

No. 620,825.

Patented Mar. 7, 1899.

T. ASHWORTH.

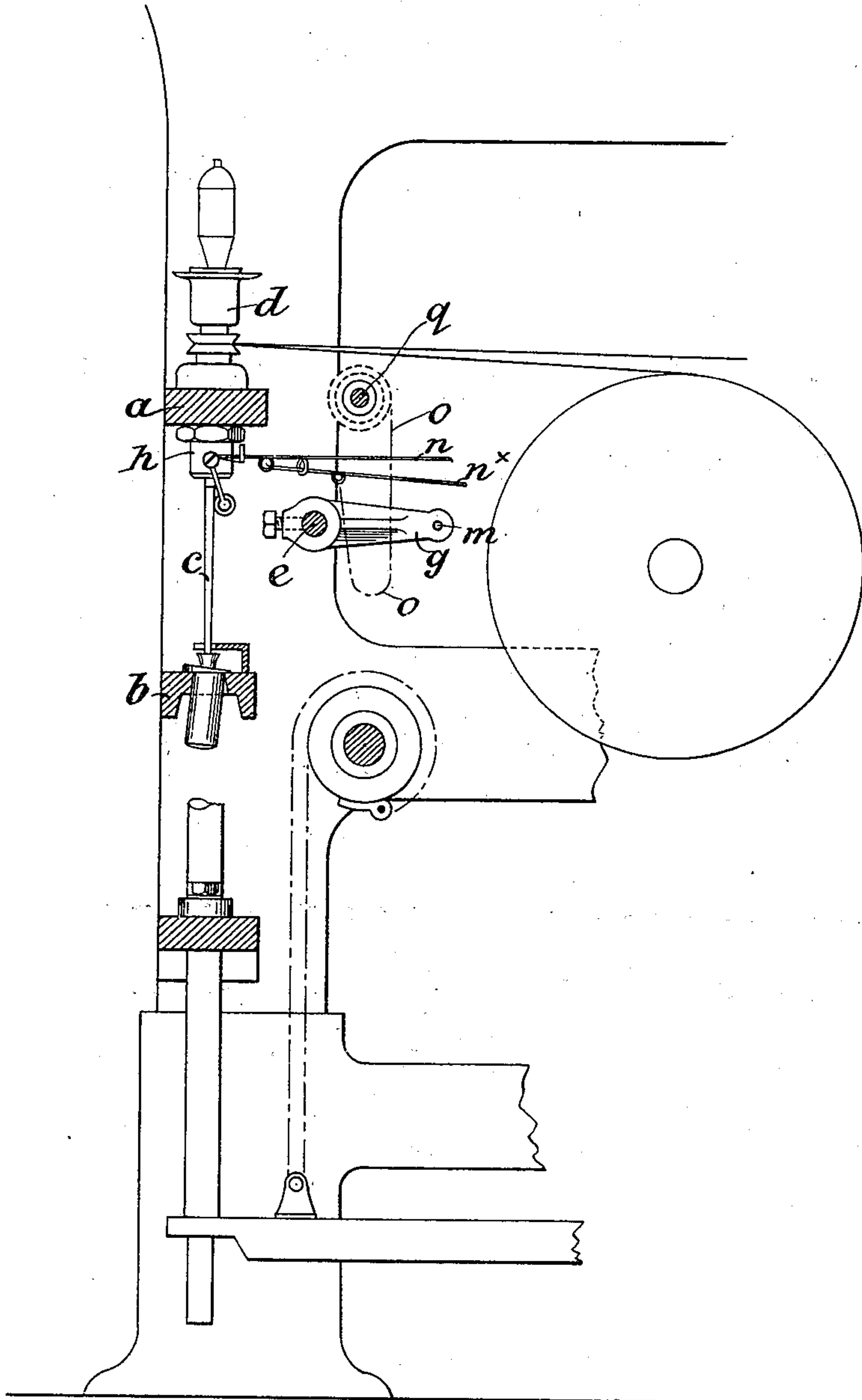
APPARATUS FOR SPINNING AND DOUBLING COTTON, &c.

(Application filed Nov. 8, 1898.)

(No Model.)

3 Sheets—Sheet 1.

Fig: 1.



WITNESSES:

F. W. Wright.
S. C. Connor

INVENTOR

THOMAS ASHWORTH

BY *Horizon and Horizon*
HIS ATTORNEYS.

No. 620,825.

Patented Mar. 7, 1899.

T. ASHWORTH.

APPARATUS FOR SPINNING AND DOUBLING COTTON, &c.

(Application filed Nov. 8, 1898.)

(No Model.)

3 Sheets—Sheet 2.

Fig: 2.

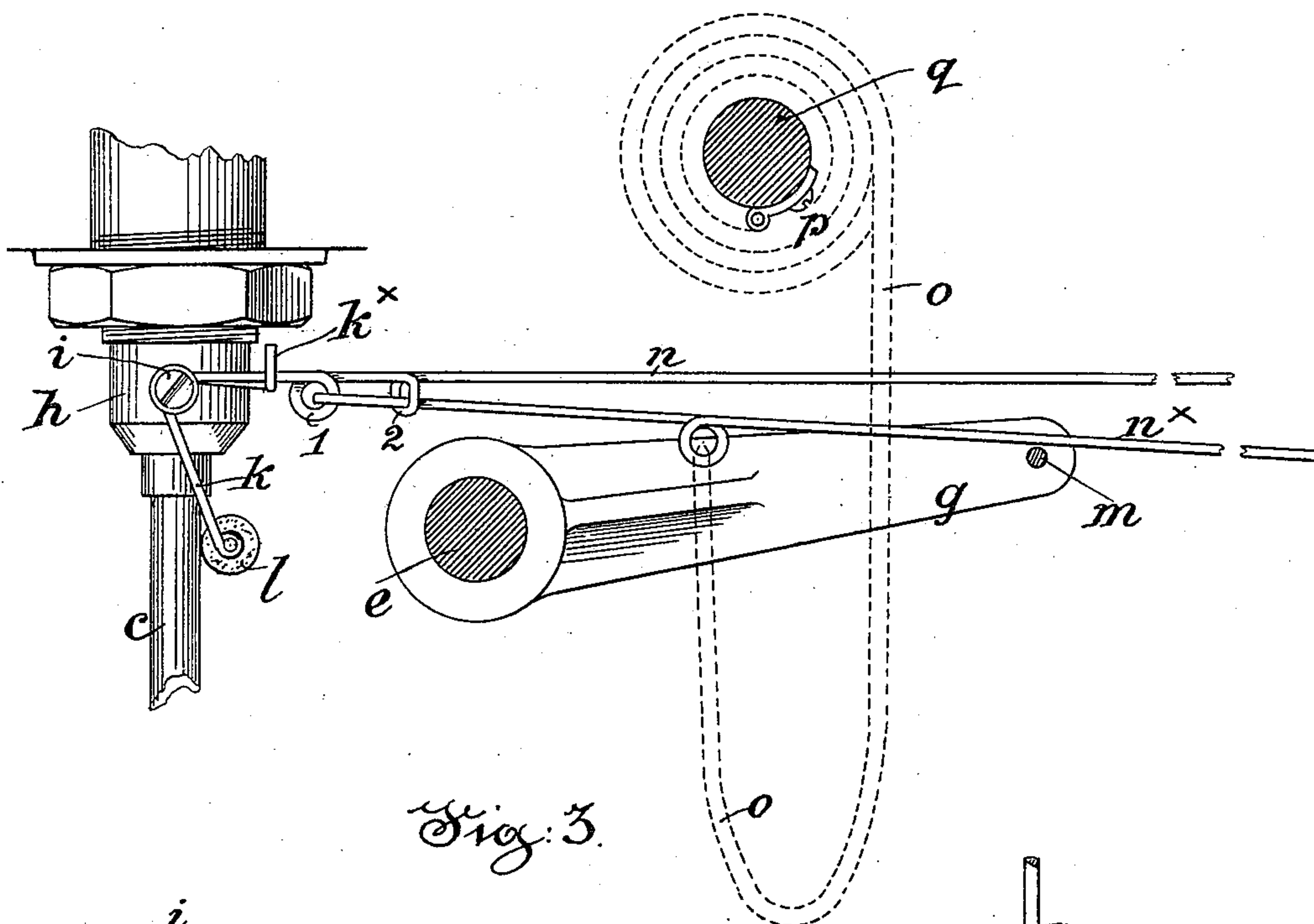
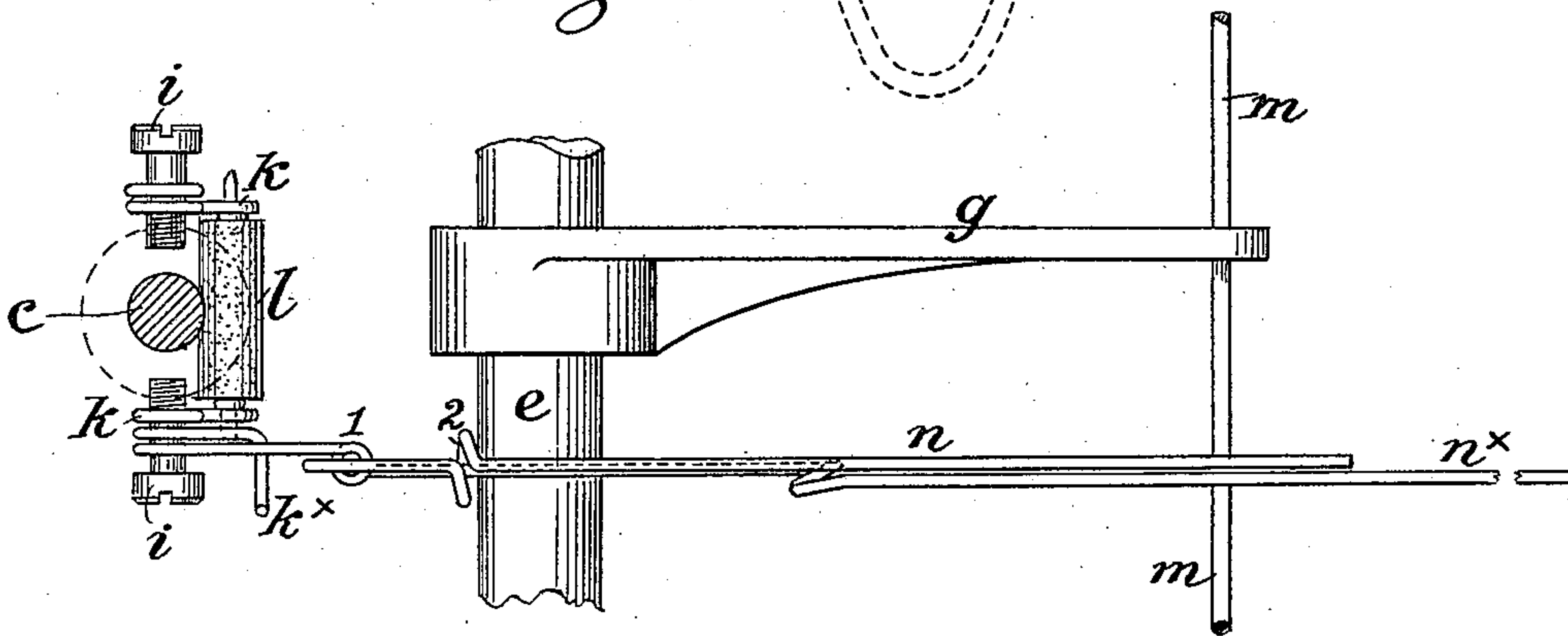


Fig: 3.



WITNESSES:

P. W. Wright
S. C. Connor

INVENTOR

THOMAS ASHWORTH

BY *Horsman and Horsman*
HIS ATTORNEYS.

No. 620,825.

Patented Mar. 7, 1899.

T. ASHWORTH.

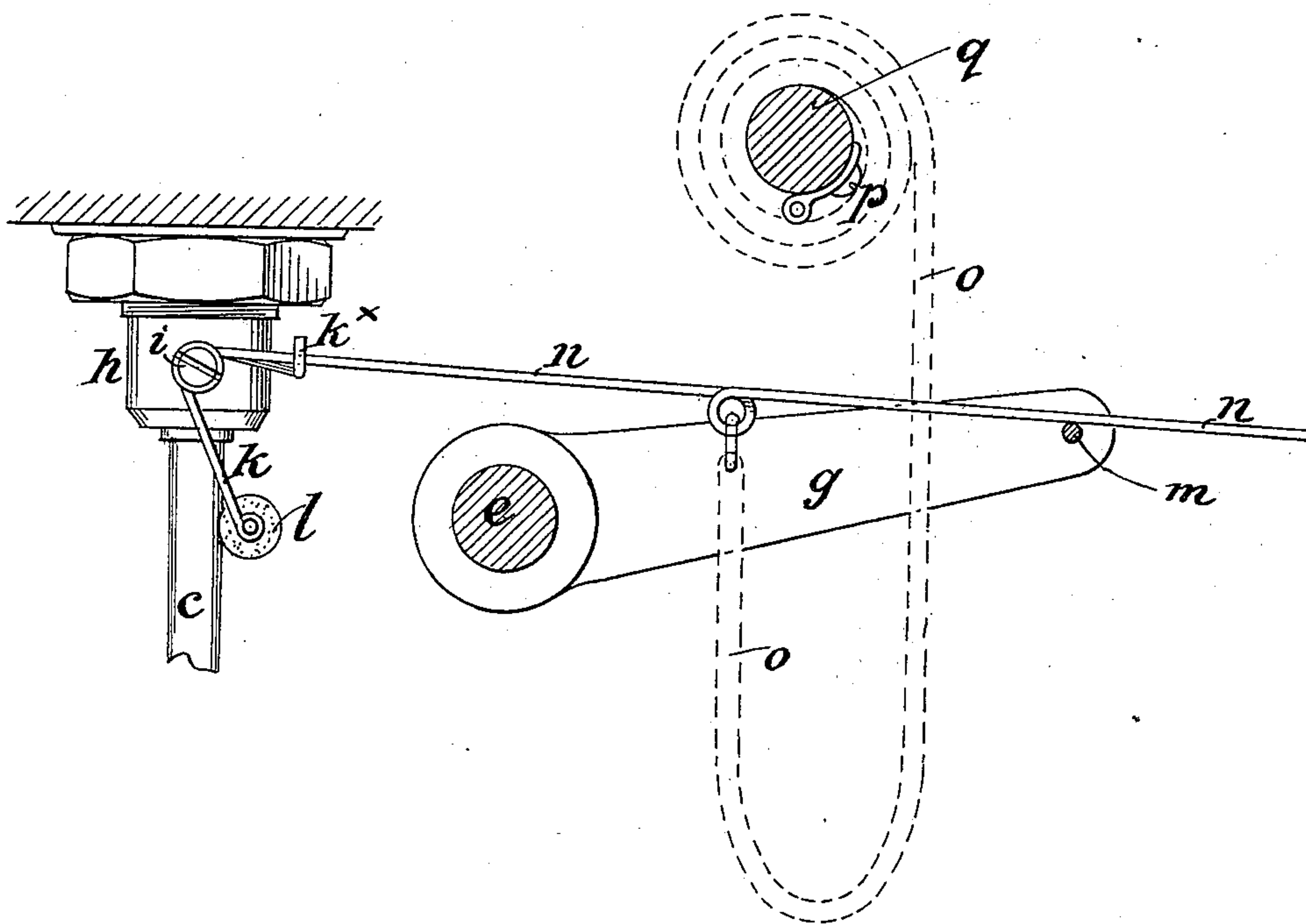
APPARATUS FOR SPINNING AND DOUBLING COTTON, &c.

(Application filed Nov. 8, 1898.)

(No Model.)

3 Sheets—Sheet 3.

Fig. 4.



WITNESSES:

F. W. Wright
S. C. Connor

INVENTOR

THOMAS ASHWORTH

BY

Howden and Howden

HIS ATTORNEYS.

UNITED STATES PATENT OFFICE.

THOMAS ASHWORTH, OF URMSTON, ENGLAND.

APPARATUS FOR SPINNING AND DOUBLING COTTON, &c.

SPECIFICATION forming part of Letters Patent No. 620,825, dated March 7, 1899.

Application filed November 8, 1898. Serial No. 695,807. (No model.)

To all whom it may concern:

Be it known that I, THOMAS ASHWORTH, a subject of the Queen of Great Britain, residing at Urmston, near Manchester, in the county of Lancaster, England, have invented new and useful Improvements in or Relating to Apparatus for Spinning and Doubling Cotton or other Fibrous Substances, of which the following is a specification.

10 This invention relates to apparatus for the formation of cops of yarn upon bare spindles, (or upon paper or other tubes fitted thereon;) and it consists of certain improved apparatus for applying a graduated or differential
15 "drag" or brake to the spindles, so as to equalize the "pull" of the yarn upon the said spindles.

The improvements are illustrated by three sheets of drawings hereunto annexed and will be readily understood on reference thereto and by the following explanation thereof.

Figure 1 on Sheet 1 of the drawings is a side elevation, partly in section, of so much of a spinning-frame as is necessary to illustrate my present improvements, and on Sheet 2 Fig. 2 is an enlarged elevation, and Fig. 3 a plan view, of the improved drag or brake apparatus detached. Fig. 4, Sheet 3, illustrates a modification of the same, hereinafter
30 more particularly described.

On Fig. 1, *a* is the spindle-rail, and *b* the lifting-rail, *c* the spindle, and *d* the tubular cup-shaped flier. At the back of the spindle-rail *a* I mount a shaft *e*, which I furnish at intervals with arms or levers *g*, and to this I give a rocking motion at the required speed by any suitable means, and to the bolster *h*, which supports the spindle *c*, (see Figs. 2 and 3,) I fix on either side a pin or screw *i*, diametrically opposite to each other. These pins or screws serve as pivots, upon which I hang a light wire frame *k*, on which is fixed a tuft or roll of cotton or other suitable material *l*, which bears against the spindle *c*, passing
45 through the bolster *h*, a small quantity of oil or other lubricant being preferably applied to this material on the frame.

The arms *g*, fixed upon the shaft *e*, carry longitudinal wires *m*, (see Figs. 2 and 3,) and above these wires are arranged a series of light wire levers *n* *n*^x, hung on the pivots

i and carried by the horizontal arm *k*^x, which forms part of the brake-frame before mentioned, and as the rocking shaft *e* oscillates the levers *g* cause the wires *m* to recede from the levers *n* and *n*^x, which by their weight act on the brake-frames *k* and cause the tufts or rolls *l* to act as a brake against the side of the spindle.

The levers may be made in a single form, as shown on Fig. 4, Sheet 3, in which case a single wire *n*, resting on the arm *k*^x of the brake, may be used; but I prefer to use the compound levers shown at Figs. 2 and 3, as the brake is applied to the spindle in a more efficacious manner, the drag being more evenly and gradually applied.

In the single form, Fig. 4, the wire *n* is made with a single loop, and to this is hooked one end of a chain *o*, which is allowed to hang down in a loop, its other end being attached to a stud or screw *p* upon a shaft or bar *q* above. The weight of this chain *o* acting upon the light brake-frame *k* causes the tuft or roll of fibrous material *l* to put a more or less strong drag upon the side of the spindle.

In the compound arrangement shown at Figs. 2 and 3 the wire *n*^x is hung on a loop 1 of the wire *n* and passes through a second loop 2. Thus the weight of the chain hangs principally upon the loop 2 of the wire lever *n* and exerts its full weight upon the brake-frame *k*; but when the lever *n*^x is raised up by the wire *m* the weight hangs upon the loop 1, which, being nearer to the pivot of the wire lever *n*, gives a diminished pressure to the brake. If the wire *m* rises still further, it will lift both the wire levers *n* and *n*^x and take off the drag altogether. This drag may be regulated as required to suit different counts of yarn by turning the upper shaft or bar *q* around by hand, so as to wind or unwind the chain *o* onto or from it, thus shortening or lengthening the hanging portion and of course correspondingly altering the weight and the amount of drag upon the spindle.

As before mentioned, the rocking motion given to the shaft *e* is so regulated that the greatest drag is applied to the spindles at the moment when the yarn is being wound upon the largest diameter of the cop and is gradually lessened or withdrawn as it reaches the

smallest diameter thereof, so that the amount of drag is always proportioned to the pull of the yarn upon the spindles.

I claim as my invention—

5 1. The combination with a series of spindles and loose hanging brake-frames of a series of light wire levers acting upon such frames and a series of chains, connected at one end with such levers, falling into a festoon or loop, and with means at the other end
10 for regulating the lengths of such loops, and with means for raising and lowering such levers to take the weight of such loops off the hanging brake-frames, or to put the same on
15 as required.

2. The combination with spindles and loose

hanging frame-brakes adapted to make contact therewith, of weighting-levers for such brakes, and a lifting rail or wire for said levers, a rocking shaft to actuate said rail, and
20 a chain, connected at one end to the weighting-levers, hanging loose in the form of a loop, and a shaft on which the other end of the chain may be wound or unwound, as and
25 for the purpose described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

THOMAS ASHWORTH.

Witnesses:

CHARLES A. DAVIES,
JNO. HUGHES.