

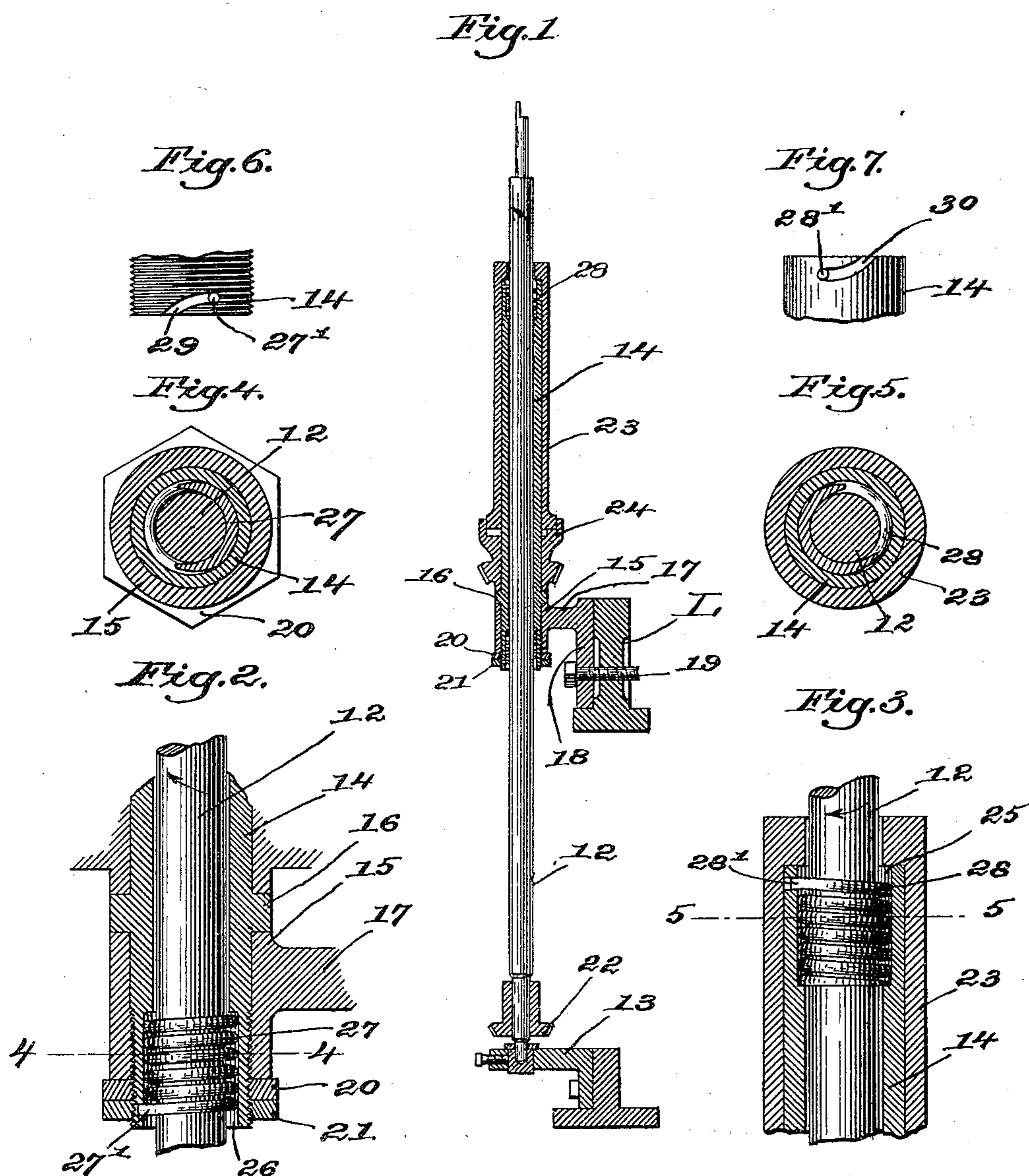
No. 658,597.

Patented Sept. 25, 1900.

C. E. SMITH.  
SPINNING SPINDLE.

(Application filed Dec. 14, 1899.)

(No Model.)



Witnesses.  
Thomas Drummond,  
Adolf Kaiser

Inventor.  
Cyrus E. Smith,  
by Leroy Meyers,  
attys.

# UNITED STATES PATENT OFFICE.

CYRUS E. SMITH, OF FALL RIVER, MASSACHUSETTS.

## SPINNING-SPINDLE.

SPECIFICATION forming part of Letters Patent No. 658,597, dated September 25, 1900.

Application filed December 14, 1899. Serial No. 740,267. (No model.)

*To all whom it may concern:*

Be it known that I, CYRUS E. SMITH, a citizen of the United States, residing at Fall River, county of Bristol, State of Massachusetts, have invented an Improvement in Spinning-Spindles, of which the following description, in connection with the accompanying drawings, is a specification, like numerals on the drawings representing like parts.

10 This invention relates to spinning-spindles, and more especially to a means to insure the proper even operation of the spindle and bobbin, the construction being such that the entrance of waste, flyings, dirt, &c., into the  
15 space between the bobbin and bolster or the bolster and the spindle is positively prevented, as in such a case as this the parts would become clogged and their action more or less affected.

20 My invention, as shown in one simple embodiment and hereinafter described, comprises a spindle in combination with a bolster and a clearer or device coöperating therewith and serving to positively prevent the entrance of waste between said spindle and bolster to impede their rotation, and said clearer  
25 or device may be of any suitable shape or character, though for simplicity I prefer to make it in the form of a spiral spring, which  
30 is so shaped with relation to the direction of rotation of the spindle as to preclude any dirt that may come in contact with the spindle at the ends of the bolster from entering the space between the spindle and bolster, and  
35 if for any reason flyings should get into the said space the spindle in its rotation carrying the waste with it will cause the waste to be discharged from the spaces in the bolster.

In the drawings, wherein I have represented  
40 my improvements in a simple form thereof, Figure 1 is a longitudinal central sectional elevation of a spindle equipped with two of my clearers or devices. Fig. 2 is an enlarged detail showing the lower end of the bolster  
45 and its clearer and part of the spindle. Fig. 3 is an enlarged detail showing the upper end of the bolster, its clearer, and part of the bobbin and spindle. Figs. 4 and 5 are sections taken in the lines 4-4 and 5-5 in Figs. 2 and 3,  
50 respectively. Figs. 6 and 7 are detail views of the lower and upper ends, respectively, of the

bolster, showing a means whereby the clearers may be secured in place.

In the drawings I have shown in Fig. 1 the principal parts of a common type of spindle. 55 The lifting-frame is denoted by L. 12 represents the spindle proper, stepped in the bearing 13 and surrounded longitudinally by the relatively-stationary bolster 14. The bolster at its lower end passes through the hub 60 or sleeve 15, and it has a circumferential shoulder 16 fitting against the upper side of said hub, the latter having a shank 17 flanged, as at 18, the flange being secured by means of a bolt 19 to the lifting-rail. The bolster 65 14 is confined to the lifting-rail, which is reciprocated to move the bolster and bobbin longitudinally of the rotating spindle by a holding-nut 20 in threaded engagement with the bolster, said nut being maintained in 70 proper position by a check-nut 21.

In Figs. 2 and 3 I have indicated by the arrow the direction of rotation of the spindle 12, and in Fig. 1 I have shown a bevel-gear 22, constituting a part of a convenient means 75 for driving the spindle, the bolster 14 being surrounded loosely by the bobbin 23, the lower end of which enters or is operatively engaged with the upper end of a bevel-gear 24, constituting part of the means for rotating 80 the bobbin.

The parts hereinbefore described constitute a spinning-spindle of old construction, to which my improvements are well adapted, though said improvements can be used in 85 connection with many other kinds of spindles or analogous devices where it is essential that waste, flyings, and other foreign matter, be excluded from between the spindle and bolster. 90

The bolster 14 is shown as having in its upper and lower ends, respectively, enlarged chambers 25 and 26, in which are located clearers 27 and 28, each of said clearers being herein represented as consisting of a spiral 95 feeder constructed in the form approximately of a coiled spring, this being an inexpensive type of clearer or waste-excluding member. The clearers are operative to prevent the entrance of all kinds of foreign matter into the 100 oil-chambers at the ends of the bolster, and they serve, each of them, when any flying

particles lodge on the spindle at the ends of the bolster to positively screw or force said particles in opposite directions or upward and downward, respectively, with relation to the spindle, and consequently away from the ends of the bolster. The clearers surround the spindle 12 and are contiguous to the periphery of the same near the opposite ends of the bolster, and they are conveniently connected to the latter, and in Figs. 6 and 7, where I have represented in detail the upper and lower ends of the bolster 14, said ends have bayonet or curved slots 29 and 30, the slot 30 being adapted to receive the end of the topmost coil of the clearer 28, while the slot 29 is adapted to receive the end of the lower coil of the lowermost clearer, and the ends of said clearers have offsets, as 27' and 28', to enter said slots. By this construction the clearers may readily be removed by giving them a very slight turn or a turn sufficient to carry the offsets thereof out of the slots in which they are normally located, and they may be as easily replaced in position should it be desired to clean them of adhering particles of dirt.

The springs constituting the clearers are of different pitch, the upper one in the present case being of a right-hand pitch, while the lower one is of a left-hand pitch, such difference in pitch enabling the spindle turning in but one direction to force the foreign matter coming thereagainst in opposite directions. The clearers also serve another function—that is, by reason of their contact with the rotating spindle they prevent the oil on the spindle from running too freely down the same, the coils of the springs contacting with the periphery of the spindle and acting thereby to hold, applied in usual manner, the oil for the purpose of lubricating the parts.

I find that one oiling will last several days, because the oil is retained between the coils of the spring, whereas with the usual bolster,

not provided with such springs, the spindle needs oiling every day, and, further, it will be noticed that the wire of the springs contacts with the spindle and with the inner wall of the chamber in the bolster, said wire constituting the sole bearing between the spindle and bolster, and consequently the wear on the bolster and spindle is greatly lessened.

The invention is not limited to the precise construction, for this may be materially modified within the scope of the accompanying claims.

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

1. A spindle, and a bolster combined with a clearer to prevent the accumulation of waste to the bearing-surfaces between the spindle and bolster and operating during the relative movement of the spindle and bolster to force any waste outward from the bearing-surfaces.

2. A spindle, and a bolster combined with a spiral clearer surrounding the spindle and inclosed by and connected with said bolster.

3. A spindle and a bolster combined with right and left hand spiral clearers surrounding the spindle and inclosed by the bolster.

4. A spindle, and a bolster having slots, combined with right and left hand spiral clearers surrounding the spindle and inclosed by the bolster, the end coils of the spiral clearers being disposed in said slots.

5. A bolster having at its ends spiral springs, combined with a spindle, said springs constituting the lateral bearings between the spindle and bolster.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CYRUS E. SMITH.

Witnesses:

GEO. W. GREGORY,  
MARGARET A. DUNN.