# M. J. Roberts.

## Spinning.

No. 42,307. Patented Apr. 12, 1864

Fig. 1.

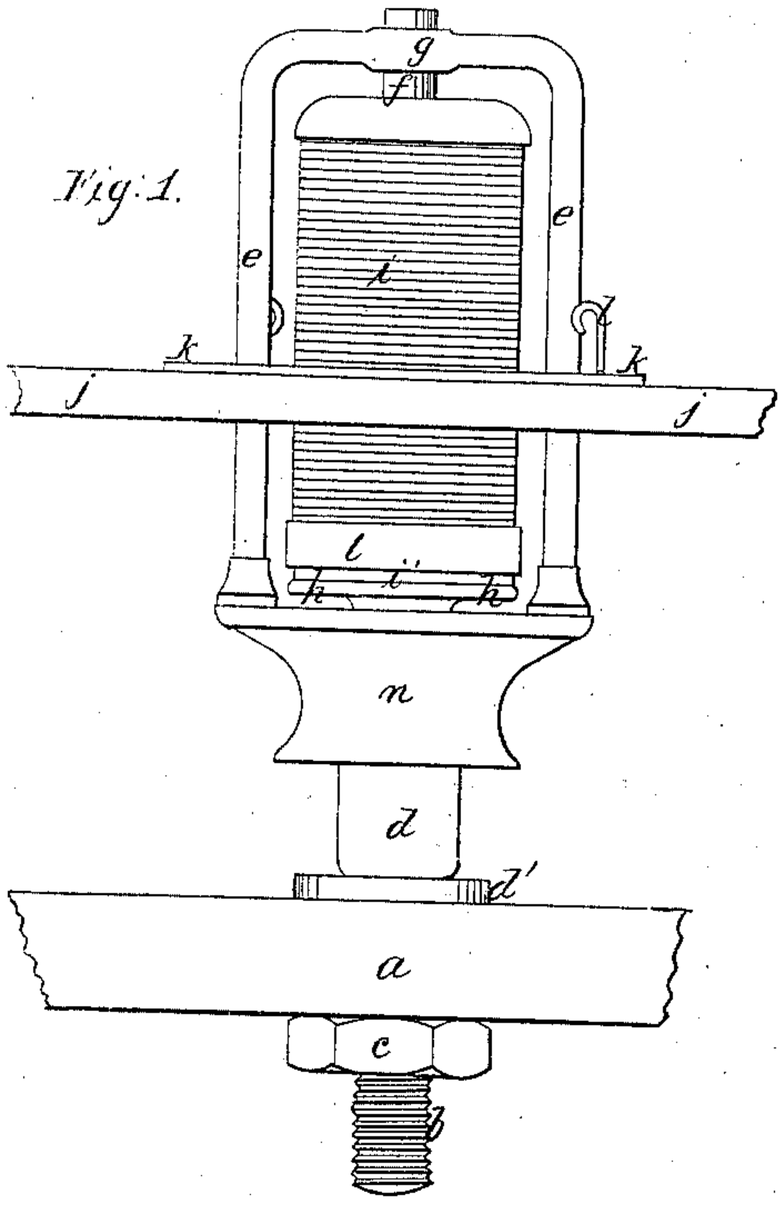



Fig. 2.

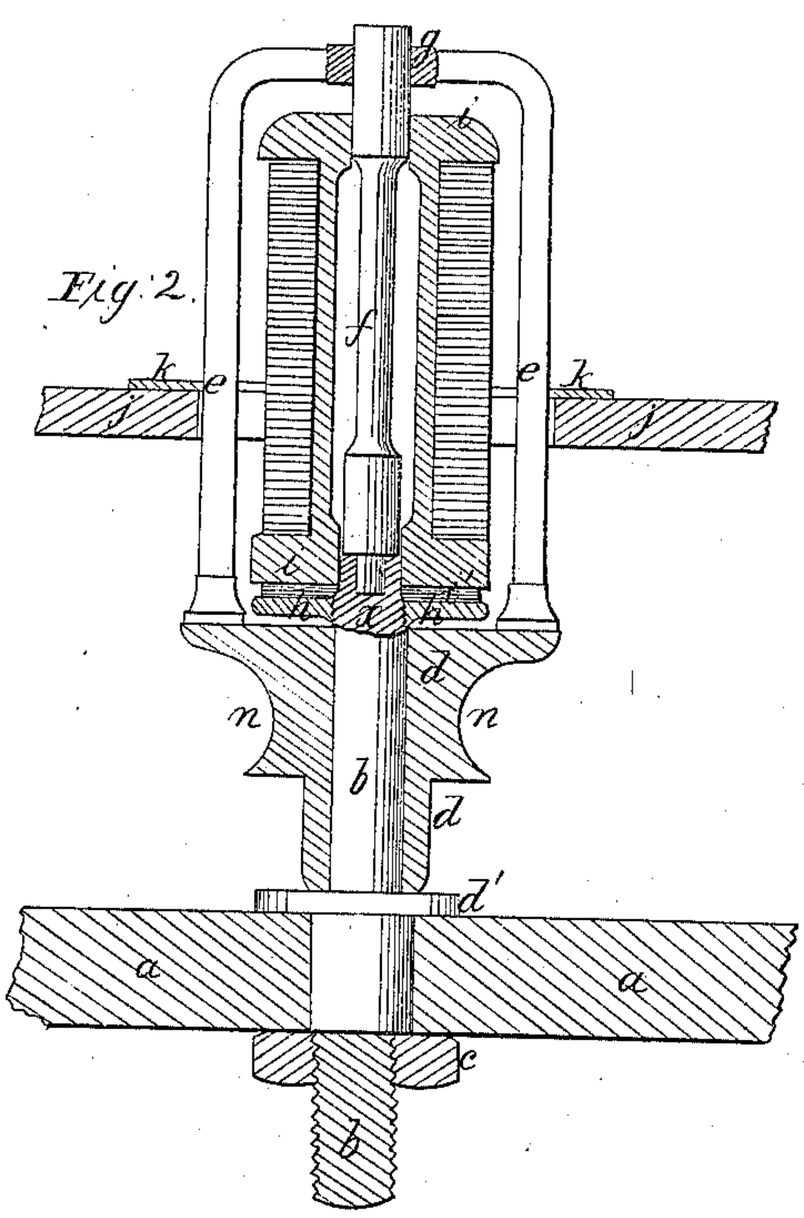



Fig. 4.

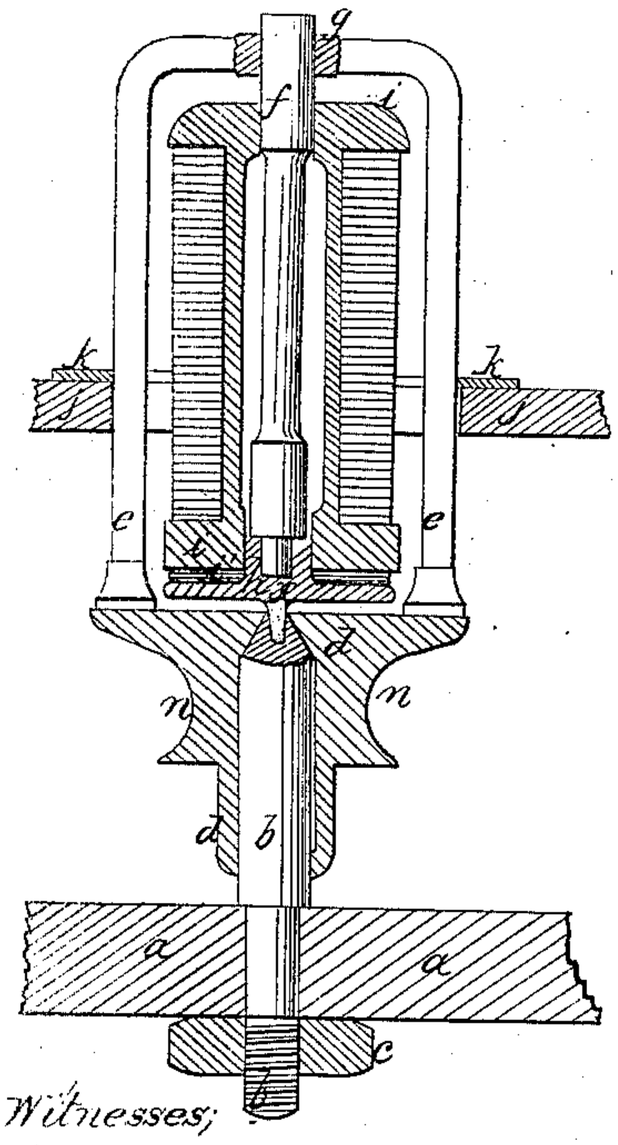



Fig. 3.

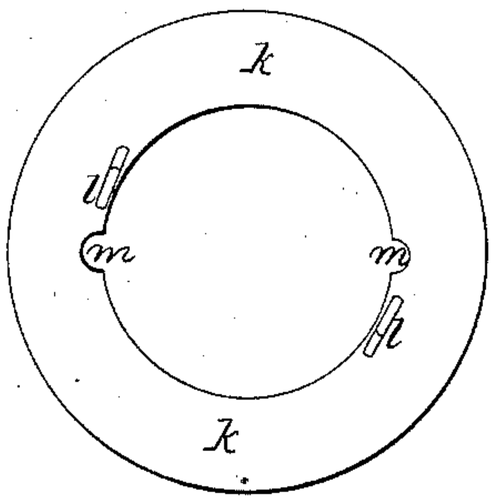
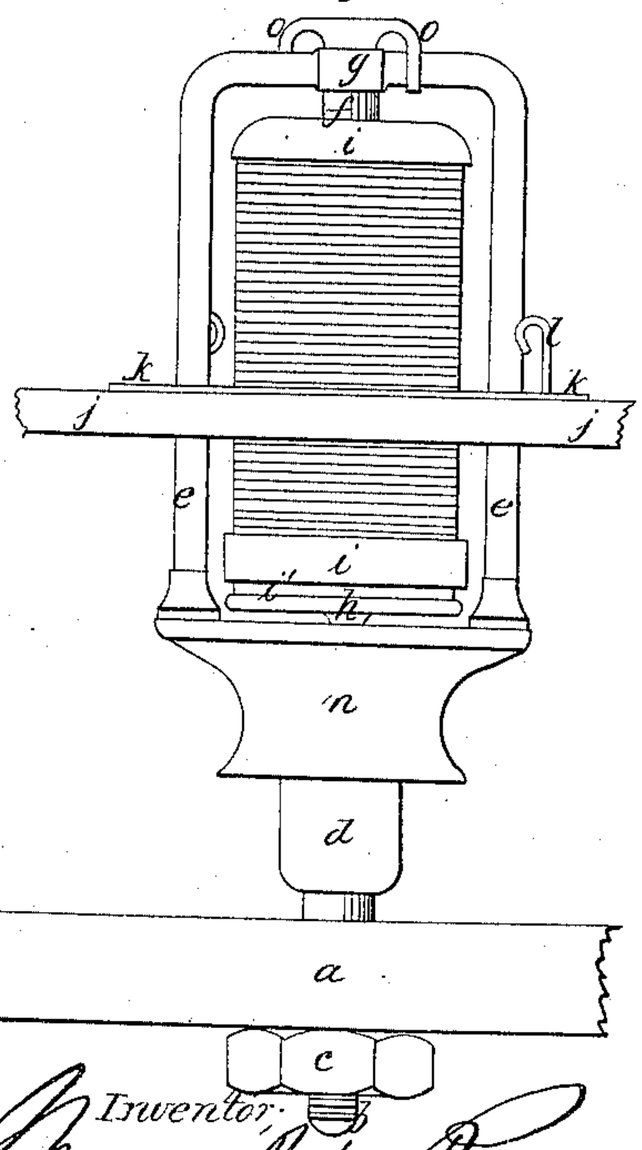



Fig. 5.

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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN SPINNING-MACHINES.

Specification forming part of Letters Patent No. **42,307**, dated April 12, 1864.

*To all whom it may concern:*

Be it known that I, MARTYN JOHN ROBERTS, of Pendarren House, near Crickhowell, in the county of Brecon, Wales, have invented improvements in means and apparatus for preparing and spinning and doubling or twisting wool, cotton, and other fibrous substances; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the figures and letters marked thereon.

The object of my improvements is to obtain a better "drag" to the thread-yarn or roving while being wound onto the bobbin in preparing and spinning fibrous substances than is usually obtained. For this purpose I make the flier of a preparing or spinning or doubling frame somewhat in the form of a parallelogram, the lower side of which may conveniently be a circular or other shaped metallic plate, which is firmly secured to a neck or socket, and upon this socket a whirl or pulley is fixed. This socket runs upon a suitable stud or pin, which is screwed or otherwise fastened to a strong rail. The flier is driven by a band from a driving-cylinder passed round the said whirl in the usual manner; or it may be driven by any other convenient means. Through the center of the head of this flier, I place a spindle which passes through the bobbin and prevents it from falling sidewise. I always fit this spindle in such manner that it may be readily so moved that the bobbin may be taken off therefrom. I fit this spindle loose in its bearings—that is to say, the spindle is free to turn in a hole or bearing in the head of the flier. The lower end of the spindle is also free to turn in a cup or bearing in the stud or pin which supports the flier and socket, or in a cup in a plate screwed or otherwise fastened to this stud or pin, which plate I call the "dead-plate." I sometimes fit the upper end of the spindle with one or two projecting hooked arms, which, coming in contact with the outside of the flier-head, causes the spindle to revolve with and at the same speed as the flier; but I prefer to make the spindle without the said hooked arms. The dead-plate serves as a base or support for the bottom of the bobbin, and it is by the friction of the bobbin upon this dead-plate, or upon appropriate washers interposed between the bobbin and plate, that the drag or retardation of the rotation of the bobbin is produced. When the bobbin is to be "doffed"—that is, removed from its place within the flier—the spindle is raised, and the bobbin can then be removed. The spindle not being of much greater length than the bobbin, the bobbin cannot be moved up and down the spindle for the purpose of laying the thread-yarn or roving upon its whole length, as is done in ordinary spinning-frames. Therefore, to provide for the necessary operation of thus laying on the thread, I use a ring or other well-known device, which, while it revolves with the flier, is traversed or moved up and down the flier by a "lifter-rail," upon which the ring rests, or by other convenient means. On this ring are fixed eyes or twizzles or loops through which the thread or yarn coming from the delivering or front rollers of the frame passes onto the bobbin, and consequently the up-and-down motion of the ring with its eyes guides the thread or yarn in a proper direction upon the bobbin; or, instead of a ring running upon the lifter-rail, I sometimes use loops or eyes running upon a ring fixed to a lifter-rail, somewhat in the form of the old ring and traveler, but the use I make of this is not to produce by it a drag, as in the ring and traveler, but simply to guide the thread in a proper direction onto the bobbin.

I may here remark that I make no claim to the means above described of guiding the thread onto the bobbin, except when used in combination with my dead-plate and spindle, or either dead-plate or spindle. By the compactness of the flier and spindle I am enabled to obtain a high velocity in spinning or preparing, without much shake or "wabble" in this part of the machinery. The drag is thus rendered more equable, while by the peculiar action of the spindle I am also enabled to obtain a more regular and even drag than is usual.

In the accompanying drawings, Figure 1 is an elevation, and Fig. 2 a longitudinal section, of a spindle and flier, and parts connected therewith, constructed according to my invention. *a* is a rail, to which a pin or stud, *b*, is screwed by a nut, *c*. *d* is a socket or neck fixed to the flier and resting upon a collar or bearing, *d'*, fixed to the stud *b*. *e* *e* is the flier. *f* is the spindle, the upper

end of which revolves in a bearing or circular aperture, *g*, in the flier-head, while the bottom or lower end revolves in a cup, *x*, formed in the top of the stud *b*. *h h* is the dead-plate, which is screwed onto the stud *b*, upon which plate the bobbin *i* may rest directly; or, as is represented in the drawings, a washer of cloth, *i'*, or other suitable material, may be interposed between the bobbin *i* and dead-plate *h*. *j j* is the lifter-rail, upon which a ring, *k*, rests. This ring *k* is shown detached in plan in Fig. 3. It carries eyes or twizzles *l*, through which the yarn passes to the bobbin. It has also nicks *m* cut in it to fit over the flier *c*, in order that the flier in revolving may carry the ring round with it. *n* is a whirl or pulley fixed to the socket or neck *d*, and by which motion is communicated to the flier through a driving-band in the ordinary manner.

Fig. 4 represents in longitudinal section a modification of the arrangement shown in Figs. 1 and 2. In this modified arrangement I form the stud *b* conical at top, and make the socket *d* cupped to fit over and run upon it, or this conical bearing may be reversed. The bearing-surface, and consequently the friction, is much less than when the socket runs upon its base, as in the arrangement previously described. The dead-plate *h* is secured to top of the pin *b* by a small pin or screw which passes through the top of the socket *d*, but in such manner as not to interfere with its rotation. The bearing *x* for the lower end of the spindle is formed in the dead-plate *h*.

Fig. 5 is an elevation showing the spindle fitted with two hooked arms, *o o*. These arms catch against the head of the flier, and the spindle is thus caused to revolve with the flier.

Having now described the nature of the said invention, and in what manner the same is to be performed, I declare that I claim, as my improvements in means and apparatus for preparing and spinning and doubling or twisting wool, cotton, and other fibrous substances—

1. Constructing such apparatus with what I have hereinbefore termed a "dead-plate," acting in manner and for the purpose hereinbefore described.

2. Constructing such apparatus with spindles fitted, as hereinbefore described, and capable of running within the fliers, as described with reference to Figs. 1, 2, 4, and 5, whether connected with the fliers by hooked arms, as shown at Fig. 5, or free, as shown at Figs. 1, 2, and 4.

3. The general arrangement and combination of the parts of such apparatus hereinbefore described, and represented at Figs. 1, 2, 4, and 5 of the accompanying drawings.

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