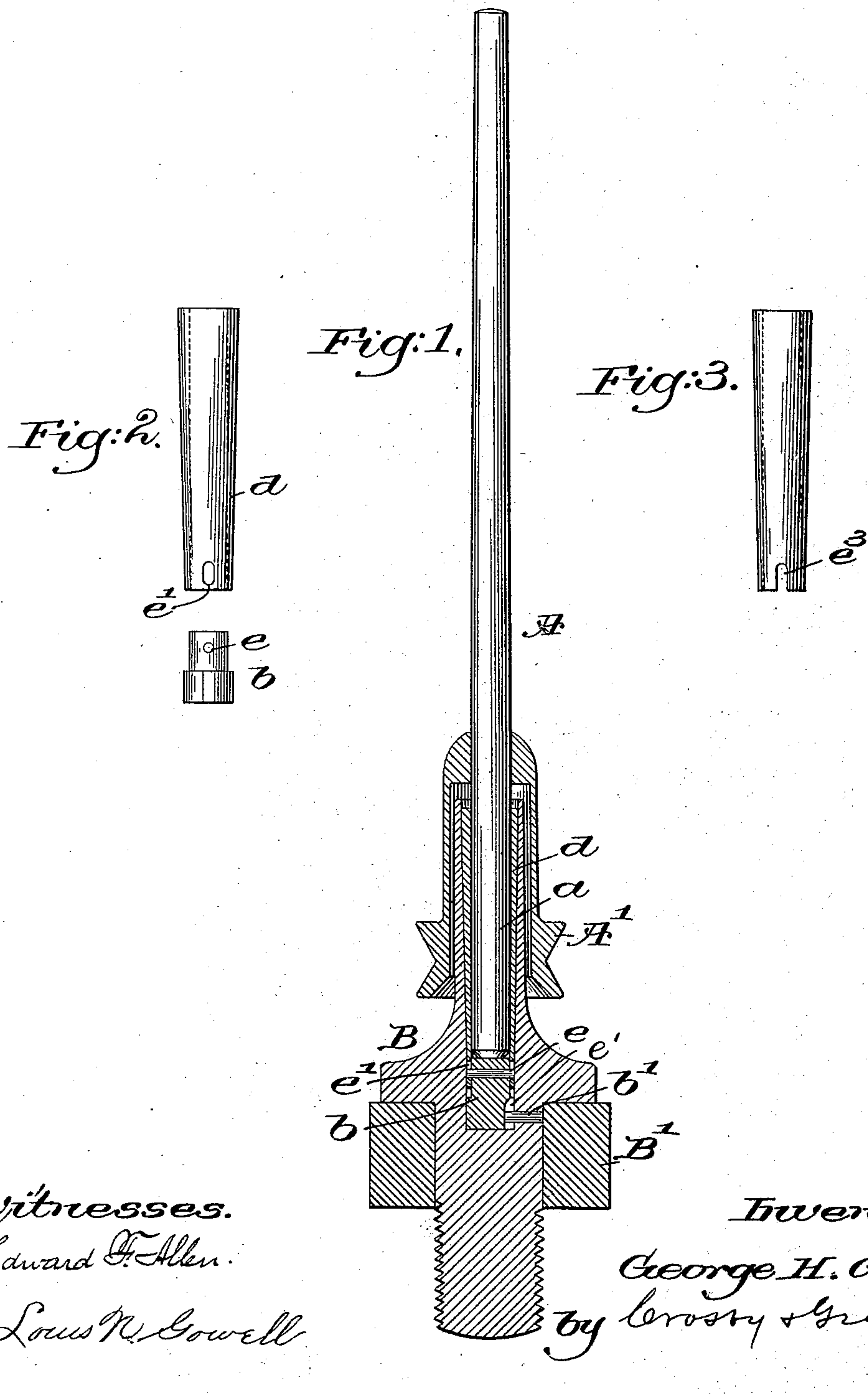


(No Model.)

G. H. ALLEN.
SPINDLE BEARING.

No. 506,616.

Patented Oct. 10, 1893.



Witnesses.

Edward F. Allen.

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UNITED STATES PATENT OFFICE.

GEORGE H. ALLEN, OF FALL RIVER, ASSIGNOR TO GEORGE DRAPER & SONS,
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SPINDLE-BEARING.

SPECIFICATION forming part of Letters Patent No. 506,616, dated October 10, 1893.

Application filed May 29, 1893. Serial No. 475,818. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. ALLEN, of Fall River, county of Bristol, State of Massachusetts, have invented an Improvement in Spindle-Bearings, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My invention is based on the principle that the lateral bearing of a spindle if its load were substantially balanced, would not need to be loose; but if the load be unbalanced, a certain amount of looseness in the bearing will permit the spindle to find its true center of rotation. I have consequently invented a spindle having a lateral bearing which is normally fixed or without lateral play, and which is vertically movable independently of the step, said bearing being automatically lifted and loosened within its surrounding supporting-case by the action of the spindle alone within it; when necessity requires that the spindle shall have lateral play to a limited extent to provide for an unbalanced load. To effect this result I have provided the interior of the surrounding supporting-case with a tapering bore, and have placed in it a lateral bearing tapered externally, the same resting on the tapering surface of the case as a seat and normally fitting the seat so as not to allow lateral play, but in case the spindle is unequally loaded, its gyratory action, it then delivering a series of sharp quick blows,—will tend to raise the lateral bearing, vertically independently of the step on which the spindle rotates, thus giving to the lateral bearing the necessary looseness to enable the hurtful vibration of the spindle to be overcome. In my invention the lateral bearing is normally fixed or unyielding and it has no lateral play except that which it gets by the spindle itself when running with an unbalanced load, it then, and then only lifting the said lateral bearing from its seat and vertically from and independently of the step.

Figure 1, is a sectional view showing a spindle mounted in a bearing embodying my invention; Fig. 2 a detail showing the bearing and step removed and detached, and Fig. 3 a modified form of bearing.

The spindle A is shown as having a sleeve

whirl A' and a cylindrical pintle *a*, to rest on a suitable step *b* seated in a chamber in a supporting-case B resting on a rail B', said step being restrained from rotation in suitable manner as by a pin or projection *b'*. The interior of the supporting-case is tapered to receive the externally tapered bearing *d* which seats itself with its own weight, and only its own weight, on the tapered interior of the case, the connection of the bearing and the step being such that the bearing may rise from its seat under the action of the lower end of the pintle against and within the bearing.

In Figs. 1 and 2, the non-rotating step has a pin or projection *e* which enters openings *e'* in the bolster, so that the bolster may rise independently of the step for a limited distance under the blows of the unequally loaded spindle.

In the modification Fig. 3, the slot *e³* in the bolster is open-ended, so as to enable the bolster, if desired, to be lifted from the supporting-case independently of the step. The pin *e*, working in the opening *e'* of the bolster, acts as a stop to restrict the upward movement of the bolster under the action of the spindle.

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

1. A supporting-case having a tapered chamber, and a bolster tube tapered externally and having its taper surface seated against the tapered surface of the case, the normal contact between the bolster and case being without lateral play or looseness, combined with a separate step with relation to which the bolster tube is movable vertically, substantially as described.

2. A supporting-case having a tapered chamber, and a bolster tube tapered externally and having its taper surface seated against the tapered surface of the case, the normal contact between the bolster and case being without lateral play or looseness, combined with an independent step, and a spindle mounted in said tube and rotating on said step, the gyrations of the spindle when unevenly loaded acting to lift the bolster vertically from its seat independently of the step and thus automatically provide for lateral

play or looseness between said bolster and case, substantially as described.

3. A supporting-case having a tapered chamber, and a bolster tube tapered externally and having its taper surface seated against the tapered surface of the case, the normal contact between the bolster and case being without lateral play or looseness, combined with a separate step mounted in said chamber, and a spindle fitting said tube, the gyrations of the spindle when unevenly loaded acting to lift the bolster vertically from its seat and from the step, to thus provide for lateral play or looseness between said bolster and its surrounding case, the step sustaining the weight of the spindle while the bolster rises on the spindle, substantially as described.

4. A supporting-case having a tapered chamber, combined with an independent vertically movable bolster tube tapered externally and having its taper surface seated against the tapered surface of the case, the

normal contact between the bolster and case being without lateral play or looseness, and with a spindle mounted in said tube, the gyrations of the spindle when unevenly loaded acting to lift the bolster vertically on the spindle and from its seat and from the step to automatically provide for lateral play or looseness between said bolster and case, said step, and a pin and slot connection between said independent step piece on which the weight of the spindle is sustained and the bolster, said pin and slot connection limiting the extent of upward movement of the bolster independently of the step, substantially as described.

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

GEORGE H. ALLEN.

Witnesses:

HENRY H. EARL,

HERBERT W. MERRILL.