E. T. LANPHEAR.

Ring Spinning Frame.

No. 205,655. **Patented July 2, 1878.**

Fig. 1.

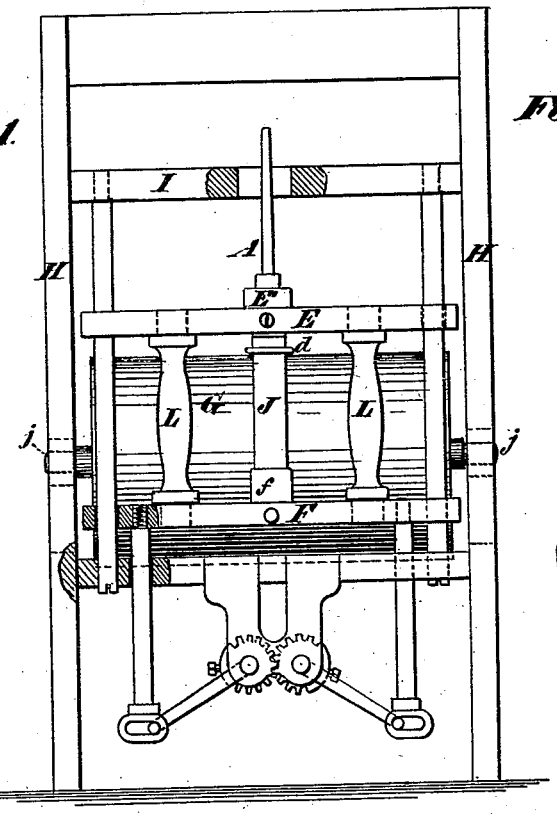


Fig. 3.

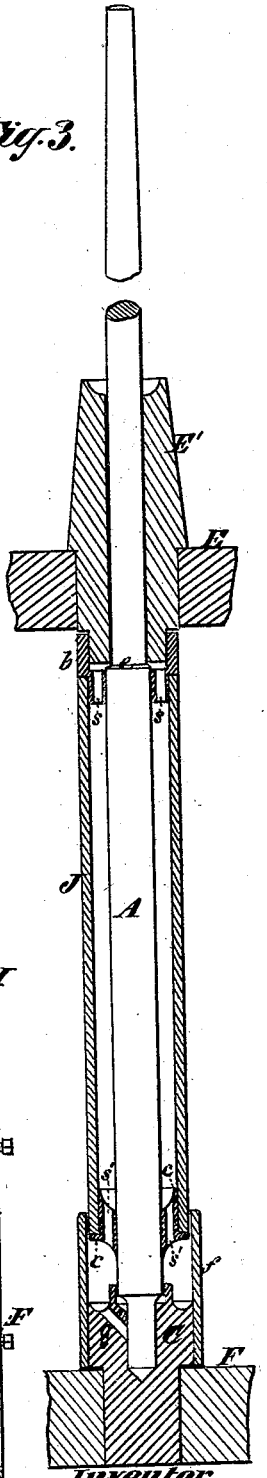
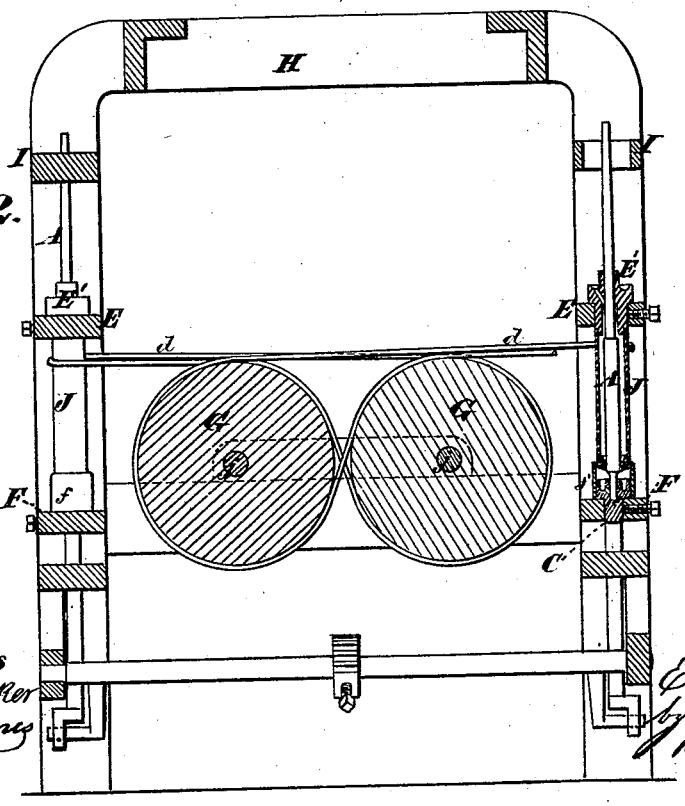


Fig. 2.



Witnesses
John Becker
Eno. Haynes

Inventor
E. T. Lanphear
by his Attorneys
Brown & Allen

UNITED STATES PATENT OFFICE.

EDWIN T. LANPHEAR, OF PHENIX, RHODE ISLAND.

IMPROVEMENT IN RING-SPINNING FRAMES.

Specification forming part of Letters Patent No. **205,655**, dated July 2, 1878; application filed March 2, 1878.

To all whom it may concern:

Be it known that I, EDWIN T. LANPHEAR, of Phenix, in the county of Kent and State of Rhode Island, have invented certain new and useful Improvements in Ring-Spinning Frames, of which the following is a description, reference being had to the accompanying drawing, forming part of this specification.

In that class of ring-spinning frames in which the ring-frame is stationary and the spindles have a longitudinal traversing motion, the spindles have in some cases heretofore been driven by a grooved whirl fast on the spindle, and deriving its motion through a band or cord from a drum having a rising and falling motion corresponding to the traversing motion of the spindle; and they have in other cases been driven from a drum having a fixed axis by a grooved whirl working in fixed bearings, and constructed to fit the traversing spindle by a longitudinal spline or groove, for the purpose of providing for the traversing motion of the spindle through the whirl. In all such and other previous cases, however, there is much complication and friction, which it is desirable to avoid, especially as, for instance, when the driving-drum requires to be moved up and down to correspond with the traversing motion of the spindle; and in all cases where a grooved whirl is employed there is not only the friction due to the movement of the mechanical devices by which the traversing motion of the spindle is provided for, but also the friction due to the binding or rubbing action of the band or cord on the sides of the groove in the whirl.

My invention consists in the combination, in a ring-spinning frame, of a fixed ring-rail, traversing or rising-and-falling step and bolster-rails and traversing spindle, a spindle-driving drum having fixed axis and bearings, and a plain cylindrical spindle-whirl, which is fast on the said spindle, and the axial length of which is equal, or thereabout, to the length of traverse of the spindle, whereby the driving of the traversing spindle is effected without any of the objections hereinabove referred to.

The invention also consists in a novel provision for oiling the step-bearing of the spindle, by causing the oil, which is introduced at the bolster, to run down from the latter and through the whirl to the step-bearing, whereby not only the bolster and step-bearing may be lubricated by one and the same oiling and oil economized, but overflow of oil from the bolster over the whirl is prevented.

Figure 1 of the accompanying drawing represents a front elevation of a portion of a ring-spinning frame having my invention applied. Fig. 2 is a transverse vertical section of the same. Fig. 3 exhibits an elevation of one of the spindles and sections of the bolster, bolster-rail, step and step-rail, and whirl.

H is the stationary portion of the frame, and I I the fixed ring-rails. E E are the bolster-rails, and F F the step-rails, each bolster-rail and its corresponding step-rail being secured together by posts L L, so as to be capable of rising and descending together on or in fixed guides attached to the framing, to produce what is called the "traversing motion" of the spindles A A, each of which is supported in a step, C, and guided in a bolster, E′, the said step and bolster being secured on their respective rails in the usual or any suitable manner. G G are the spindle-driving drums, having their shafts *j j* fitted to fixed bearings on the framing H.

The whirl J, provided on each spindle A for the reception of the endless driving-band *d*, through which the spindle derives rotary motion from its respective drum G, is of plain cylindrical form on its periphery, and of a length in an axial direction equal at least to the length of the traverse of the spindle.

A convenient mode of constructing said whirl is to form it of a metallic tube, with hubs *b c* tightly driven or otherwise secured within it at or near its ends, which hubs are also secured to the spindle by being tightly driven onto slightly-tapered portions thereof, or by other suitable means.

The whirl thus constructed, notwithstanding its length, need add no more weight to the spindle than an ordinary grooved whirl does, while it possesses the very important advantage of stiffening the spindle and preventing it from springing, so that it runs steadier and may be driven at a higher velocity.

The band *d*, through which the elongated whirl J, and by it the spindle, derives motion

from the driving-drum, may pass round the drum and the whirl in any of the ways commonly adopted, or in any other suitable manner. During the rotary motion and the longitudinal traverse of the spindle, the elongated cylindrical whirl passes up and down freely through the band without any up or down motion of the band or drum, the band operating uniformly on all parts of the whirl, without any more friction on the band, whirl, or drum than is necessary to produce the rotary motion of the spindle.

By making the whirl J with a passage through it, provision is made for oiling the step-bearing C by the oil introduced at the top of the bolster B, to lubricate it, said oil running down through the bolster, through one or more perforations, *s*, in the top hub *b* of the whirl, down through the whirl, and through one or more perforations, *s'*, in the lower hub *c* of the whirl to the step-bearing, without any liability of overflow of the oil from the bolster over the whirl. To make this oiling provision secure, the lower end of the bolster is made to enter the upper end of the whirl to within a short distance of the upper hub *b*, but is restrained from fully closing down on said hub to stop egress of oil through the latter by an intervening shoulder, *e*.

The usual provision, in addition, for independently oiling the step-bearing C when necessary, and for excluding dust or dirt from said bearing, may be made, the same consisting of a loose sleeve or thimble, *f*, arranged to rest on the step-rail, and a special oiling-hole, *g*, in the step-bearing, accessible only by raising the thimble.

I claim—

1. The combination, in a ring-spinning frame, of a fixed ring-rail, traversing spindle, and traversing step-rail and bolster-rail, a spindle-driving drum working in fixed bearings, and a plain cylindrical spindle-whirl, which is fast on the spindle, and the axial length of which is equal, or thereabout, to the length of traverse of the spindle, as and for the purpose herein described.

2. The elongated whirl secured to the traversing spindle, and constructed with a passage through it, in combination with the bolster and step for conducting the oil under cover of the whirl from the bolster to the step-bearing of said spindle, essentially as described.

EDWIN T. LANPHEAR.

Witnesses:
E. C. CAPWELL,
E. B. PARKER.