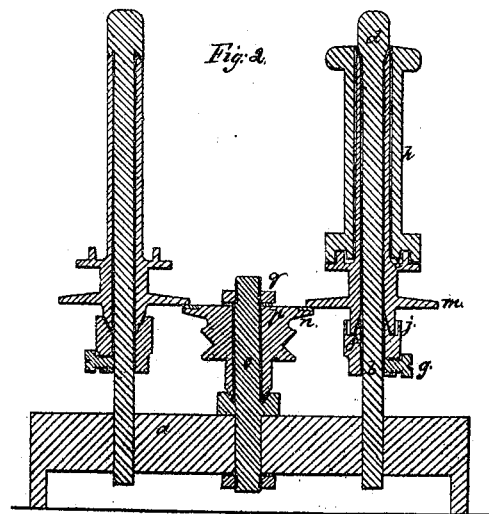
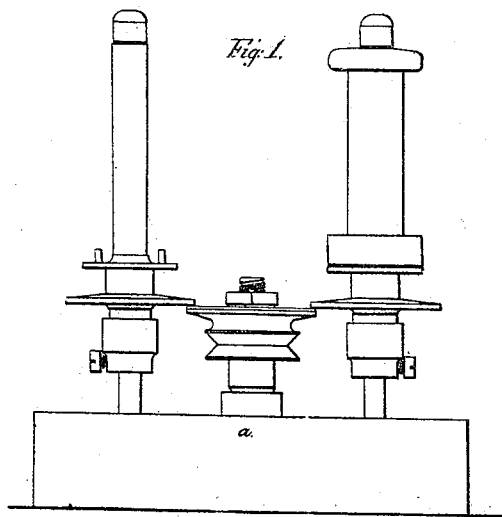
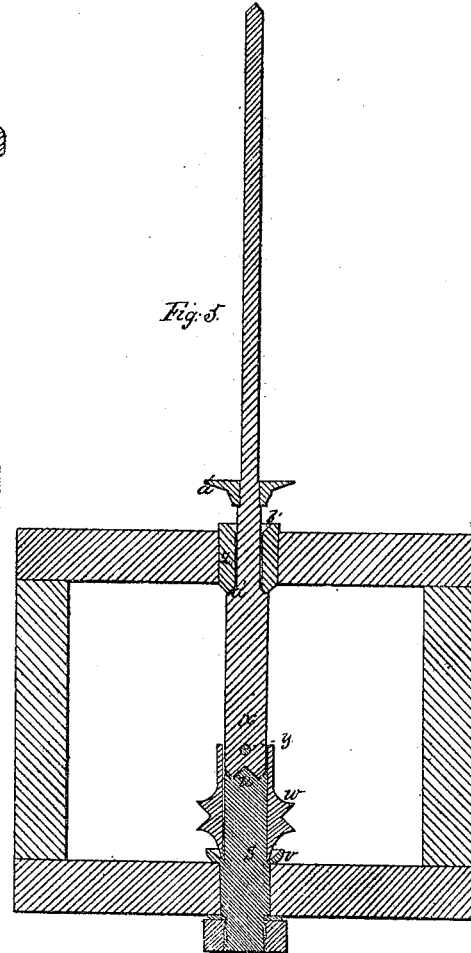
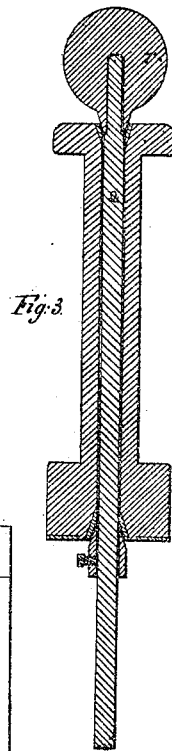
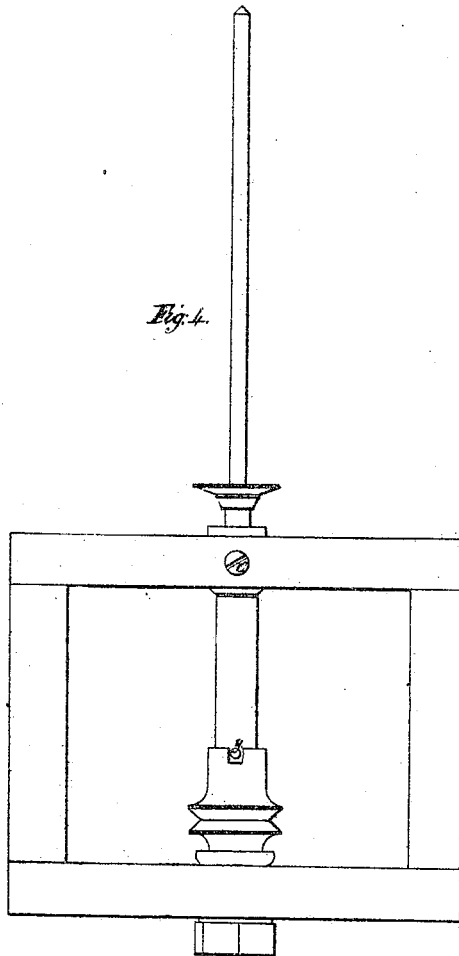


*J. G. Reed.*  
*Spindle and Bobbin.*

*N<sup>o</sup> 7028.*

*Patented Jan. 15, 1850.*



# UNITED STATES PATENT OFFICE.

J. G. REED, OF PATERSON, NEW JERSEY.

## SPINDLE AND BOBBIN FOR SPINNING.

Specification of Letters Patent No. 7,028, dated January 15, 1850.

*To all whom it may concern:*

Be it known that I, JOSIAH G. REED, of Paterson, in the county of Passaic and State of New Jersey, have invented new and useful Improvements in Dead and Alive Spindles for Spinning Fibrous Substances, and that the following is a full, clear, and exact description of the principle or character which distinguishes them from all other things before known and of the manner of making, constructing, and using the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is an elevation; Fig. 2, a vertical section of my improvement as applied to dead and live spindles; and Fig. 3 a vertical section of a modification thereof; and Figs. 4 and 5, an elevation and a vertical section of my improvements as applied to a live spindle.

In all spinning machines great difficulty has been experienced in giving high velocity in one class to the bobbin tube or the dead spindle, and in the other class to the live spindle, without occasioning a vibratory motion to the rotating parts such as tends to break the threads, or produce irregular spinning, particularly after the parts have been in use for some time and the cylindrical bearings become worn. And as economy in spinning depends on giving high velocities to the parts that give the twist and wind on the thread, the least tendency to vibrate is increased by increased velocities; and this evil is greatly aggravated by the wear of the parts.

The object of my invention is to obviate the tremulous or vibratory motions, and at the same time avoid the evil consequences of the wear of the bearing parts. To these ends my invention consists in making the bearings at the opposite ends conical that the running parts may be held between the two and opposite conical bearings so arranged that as they wear they may be adjusted to run true and steady.

My invention also consists in making the lower bearing cup formed to contain oil so that the lower end of the bobbin tube or live spindle may run therein and keep itself oiled. And finally my invention also consists in driving the bobbin tube or spindle by means of a worm tube which runs on a dead spindle the upper part of the said tube being made to embrace the lower end of the

bobbin tube or live spindle and to act against a projection thereof, that any tremulous motion communicated by the band to the worm tube may not affect the bobbin tube or live spindle.

In Figs. 1 and 2, of the accompanying drawings (*a*) represent the traverse rail of a spinning frame, and (*b*) the dead spindle, the lower end of which passes through a hole in the traverse rail and there secured and firmly held by a thumb screw so that the height of the spindle can be regulated at pleasure; but instead of this mode of adjustment its height may be regulated by nuts tapped on the lower end of the spindle, one above and the other below the rail in the well known manner of effecting adjustments, and which therefore needs not to be represented. The spindle is cylindrical from the bottom to the top where it has a conical enlargement (*d*), which is of little less diameter than the bore of the bobbin that it (the bobbin) may be doffed. Near the lower end of the spindle there is a corresponding conical shoulder or collar (*f*) which is made separate and slides freely on the spindle but which may be fixed thereon by a thumb or set screw (*g*) so that the distance between the two conical shoulders may be adjusted at pleasure to suit the length of the bobbin tube (*h*) the ends of which are also made conical to correspond with the conical shoulders of the spindle and movable collar. In this way it will be perceived that by the adjustment of the sliding shoulder the bobbin tube can be made to run entirely on or between the conical shoulders instead of the cylindrical part of the spindle as heretofore, and that as these wear they may be adjusted and thus effectually prevent the vibrations which take place when the bobbin depends on a cylindrical bearing, for when the cylindrical bearings wear there is no possible way of adjustment.

A small cavity (*i*) is formed in the side of the enlarged part of the spindle to receive oil which thus lubricates the spindle and tube, and the lower sliding collar (*f*) is surrounded by a flanch (*j*) which forms a cup to contain oil in which the lower end of the bobbin tube runs to oil the lower cone. Instead of making the conical shoulders as already described and represented on the spindle number 1, they may be reversed as shown on the spindle number 2, in which case the upper end of the spindle is made

cup formed to hold oil which runs down through a hole to lubricate the tube.

The bobbin tube is provided with a horizontal flanch (*m*) at bottom the edge of which rests on the upper surface of a corresponding flanch (*n*) on a vertical driving tube (*o*) provided with a warve or pulley (*p*) so that the bobbin is carried by the friction of its flanch resting on the flanch of the driving tube, thus avoiding in part the tremulous motion which the band necessarily communicates to the driving tube.

The driving tube has its bearings made in the same manner as the bobbin tubes, or its lower bearing may be made in this way and the upper end of the spindle thereof provided with a cap nut (*q*). It will be obvious that as the dead spindles pass through the traverse rail and are secured thereto by temper screws, and the lower collar is also adjustable on the dead spindles that the shoulders of the spindles can be readily and in the most accurate manner adjusted to the bobbin tube, and that the bobbin flanches can also be adjusted to the flanch of the driving tube.

Instead of applying the principles of my invention as above described it may be applied as represented in Fig. 3, in which the upper conical bearing instead of being part of the dead spindle is a conical projection of a weight (*r*) with a hole in the center which fits the upper end of the spindle. By this modification the bearings are rendered self-adjusting, and the bobbin prevented from vibrating horizontally as well as vertically. But the use of a weight resting on the top of the bobbin as a means of preventing vertical vibrations, I do not claim as my invention. In Figs. 4 and 5, of the accompanying drawings (*s*) represents a metal step properly secured to the bottom rail. It is cylindrical and the upper end for a short distance within the periphery cup formed and then to the center it rises to a conical pivot (*u*). The bottom is formed with a flanch (*v*) conically cup formed, on

the cylindrical part of this step is fitted a warve tube (*w*) its lower end running into the cup formed flanch (*v*) and its upper end extending for a short distance above the top of the step to embrace the lower spindle and enlarged end of the live spindle (*x*) which has two pins (*y*) projecting from it and embraced by slots in the warve tube by which the spindle is driven without receiving any tremulous motion which may be imparted to the warve tube by the band.

The lower and enlarged end of the spindle is formed with a conical cavity to fit and run on the conical step, and the upper journal (*z*) is formed with a conical shoulder (*a'*) fitted to a corresponding conical shoulder on the lower end of a box or collar (*b'*) fitted in a hole in the upper rail and there held by a set screw (*c'*) so that it may be adjusted to any height desired to adjust the conical bearings of the spindle, which will thus be suspended, as the bobbin tube on the dead spindle, between two conical shoulders to prevent vibrations and to admit of adjustment when the parts wear.

It will be obvious from the foregoing that the warve tube above described for driving the spindle is equally applicable and in the same way to the driving of a bobbin tube on the spindle.

What I claim as my invention and desire to secure by Letters Patent is—

1. Making the live spindle or bobbin tube with two conical shoulders, substantially as described in combination with the conical supports in which they run, one or both ends being adjustable, substantially as described.

2. And finally I claim the method substantially as described of driving the live spindle by means of a warve tube running on a dead spindle or a step and embracing the lower end of the spindle, substantially as described.

JOSIAH G. REED.

Witnesses:

A. P. BROWN,  
A. EDW. PETERS.