip or shoulder 10 at the opposite edge of the cover, said shoulder forming part of an upwardly bent spring lip 12 of the cover. To apply the cover, the shoulder 7 will be inserted under the lip 6, the bearings being in position in their seats in the rail and the springs having been applied to the upper ends of the bearing the cover will be forced down on to the springs, the shoulder 10 crossing the edge of the lip 8 and yielding slightly due to the bent portion 12 thereof, the shoulder finally springing under the lip 8 where it is held operatively in position, and maintains the springs under compression in the annular grooves of the bearings, thus maintaining the bearings yieldingly in contact with the seats 2 of the rail. Oil entering the bearing or the space 4 will pass therefrom through a channel or oil duct to the surface of the revolving spindle.

I am aware that a bearing has been provided between its ends with an enlargement

circular in cross section, the periphery of said enlargement acting against the inner vertical wall of a tubular structure inclosing the bearing.

5 Having described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. A rail having a seat, a bearing having a vertically curved or spherical neck and an annular groove at its upper end, the bearing being sustained loosely by the seat, and a spring having its lower end inserted in the groove combined with means to act upon the upper end of and cause said spring to
15 maintain the bearing yieldingly in the seat of said rail.

2. A trough-shaped rail having a seat in its bottom and a removable cover, combined with a bearing having a vertically curved or

spherical neck sustained loosely in said seat, 20 and provided above said neck with a spring support, and a spring interposed between said support and the cover and acting to maintain said bearing yieldingly in said seat.

3. A trough-shaped rail having lips, and 25 a covering having shoulders at its sides to engage the under sides of said lips, combined with a spindle and bearing, said cover having a series of holes one for each spindle and yielding means to hold the cover in place. 30

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

FRANK C. STEVENS.

Witnesses:

SAMUEL F. ROCKWELL,
W. T. PUTNAM.