

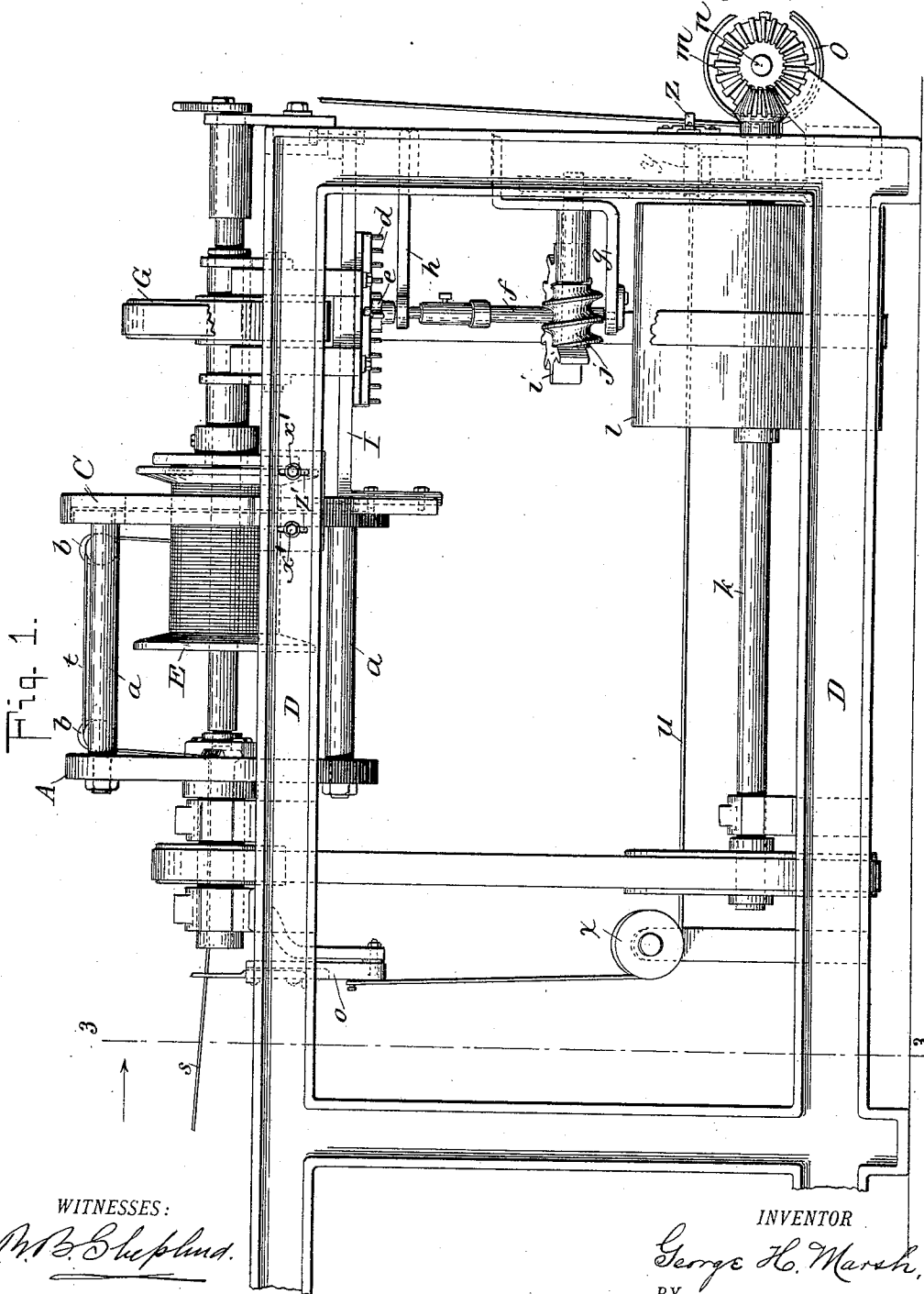
(No Model.)

4 Sheets—Sheet 1.

G. H. MARSH.
SPINNING JENNY.

No. 523,168.

Patented July 17, 1894.



WITNESSES:

M. B. Sheplund.

Geo. C. Mearns

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ATTORNEYS.

(No Model.)

G. H. MARSH.
SPINNING JENNY.

4 Sheets—Sheet 2.

No. 523,168.

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Fig. 3.

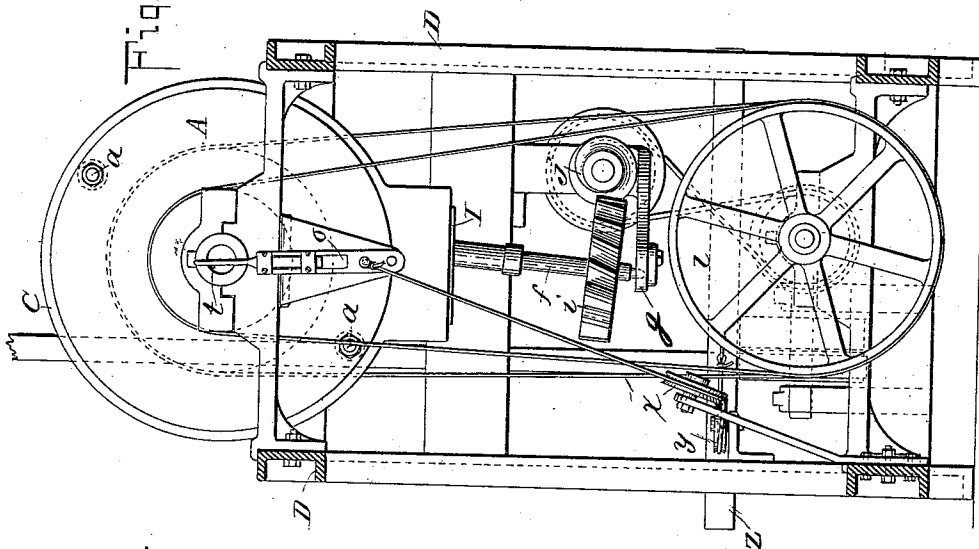
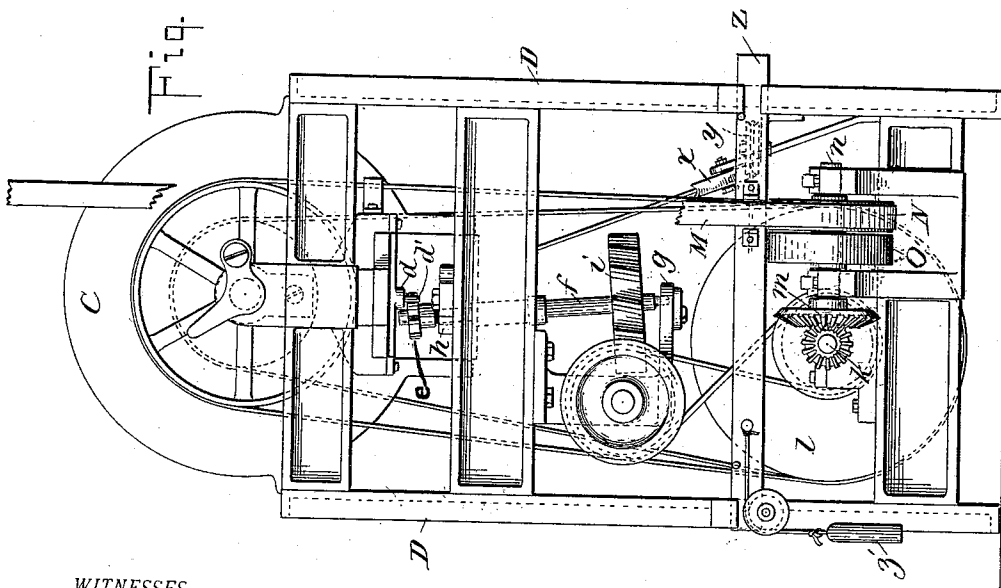


Fig. 2.



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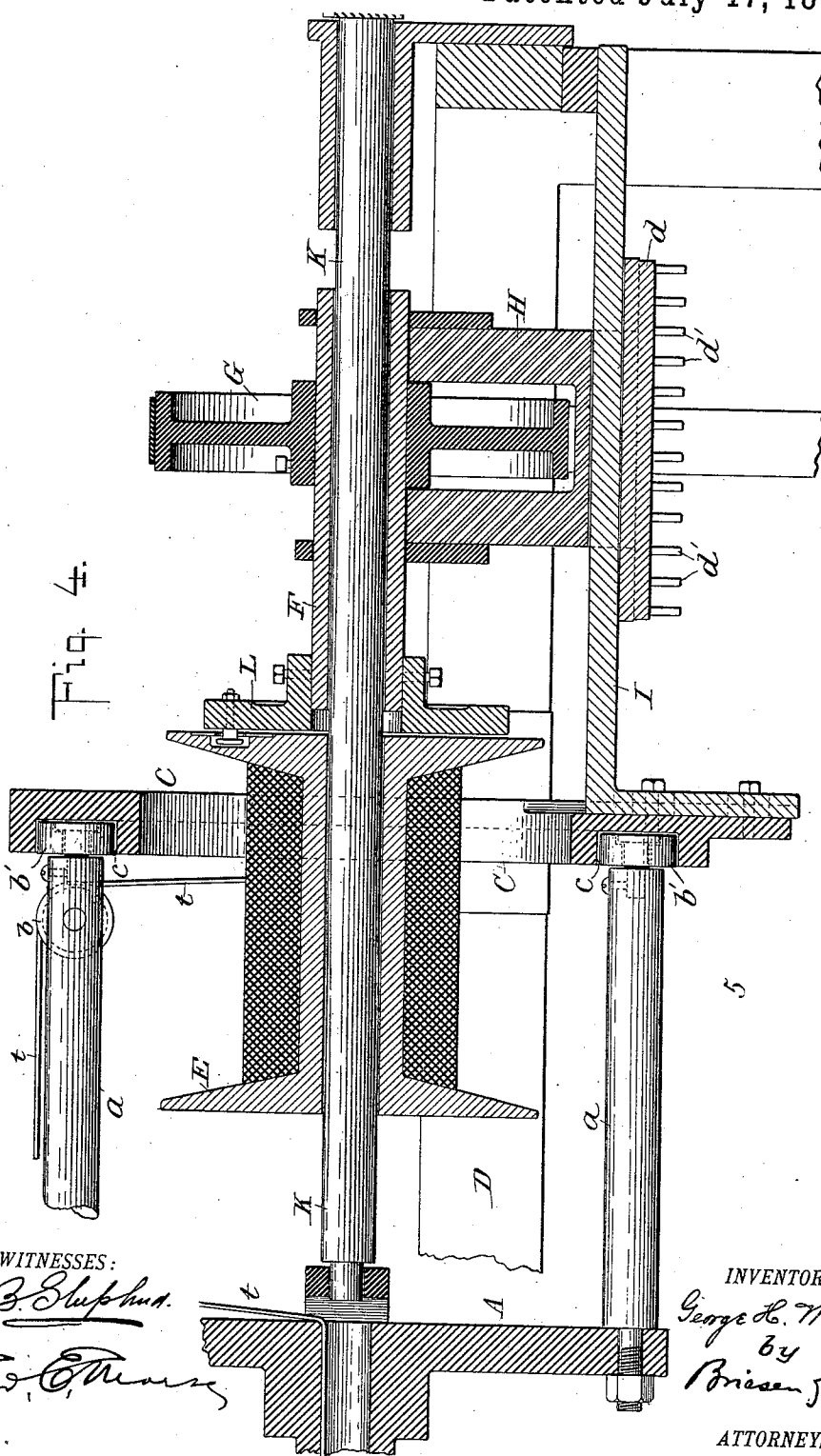
(No Model.)

4 Sheets—Sheet 3.

G. H. MARSH.
SPINNING JENNY.

No. 523,168.

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4 Sheets—Sheet 4.

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Fig. 5.

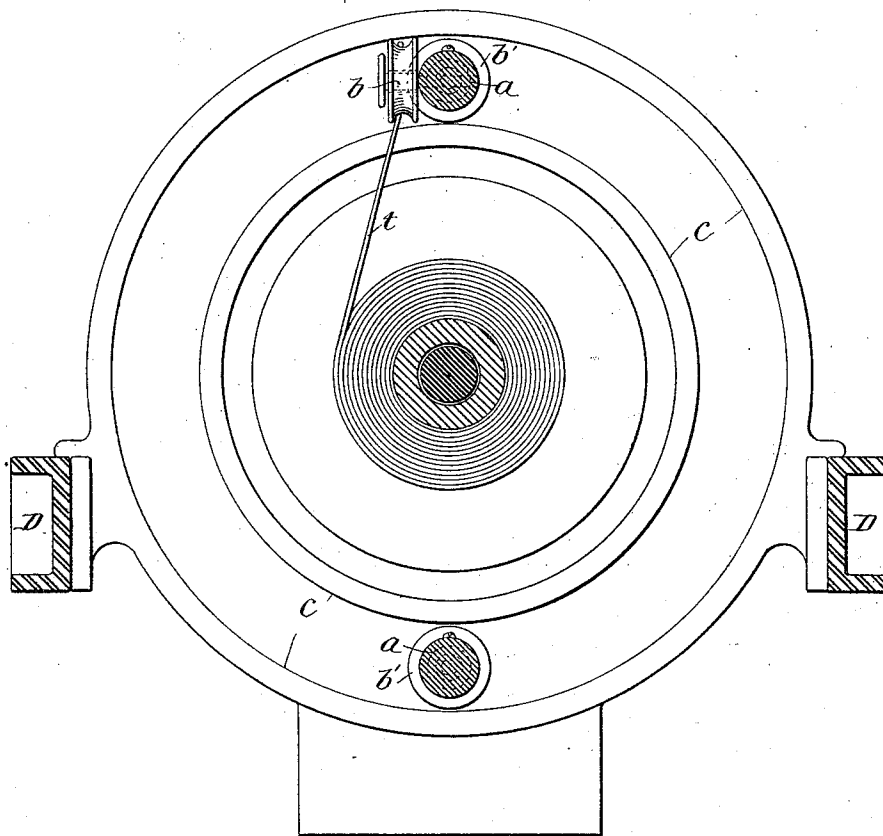


Fig. 6.

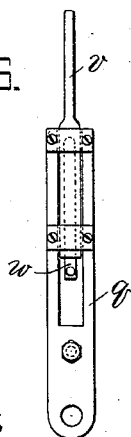
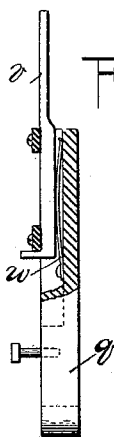


Fig. 7.



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UNITED STATES PATENT OFFICE.

GEORGE H. MARSH, OF PATERSON, NEW JERSEY, ASSIGNOR TO RUDOLPH ERBSLÖH, OF BROOKLYN; NEW YORK.

SPINNING-JENNY.

SPECIFICATION forming part of Letters Patent No. 523,168, dated July 17, 1894.

Application filed September 21, 1893. Serial No. 486,058. (No model.)

To all whom it may concern:

Be it known that I, GEORGE HARRISON MARSH, a resident of Paterson, Passaic county, State of New Jersey, have invented certain new and useful Improvements in Spinning-Jennies, of which the following is a specification.

My present invention relates to spinning jennies, and has for its object to produce a flier which may be driven at a very high rate of speed.

To this end my invention consists in a flier consisting of a rotary head, flier-rods secured thereto by one end, and having their free ends received in a groove in the face of a stationary ring and also in further details of construction hereinafter described and more particularly pointed out in the claims.

In the accompanying drawings, forming part hereof—Figure 1 is a side view of a jenny having my invention applied thereto. Fig. 2 is an end view of the same. Fig. 3 is a section on line 3—3 of Fig. 1, looking in the direction of the arrow. Fig. 4 is an enlarged broken away detail sectional view of a form of my improved flier and other parts presently to be described. Fig. 5 is a section on line 5—5 of Fig. 4. Fig. 6 is a front view of the stop mechanism for the jenny. Fig. 7 is a side view of the same, partly broken away.

In jennies as hitherto constructed it has been customary to unite two revolving heads by flier-rods of considerable length in order to allow for the travel of the bobbin between the heads. This bobbin has been hitherto carried by a long traverse tube extending through one of the heads. These long flier-rods have been found to be objectionable owing to the fact that when the flier was revolved at a high rate of speed, the rods would bulge outwardly under the influence of centrifugal force, thereby defeating the object of exactness in adjusting the parts and straining the parts and interfering with the proper twisting and laying action of the flier. By my present invention I am enabled to shorten these flier-rods about one-half, as in my said machine it is only necessary that these flier-rods be about the length of the bobbin to be wound. This shortening of the flier-rods enables the flier to be driven at a very high rate

of speed without danger of strain or breakage, or the attendant defects of long flier-rods. This I accomplish in the following manner.

Referring now to Figs. 1 and 4, A is the usual left-hand head of the flier in which may be the usual dies or contrivances customary in such machines, but which, however, are not shown since they form no part of the present invention. This left-hand head instead of being united by means of flier-rods with a similar head, is provided according to the present invention with flier-rods *a*, upon which may be the usual guide rollers *b*, the ends of said flier-rods being entered into an annular recess *c*, of a stationary ring C which is adjustably supported on the frame D of the machine by the screws *x x'* operating in slots *Z Z'* respectively, or any other well-known means. The free ends of these flier-rods which are entered into the groove in the stationary ring are wholly disconnected from each other and are shown as provided with rollers *b'*, but the said rollers may be omitted, if desired.

The bobbin E is carried by the tubular shaft F (through which extends the rod K) which also carries the pulley G, and has its bearings on opposite sides of said pulley, said bearings projecting from a carriage or slide H that is supported on a longitudinal stationary rail I pertaining to the frame-work of the machine. This stationary rail extends into contact with and is fastened to the stationary ring C and assists in properly bracing it.

The traversing motion may be imparted to the carriage H supporting the pulley G that rotates the bobbin, in any suitable manner. I have shown one means consisting of the rack *d* connected with the carriage H. Gearing with this rack *d* is a pinion *e* carried on the end of a shaft *f* stepped in a bracket *g* on the frame of the machine, and extending loosely through a guide *h* which permits the shaft to oscillate around its step as a center. Mounted on the shaft *f* is a gear *i* which meshes with a worm *j* suitably driven from the shaft *k* of the drum *l*. The pulley G is belted to the drum *l*, and the rotation of the drum *l* will serve to rotate the bobbin, and at the same time give it a traverse motion by means of the rack *d* and pinion *e*. The pin-

ion *e* as it rotates will pass first on one side and then on the other of the row of pins *d'* of the rack, and will give the rack, carriage and bobbin a longitudinal to and fro motion as the bobbin is revolved.

The coupling *L* (Fig. 4) which connects the bobbin with the rotary shaft is adjustable on said shaft as shown, so that on starting the machine, if the traversing contrivance has not been exactly adjusted as it ought to be, the attendant may, by slightly adjusting this coupling, cause the position of the bobbin at all times to compensate for the lack of adjustment of the traversing mechanism. To this end the tubular shaft which enters the coupling should never extend fully through the coupling.

The operation of the machine is as follows: The slivers *s* come into the machine from the left, and are taken from a chain (not shown), and through nippers (not shown) in the usual way to the flier, where they are twisted into a strand *t* and laid on to the bobbin, the bobbin being given a traverse motion through the ring by the traverse mechanism. Instead of operating on slivers, the machine is equally applicable to the twisting of strands that are taken from reels through a perforated plate in the usual manner, for the purpose of doubling the strands.

In order to provide for the stoppage of the machine should any breakage of the slivers or strands occur, I arrange a pivoted lever *o* between the nippers and the flier, at some distance to one side of the path of the slivers or strands. This lever consists of two parts *q v* held frictionally together by a spring *w* so as to be positively extensible and contractible, and to enable the parts to remain in any position to which they may be extended, as shown in Figs. 6 and 7. In this respect the stop lever differs from stop levers heretofore used, of which there are some that are not at all extensible, while others that are extensible are provided with extending springs that will always hold the said lever in the extended position, unless by hand it is held in the contracted position. From the stop lever *o* a cord *u* passes around pulleys *x y* to any suitable form of belt shipper *Z* or other suitable arrangement for stopping the machine.

The stop lever *o* is left in the contracted position while the slivers or strands are adjusted in the machine, and is then swung over

to the opposite side of the adjusted slivers or strands, and extended so that it shall rest against the said slivers or strands, holding the shipping lever retracted, and the belt *M* on the tight pulley *N* as long as the slivers or strands remain unbroken. This pulley *N* communicates motion through the gearing *m n* to the shaft *k* that operates the parts, as above described. The moment the slivers break the lever will fall past the path of the slivers or strands and will thereby permit a spring or a weight *z'* to shift the shipping lever *M* to the loose pulley *O*, thus stopping the machine. While adjusting the slivers in the machine prior to starting it, the stop-lever is intended to remain in the contracted position, and can after the adjustment of the slivers, &c., be brought past the slivers and then extended with great convenience.

My invention is equally applicable to rope forming machines, &c., and by the term jenny I wish to embrace all analogous machinery.

What I claim, and desire to secure by Letters Patent, is—

1. In a flier, the combination of a rotary head with flier-rods that are connected at one end to said rotary head, a stationary ring parallel to said head, said stationary ring having a groove in its face, into which groove the loose ends of said flier-rods enter, as and for the purpose specified.

2. In a flier, the combination of a rotary head with flier-rods that are connected at one end to said rotary head, a stationary ring parallel to said head, said stationary ring having a groove in its face into which groove the loose ends of said flier-rods enter, and means substantially as described for adjusting the stationary ring in a vertical plane, and for holding the same in its adjusted position, as and for the purpose specified.

3. The combination with a jenny and mechanism for operating the same, of a two-part extensible and contractible stop lever having means for holding its parts together frictionally so that they will remain either in the contracted or extended position and a connection between said stop lever, and the mechanism for operating the jenny, as and for the purposes set forth.

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Witnesses:

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