

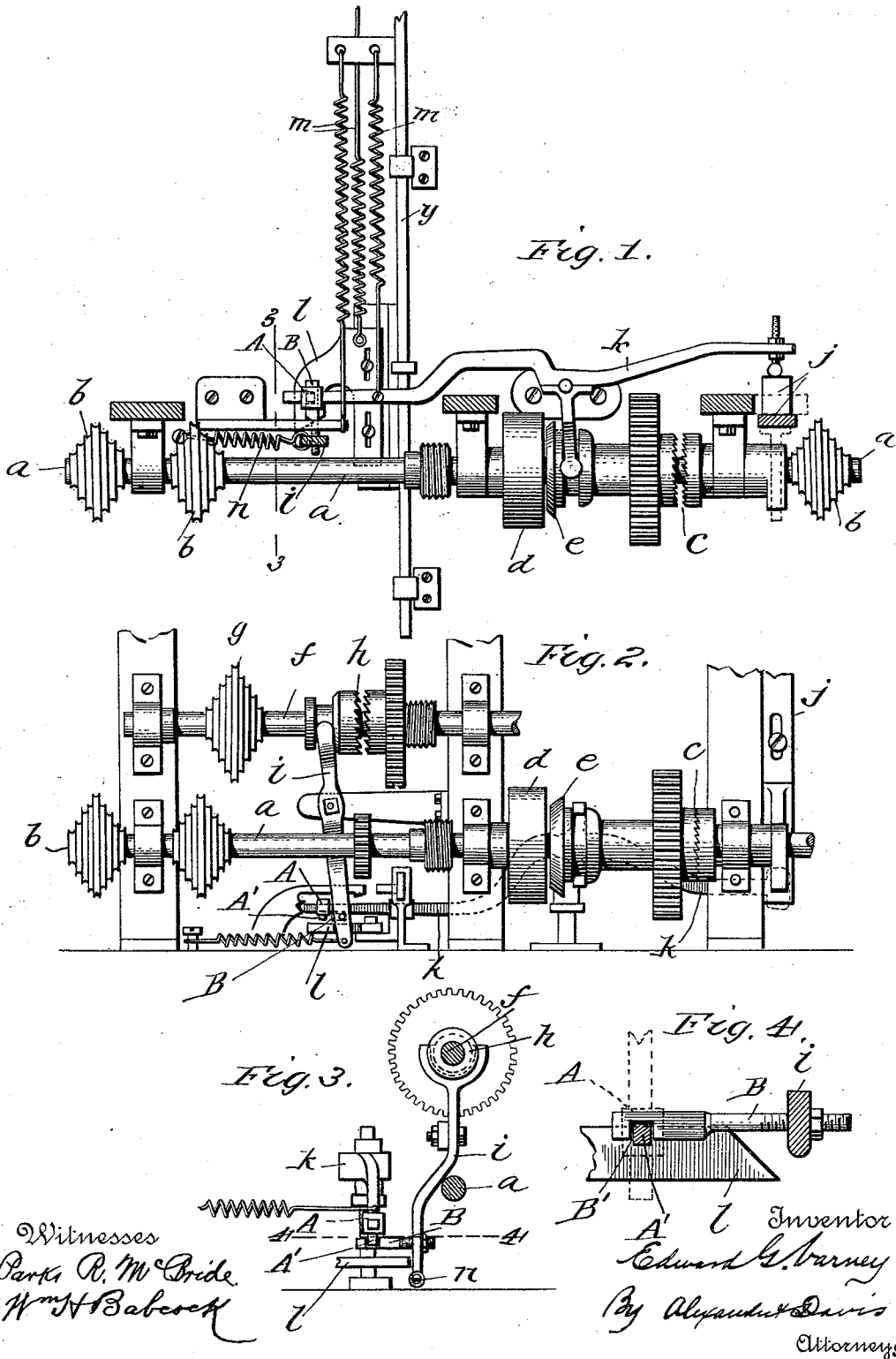
(No Model.)

E. G. VARNEY.

SAFETY ATTACHMENT FOR SPINNING MULES.

No. 517,314.

Patented Mar. 27, 1894.



UNITED STATES PATENT OFFICE,

EDWARD G. VARNEY, OF HARTLAND, MAINE.

SAFETY ATTACHMENT FOR SPINNING-MULES.

SPECIFICATION forming part of Letters Patent No. 517,314, dated March 27, 1894.

Application filed November 8, 1893. Serial No. 490,374. (No model.)

To all whom it may concern:

Be it known that I, EDWARD G. VARNEY, a citizen of the United States, residing at Hartland, in the county of Somerset and State of Maine, have invented certain new and useful Improvements in Safety Attachments for Spinning-Mules, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to a safety device or attachment for spinning mules which is designed particularly for attachment to that class of mules known as the "Davis & Furbur mules."

The invention has for its object to provide simple and improved means for instantly stopping the outward movement of the carriage, and to prevent the back-off mechanism from being thrown into gear if the twist-slide should drop, prematurely, at any point in the outward movement of the carriage, that is, before it reaches the point in its outward movement where it operates the mechanism which throws out of gear the running-out-clutch. By thus stopping the carriage the danger of breaking the threads and the difficulty of having a soft untwisted section in each strand of yarn, as is the case in the mules of the usual construction when the twist drops when the carriage is running out, is avoided.

In the drawings:—Figure 1 is a plan view of a portion of a mule, the parts shown being in the position they assume when the carriage is being run out. Fig. 2 is a rear elevation of the parts shown in Fig. 1, said parts being in the position they assume when the carriage is being run in. Fig. 3 is a vertical sectional view on line 3—3 of Fig. 1; and Fig. 4 is a horizontal sectional view taken on line 4—4 of Fig. 3.

Referring to the various parts by letters *a* designates the running-in-shaft; *b* the running-in-rolls; *c* the running-in-clutch; *d* the back-off-pulley; *e* the cone friction-clutch member which engages the back-off-pulley; *f* the running-out-shaft; *g* the running-out-rolls; *h* the running-out or draft-clutch, and *i* the draft-clutch-fork; *j* the twist-slide; *k* the back-off-lever; *l* the slide which operates the draft-clutch-fork; *m m* the springs which operate the back-off-lever, the slide which operates the draft-clutch-fork and the long hori-

zontal rod *y*; *n* the spring which operates the draft-clutch-fork. These parts are constructed and operate as usual and form no part of my invention.

On the left-hand end of the back-off-lever *k* adjacent to the lower end of the draft-clutch-fork is secured a collar *A* which is adjustable on the lever in order to secure its proper operative position. A downwardly extending lug or dog *A'* is formed on the lower side of this collar for a purpose which will presently appear.

The draft-clutch-fork *i* is provided near its lower end with a forwardly projecting arm *B* which is screwed into the said fork and is adjustable therein, as shown. This arm extends forwardly a suitable distance and has formed in its left hand edge, near its inner end, a notch *B'*. The arm *B* and the collar *A* are so adjusted on their respective supporting arms that the notch *B'* in the arm *B* will, at the proper instant, engage the lug or dog on the collar *A* and thereby lock the back-off-lever against further movement until the lower end of the draft-clutch-fork has been moved to the right by the reversing mechanism in the usual way.

The operation of the device is as follows:— When the carriage completes its inward travel the reversing mechanisms are operated in the usual way, and as the draft-clutch-fork is released from its slide and permitted to operate the draft-clutch under the stress of the spring *n* to run out the carriage, the notch *B'* in the arm *B* will engage the dog *A'* on the collar *A* and thereby lock the back-off-lever against any further movement while the carriage is running out. The parts remain in this position until the carriage, at the limit of its outward movement, operates the devices which release the slide *l*, and said slide when released operates the draft-clutch-fork and disengages the draft-clutch and stops the running-out of the carriage. As the lower end of the draft-clutch-fork is moved to the right by the slide *l* the arm *B* is moved away from the dog *A'* and the back-off-lever is released and may operate in the usual manner until the carriage begins its outward movement when it is again locked as described. Should the twist-slide drop while the carriage is running out the belt shifter, operated by the twist-

slide in the usual way, would ship the belt from the driving-pulley to the running-in-pulley, and thereby stop the outward movement of the carriage, and as the back-off-lever would still be locked it could not operate the clutches controlled by it and the back-off gearing would run loose on its shafting and the mule would be stopped. As is manifest, as the outward movement of the carriage is stopped instantly, and the back-off gearing held out of operative engagement all danger of breaking the threads and the difficulty of having a soft untwisted portion in each of the threads will be effectually avoided.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination, in a mule, of the back-off-lever, the draft-clutch-fork, the slide *l*, and a safety catch adjacent to the back-off lever and adapted to automatically engage and lock the same during the outward movement of the carriage substantially as and for the purpose set forth.

2. The combination, in a mule, of the back-off-lever, the draft-clutch-fork, the slide *l*, and a safety device carried by the draft-clutch-fork, which device is adapted to engage and lock the back-off-lever during the outward movement of the carriage and to release the back-off-lever when the draft-clutch is disengaged, substantially as and for the purpose set forth.

3. The combination, in a mule, of the back-off-lever, the draft-clutch-fork, and an adjustable catch carried by said draft-clutch-fork, said catch engaging and locking the back-off-lever, as described, and releasing said lever when the draft-clutch is disengaged, substantially as described.

4. The combination, in a mule, of the back-off-lever, the draft-clutch-fork, an adjustable dog carried by the back-off-lever, and an arm or catch carried by the draft-clutch-fork, said arm or catch adapted to engage said dog and thereby lock the back-off-lever, as described, and to release said lever when the draft-clutch is disengaged, substantially as described.

5. The combination, in a mule, of the back-off-lever, the draft-clutch-fork, an adjustable dog carried by the back-off-lever, and an adjustable horizontal arm carried by the draft-clutch-fork, said arm having a notch formed in it and adapted to engage the dog on the back-off-lever and thereby lock said back-off-lever as described, and to release said lever when the draft-clutch is disengaged, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD G. VARNEY.

Witnesses:

RICHARD W. LUTHER,
LINCOLN MERRICK.