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R. H. FITTON & J. MITCHESON.

DEVICE FOR CHECKING AND HOLDING CARRIAGES IN SELF ACTING MULES.

(Application filed May 11, 1899.)

(No Model.)

Fig. 1.

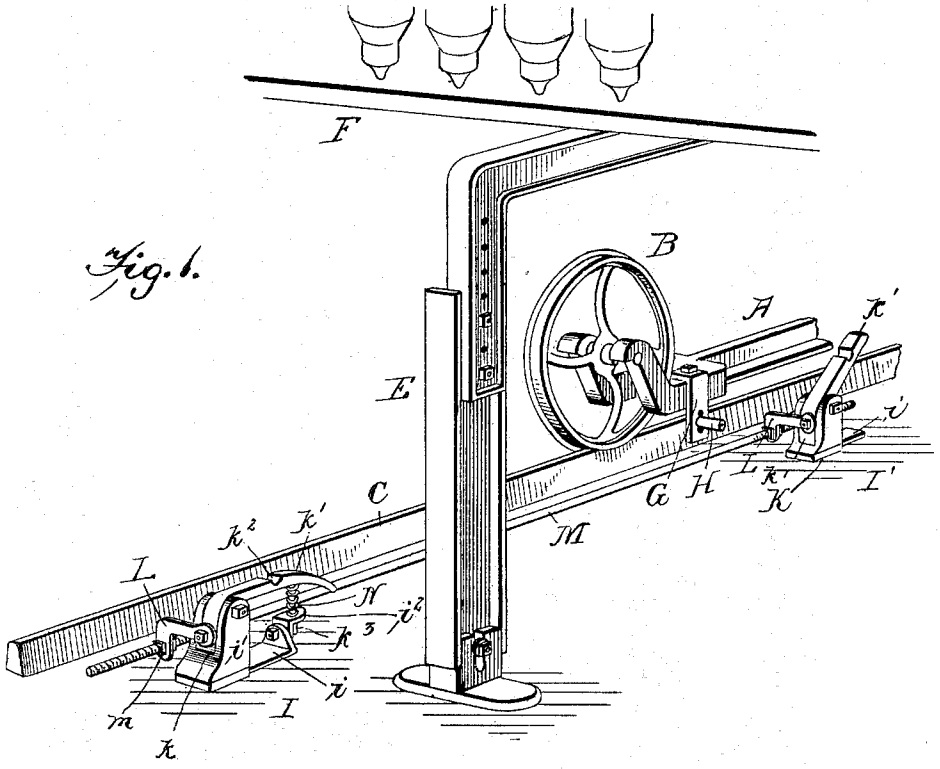


Fig. 2.

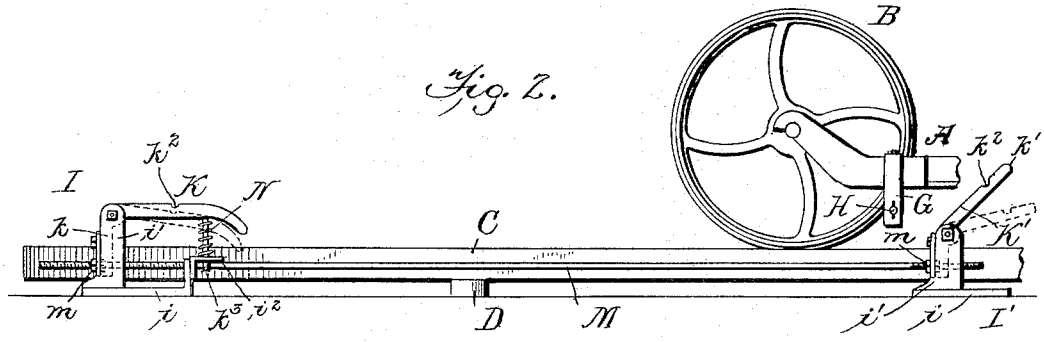


Fig. 3.

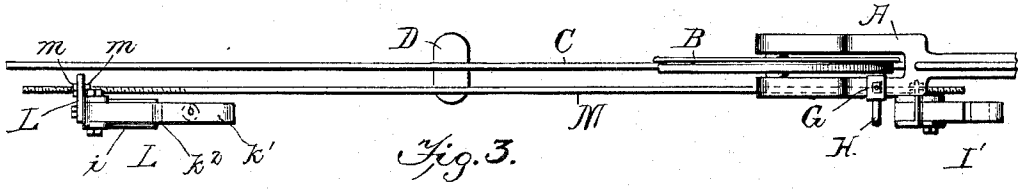
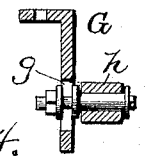


Fig. 4.



Witnesses
D. L. Mockabee
Grace P. Brereton

Inventors
Richard H. Fitton. and
James Mitcheson,
by Geo. H. Strong
Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

RICHARD H. FITTON AND JAMES MITCHESON, OF FALL RIVER, MASSACHUSETTS.

DEVICE FOR CHECKING AND HOLDING CARRIAGES IN SELF-ACTING MULES.

SPECIFICATION forming part of Letters Patent No. 642,315, dated January 30, 1900.

Application filed May 11, 1899. Serial No. 716,416. (No model.)

To all whom it may concern:

Be it known that we, RICHARD H. FITTON and JAMES MITCHESON, citizens of the United States, residing at Fall River, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Devices for Checking and Holding Carriages in Self-Acting Mules; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Our invention relates to machinery for spinning; and its object is to prevent the sudden bound and rebound which is liable to occur when the carriage of a self-acting mule strikes the stops at each end of its run.

As now constructed the carriage in self-acting mules extends across the entire width of a mill and in spinning it travels backward and forward from sixty to sixty-four inches. At various places across the mill there are rigid stops so placed that when the carriage has reached the point where it should stop it strikes them. The effect is a bound back and a rebound. This sudden rebounding may cause two defects in the yarn. It may cause the yarn on some of the spindles to kink or snarl, or it may cause some of them to break. In either case it produces defects in the goods and loss of time and material.

Our invention aims to prevent this rebounding and to do it as well when the carriage returns as when it comes forward. We accomplish this by means of a combined buffer and catch of a construction hereinafter pointed out.

In the accompanying drawings, Figure 1 is a perspective view of a small portion of a self-acting mule and spinning-frame, showing our invention. Fig. 2 is an elevation of our device. Fig. 3 is a plan view of the same. Fig. 4 is a detail.

A portion of the mule-carriage is shown at A with one of the wheels B resting on the track or rail C, which is supported on blocks D, all as usual. A part of the spinning-frame is shown at E and parts of four bobbins at F.

On the carriage A at some convenient point we fasten an arm G, carrying a laterally-projecting stud or tappet H, which is adjustable vertically in a slot g in the arm and is preferably provided with an antifriction-roller h. Alongside the rail C, at places determined by the termini of the carriage-run, are located our combined buffers and catches I I'. These consist, preferably, of a yielding spring-catch adapted to be struck by the stud, which engages with and is securely held by the catch at the moment the carriage reaches the end of its run. These buffers may act independently; but we prefer to connect them as hereinafter explained. They may be constructed in any suitable manner to carry into effect the operations hereinafter described; but we prefer to make them as follows:

Each buffer in our approved form of construction comprises a casting having a bed-plate i, carrying two upright bearing-blocks i', between which is received a bent lever fulcrumed at its angle on journals received in bearings in the blocks i'. These levers K K' are arranged with one leg k depending between the bearing-blocks. The lever K has its other leg k' projecting at substantially right angles with its leg k, while the other lever K' has its leg k' extending upwardly at an obtuse angle, as shown. A shallow notch k^2 is formed in the upper side of each leg k'.

Fastened to each depending leg k is a laterally-projecting arm L, having an eye in its outer end. A rod M passes through these eyes and is screw-threaded for several inches on each side thereof to receive nuts m, by means of which the relative positions of the levers can be properly adjusted. The rod thus connects the two levers, so that they move simultaneously.

A spring is provided to maintain each lever yieldingly in its normal position. It may be connected with the moving parts at any convenient point, being preferably placed under the leg k' of the lever K, as at N, encircling a stem k^3, which is guided in a perforated ear i^2, secured to the bed-plate i in any suitable manner.

The leg k' of the lever K has its end curved downwardly, as shown. This curved portion and the upwardly-extending leg k' of

the lever K′ lie in the path of the stud H. When the carriage A nears one end of its run, the stud strikes this curved end of lever K and forces it downward, compressing the spring N, which thus exerts a retarding effect upon the carriage. As soon as the stud arrives at the notch k^2 it lodges therein and is firmly held by the upward pressure of the spring. The carriage is thus brought to rest without shock or rebound. On the return movement the stud strikes the leg k' of the lever K′, forcing it downwardly until the stud arrives at the notch k^2 and is caught thereby. This movement of the lever throws the leg k outward and, through the arms L, the rod M, and the leg k' of the other lever, depresses the leg k' of said lever and compresses the spring N. In this way said spring is utilized to give an upward yielding pressure to both levers and effect a gentle stopping of the carriage without rebound at each end of its travel. The resistance offered by the buffers can be varied by adjusting the stud down or up in the arm G, thereby causing a greater or less depression of the lever K.

It will be readily understood that in place of the connected buffers we may use two separate ones, constructed like our buffer I and placed with their levers projecting toward each other. Each will then act independently of the other.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. The combination with a self-acting mule, of a stud fastened to the carriage, two notched levers lying in the path of said stud, a rod connecting the levers, and a spring arranged to be brought into play by the movement of either of said levers.

2. The combination with a self-acting mule, of a stud fastened to the carriage, two notched levers lying in the path of said stud, a rod connecting said levers, and a spring located under one of said levers and resisting its downward movements.

3. The combination with a self-acting mule, of a spring-buffer comprising a bed-plate having bearing-blocks, a perforated ear on said bed-plate, a lever fulcrumed in said bearing-blocks and having a notch in its upper side, a stem on the lever passing through said ear, and a spring encircling the stem between the ear and the lever.

4. The combination with a self-acting mule, of a stud fastened to the carriage, two buffers comprising bent levers having notches in the upper side of one leg, a lateral arm attached to the other leg, a screw-threaded rod passing through an eye in said arm, and adjusting-nuts on the rod on both sides of each arm.

In testimony whereof we affix our signatures in presence of two witnesses.

RICHARD H. FITTON.
JAMES MITCHESON.

Witnesses:
ARBA N. LINCOLN,
ALFRED H. HOOD.