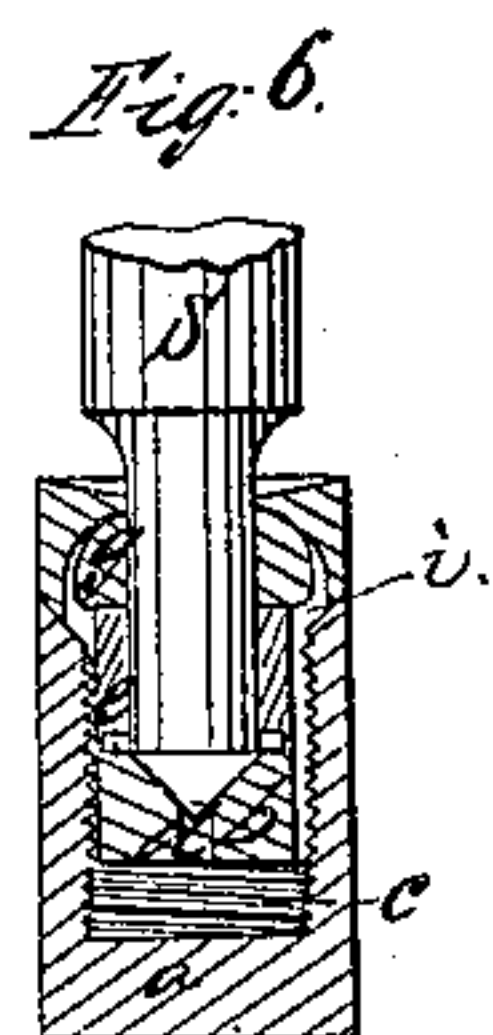
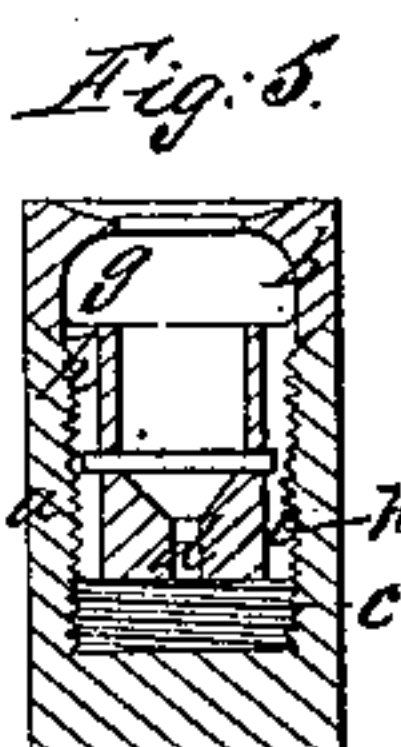
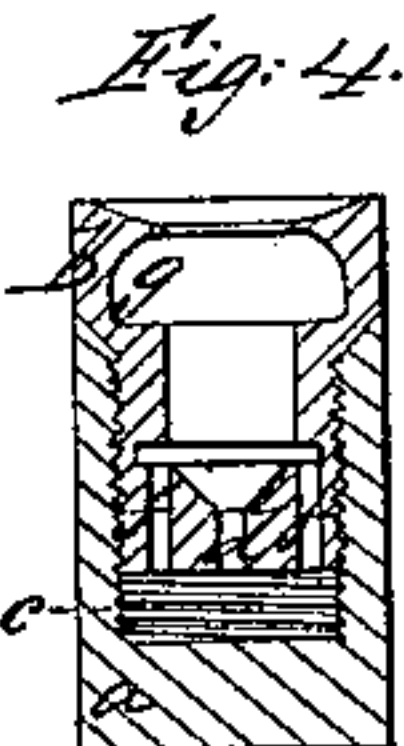
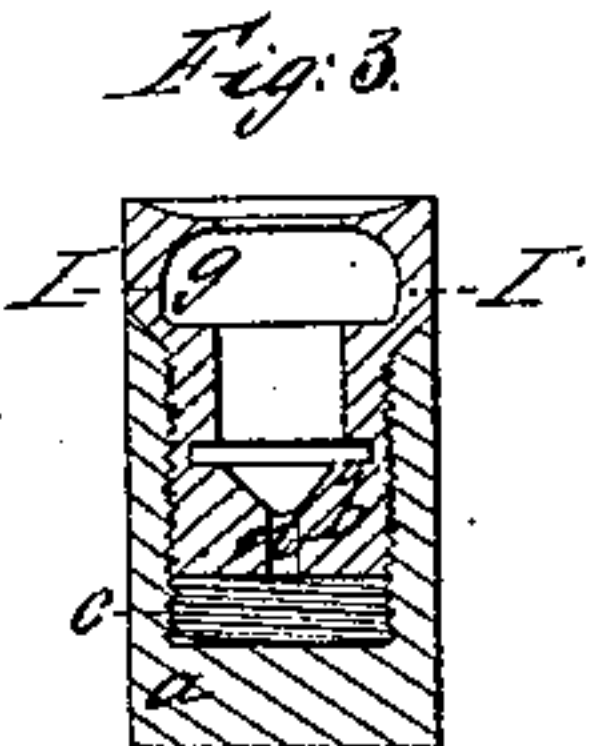
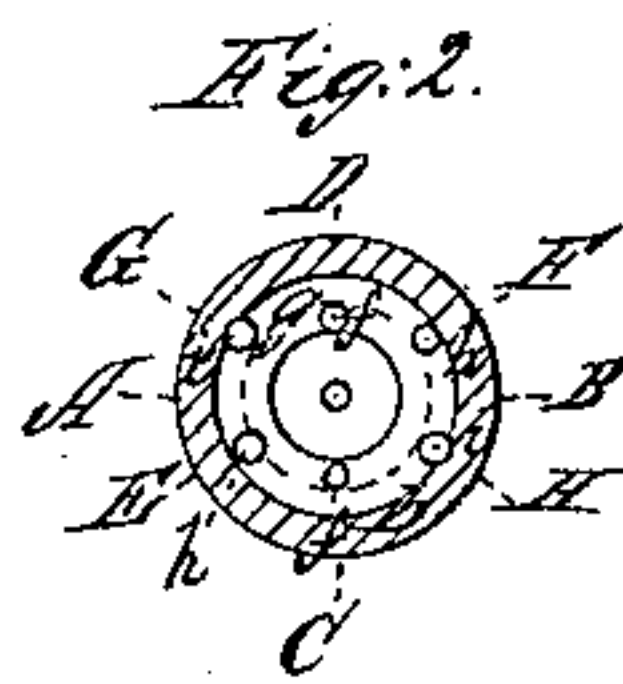
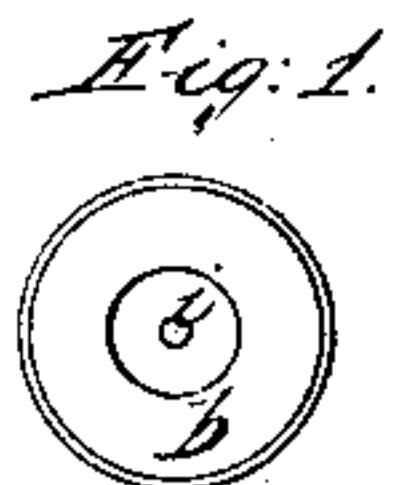
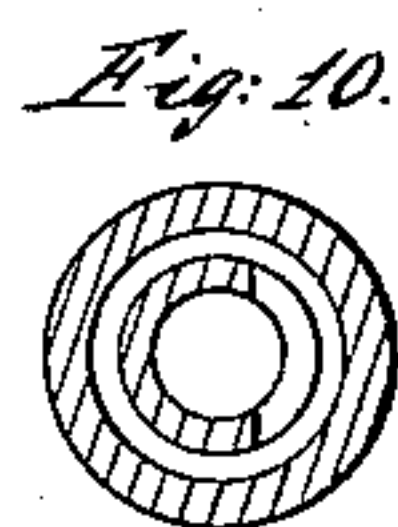
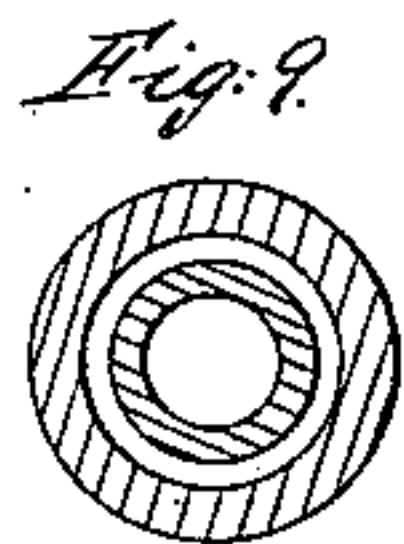
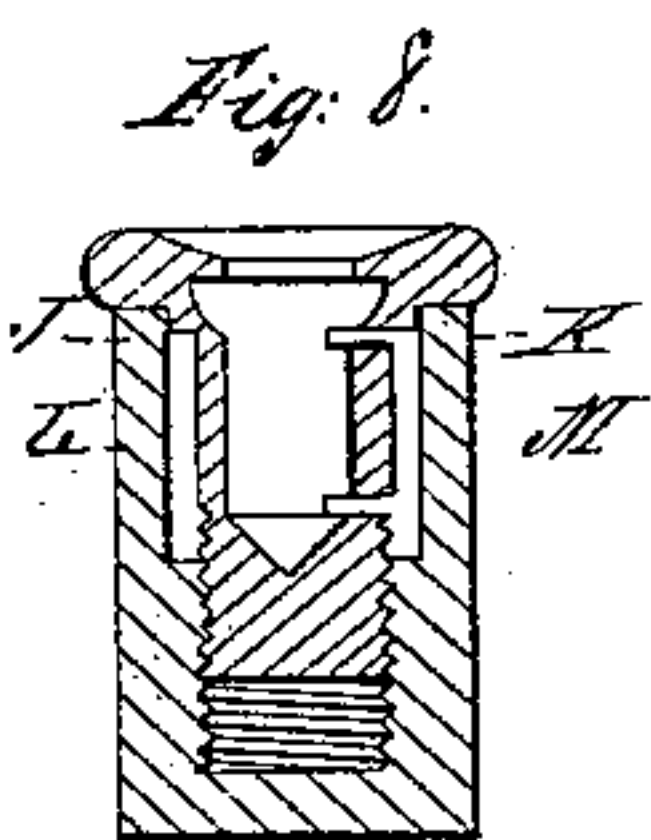
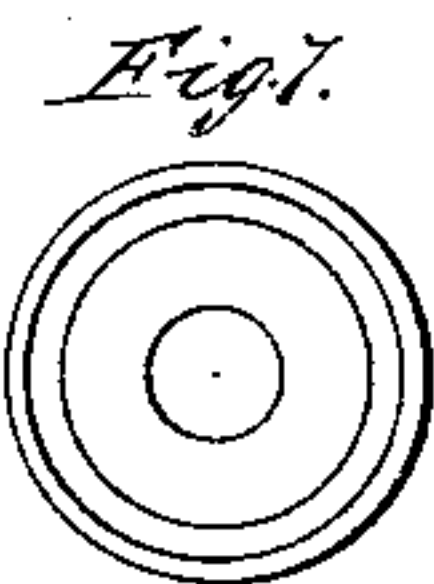


S. L. Pattee,

Spindle,

No. 81,201,

Patented Aug. 18, 1868.



Witnesses:
R. H. Dudley
H. B. Osgood

Inventor:
Samuel L. Pattee

UNITED STATES PATENT OFFICE.

SAMUEL L. PATTEE, OF NORTHBRIDGE, MASSACHUSETTS.

IMPROVEMENT IN SPINDLE-STEPS.

Specification forming part of Letters Patent No. 81,201, dated August 18, 1868.

To all whom it may concern:

Be it known that I, SAMUEL L. PATTEE, of Northbridge, in the county of Worcester and State of Massachusetts, have invented a new and Improved Step for Spindles; and I do hereby declare that the following is a correct description of the same, reference being had to the accompanying drawings, making part of this specification, and to the letters of reference marked thereon.

Figure 1 is a plan of my improved step. Fig. 2 is a horizontal section at I I' of Fig. 3. Fig. 3 is a vertical section at A B of Fig. 2. Fig. 4 is a vertical section at C D of Fig. 2. Fig. 5 is a vertical section at E E of Fig. 2. Fig. 6 is a vertical section at G H of Fig. 2. Fig. 7 is a plan of Griffin and Marsh's step, which I consider as bearing the most resemblance to my step of any with which I am acquainted. Fig. 8 is a vertical section through axis of same. Fig. 9 is a horizontal section at L M of Fig. 8. Fig. 10 is a horizontal section at J K of Fig. 8.

It has long been desirable among manufacturers to avoid the wear at the bottom of spindles by the accumulation of grit in the steps, the increased danger to life and property from fires by having the floors saturated with oil, and also the loss of time by stopping the machinery for oiling.

My invention is designed to lessen the difficulties above named; and it consists of a spindle-step so constructed that it lets the grit and other deposit out of the step at the lowest point of the spindle, while it holds securely a large amount of oil, and in such a way that when the spindle is raised for doffing and suddenly dropped the oil does not spatter or flow out between the step and spindle, as it does with all other steps within my knowledge.

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

The exterior of my step is constructed in the usual form, and so that it can be applied to the bottom rail of speeder and spinning frames in the ordinary way. The lower part, *a*, is tapped to receive the upper part, *b*, which contains the spindle socket or step. The thread may be as shown in the drawings; or it may be turned smoothly part way to increase the strength and facilitate the removal

of the part *b*. Where the parts *a* and *b* meet, the joint is made beveling to insure a close joint. When fully screwed up, there remains a space, *c*, which serves as an oil-chamber, and to receive the oil and dirt which work down from the bottom of the spindle through the central hole, *d*.

e is a grooved channel of larger diameter than the spindle-socket, and which connects with lower oil-chamber, *e*, by bolts *f f*. The large chamber *g* is made as they are now commonly made in spindle-steps, but connects with the lower chamber, *e*, and the chamber *e* by the holes *h h*, and also with the lower chamber, *e*, by the holes *i i*; but the holes or passages *i i* are outside of the grooved channel or chamber *e*, as shown in the sections at Figs. 2 and 6.

The operation is as follows: The spindle *s* being in its place, and the chambers *c e g* and passages *d, f, h*, and *i* being filled with oil or other suitable lubricator, the centrifugal force produced by the motion of the spindle causes a circulation of the oil, while the lower chamber, *e*, retains the grit and heavier portions. It will be seen that when the spindle is withdrawn from the step the oil leaves the upper chambers through the passages *h i* to fill the vacuum, and when the spindle is dropped back the oil returns again, there being ample space for it without spirting out around the sides of the spindle. Thus the oil is retained for further lubrication, and is not thrown upon the machinery or soaked up by the floor.

I am aware that an oil-passage running axially from the spindle-socket to an oil-reservoir beneath is not new, as also an oil-channel running upward from such reservoir to the cup at the top of the spindle-socket, as such a construction is shown in the English Patent of Crosland, dated August 17, 1863, and I do not claim the said devices, considered apart from the construction and arrangement of parts hereinbefore described; but I believe that my invention affords a more perfect circulation of the oil in the step without the use of any pumping machinery to produce such circulation, as in said Crosland's apparatus, while the oil is prevented from overflowing the step or spirting therefrom when the spindle is dropped into the socket by the rim or flange which closes the upper oil-chamber.

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

A spindle-step having the upper oil-chamber, *g*, partly covered by a flange, which encircles the spindle, the lower oil-chamber, *c*, the passage *d* at the bottom of the spindle-socket and axial therewith, the passages *f f*, extending from the chamber *c* to the edge of

the beveled base of the socket, and passages *i i*, extending from the upper to the lower chamber, the whole constructed and arranged substantially as described.

SAMUEL L. PATTEE.

Witnesses:

P. W. DUDLEY,
H. B. OSGOOD.