

(No Model.)

J. R. GRAY.

SPINDLE BOLSTER AND ITS SUPPORT.

No. 306,683.

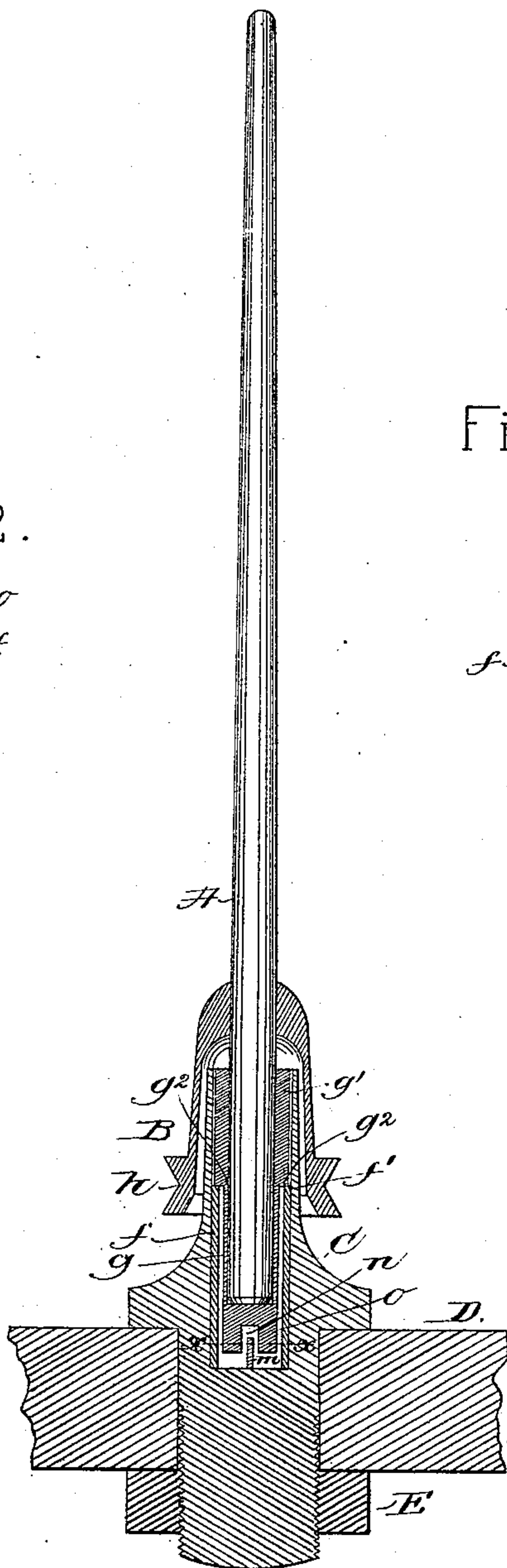
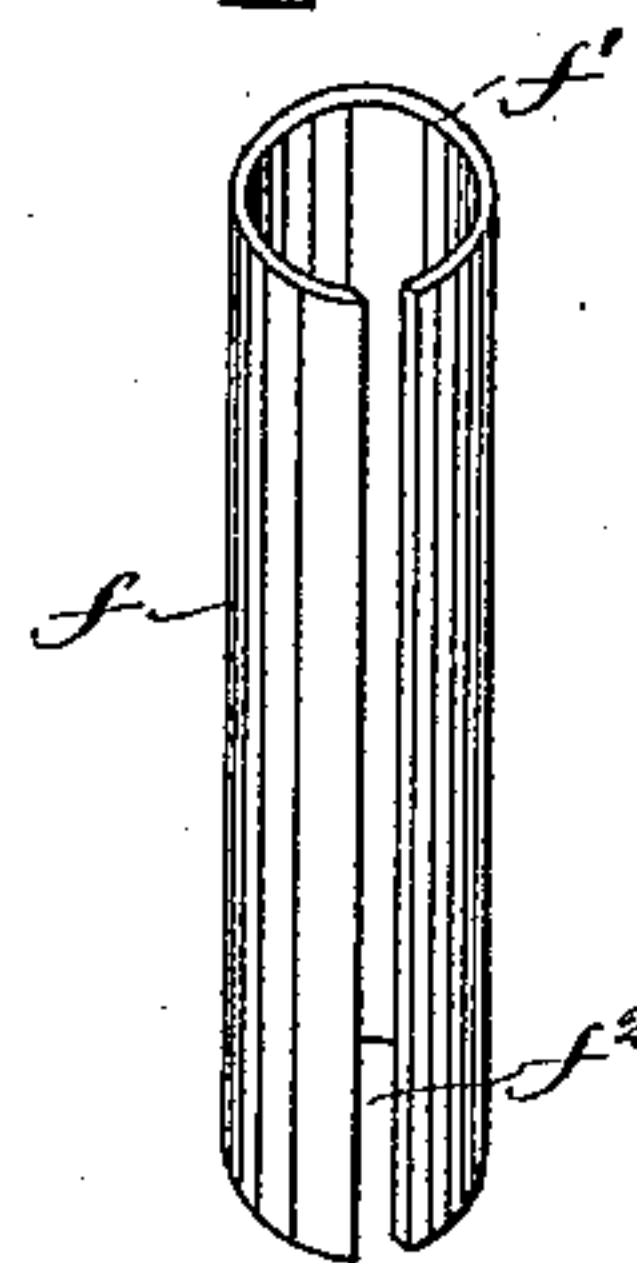
Patented Oct. 14, 1884.

Fig:1.

Fig:2.



Fig:3.



Witnesses  
*Arthur Lippert*  
*John F. C. Poirier*

Inventor.  
*James R. Gray*  
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# UNITED STATES PATENT OFFICE.

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## SPINDLE-BOLSTER AND ITS SUPPORT.

SPECIFICATION forming part of Letters Patent No. 306,683, dated October 14, 1884.

Application filed August 13, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES R. GRAY, of Ayer, county of Middlesex, State of Massachusetts, have invented an Improvement in Spindle-Bolsters and their Supports, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

10 This invention is intended as an improvement on that class of spindles and bolsters the lower ends of which are adapted to move or wander laterally to a limited extent under an unequally balanced load.

15 In this my invention the bolster-case, closed at the bottom to form an oil-well, has sprung into it a split-metal tube, the upper end of which constitutes a shoulder or bolster-support for the bolster, which latter, resting thereon with its lower end in the oil in the bolster-case, is free to move laterally in a radial direction as the spindle seeks its true center of rotation. The bolster has co-operating with it a spring-holder, which acts to restrain the bolster from being rotated with the spindle.

25 Figure 1, in section, represents a bolster-tube, bolster-rail, nut, bolster, bolster-support, spring-holder, and sleeve-whirl, the latter being attached to a spindle shown in elevation. Fig. 2 is a sectional detail of the bolster-support, bolster, and spring-holder therefor, on the dotted line *x*, Fig. 1; and Fig. 3, a separate view of the bolster-support enlarged and removed.

35 The spindle A, provided with sleeve-whirl B, bolster-case C, rail D, and nut E, are all as usual. The case C, chambered from its upper end, is of usual shape, and may be supplied with oil in any usual manner.

40 My improved bolster-support is made as a sheet-metal tube, *f*, open along one side, as at *f'*, and normally the diameter of the said support externally is in excess of the internal diameter of the bolster-case, so that when the said bolster-support is contracted and sprung into the bolster-case, as shown in Figs. 1 and 2, it will be held thereon so firmly by its own pressure against the bolster-case as not to rotate but remain in fixed position, and its upper end, as at *f'*, is made to come just oppo-

site the line of the band-pull. The bolster *g*, having a cylindrical head, *g'*, of less diameter externally than the internal diameter of the bolster-case, is turned away or reduced in diameter to form a shoulder, *g''*, the under side 55 of which rests upon the upper end, *f'*, of the bolster-support, *f*, as shown in Fig. 1. The external diameter of the head of the bolster is enough smaller than the internal diameter of the bolster-case to afford a space in which the 60 bolster may move laterally as the spindle seeks its true center of rotation, the shoulder *g''* at such time moving on the upper end of the said support. The bolster *g*, reduced in diameter below the shoulder *g''* and placed loosely 65 within the bolster-case, has its lower portion closed to form a foot-step for the spindle. The foot of the bolster, or that part of it below the support on which the bolster moves, is considerably smaller in diameter than the diam- 70 eter of the interior of the bolster-case, so that the film of oil between the said foot and the bolster-case will act as a cushion or packing, so that the said part need not come in contact with the case. The bolster, having a step at 75 its lower end, is slotted, as shown at *n*, and is restrained from rotation with the revolving spindle by means of the spring or yielding holder *m*, composed of a short piece of steel, which is dropped loosely within the bolster- 80 case and the bolster-support, one end of the said holder entering the slot *f''* in the said bolster-support, as shown in Fig. 2. The forked lower end of the bolster straddles the spring-holder, and when the spindle is being 85 rotated the projections *o o*, acting against the same, restrain the bolster from rotation in the bolster-case; yet the bolster and the spindle within it are free to move laterally to a limited extent in the bolster-case for the purposes 90 stated. As the spindle is started, the spring-holder yields to and gradually arrests the notched bolster.

The bolster rests on the bolster-support substantially opposite the line of the band-pull, to 95 prevent the strain on the band drawing the spindle over out of vertical position.

The bolster will be drilled through or grooved in suitable or usual manner for the circulation and flow of oil.



By making the bolster-support as a separate tube the cost of making a shoulder therein, as in my application No. 71,744, is obviated.

I claim—

- 5 1. The bolster-case and the split-sleeve-like removable bolster-support sprung therein, and the shouldered bolster adapted to rest thereon, combined with the bolster-holder, to operate substantially as described.
- 10 2. The bolster-case closed at its bottom to form an oil-well, the shouldered bolster slotted at its lower end, and the independent split-tube-like removable support *f*, sprung therein for the bolster, combined with a holder for the  
15 bolster, to prevent it from being rotated in the bolster-case, the said holder entering a slot in the bolster, substantially as described.
3. The spindle provided with a sleeve-whirl, the bolster-case, the shouldered bolster, notched at its lower end, and the independent  
20 removable split-tube-like support for the bolster, sprung into the bolster-case, and having its upper end opposite the line of the band-pull or the groove of the whirl, combined  
25 with a holder to restrain the bolster from rotation with the spindle, substantially as set forth.

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

JAMES R. GRAY.

Witnesses:

GEO. W. GREGORY,  
W. H. SIGSTON.