

J. C. LESLIE.
SPINDLE OF SPINNING AND ROVING MACHINES.
APPLICATION FILED JUNE 25, 1910.

993,080.

Patented May 23, 1911.

2 SHEETS—SHEET 1.

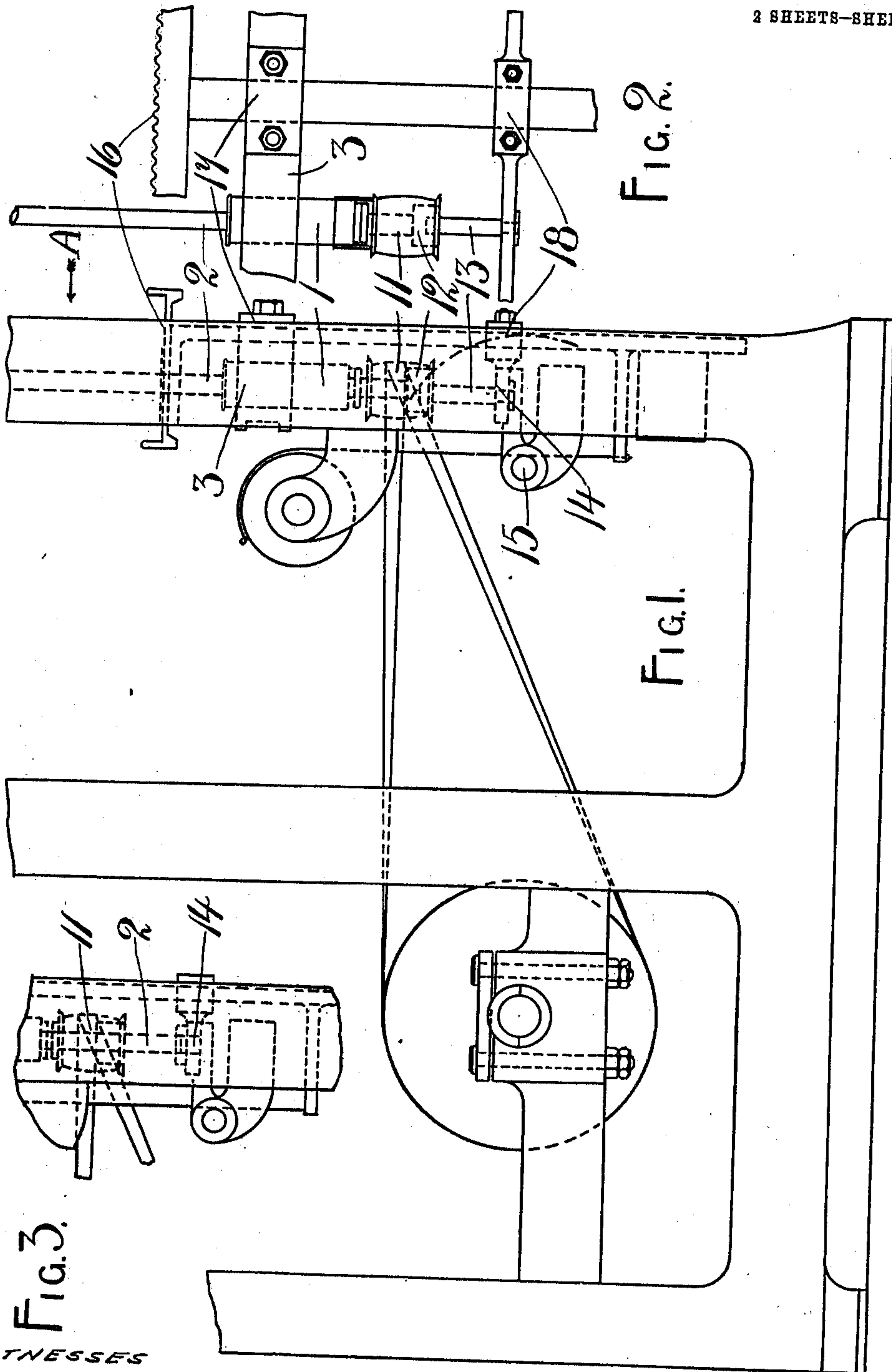


FIG. 3.

FIG. 2.

FIG. 1.

WITNESSES

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James Constable Leslie
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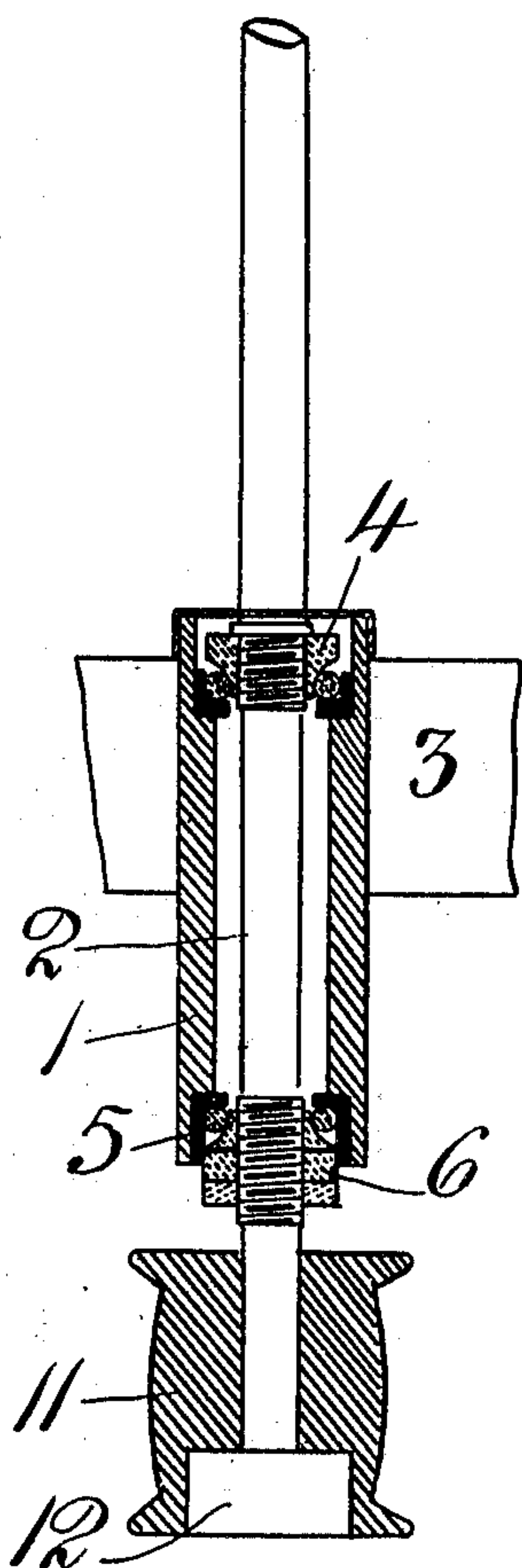


FIG. 4.

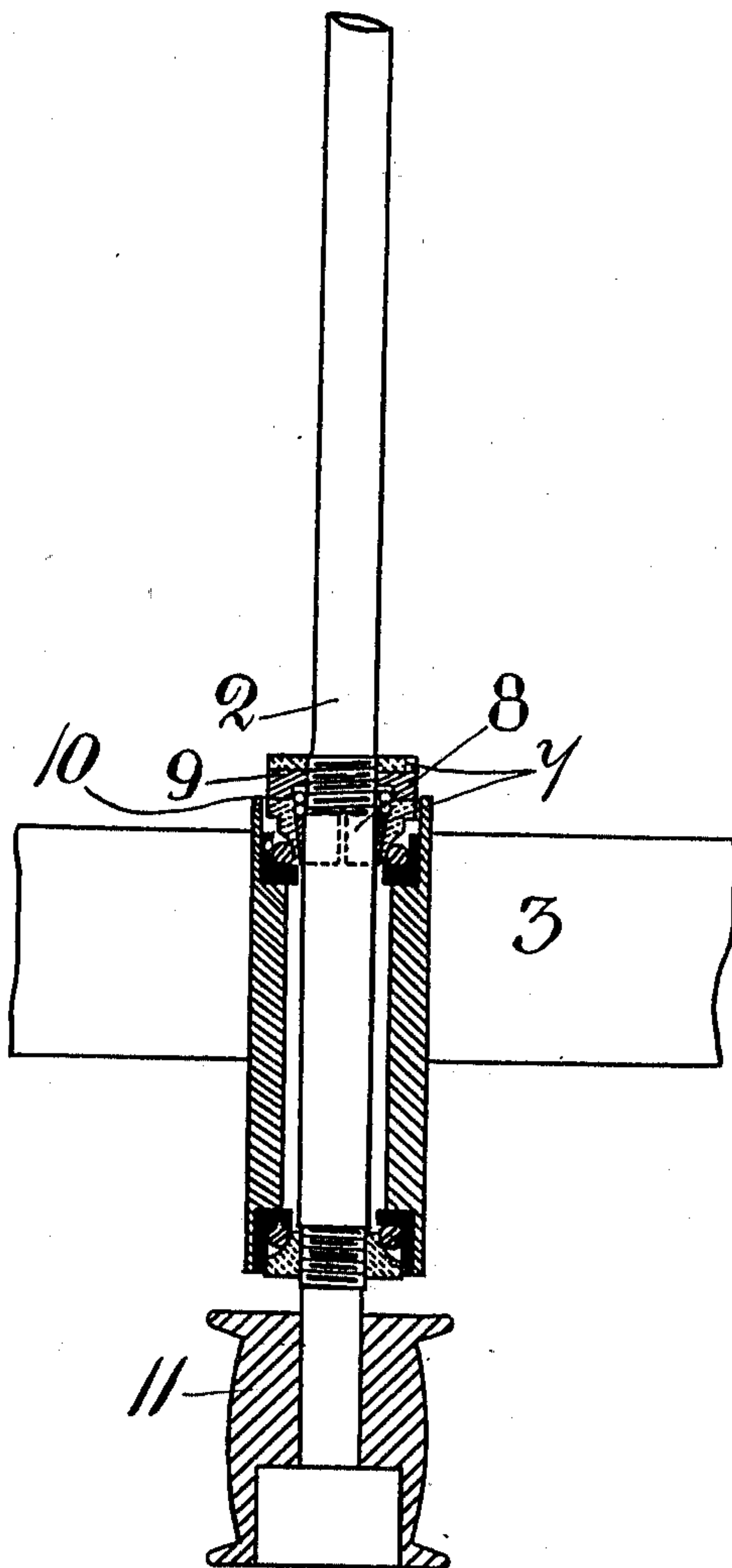


FIG. 5.

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UNITED STATES PATENT OFFICE.

JAMES CONSTABLE LESLIE, OF DUNDEE, SCOTLAND.

SPINDLE OF SPINNING AND ROVING MACHINES.

993,080.

Specification of Letters Patent.

Patented May 23, 1911.

Application filed June 25, 1910. Serial No. 568,912.

To all whom it may concern:

Be it known that I, JAMES CONSTABLE LESLIE, a subject of the King of Great Britain and Ireland, residing at 30 Argyle street, Maryfield, Dundee, Scotland, have invented certain new and useful Improvements in and Relating to the Spindles of Spinning and Roving Machines, of which the following is a specification.

This invention relates to the spindles of spinning and roving machines, and consists in carrying or suspending each spindle in an antifriction ball bearing, so that its lower end is clear of the frame and in the provision of a removable non-rotatory pin which forms a continuation of the bottom of the spindle.

In order that my said invention and the manner of putting the same into practice may be properly understood, I have hereto appended an explanatory sheet of drawings in which the same reference numerals are used to indicate corresponding parts in the figures shown.

Figure 1 is a part side elevation of a machine fitted with my improvements. Fig. 2 is a view looking in the direction of the arrow A. (Fig. 1.) Fig. 3 is a view showing a modified form of spindle dispensing with the non-rotatory pin. Fig. 4 is an enlarged sectional elevation of a spindle bearing and Fig. 5 is a sectional elevation of a modified or floating bearing.

The bearing consists of a fairly long tube 1 which is bored somewhat larger than the spindle 2 and which is firmly carried by the rail 3 which forms a portion of the frame of the machine. At each end of this tube and projecting beyond the rail are cups or ball races 4 and 5 these cups being either screwed or otherwise fixed on the tube, or they may form part thereof, according to the construction of the rail. The lower cover of the ball race is fixed on the spindle and the upper cover is screwed on being held in any position by a jam nut, or conversely as in Fig. 4 the lower cover 5 of the ball race is screwed on and held by the jam nut 6 and the upper cover 4 is fixed on the spindle. The spindle is entirely supported and guided by the roller bearings contained in the tube 1.

In some cases where a jockey cylinder is not used as shown in Fig. 1 there is a downward pull on the spindle causing the pres-

sure to be entirely on the upper portion of the bearing, practically leaving the lower set of balls out of action. In order to overcome this I may make the upper cover 7 of the ball bearing loose as in Fig. 5. This upper cover is in two parts the one 7 forming the ball race and the other 8 which is split and tapered being able to slide on the spindle 2. Above the cover is a fixed adjustable collar 9 and between the collar and the cover is a spiral spring 10 of sufficient strength to counterbalance the weight of the spindle and the downward pull due to the band.

The spindle pulley or werve 11 is beneath the bearing and the flier, which is not shown is above. In Figs. 1, 2, 4, and 5 the spindle 2 does not come through the pulley and so allows of a recess 12 being provided at its lower side. Immediately below each spindle is a removable non-rotatory pin 13, its axis coinciding or nearly coinciding with the axis of the spindle. This pin, or a row of pins, one for each spindle are carried by a swing rail 14 as in Fig. 1 pivoted at 15 and so devised that each pin or a set of pins can be made to swing away from their spindles, thus allowing such spindles to be lowered and removed when desired without interference by these pins. These swing pins can enter the recesses in the pulleys. If the pins be carried on a slide they can be made to move clear of the spindle but in that case they cannot enter the recesses in the pulleys. The pins are for the purpose of hanging the bands on when they are thrown off their werves, thus retaining them in a handy position for replacement, while at the same time permitting the disbanded spindles to remain stationary. When putting on a new band it is cut to the desired length and the ends fastened together an operation which is performed with difficulty in ordinary machines as the band even when loose has to encircle the spindle. By the use of the removable pin the band ends can be readily joined together before it is placed on the werve. The traversing platform 16 is guided by a slide 17 on the fixed rail 3 and by another slide 18 on the swing rail 14.

In some cases the swing rail 14 does not carry a pin but as is shown in Fig. 3 the spindle 2 projects through the pulley and into a cup on the swing rail. This form of construction is adopted where the rotating

spindle is stopped by the operative's toes, a method which obtains in India.

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

10 1. The combination, with a fixed supporting rail, of a tube supported thereby, a spindle passing through said tube and having a bearing therein, said spindle being free from other bearings and provided with a flier on one side of said bearing and a werve on the other side of said bearing, the werve and the lower end of said spindle being clear of said rail.

15 2. The combination, with a fixed supporting rail, of a spindle and flier with a single bearing contained in a tube, the flier being on one side and a werve on its other side with the lower end of the spindle and werve clear of said rail, a lower swinging rail, a traversing platform guided in said fixed

rail and in said swinging rail and a non-rotary pin carried by said swinging rail.

3. The combination with a fixed supporting rail, of a tube carried thereby, a spindle and flier with a single ball bearing, spring mounted, contained in said tube, the flier being on one side and the werve on its other, with the lower end of the spindle and werve clear of said rail. 25 30

4. The combination of a spindle provided with a werve at its lower end and a removable non-rotatory pin positioned in line with said spindle adjacent the lower end thereof said pin being out of engagement with said spindle or said werve. 35

In testimony whereof I affix my signature in presence of two witnesses.

JAMES CONSTABLE LESLIE.

Witnesses:

GEORGE CAMERON DOUGLAS,
GEORGE OSCAR GAGGESEN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
