O. ATWOOD.

Flyer for Spinning-Machines.

No. 219,670. Patented Sept. 16, 1879.

Fig. 1.

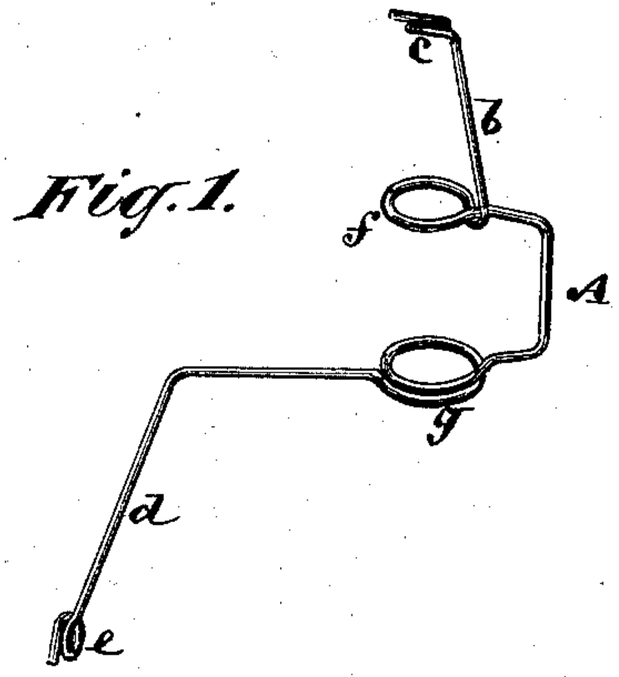


Fig. 2.

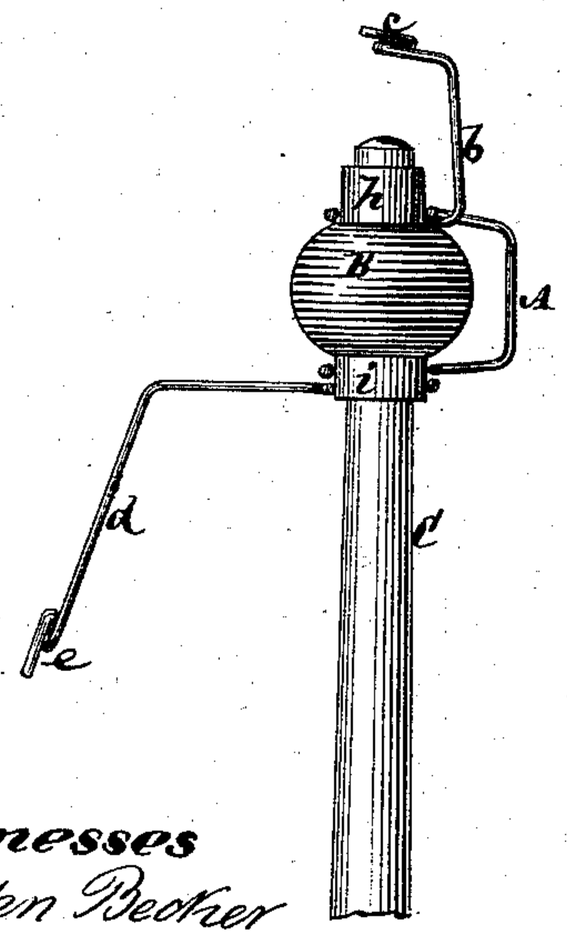
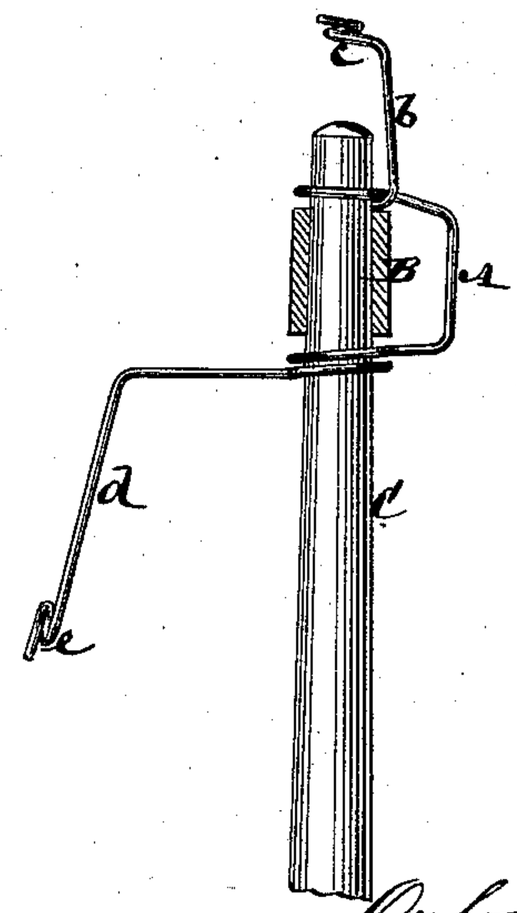


Fig. 3.



Witnesses

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IMPROVEMENT IN FLIERS FOR SPINNING-MACHINES.

Specification forming part of Letters Patent No. **219,670**, dated September 16, 1879; application filed January 24, 1879.

To all whom it may concern:

Be it known that I, ORLO ATWOOD, of the city and county of New London, in the State of Connecticut, have invented certain new and useful Improvements in Fliers for Spinning-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to fliers especially intended for spinning silk, which can also be employed for spinning other fibrous material; and the invention consists in a flier constructed from a single piece of wire, which is bent to form an upper eyed arm and a lower lateral eyed arm, and bent and coiled at two points between the said eyed arm to form an upper and a lower annular bearing-ring, all of which will be fully hereinafter described.

The invention also consists in a tip or holder adapted to rest over the end of the spindle, and constructed with reduced cylindrical end bearings, combined with the flier, formed with an eye or eyes and upper and lower annular bearing-rings, adapted to the said end journals, as hereinafter specified.

In the accompanying drawings, Figure 1 represents a view in perspective of a flier constructed in accordance with my invention. Fig. 2 is a side view of said flier arranged loose upon its tip or holder, and Fig. 3 a like view of the flier arranged loose upon the spindle, with the tip or holder (shown in section) between the bearings of the flier.

A is the flier, made of a single piece of wire bent to form the upper arm, *b*, which has the usual central eye, *c*, for the thread at the upper end of the flier, and further bent to form the lateral arm *d*, having the usual eye *e* at its lower end, for the thread, as it is taken from the bobbin, cop, or quill on the spindle, to pass through. These eyes *c* and *e* are formed by simply coiling the ends of the arms. Furthermore, the same piece of wire which forms the arms *b* and *d*, with their eyes *c* and *e*, is bent and coiled to form upper and lower bearings *f g*, having the tip or holder B of the flier within or between them.

The said bearings *f* and *g* may be arranged either loosely around reduced end portions *h i* of the tip or holder, which form journals for the said bearings, as shown in Fig. 2, or may be fitted loosely around the spindle C itself, as shown in Fig. 3.

By arranging the flier with its bearings *f g* loose around a tip or holder which is placed tightly on the spindle, as in Fig. 2, it may be more readily placed on and removed from the spindle than when said bearings are arranged loose around the spindle, as in Fig. 3, with the tip or holder B fast on the spindle between them.

A flier constructed of a single piece of wire, with its bearings made out of the wire itself, as described, is less expensive, and may be more readily applied in its place and removed than fliers in which the arms and eyes made of one or more pieces are secured to a block or holder which revolves on the spindle.

I claim—

1. A flier consisting of a single piece of wire bent to form an upper eyed arm and a lower lateral eyed arm, and bent and coiled at two points between the said eyed arms to form an upper and lower annular bearing-ring, substantially as shown and described, for the purpose described.

2. The tip or holder B, constructed with the reduced cylindrical end journals *h* and *i*, in combination with the flier formed with the eye or eyes, and the upper and lower annular bearing-rings *f g*, adapted to the journals *h i*, substantially as shown and described.

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