

(No Model.)

J. R. WAIN.
SELF ACTING MULE AND TWINER.

No. 518,433.

Patented Apr. 17, 1894.

FIG:1.

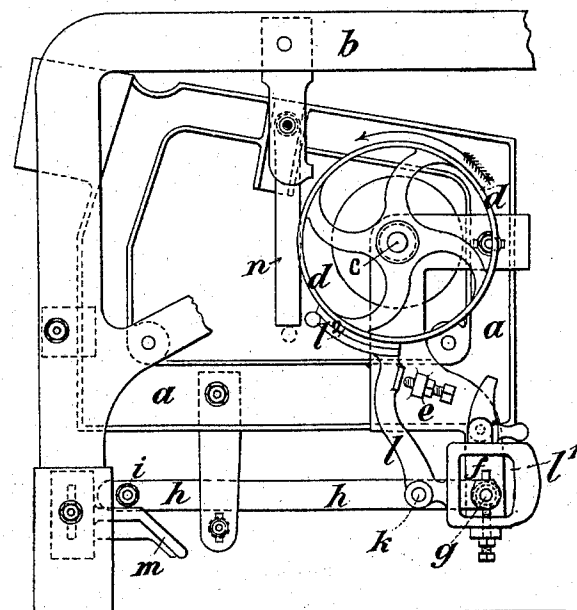
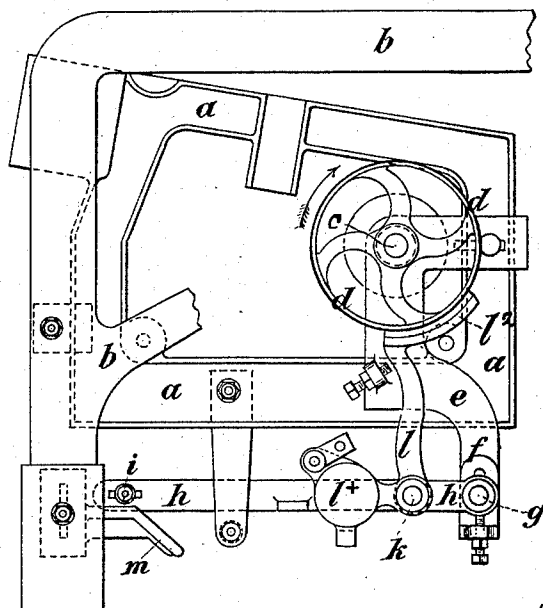


FIG:2.



Witnesses.

Wm. M. Keller
S. C. Lammor

Inventor.

James Robert Gair
by his attorneys
Howson and Howson

UNITED STATES PATENT OFFICE.

JAMES R. WAIN, OF MANCHESTER, ENGLAND.

SELF-ACTING MULE AND TWINER.

SPECIFICATION forming part of Letters Patent No. 518,433, dated April 17, 1894.

Application filed December 21, 1893. Serial No. 494,252. (No model.) Patented in England January 19, 1892, No. 1,007.

To all whom it may concern:

Be it known that I, JAMES ROBERT WAIN, a subject of the Queen of Great Britain and Ireland, residing at Fallowfield, Manchester, in the county of Lancaster, England, have invented Improvements in Self-Acting Mules and Twiners, (for which I have obtained a British patent, No. 1,007, dated January 19, 1892,) of which the following is a specification.

This invention relates to self-acting mules and twiners employed for spinning and doubling fibrous substances and consists principally of an improved automatic brake to be applied to one or both ends (or to the center of each half) of the tin roller which drives the spindles.

The nature of my said invention and the manner in which the same is to be performed or carried into practical effect will be readily understood on reference to the annexed sheet of drawings and the following explanation thereof.

Figure 1 is an end view of the spindle carriage and part of a mule end (of a self-acting mule) with my improvements shown as applied thereto, and Fig. 2 is a similar view illustrating a slight modification thereof, *a* being the end frame of the spindle carriage, *b* part of the mule end, and *c* the tin roller shaft.

According to my invention I fix the brake pulley *d* firmly upon the tin roller shaft by means of set screws or otherwise. To the frame *a* of the spindle carriage I bolt a bracket *e* provided with a vertical slot *f* in which a stud *g* is adjustable. On this stud, as a fulcrum is mounted a horizontal lever *h* the other end of which carries a finger or stud provided with a roller or bowl *i*, and to the lever *h* near its fulcrum is fixed a stud *k* carrying a bell-crank lever *l*. The horizontal arm of this lever has an open slot *l'* through which the adjustable stud or fulcrum *g* passes and the vertical arm thereof is curved and forms a brake *l''* to act upon the brake pulley *d*. When the spindle carriage *a* "runs out" the bowl *i* coming against an inclined plane *m* fixed on the mule end *b*, raises the

free end of the horizontal lever *h* thereby slightly lifting the bell-crank lever *l* and applying the brake, the direction in which the tin roller is revolving (shown by the arrow) helping to pull on the brake. As soon as the "backing-off" commences the reverse action throws off the brake which can fall back to a certain extent owing to the width of the open slot *l'* being more than the thickness of the stud or fulcrum *g*, and a catch *n* hanging from part of the frame holds the brake off until the carriage *a* commences to "run-in" to the roller beam, when the bowl *i* leaves the inclined plane *m* and the weight of the horizontal lever *h* holds the brake in the inoperative position until the carriage *a* has "run out" again to the end of its stretch.

In the modification shown at Fig. 2 which is applicable to mules wherein the tin roller shaft revolves in the direction shown by the arrow, the same letters of reference are employed to indicate the like parts, the modification being that by reversing the position of the bell crank lever *l* the open slot is dispensed with and a weight *l''* substituted. The hanging catch *n* is also dispensed with being found unnecessary.

I claim as my invention—

The improved automatic brake for the tin roller shaft of self-acting mules consisting in the combination of said shaft and a brake drum fixed thereon, with a long lever mounted on the spindle carriage, a bell-crank brake lever pivoted to said long lever near its fulcrum, and with the mule end having an incline to act upon said long lever, for the purpose of stopping the spindles when the carriage has "run out" and releasing the same as soon as the "backing off" commences, substantially as herein described.

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

JAMES R. WAIN.

Witnesses:

JNO. HUGHES,
J. E. HUGHES.