Parkinson, Metcalf, Metcalf & Heald.

Spinning Mule.

No. 113,445. Patented Apr. 4, 1871.

Fig. 1.

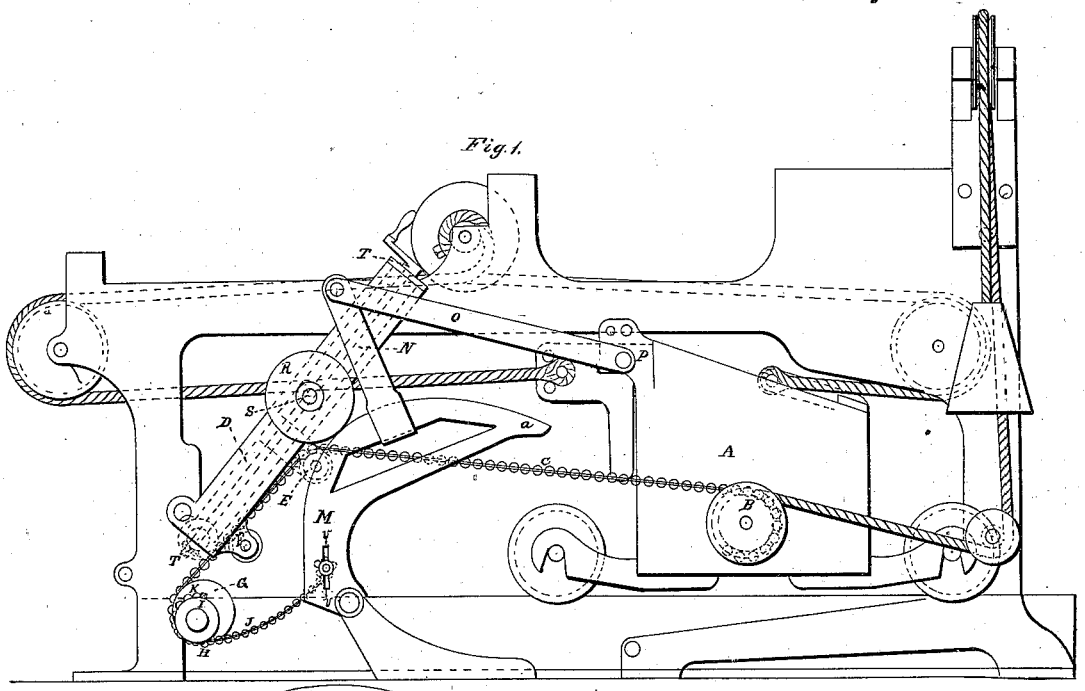


Fig. 3.

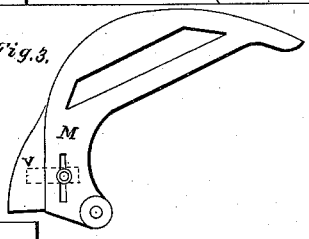
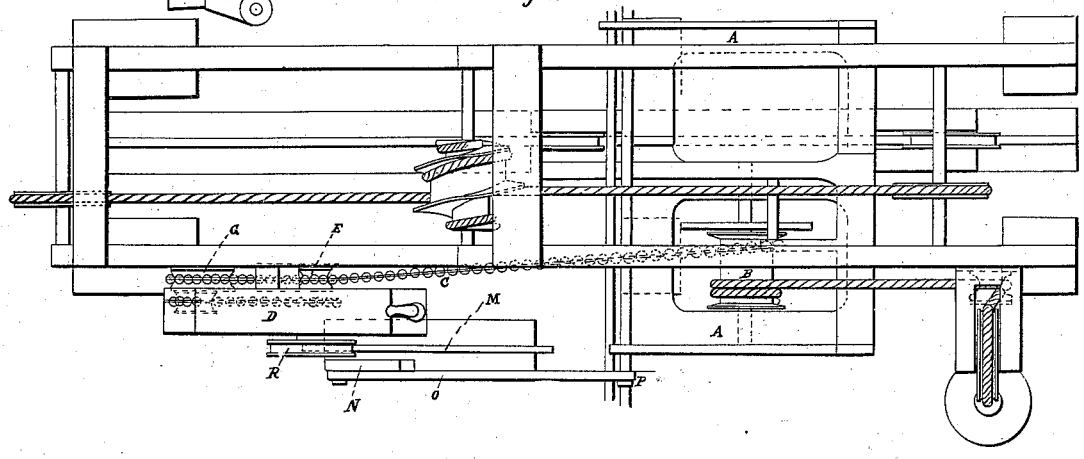


Fig. 2.



Witnesses:
Edward Latham Swainson.
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UNITED STATES PATENT OFFICE.

CHARLES BRAHAM PARKINSON, AARON METCALF, JOHN METCALF, AND WILLIAM HESKETH HEALD, OF PRESTON, GREAT BRITAIN.

IMPROVEMENT IN SELF-ACTING MULES FOR SPINNING.

Specification forming part of Letters Patent No. **113,445**, dated April 4, 1871.

To all whom it may concern:

Be it known that we, CHARLES BRAHAM PARKINSON, AARON METCALF, JOHN METCALF, and WILLIAM HESKETH HEALD, all of Preston, in the county of Lancaster and Kingdom of Great Britain, have invented Improvements in Mules for Spinning; and we do hereby declare the following to be a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Our invention is applicable to any kind of mule, the object being to make firmer and harder cops with less breakage of yarn in winding, thereby putting more yarn on the same-sized cop. Further, when the said cop comes into the hands of the weaver, the cop-nose being firm, there will be less breakage of yarn in using, and less cop-bottoms when done.

Figure 1 in Drawing 1 is a side elevation of a mule head-stock, showing one method of connecting the chain with the radius-arm. Fig. 2 is a plan of the same. Fig. 3 is a part of radius-rail, showing a nosing-piece.

A is the carriage, with the barrel B arranged for traversing in the usual manner. From the barrel, and fixed to it, is the chain C, running back over a pulley, E, which said pulley is hung upon an endless screw, T, arranged in the radius-arm D, pivoted at its lower end to the frame, the said screw turned by a suitable crank at its upper end to draw up or lower the pulley E, as the case may be. From the pulley E the chain runs down over a guiding-pulley, F, and the end fixed to the eccentric G at the point H. On the side of the eccentric G, or made a part of and so as to turn with it, is a pulley, I, and to the said pulley the end of another chain, J, is fixed at the point K. The said chain J runs to the lower end of the radius-rail M, and is secured to the stud L on the said rail M, the said stud being adjustable vertically in the slot V. The rail M is pivoted at its lower end to the frame, and is of cam shape, extending up, its cam-shaped edge working against a grooved roll, R, on the radius-arm D. From the rail M extends up an arm, N, to the end of which is attached the rod O, connecting the rail with the carriage A at P.

It will thus be seen that the carriage is connected directly with the radius-rail by the connecting-rod O.

The radius-rail lifts up the quadrant radius-arm by the roll R. It is thus driven directly from the carriage, causing more regularity in winding, and enabling the winder to put a greater amount of yarn in the same-sized cop.

The tight nosing of the cop is attained in the following manner: As the carriage runs in, and the end *a* of the radius-rail M is depressed, the chain J is drawn upon so as to turn the pulley I, to which it is attached. The eccentric G is thereby turned also, so as to draw upon the winding-chain, and thus give an additional rotary motion to the winding-barrel B over that which it ordinarily receives from the winding-chain. This additional motion is communicated from the winding-barrel to the spindles, and causes the yarn to be wound upon them more tightly than in the machines as originally constructed.

We claim as our invention—

The combination of the carriage A, connecting-rod O, radius-rail M, radius-arm D, provided with the endless screw T, and pulley E, eccentric G, pulley I, and chains C and J, when operated in the manner substantially as described.

In testimony whereof we have hereunto set our names in presence of two subscribing witnesses.

CHARLES BRAHAM PARKINSON.
AARON METCALF.
JOHN METCALF.
WILLIAM HESKETH HEALD.

Witnesses:
JOHN LEWIS,
T. P. PARKINSON.