

(No Model.)

W. H. RHODES.  
MULE AND TWINER FOR SPINNING AND DOUBLING COTTON OR OTHER  
FIBROUS SUBSTANCES.

No. 448,077.

Patented Mar. 10, 1891.

FIG: 3.

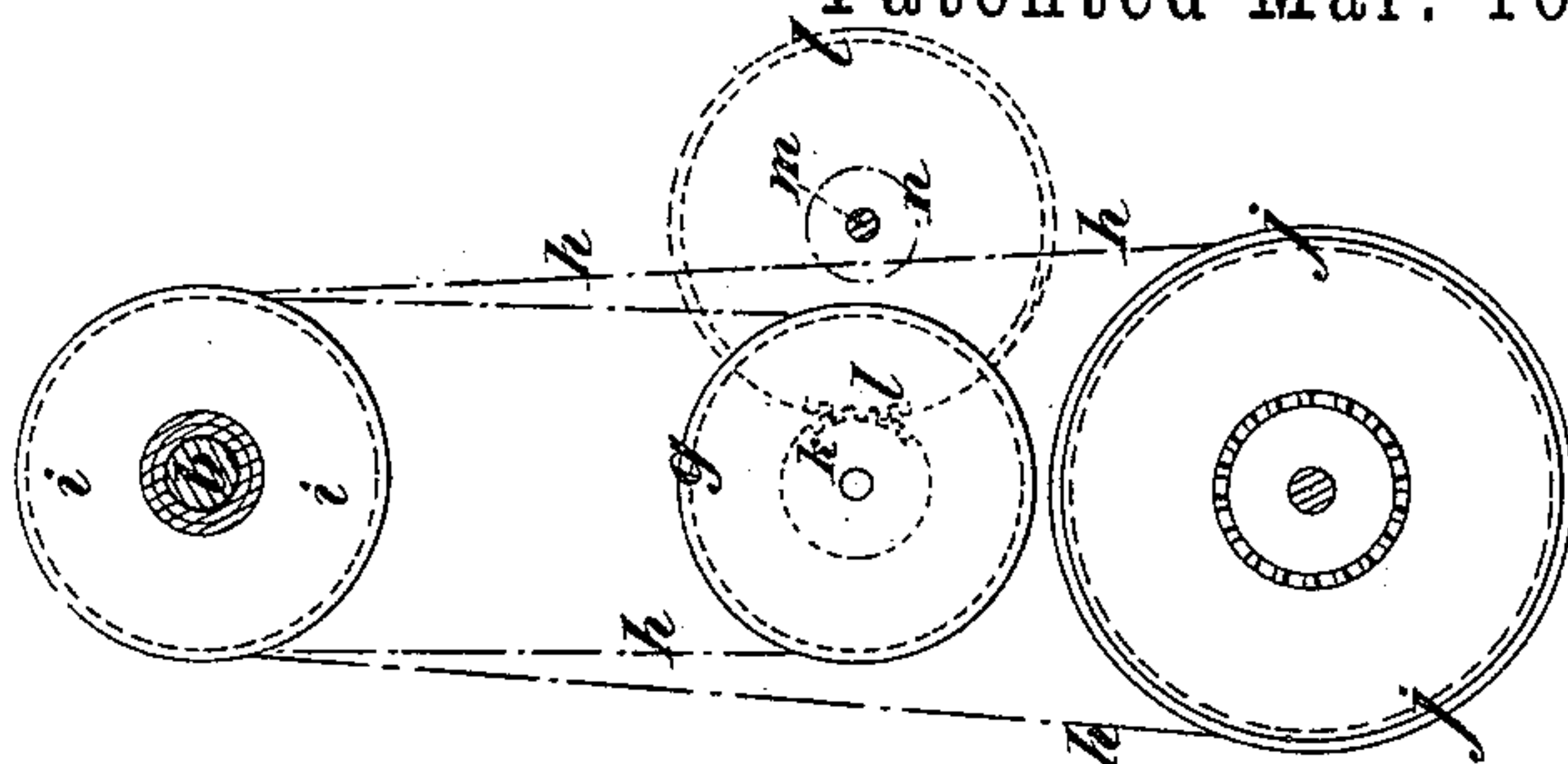


FIG: 2.

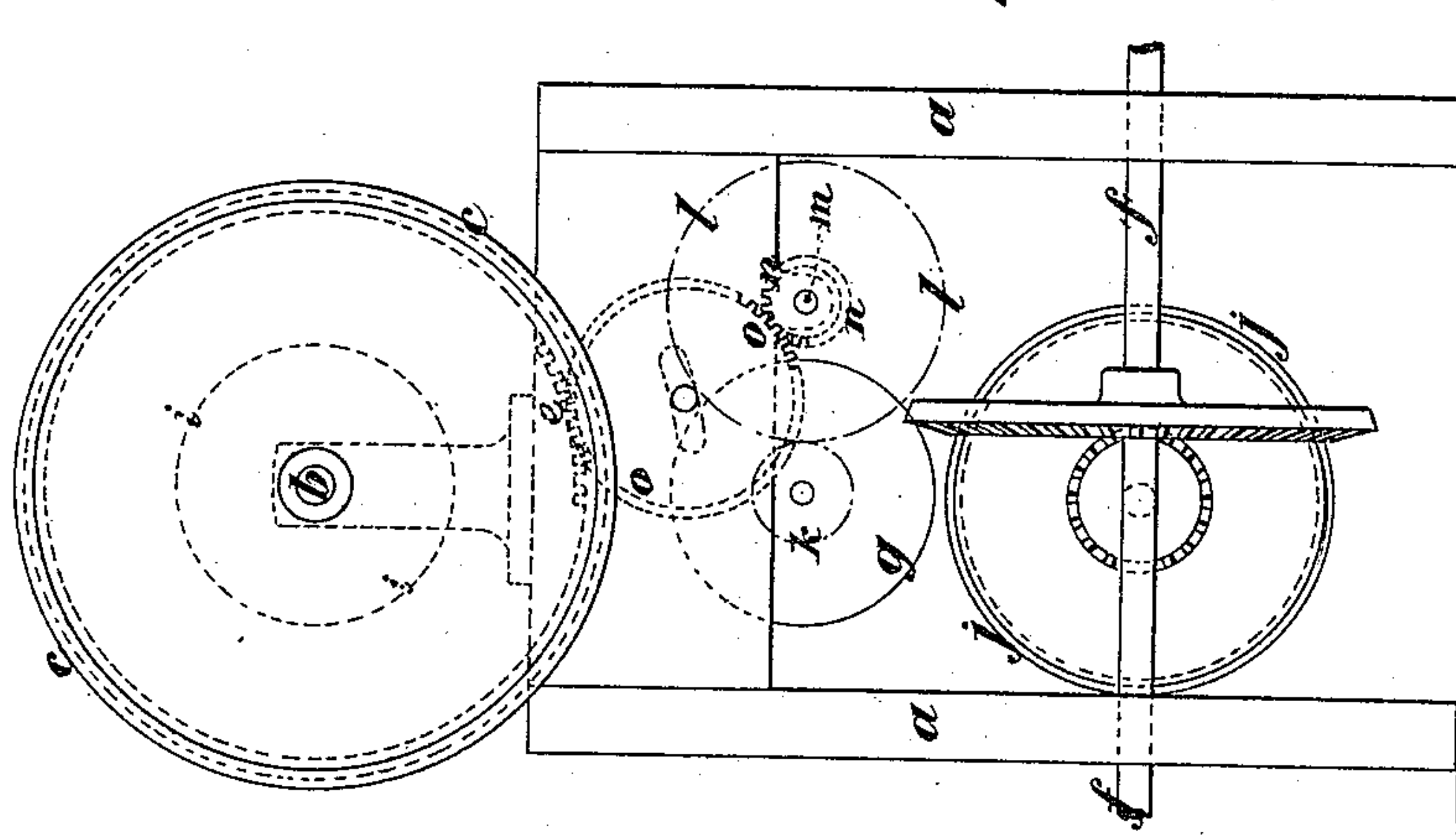
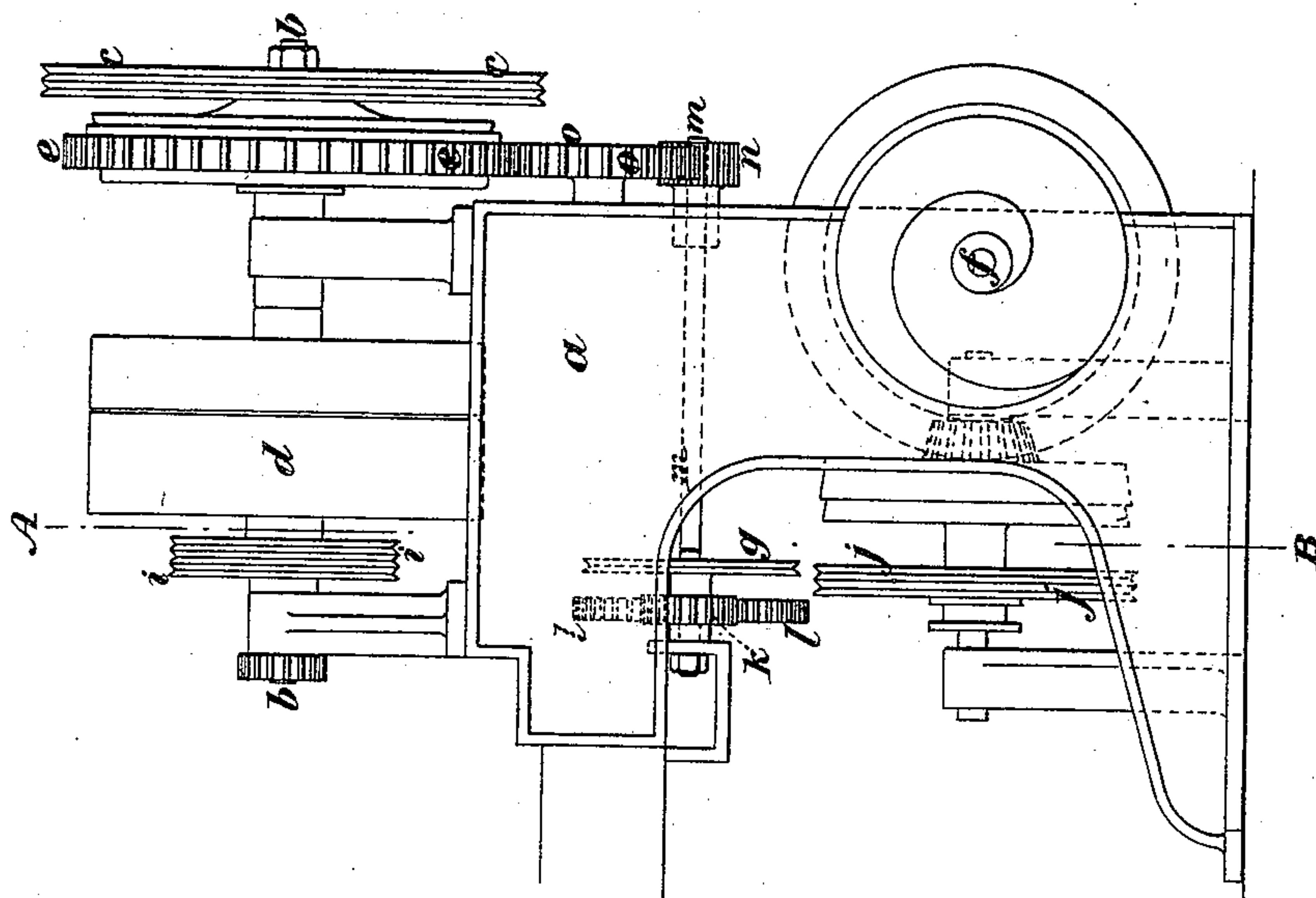


FIG: 1.



Witnesses

John Revell  
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Inventor.

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By his Attorneys

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# UNITED STATES PATENT OFFICE.

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MULE AND TWINER FOR SPINNING AND DOUBLING COTTON OR OTHER FIBROUS SUBSTANCES.

SPECIFICATION forming part of Letters Patent No. 448,077, dated March 10, 1891.

Application filed July 24, 1888. Serial No. 280,880. (No model.) Patented in England November 8, 1886, No. 14,368.

*To all whom it may concern:*

Be it known that I, WILLIAM HENRY RHODES, a subject of the Queen of Great Britain and Ireland, and residing at Long-sight, Manchester, in the county of Lancaster, have invented certain Improvements in Mules and Twiners for Spinning and Doubling Cotton and other Fibrous Substances, (for which I have obtained Letters Patent in Great Britain, No. 14,368, dated November 8, 1886,) of which the following is a specification.

My invention relates to that part of a mule or twiner known as the "backing-off motion," the office of which motion is at the end of every "stretch" of the spindle-carriage to give a certain number of backward turns to the spindles to unwind or "back off" the coils which remain on the points of the spindles above the cops before the carriage commences to run in toward the rollers and "wind on" the yarn; and the object of my invention is to provide a ready means of changing the speed of the said backing-off motion according to the "count" of yarn required to be produced. I propose to obtain this object by the mechanism illustrated by the accompanying drawings, in which—

Figure 1 is a side elevation, and Fig. 2 a back view, of a portion of the head stock or frame of a mule or twiner, together with the rim-shaft and its appurtenances and a portion of the backing-off shaft. Fig. 3 is a sectional view, taken at the line A B on Fig. 1, of a portion of the mechanism detached.

Referring to the drawings, *a* is part of the head-stock framing; *b*, the rim-shaft; *c*, the rim-wheel; *d*, the loose pulley; *e*, the backing-off wheel, and *f* the scroll-shaft.

At the back of the head-stock and between the rim-shaft *b* and the scroll-shaft *f*, a band-

pulley *g* is mounted and driven by an endless band *h*, (see Fig. 3,) lapping round a double-grooved pulley *i*, keyed on the boss of the loose pulley *d* on the rim-shaft *b*. The same band also drives the "taking-in" motion by means of the grooved pulley *j*. To the pulley *g* is also fixed a spur-pinion *k*, which works a larger wheel *l*, keyed on the shaft *m*, and at the other end of the latter is keyed a toothed pinion *n*, which gears into a carrier-wheel *o*, and the latter gears into the backing-off wheel *e*, which revolves loose on the rim-shaft *b*. The carrier-wheel *o* is mounted in a curved slot in the framing *a*, concentric with the backing-off wheel *e*, (see Fig. 2,) and thus by changing the pinion *n* for one of a larger or smaller diameter the speed of the backing-off wheel *e* can be increased or diminished accordingly.

I claim as my invention—

The combination of the head-stock frame having a curved slot, the backing-off wheel, and the rim-shaft, with a loose pulley *d* on the rim-shaft, a grooved band-pulley *i* on the said loose pulley, a band *h*, a second band-pulley *g*, spur-pinion *k*, fixed to the said band-pulley *g*, and a shaft carrying a spur-wheel *l*, gearing into said pinion, and a toothed pinion *n*, and with a carrier-wheel *o*, gearing into this toothed pinion and also into the backing-off wheel and mounted in the curved slot to permit a change of the toothed pinion, all substantially as described.

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

W. H. RHODES.

Witnesses:

GEORGE DAVIES,  
JNO. HUGHES.