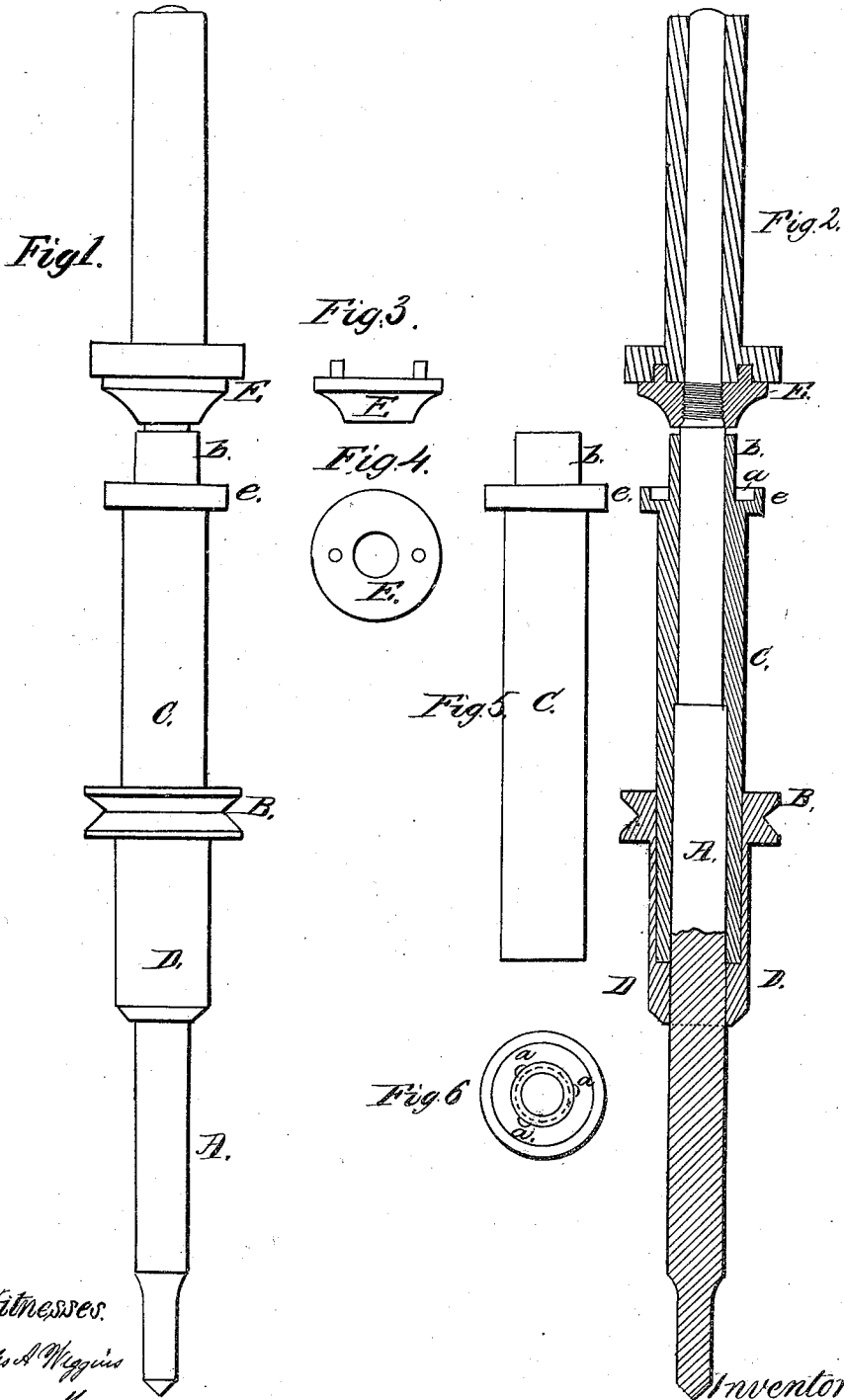


G. W. Daugherty.

Spindle.

N<sup>o</sup> 103,990.

Patented Jun. 7, 1870.



Witnesses.  
Charles A. Higgins  
James Moore

Inventor.  
G. W. Daugherty

# United States Patent Office.

GEORGE W. DAUGHERTY, OF WILMINGTON, DELAWARE.

Letters Patent No. 103,996, dated June 7, 1870.

## IMPROVEMENT IN SPINDLE FOR SPINNING-MACHINE.

The Schedule referred to in these Letters Patent and making part of the same.

### To all whom it may concern:

Be it known that I, GEORGE W. DAUGHERTY, of the city of Wilmington, in the county of New Castle and State of Delaware, have invented a new and Improved Spindle; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawing making a part of this specification, in which—

Figure 1 is a view of the spindle as it stands while in operation.

Figure 2 is a vertical section of the same.

Figure 3 is a front view of the bobbin-carrier or button.

Figure 4 is a plane view of the bobbin-carrier.

Figure 5 is the bolster, with its elongated neck.

Figure 6 is a plane view of the bolster.

My invention consists in a spindle, having secured thereto a chambered whirl, adapted to receive, and combined with a long steadying bolster provided with oil-passages, the lower end of the bolster extending into the chambered whirl, and below its score.

The bolster C is extended at its top, above the oil-receiving cup e, so as to prevent the spindle, while ro-

tating rapidly, from throwing off the oil, and this bolster lies interposed between the whirl and spindle.

By this arrangement of parts the spindle may be run at a high rate of speed with less liability of being vibrated.

The chambered whirl is so attached to the spindle as to form an oil-chamber, f.

In the head of the bolster C, I construct three or more holes a, one much larger than the others, for the purpose of conducting the oil to the chamber of the bolster, while the smaller ones are for the passage of air.

I am aware that long bolsters, and steadying the whirl and spindle are not new, and I do not claim such devices broadly; but, having described my invention,

What I do claim is—

The arrangement, with the spindle and chambered whirl, of the bolster C, when all are constructed substantially as and for the purposes hereinbefore shown and described.

G. W. DAUGHERTY.

Witnesses:

CHARLES A. WIGGINS,  
JAMES MOORE.