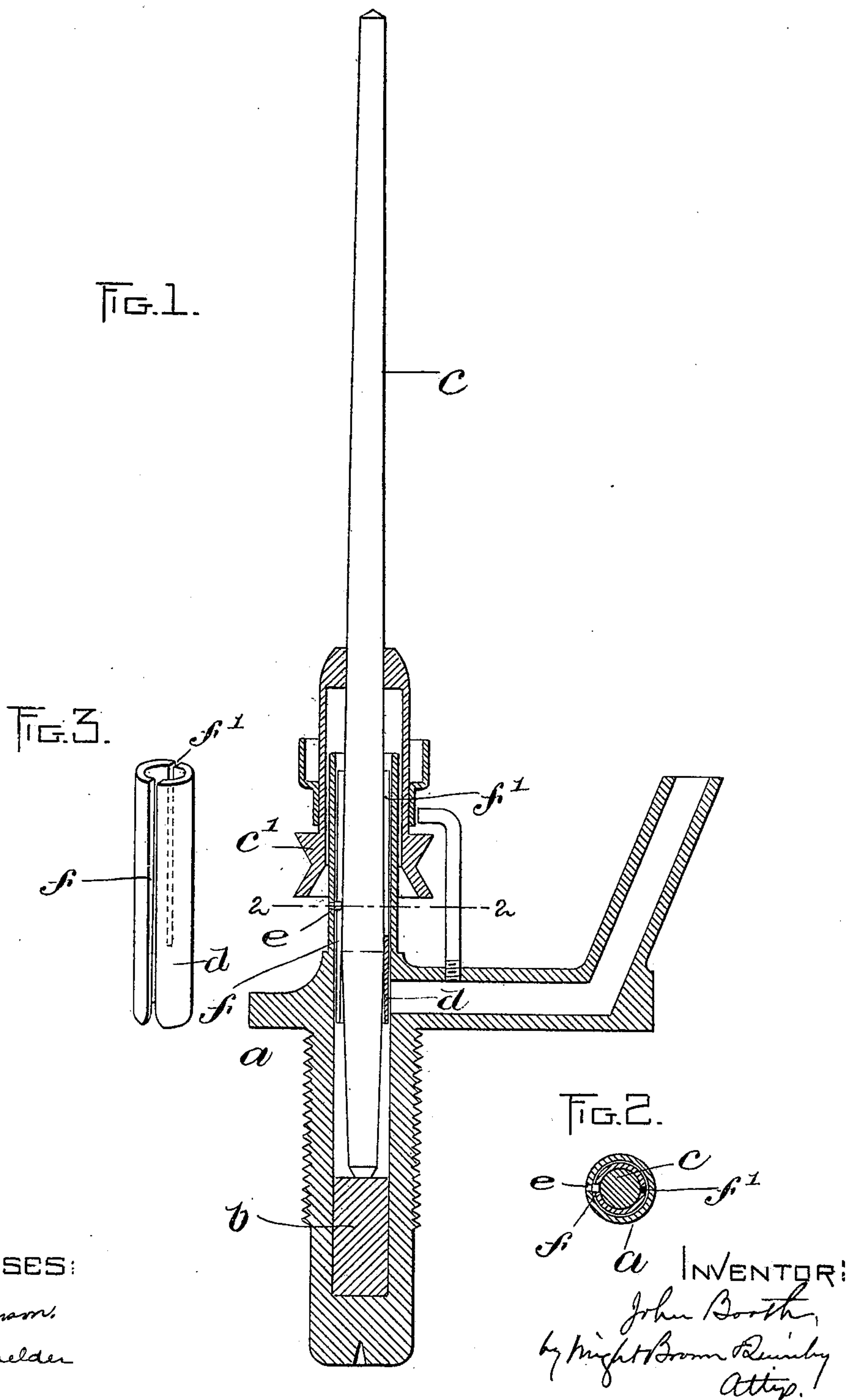


No. 619,930.

Patented Feb. 21, 1899.

J. BOOTH.
SPINDLE AND BEARING.
(Application filed Sept. 28, 1898.)

(No Model.)



WITNESSES:

A. J. Hannam.
E. Batchelder

INVENTOR:
John Booth,
by Knight Broom Peimby
Attys.

UNITED STATES PATENT OFFICE.

JOHN BOOTH, OF CENTRAL FALLS, RHODE ISLAND.

SPINDLE AND BEARING.

SPECIFICATION forming part of Letters Patent No. 619,930, dated February 21, 1899.

Application filed September 28, 1898. Serial No. 692,053. (No model.)

To all whom it may concern:

Be it known that I, JOHN BOOTH, of Central Falls, in the county of Providence and State of Rhode Island, have invented certain new and
5 useful Improvements in Spindles and Bearings, of which the following is a specification.

This invention has for its object to enable a spindle-bolster to adjust itself automatically on the spindle which runs in it to compensate
10 for wear both of the spindle and bolster, so that no adjustment of the bolster by the operatives will be required.

To this end the invention consists in the combination, with a bolster-case, of a spindle
15 having its surface which bears on the bolster tapered inwardly from its lower to its upper portion (the taper being the reverse of that in an ordinary spindle) and a bolster which conforms to the taper of the spindle and is adapted
20 to gravitate or move downwardly on the spindle as the wear of the contacting parts of the spindle and bolster may require.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents
25 an elevation of a spindle and bearing embodying my invention, the bolster-case, bolster, and whirl being shown in section. Fig. 2 represents a section on line 2 2 of Fig. 1. Fig. 3 represents a perspective view of the bolster.

30 The same letters of reference indicate the same parts in all the figures.

In the drawings, *a* represents the bolster-case, which may be of any suitable form and construction and is provided with a step *b*.

35 *c* represents the spindle, the lower end of which bears, as usual, on the step and is provided with the whirl *c'*.

40 *d* represents the bolster, which has a running fit on the spindle and has the usual somewhat loose fit in the bolster-case.

In carrying out my invention I taper the surface of the spindle that bears on the bolster inwardly from its lowest to its highest portion, the said surface decreasing in diameter
45 from its lowest portion upwardly. I also correspondingly taper the inner surface of the bolster, its bore or bearing face decreasing in diameter from the lower portion of the bolster upwardly. The bolster is thus supported by
50 the portion of the spindle on which it bears and is adapted to adjust itself upon the spindle by gravitation, the bolster moving down-

wardly on the spindle as the contacting surfaces wear away, so that the desired running fit between the bolster and spindle is automatically maintained, no human intervention
55 being required.

I am the first, so far as I am aware, to taper the surface of the spindle that bears on the bolster inwardly from the lower portion upwardly and to correspondingly taper the inner
60 surface of the bolster and provide for its unobstructed downward movement when worn, so that the bolster is supported by the spindle and has an automatic gravity adjustment thereon to a practically unlimited extent.
65 Heretofore the said surface of the spindle has usually been tapered outwardly from the lowest to the highest portion, the diameter increasing from the lowest portion upwardly, so that
70 the bolster, which is correspondingly tapered, has to be raised to compensate for wear of the contacting parts. Attempts have been made to provide an automatic adjustment of the
75 bolster by subjecting the same to an upward yielding pressure. Such adjustment, however, involves a complicated construction and is unsatisfactory for various reasons well
80 known to those skilled in the art. It will be seen that the gravity adjustment of the bolster involves the simplest possible construction and a constant weight or pressure of the
85 gravitating or adjustable part, the pressure being unaffected by variations in the load on the spindle. Since the described taper of the
90 surface of the spindle on which the bolster bears is the reverse of that of the ordinary spindle, I hereinafter term the same an "inverted" taper for the sake of brevity. The said inverted taper is preferably extended to
95 the upper end of the spindle, but is not necessarily extended to its lower end, the lower portion of the surface of the spindle being preferably reduced in diameter from the lower portion of the bolster downwardly, as shown
100 in Fig. 1.

It is of course essential that the lower end of the bolster be elevated sufficiently above the step *b* to permit the necessary downward movement or gravity adjustment of the bolster.
100

Means are provided for preventing the rotation of the bolster with the spindle, said means, as here shown, comprising a pin or stud

e, affixed to the bolster-case and projecting into the same, and a longitudinal groove or slot *f* in the bolster, the pin projecting into the slot and preventing the rotation of the bolster, while permitting the gravitating adjustment thereof.

I prefer to make the bolster elastic or expansible, so that it can be forced onto the spindle from the lower end thereof without the necessity of displacing the whirl. To this end the slot *f* may extend entirely through one side of the bolster from end to end, as shown in Figs. 1 and 3, and another slot *f'* may be formed at the opposite side of the bolster, the last-mentioned slot extending only a part of the length of the bolster. The continuous slot *f* furnishes a channel which conducts oil from the lower portion of the bolster-case along the entire length of the bolster. In this connection it may be observed that the weight of the gravitating bolster and its downward pressure or load on the spindle is partially counteracted by the oil in the bolster-case.

I claim—

1. The combination of a bolster-case, a spindle having an inverted taper within the case, and a gravitating bolster supported by the

inverted taper of the spindle and adapted to automatically adjust itself thereon to compensate for wear, an unobstructed space being provided below the bolster to permit it to gravitate to a practically unlimited extent.

2. The combination of a bolster-case, a spindle having an inverted taper within the case, a vertically-movable bolster which conforms to the said inverted taper, said bolster having a longitudinal slot, and a pin affixed to the bolster-case and engaged with said slot, an unobstructed space being provided below the bolster to permit it to gravitate to a practically unlimited extent to compensate for wear.

3. The combination of a bolster-case, a spindle having an inverted taper within the case, a step for the spindle, and a vertically-movable bolster which is longitudinally split to render it elastic or expansible, said bolster being unconnected with the step and adapted to gravitate to compensate for wear.

In testimony whereof I have affixed my signature in presence of two witnesses.

JOHN BOOTH.

Witnesses:

FRED W. EASTON,
C. F. BROWN.