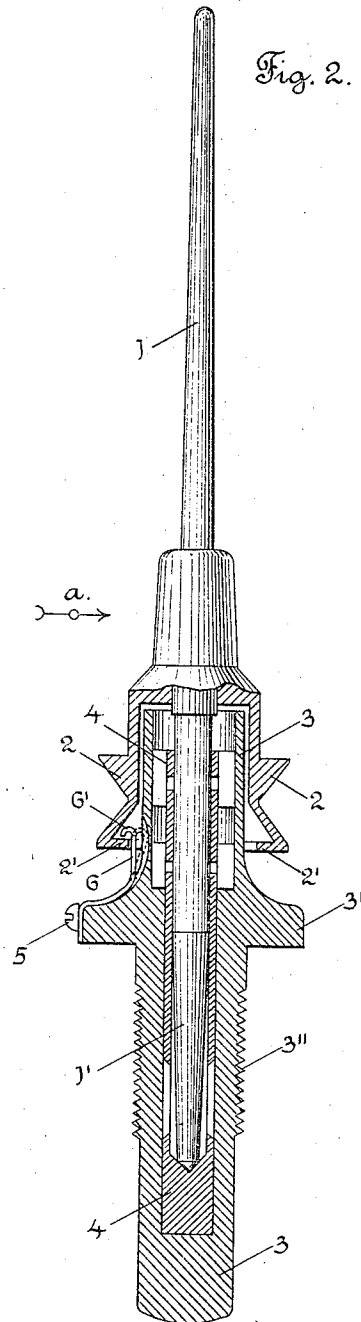
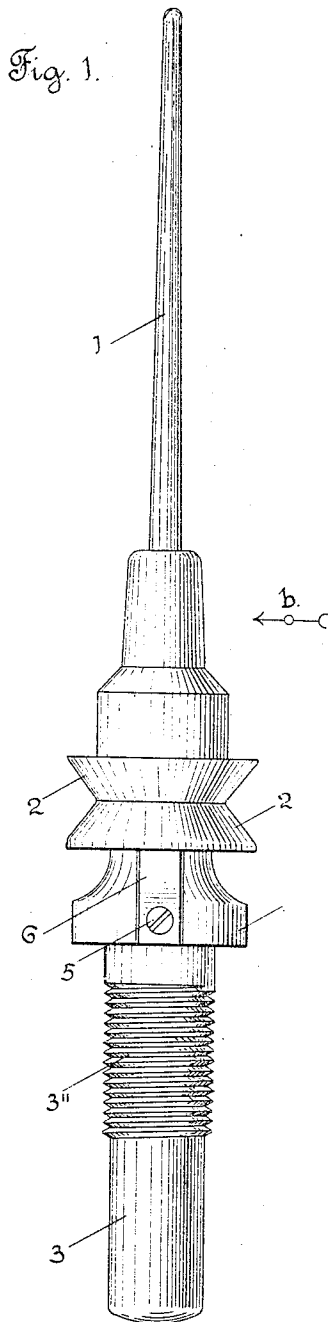


C. S. FOSTER.
SPINDLE.
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1,055,733.

Patented Mar. 11, 1913.



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UNITED STATES PATENT OFFICE.

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SPINDLE.

1,055,733.

Specification of Letters Patent.

Patented Mar. 11, 1913.

Application filed December 1, 1911. Serial No. 663,201.

To all whom it may concern:

Be it known that I, CHARLES S. FOSTER, a citizen of the United States, residing at Central Falls, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Spindles, of which the following is a specification.

My invention relates to spindles, and more particularly to a sleeve whirl spindle.

It has been customary in the ordinary construction of sleeve whirl spindles to provide the bolster case with a hook, or other device, to extend over the upper portion of the whirl, to prevent the lifting of the spindle from its bearing during the doffing operation. The use of a hook, or similar device, to extend over the upper portion of the whirl, as stated above, is objectionable, in that the hook acts to catch lint, and also interferes with the band passing around the whirl.

The object of my invention is to do away with the retaining hook or device above referred to, and to substitute therefor a spring hook or device, attached to the bolster case at one end, and adapted to extend within the lower part of the whirl at its other end, and to extend over an inwardly extending lip or flange on the lower part of the whirl. The pushing in of the upper end of said spring hook will release its engaging end from the whirl, to allow the spindle to be raised and removed from the bolster case.

My invention consists in certain novel features of construction of my improvements as will be hereinafter fully described.

Referring to the drawing:—Figure 1 is front elevation of the spindle, and its supporting case embodying my improvements, looking in the direction of arrow *a*, Fig. 2. Fig. 2 is a central vertical section, through the bolster, and the lower part of the spindle, on line 2, Fig. 1, looking in the direction of arrow *b*, same figure. The upper part of the spindle is shown in full lines; the dotted lines represent the attaching spring in its inward position.

In the accompanying drawing, 1 is the spindle, having a whirl 2 thereon. The whirl 2 is recessed in its lower part, and has an inwardly extending annular lip or flange 2' thereon. There is an opening or space between the lower end of the whirl 2 and the upper part of the bolster case 3.

The bolster case 3 may be of any ordinary construction, and is provided with a flanged portion 3' to rest on the spindle rail, not shown, and also with a screw thread 3'', to receive the binding nut, not shown.

4 is the bolster for the lower end 1' of the spindle. The bolster 4 may be of any ordinary construction.

I will now describe my improvements in attaching spring or device for holding the whirl, to prevent the lifting of the spindle from its bearing, except when it is desired to do so.

On one side of the flanged portion 3', and preferably extending in a recess therein, is attached, in this instance by a screw 5, the lower end of a spring 6. The spring 6 preferably extends at its lower part in a groove or recess in the flanged part 3' of the bolster case 3, and is flush with the top surface of said flanged part. The upper end of the spring 6 is preferably bent outwardly, or made hook shape, as shown at 6', and is adapted to extend up within the opening between the lower end of the whirl, and the side of the upright part of the case 3, with its upper hook end extending over the inwardly extending lip or flange 2' on the whirl 2, as shown by full lines in Fig. 2.

When it is desired to remove the spindle and whirl from the bolster case 3, the spring 6 is pushed inwardly, as indicated by broken lines in Fig. 2, and the whirl 2 is then free to pass by the hook end 6' of the hook 6, to be removed.

It will be understood that the details of construction of my improvements may be varied if desired.

The essential feature of my invention is a spring, combined with the bolster case, and with its upper end extending over a lip or flange on the lower part of the whirl on the spindle.

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

1. The combination with the bolster case, and the whirl of a spindle, of a spring, adapted to extend at its engaging end through the lower part of the whirl, and extend over a lip or extension on the inner side thereof.

2. The combination with the bolster case, and the whirl of a spindle, of a spring, attached at one end to the bolster case, and

- adapted to extend at its free end between the bolster case and the lower end of the whirl, and to extend over a lip or extension on the whirl.
- 5 3. The combination with the bolster case, and the whirl of a spindle, of a spring, having one end attached to the bolster case, and its other free end, of hook shape, extending between the bolster case and the lower end
10 of the whirl, and adapted to extend over an inwardly extending annular lip or flange on the whirl.
4. The combination with the bolster case and the whirl of a spindle, of a spring extending within a recess in the flanged portion of the bolster case, and having its lower end secured in said recess, and its upper free end, of hook shape, extending between the bolster case and the lower end of the whirl, and adapted to extend over an inwardly extending annular lip or flange on the whirl.
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Witnesses:

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