

(No Model.)

J. R. GRAY.

SPINDLE AND SUPPORT OR BEARING THEREFOR.

No. 287,279.

Patented Oct. 23, 1883.

Fig 1.

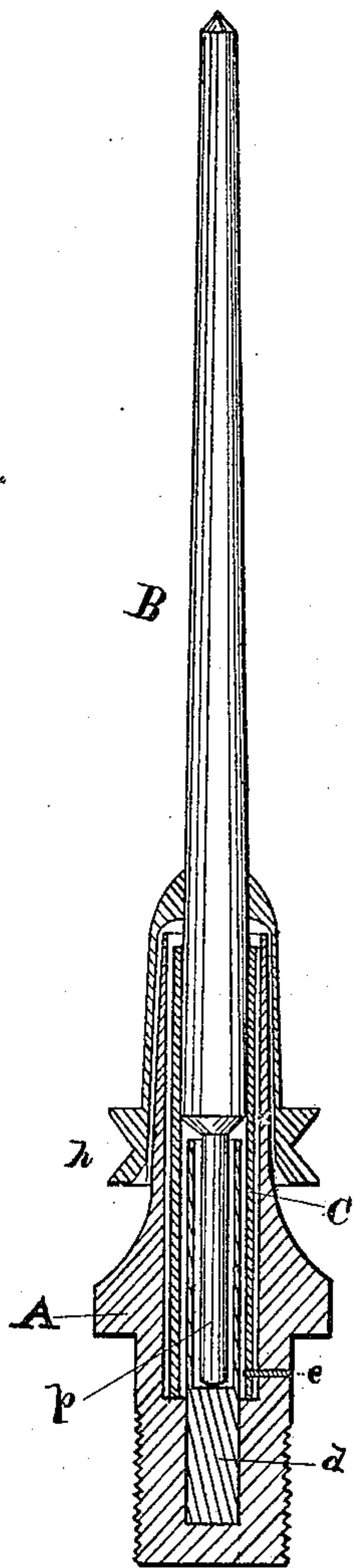
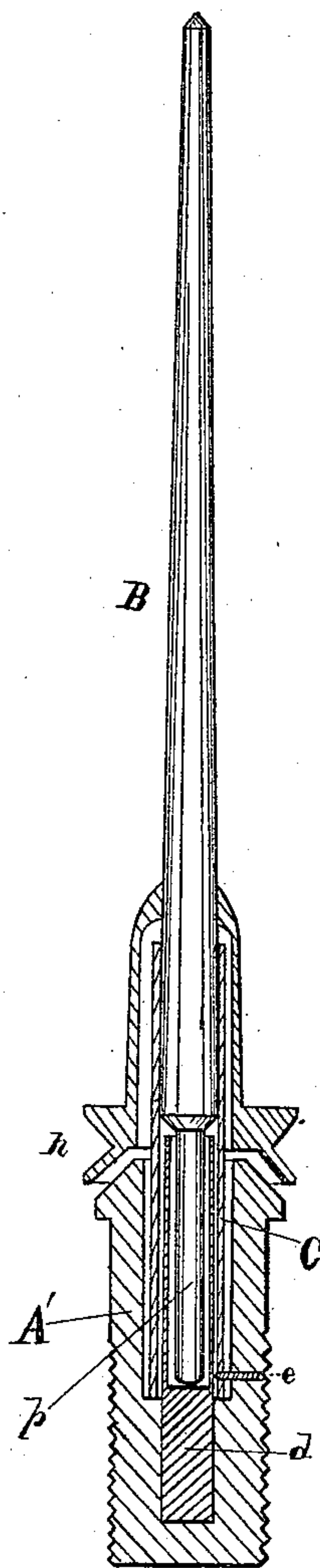


Fig 2.



Witnesses
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SPINDLE AND SUPPORT OR BEARING THEREFOR.

SPECIFICATION forming part of Letters Patent No. 287,279, dated October 23, 1883.

Application filed September 30, 1882. (No model.)

To all whom it may concern:

Be it known that I, JAMES R. GRAY, a citizen of the United States, residing at Ayer, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Spindles and Supports or Bearings therefor; and I do hereby declare that the following is a full, clear, and exact description of the invention, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to that class of spindles commonly known as the "Rabbeth," and has for its objects to provide a construction of spindle and bearing that will allow the spindle to center itself freely when carrying an unequally-distributed load, without the use or aid of an elastic packing surrounding the bearings, and to reduce the power required to operate this class of spindles. To accomplish these objects I first provide a bolster-case and bolster-tube similar to those now in use on the Rabbeth spindle. In the center of the bolster-case I insert and fix a step-board centrally to receive the reduced pintle formed on the lower end of the spindle, the said step being extended up to a point substantially in the line of the band-pull, and having an internal diameter a little greater than the diameter of the pintle, thus allowing the pintle to move laterally in the fixed step. The bolster-tube is constructed to sleeve the step, fitting it loosely, and is extended above the upper end of the step, where it affords a bearing for the body of the spindle above the pintle. The bolster-tube is restrained from rotation by reason of a pin or projection extended loosely through holes in the bolster-case. The bolster-tube is enough smaller in diameter externally than the chamber in the bolster-case to enable oil to stand between them and serve as a cushion, and the internal diameter of the bolster-tube is enough larger than the external diameter of the rigid step as to enable oil poured into the bolster-case to stand as a packing-film between them. So it will be seen that the bolster-tube is cushioned by oil between it and a stationary surface outside and inside of it; and it will also be noticed that the lateral bearing for the

spindle—the upper portion of the bolster-tube—from the line of the band-pull upward is a laterally-movable bearing, and that the spindle or its pintle is not restrained laterally below the band-pull. In practice the spindle will not gyrate sufficiently to cause the pintle to touch the upright wall of the step. Extending the wall of the step substantially up to the line of the band-pull inside the bolster-tube enables the oil to serve as an inner cushion for the said tube up to the line of the band-pull.

Referring to the drawings, Figure 1 is a central vertical section of a whirl-sleeve, bolster-case, bolster-tube, and step, with a portion of the spindle in elevation; and Fig. 2 is a like view of a modification.

In Fig. 1, A is a bolster-case having the fixed step *d*, centrally drilled to receive the pintle *p*, formed on the lower end of the spindle B, the pintle being fitted loosely in the step, and the walls of the step extended upward within the whirl-sleeve to a point nearly in the same horizontal plane as the band-groove *h*.

C is a bolster-tube adapted to sleeve the step *d*, fitting it loosely, and extending above the top of the step sufficiently to afford a bearing for the body of the spindle above the pintle.

The bolster-tube is loosely held and prevented from rotating by means of the pin *e*. An elastic medium may be interposed between the bolster-tube C and bolster-case A, if desired; but I do not regard it as necessary or desirable. The oil used to lubricate the spindle forms a cushion between the two sufficient to prevent the communication of vibration to the spindle.

I do not confine myself to the use of a bolster-case extending within the whirl-sleeve and as far up as the bolster-tube, as I may use a bolster-case constructed as shown at A', Fig. 2. Neither do I confine myself to the form of locking pin or projection, as shown, as any other well-known device may be used to prevent the rotation of the bolster-tube.

I claim—

1. The spindle having a sleeved whirl, and provided at its lower end with a reduced pintle, in combination with the bolster-case, the

bolster-tube placed therein loosely, and with the centrally-bored fixed step, the walls of which are extended upward within the bolster-tube to a point substantially in line with the band-groove, whereby the bolster-tube may be cushioned with oil at its outer side, and also at its inner side, substantially as described.

2. The spindle having a sleeved whirl, and provided at its lower end with a reduced pintle, the bolster-case, and the centrally-bored fixed step extended upward along the pintle substantially to the line of the band-pull, in combination with the bolster-tube placed in the bolster-case and loosely sleeving the step, as shown, whereby the bolster-tube is adapted to be cushioned, both at its outer and inner sides, up to the line of the band-pull, substantially as described.

3. The spindle provided with the sleeve-whirl and having a pintle formed at its lower end, the bolster-case, and the centrally-bored step, the wall of which is extended upwardly into the bolster-tube substantially to the line of the band-pull, in combination with the bolster-tube applied loosely to the bolster-case and adapted to sleeve the step, and with a locking pin or projection to restrain the bolster-tube from rotation with the spindle, yet permit it to slide as the foot of the spindle seeks its true center of rotation, substantially as described.

JAMES R. GRAY.

Witnesses:

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W. N. COWLES.