No. 648,200. Patented Apr. 24, 1900.

J. GOOD.

FLIER FOR SPINNING MACHINES.

(Application filed July 1, 1899.)

(No Model.) 2 Sheets—Sheet 1.

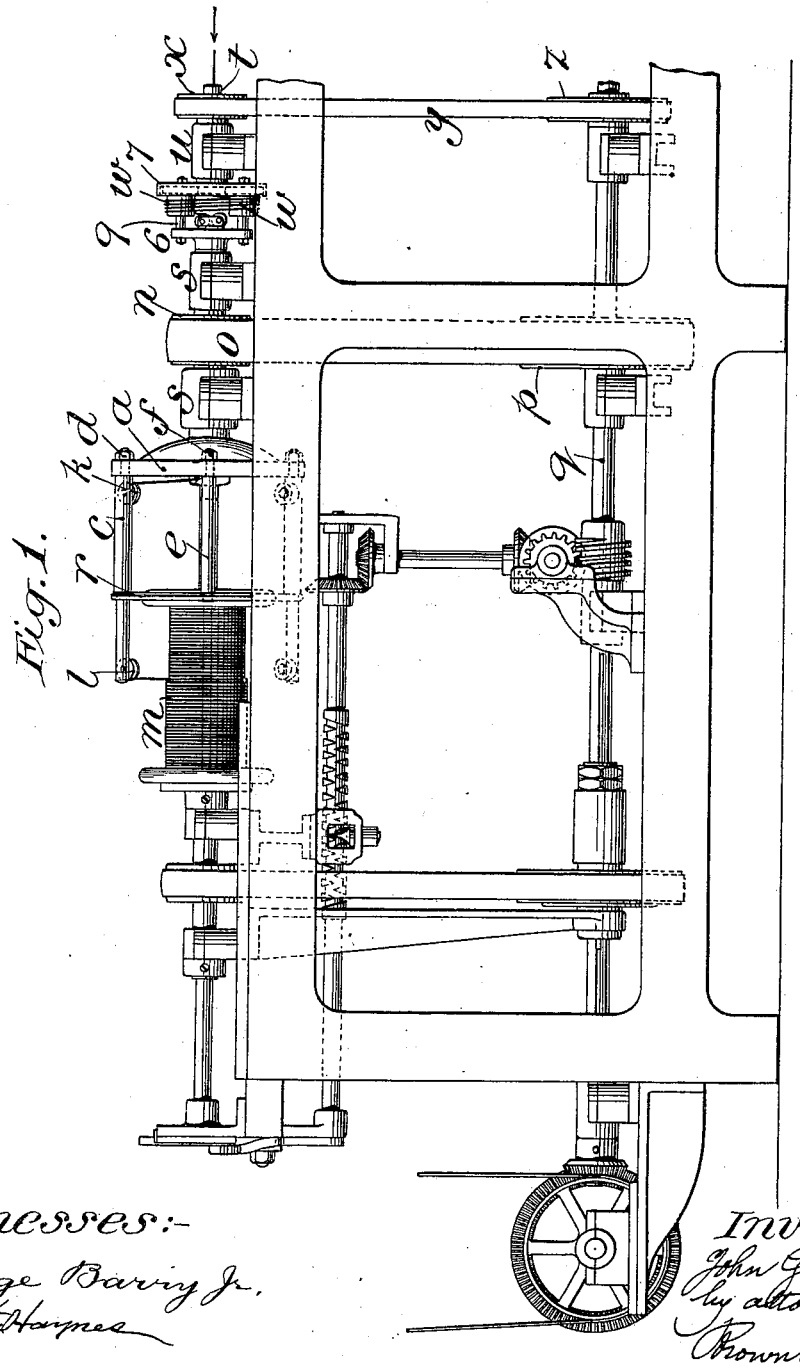


Fig. 1.

Witnesses:-
George Barry Jr.
Fred't Haynes

Inventor:
John Good
by attorneys
Brown & Seward

No. 648,200. Patented Apr. 24, 1900.

J. GOOD.

FLIER FOR SPINNING MACHINES.

(Application filed July 1, 1899.)

(No Model.) 2 Sheets—Sheet 2.

Fig. 2.

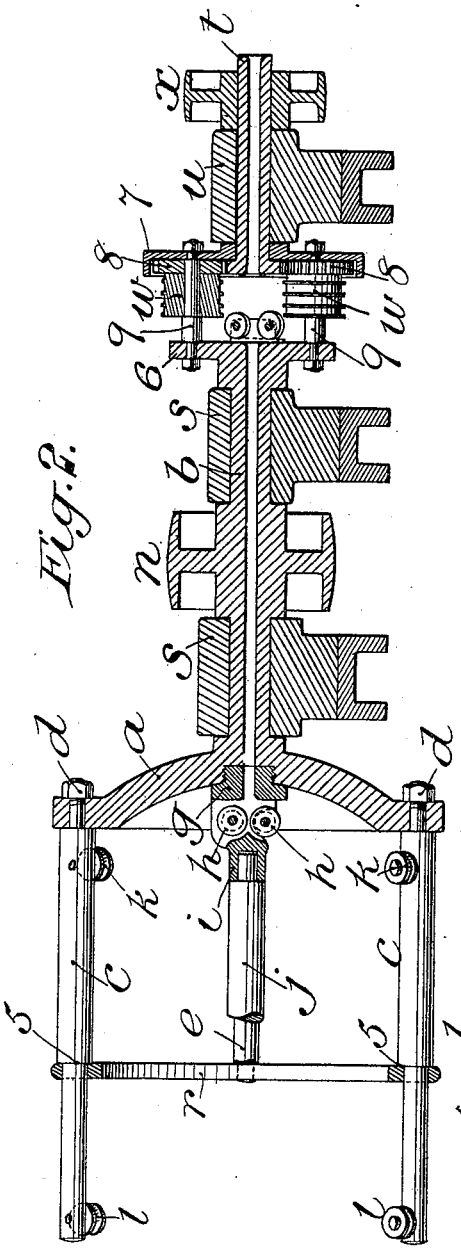
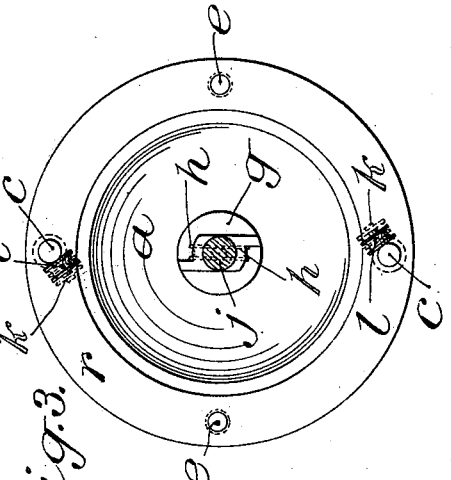


Fig. 3.



Witnesses:-
George Barry Jr.
Fred Haynes

Inventor:-
John Good
by attorneys
Brown & Seward

UNITED STATES PATENT OFFICE.

JOHN GOOD, OF NEW YORK, N. Y.

FLIER FOR SPINNING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 648,200, dated April 24, 1900.

Application filed July 1, 1899. Serial No. 722,498. (No model.)

To all whom it may concern:

Be it known that I, JOHN GOOD, a citizen of the United States, and a resident of the city of New York, (Far Rockaway,) State of New York, have invented a new and useful Improvement in Fliers for Spinning-Machines, of which the following is a specification.

This invention relates more particularly to fliers for spinning-machines of the kind known as "jenny," for the spinning of heavy twine and of heavy yarns for cordage, and especially to such fliers having only one head and having one end open.

One feature of this invention is a novel construction of such a flier whereby without its being of great weight it may be driven at very high speeds and yet have its arms sustained against their tendency to spread apart, which is produced by the centrifugal force developed in them by such speeds. Capstans for such a flier must necessarily be arranged outside of it.

Another feature of my invention consists in the novel combination hereinafter described, including the means, hereinafter described and claimed, whereby the so-arranged capstans are carried by the flier and have the necessary motion imparted to them.

I will first describe the invention in detail with reference to the accompanying drawings and afterward point out its novelty in claims.

Figure 1 represents a side elevation of as much of a jenny as is necessary to illustrate my invention; Fig. 2, a longitudinal view of my improved flier, mainly in central section; Fig. 3, a view taken at the open end of the flier.

Similar letters and numerals of reference designate corresponding parts in all the figures.

a is the head of the flier, consisting of a disk, which has cast with it or in any way firmly secured to it the hollow journal *b* and to which are rigidly secured in any suitable manner the flier-arms, consisting of parallel bars *c*. The said bars, of which two only are shown, that number being sufficient, are represented as passing through the disk *a* and shouldered against the face thereof and secured by nuts *d*, applied to their screw-threaded ends at the back thereof. From their other ends for from one-third to half their length (more or less) the said bars are reduced in size and shouldered, as shown at 5 in Fig. 2, to receive a sustaining-ring *r*, the outer circumference of which is about equal to that of the head *a* and the inner circumference large enough for the bobbin to pass freely to and fro within it. The reduced front portions of the side bars pass through holes provided for them in this ring *r*, which abuts against the shoulders 5 of said bars and is there secured by brace-rods *e*, shorter than the flier-arms *c*, arranged between the said arms and between the said ring and the flier-head *a*. These brace-rods are secured firmly to the said ring *r* and the flier-head *a* in any suitable manner. They are represented as shouldered between the said ring and flier-head and as riveted to the ring and secured to the flier-head by nuts *f*, fitted to their screw-threaded rear ends, which project through said head. In this construction the ring *r* sustains the side bars or arms *c* against the effects of centrifugal force, so that the said arms themselves may be comparatively light and the short brace-rods *e* sustain the ring *r*. A comparatively light open flier capable of running at very high speeds without tendency to spreading or distortion is thus obtained.

The flier thus constructed is represented as fitted at its eye, like other fliers, with a socket-piece *g*, in which are fitted the sheaves *h*, and which contains the socket *i* for the inner end of the bobbin-spindle *j*, and it is also represented as having attached to its side bars *e* the sheaves *k l*, such as other fliers have on their side bars for the guidance of the yarn or twine to the bobbin *m* as the latter traverses longitudinally back and forth within it.

The flier-journal *b* is represented as running in journal-boxes *s* on the framing of the machine and as having on it a pulley *n* to receive the driving-belt *o* from the pulley *p* on the main shaft *q* of the machine. In line with the journal *b* is the independent journal *t*, which runs in a specially-provided stationary journal-box *u*, arranged outside of and independent of the flier. This journal *u* carries at its inner end the gear *v* for driving the flier-capstans *w*, which are also outside of the flier. The said journal has on it a pulley *x* to receive the driving-belt *y* from a

pulley z on the main shaft q. The capstans are arranged to turn upon pivots 9, which are supported at one end in a flange 6 on the end of the flier-journal b and at the other end by a head 7, which is fitted to turn freely on the independent journal t. The capstans are furnished with gears 8, which gear with the gear v on the independent journal t. The pulleys z x for driving said journal t and the pulleys p n for driving the flier are so proportioned that the said journal t rotates more slowly than the flier, and by this difference of velocity the capstans are caused to rotate on their pivots 9 and to draw into the flier the yarn, thread, or twine which is spun by its rotation.

The capstans may have their velocity varied relatively to the velocity of the rotation of the flier by changing the pulley x on the independent journal t for a larger or smaller one.

What I claim as my invention is—

1. In an open spinning-flier, the combination of a disk constituting the flier-head, arms consisting of bars attached to said disk, a ring connecting said arms together at a distance from their ends, and brace-rods shorter than said arms and arranged between them and connecting said ring with said disk, substantially as herein described.

2. The combination with an open flier and a journal which carries it and capstans for said flier arranged outside of it, of a second journal arranged in line with the first-mentioned journal, separate and independent stationary bearings for said two journals in which they are capable of turning independently of each other, a head fitted loosely to said second journal, pivots which connect the said head with the first-mentioned journal and upon which the captans are fitted to turn, gears fast on said capstans, a gear fast on said second journal and gearing with the gears on the capstans, and means for rotating the two journals at different speeds, substantially as herein described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 30th day of June, 1899.

JOHN GOOD.

Witnesses:
FREDK. HAYNES,
EDWARD VIESER.