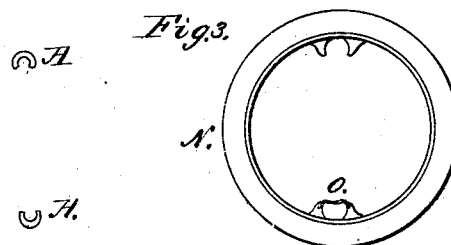
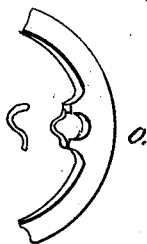
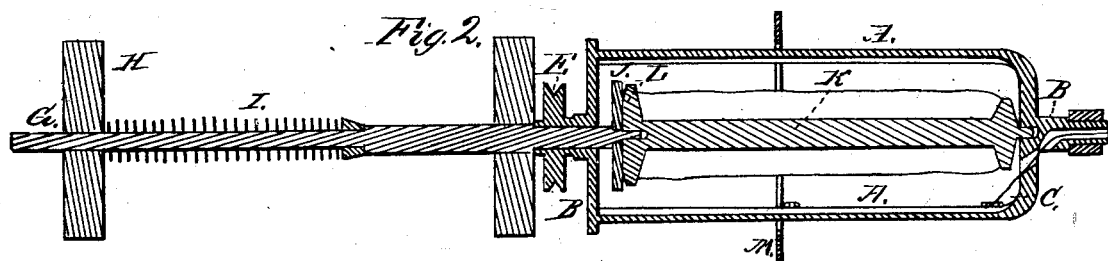
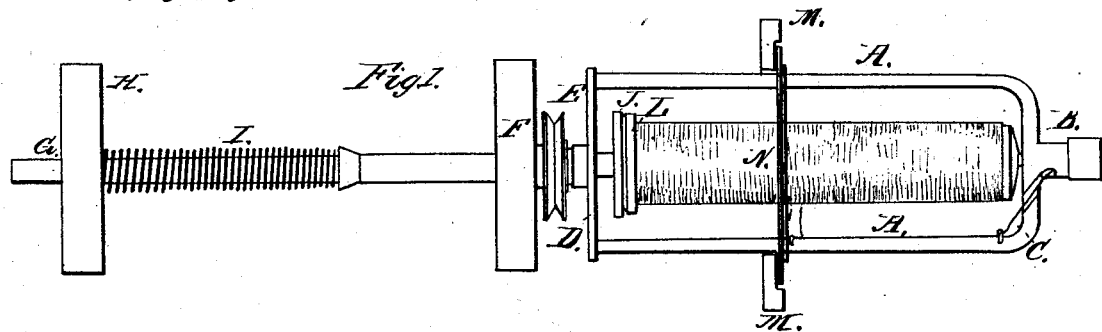


*R. E. Yerkes.*

*Flyer.*

*N<sup>o</sup> 781.*

*Patented Jun. 12, 1838.*



# UNITED STATES PATENT OFFICE.

RICHARD E. YERKES, OF PHILADELPHIA, PENNSYLVANIA.

## SPINDLES AND FLIERS FOR SPINNING COTTON AND OTHER FIBROUS SUBSTANCES.

Specification of Letters Patent No. 781, dated June 12, 1838.

*To all whom it may concern:*

Be it known that I, RICHARD E. YERKES, of the city of Philadelphia, in the State of Pennsylvania, have invented certain Improvements in the Construction of Spindles and Fliers to be Used in Machines for Spinning Cotton and other Fibrous Substances; and I do hereby declare that the following is a full and exact description thereof.

10 In the accompanying drawing A, A, Figure 1, represents the fliers, the upper end or neck of which B, is perforated, and runs in a suitable collar, the thread passing through the perforation, in the usual way. 15 From this hole the thread passes through a hook at the bend C, of the fliers, and down a groove within it to the ring by which it is distributed upon the spool. The lower ends of the fliers extend down to the cross plate 20 D, to which they are united by riveting or otherwise. The cross plate D, and the whirl E, are in one piece, the fliers being driven by a band on this whirl, which has its bearing on the rail F. There is a sliding shaft G, which is square at its upper 25 end, and which slides through a square hole, in the rail F. It is round at its lower end, sliding through the lower rail H, and borne up against the spool, or against a spindle, 30 or broach passing through the spool, by a spiral or other spring I.

In Fig. 2, I have given a section down the center of the spools and fliers, including the sliding shaft G, by which means 35 the particular manner in which I construct my apparatus will be distinctly seen, the same letters of reference being employed to designate the same parts in each of the figures. The sliding shaft G, extends up 40 through the whirl E, and the bottom D, of the fliers, which revolve upon it. On the upper end of this shaft there is a round plate J, which serves as a seat for the bottom of the spool, or of the spindle or 45 broach to be presently described. This plate is not made fast to the upper part of the shaft, but is capable of revolving freely upon it. What I have denominated the spindle, or broach, is shown at K. It has

a round plate L, at its lower end, upon 50 which the spool or bobbin, is to rest. Its upper end passes into a hole in the neck B, of the fliers, and its lower end has a hole drilled into it to admit the pin which forms the termination of the upper end of the 55 shaft G, upon which it is to revolve, as shown in the drawing. When the spool is to be changed, this is effected by taking hold of the shaft G, and pressing it down, which will remove the pin on its upper end out of 60 the hole in the lower end of the broach, which may then be slipped out, and a new one inserted. I sometimes dispense entirely with this broach, and in its stead use nothing but the spool, which in this case has a 65 hole on its lower end to receive the pin on the sliding shaft, and a pin on its upper end to pass into the hole in the neck of the fliers.

M, is the wave rail made and operating in the usual manner. Within openings made 70 in this wave rail the fliers revolve, and upon this rail rests the ring N, which rises and falls with it, for the purpose of distributing the yarn upon the spool. Fig. 3, represents a top view of one of these rings, with the 75 guide pieces which embrace the fliers, and the hook loop o, by which it guides the thread upon the spool.

Having thus fully described the construction of my improved apparatus for 80 spinning, I do hereby declare that what I claim as my invention therein, consists in—

1. The revolving arrangement and combination of the sliding shaft, with the 85 broach, or with the spool, for the purpose of removing and renewing the latter, these parts being constructed and operating substantially in the manner herein set forth.

2. I claim also the particular manner of constructing, using, and combining with the 90 fliers; the ring which lies upon the wave rail, and by which the yarn is laid upon the spool.

RICHD. E. YERKES.

Witnesses:

P. K. MORSELL,  
H. T. PAIN.