W. M. STEELE.

Spindle Step for Spinning Machines.

No. 201,847. Patented March 26, 1878.

Fig. I.

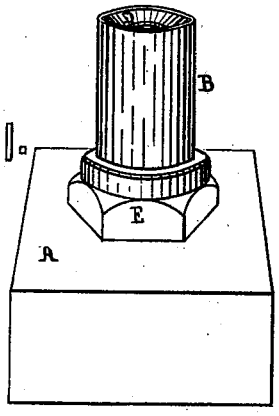
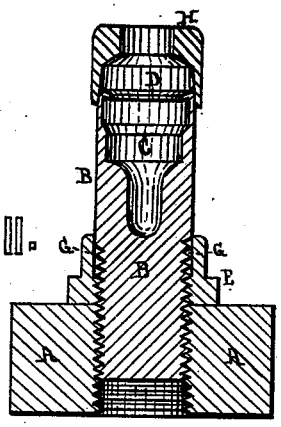


Fig. II.



Witnesses

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WILLIAM M. STEELE, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN SPINDLE-STEPS FOR SPINNING-MACHINES.

Specification forming part of Letters Patent No. **201,847**, dated March 26, 1878; application filed January 2, 1878.

To all whom it may concern:

Be it known that I, WILLIAM M. STEELE, of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Adjustable Steps for Spindles of Spinning-Machines; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the annexed drawings, making part hereof.

My invention consists of the combination of the socket or cup of a spindle-step, the rail into which the adjustable step containing the socket or cup sets by means of a screw-thread, and a jam-nut upon this step acting against the surface of the rail to wedge the screw-thread of the step, to keep said step stationary at whatever height it is set; also, of the combination, with the rail and step, of the jam-nut, the upper edge of the latter projecting in a plain cylindrical form upward, to cover and protect the upper part of the thread of the step, which would otherwise be exposed; also, the combination of the socket or cup of a spindle-step, the body of the step having a male screw-thread upon its lower convexity, with the step-rail in which it sets, the latter constructed with a female screw-thread to receive the step, and a jam-nut having a plain cylindrical construction.

To enable others skilled in the art to make and use my invention, I will describe its construction and operation.

In the drawings, Figure I is a perspective view of my invention; Fig. II, a vertical cross-section of the same.

A is the step-rail, having a female screw-threaded cylindrical hole through it; B, the adjustable step, having a socket, C, in its top, inwardly-projecting flange D therein, and a long male screw-thread upon its lower convex surface, which sets into the female screw-thread of the step-rail A. E is a jam-nut, having a female screw-thread, and fitted upon and pierced by the upper part of the screw-thread of step B, and resting upon the upper surface of the step-rail A, like a shoulder of step B. G is a short cylindrical continuation of the upper rim of jam-nut E; H, a cover fitting over the step to exclude dust.

The parts are put together as follows: The jam-nut E is screwed upon the thread of the step B, so as to allow the lower end of step B to project through it. This lower end is then screwed into the step-rail A, and, in order to secure step B fixedly in any position—that is, at any desired height—the jam-nut E is screwed tightly down upon the upper surface of rail A. The inner thread of jam-nut E is thereby firmly wedged upon the thread of the step B through the pressure from below from the step-rail A, and, unless great power is used to turn this adjustable step B, the latter is prevented from settling, which would otherwise be caused by the vibration of the spindle above resting in socket C. If it is desired to elevate the spindle resting in socket C, the jam-nut E is loosened and the step B is turned so as to unscrew from the step-rail A, and as it is unscrewed the jam-nut turns with it. When it is at the desired height the jam-nut is again tightly screwed down upon the step-rail. If, on the other hand, it is desired to lower the adjustable step B, the jam-nut is turned back so as to leave the surface of the step-rail A until so much of the screw-thread of step B as it is desired to sink into the step-rail is exposed. The step is then screwed down, and its thread is then again wedged by means of the jam-nut being tightly screwed down upon the surface of the step-rail.

Another feature of my improvement is that, even if the screw of the step fits loosely into the female screw of the step-rail, yet the step-rail will set into it vertically exactly at right angles to the upper surface of the step-rail, because the jam-nut E is fitted truly upon the step, and acts as a shifting-shoulder to it, and its lower surface is exactly parallel with the upper surface of the rail, so that when it is set down tightly its lower surface will conform to the upper surface of the rail and force the step into a true vertical position, or one at right angles to the surface of said rail. Now, the adjustability of a spindle-step need be only very slight, and, in order to keep the screw-thread of the step free from dirt and flying particles, I have contrived to keep covered that part of its thread which, in operation, is at times above the thread of the jam-nut, by extending upward the upper lip of the jam-nut in the form of a short plain cylinder, so as to surround the step for some distance

above the upper termination of its thread. In practice it is rarely or never required to elevate the step so far as to expose its thread above this plain cylindrical part of the jam-nut.

The inner flange upon the upper rim of the cup of the step is to prevent the oil therein from being thrown out by the rapid revolution of the spindle. This inner flange I deflect a little toward its inner edge, so that as the oil, in its tendency to be thrown out, traverses upward upon the inner walls of the cup of the step, it meets this flange or deflector above, and is turned backward into the bottom of the cup again; and this deflector also, to a great degree, prevents dust, grit, and fiber from settling in the oil. The cover H, which fits down over the step, also contributes largely to exclude dust from the cup or socket into which the foot of the spindle sets. The spindle pierces this cover or cap H through an opening just large enough to receive it.

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

1. The combination of the socket or cup of a spindle-step, the rail into which the adjustable step containing the socket or cup sets by means of a screw-thread, and a jam-nut upon this step acting against the surface of the rail to wedge the screw-thread of the step, to keep the step stationary at whatever height it is set, substantially as described.

2. The combination, with the rail and step, of a jam-nut, the upper edge of the latter projecting in a plain cylindrical form upward to cover and protect the upper part of the thread of the step, which would otherwise be exposed, substantially as described.

3. The combination of the socket or cup of a spindle-step, the body of the step having a male screw-thread upon its lower convexity, with the step-rail in which it sets, the latter constructed with a female screw to receive the step, and a jam-nut having a plain cylindrical construction, substantially as described.

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