M. E. WALSH.

ALARM MECHANISM FOR CARDING AND OTHER TEXTILE MACHINES.

APPLICATION FILED DEC. 16, 1910.

1,043,486.

Patented Nov. 5, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

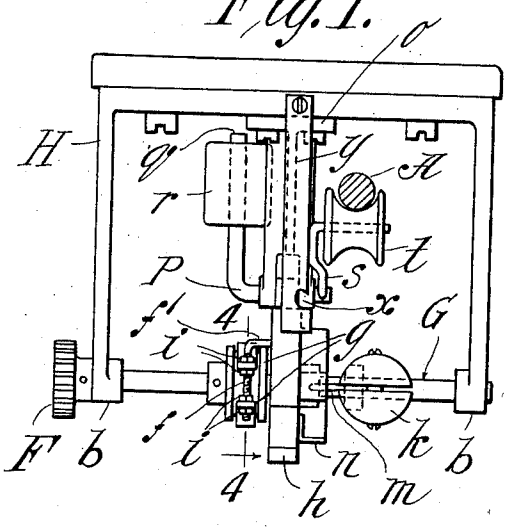


Fig. 4.

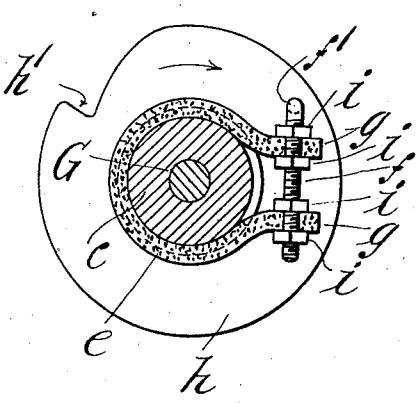


Fig. 2.

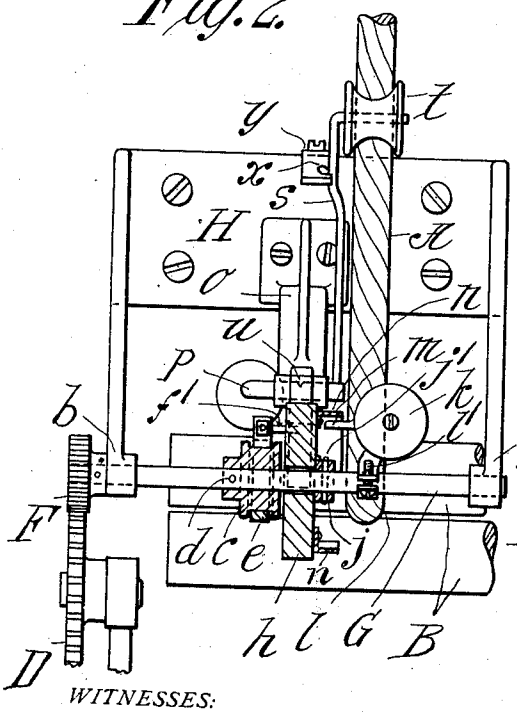
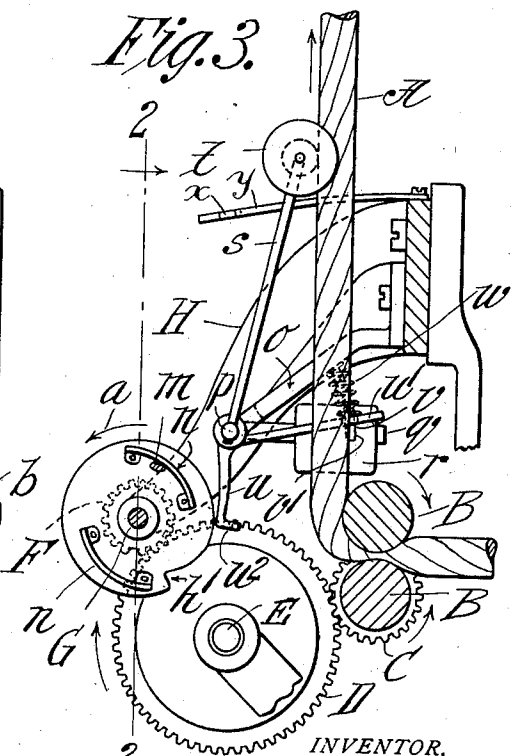


Fig. 3.



WITNESSES:

H. L. Sprague

J. D. Long

INVENTOR,

Michael E. Walsh,

BY Wm. C. Dennis

ATTORNEY.

M. E. WALSH.

ALARM MECHANISM FOR CARDING AND OTHER TEXTILE MACHINES.

APPLICATION FILED DEC. 16, 1910.

1,043,486.

Patented Nov. 5, 1912.

2 SHEETS—SHEET 2.

Fig. 5.

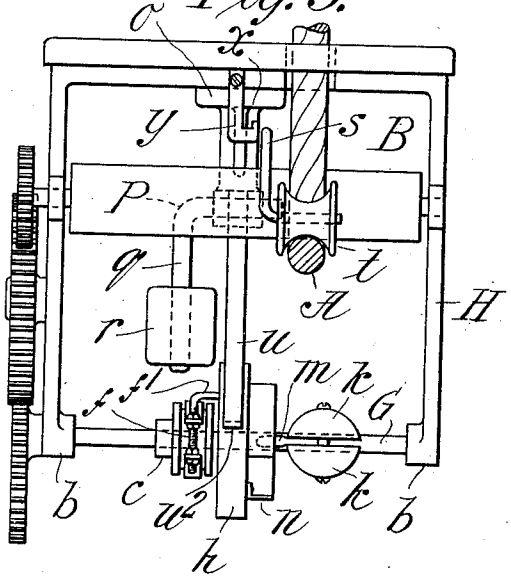


Fig. 6.

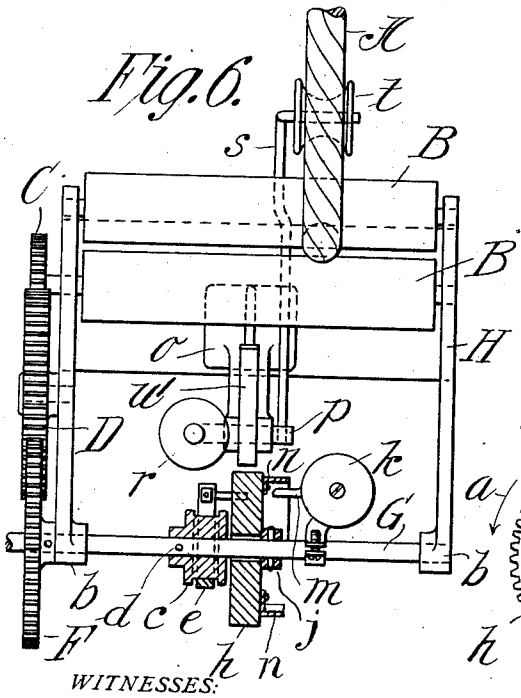
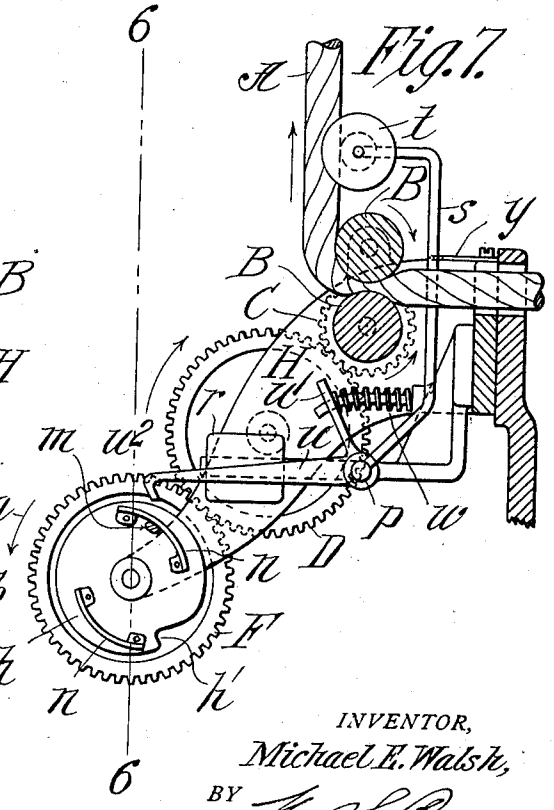


Fig. 7.



WITNESSES:

H. L. Sprague

J. D. Long

INVENTOR,

Michael E. Walsh,

BY Wm. C. Green

ATTORNEY.

UNITED STATES PATENT OFFICE.

MICHAEL E. WALSH, OF HINSDALE, MASSACHUSETTS.

ALARM MECHANISM FOR CARDING AND OTHER TEXTILE MACHINES.

1,043,486. Specification of Letters Patent. Patented Nov. 5, 1912.

Application filed December 16, 1910. Serial No. 597,658.

To all whom it may concern:

Be it known that I, MICHAEL E. WALSH, a citizen of the United States of America, and resident of Hinsdale, in the county of Berkshire and State of Massachusetts, have invented certain new and useful Improvements in Alarm Mechanisms for Carding and other Textile Machines, of which the following is a full, clear, and exact description.

This invention relates to improvements in devices for maintaining and automatically operating alarms for spinning machinery, and has for its object the provision of means for notifying the machine tender of a break in the roving operated upon by machines of the class above referred to.

The invention is described in conjuntcion with the accompanying drawings and set forth in the claims.

In the drawings:—Figure 1 is a plan view of the device showing the parts as in their relative operating positions. Fig. 2 is a front elevation and partial section on line 2—2, Fig. 3. Fig. 3 is a sectional elevation of Fig. 2 as seen at right angles thereto. Fig. 4 is an enlarged sectional view of the friction mechanism, taken on line 4—4, Fig. 1. Fig. 5 is a plan view of a construction similar to Fig. 1 but showing a modification of the mechanism. Fig. 6 is a front elevation and partial section taken on line 6—6, Fig. 7, illustrating a modified construction of the machine. Fig. 7 is a sectional view of Fig. 6.

Referring to the drawings, A represents a large strand of fiber, commonly termed the "roving" which is driven, between the feed rolls B, in the direction of the arrow; and to said feed rolls, through the medium of the shaft F and gears C and D, is imparted the power in the usual manner. Constantly running and in mesh with the gear D is another gear F which drives the short shaft G in the direction of the arrow *a*, which shaft has its bearings in the downwardly extended portion of the supporting bracket H at or near the end of the shaft *b*. At a convenient point on the shaft G is rigidly mounted a pulley or drum *c* secured in place by the pin *d* which is caused to run in coöperative relation to the friction band *e* composed of a suitable flexible material such as leather, the ends *g* of which are held by the L-shaped bolt *f* which passes therethrough and held under pressure by the adjusting nuts *i*.

By referring to Fig. 1 it will be seen that the end *f'* of the L-shaped bolt *f* engages an opening in the ratchet wheel *h*, thereby causing said ratchet wheel *h* to revolve with the pulley *c* in yielding relation thereto, said ratchet wheel *h* being mounted loosely upon the shaft G. Adjacent the ratchet *h* is mounted a fixed collar *j* which is held in place on the shaft *g* by the pin *j'*, thereby necessitating the revolving of the ratchet *h* in a fixed relation relatively to the shaft *g*. Adjacent these mechanisms at a convenient point on the shaft G is mounted a bell *k* affixed to the shaft G by the clamp *l* by means of the screw *l'*, said bell *k* being preferably of the ordinary bicycle type operated by the finger piece *m*.

Referring to Fig. 3 it will be seen that the finger piece *m* is so positioned relative to the ratchet *h* that the two cam lips *n* are in close contact therewith; and it will be further understood that under ordinary running conditions these parts of the machine, namely the pulley *c*, the friction band *e*, the ratchet *h*, collar *j* and bell *k*, revolving on the shaft G, are constantly rotated in a fixed relation to each other.

Upon the larger bracket H is mounted an auxiliary bracket *o* upon which is supported the shaft P having on its outwardly extending end *q* the weight *r*. To this shaft is secured an upstanding lever *s* which has mounted thereon a spool *t* the axis of which is at right angles to the line of travel of the roving. At the bifurcation of the bracket *o* is rigidly mounted an angle shaped lever, the downturned end *u* of which is so positioned as to remain in close proximity to the revolving ratchet *h*, and the other end *u'* of which, through the aperture *v*, engages the spring guide pin *v'* in slight compression against the spring *w*.

It will be understood that the shaft *p*, the weight *r*, the levers *s*, *u* and *u'* operate as one member, the position of which is maintained by the contact of the roller *t* against the upwardly running roving A; and in case of the breakage of the roving A the lever *s* will, through the medium of the weight *r* and the spring *w*, be caused to fall in a relatively inward direction, bringing the outturned end u^2 of the lever *u* into closer relationship with the continuously revolving ratchet *h*; and at such time as the position of the ratchet tooth *h'* coincides with the end of the lever u^2, the lever will be caused to fall into the ratchet tooth *h'* thereby resulting in the ratchet wheel remaining stationary. And it is to be further

understood that the bell *k* being rigidly mounted on the shaft G will revolve therewith, and the finger piece *m* will strike the now stationary cam shaped lips mounted on the ratchet wheel *h* and by an intermittent downward pressure of the finger lever *m* the bell *k* will be caused to ring, it also being understood that under the conditions just above stated for causing the operation of the alarm the friction band *e* slips on the pulley *c*. The operator is thus immediately notified of a break in the roving and upon coming to that part of the machine where the roving is broken, the same, by a backward thrust of the lever *s*, may be engaged in the recess *x* of the flat metal strip *y*, thereby causing the bell to cease ringing and affording a better opportunity of making the necessary repair to the broken roving, after the performance of which, by a simple operation of the hand, the spool or pulley *t* is returned to its proper axial relation to the roving and the machine is again set in operation.

It is to be understood that the wheel *h* having the ratchet teeth *h'* at its edge and the one or more cam lips *n* projecting laterally from its face is an element which under normal conditions, that is when the roving is running unbroken, turns as one with the shaft on which it is mounted and which, nevertheless, is one which under the conditions calling for automatic action of the device may be restrained against rotation while the shaft alarm bell and its operating finger continue to revolve; and the provision of the strap *e* which frictionally engages the drum or pulley *c* and which strap has the connection with the cam lip provided wheel *h* establishes the conditions rendered necessary. And it is to be stated that when, under the breaking of the roving, the lever *s*, *u*, is swung to a position to engage the wheel having the cam lips *n* stopping the rotation of such wheel, the alarm device constantly moving around with the shaft G will have the actuated member *n* thereof successively brought to impingements against the cam lips for swinging and releasing of such actuated member to repeatedly cause the hammer of the alarm device to strike the bell.

Referring to Figs. 5, 6 and 7, it will be seen that a modification of a very similar nature has been illustrated, where the adaptation of the previously described devices is inconsistent with the existing conditions on the machine itself, and by a reversal and transposition of the several parts of the mechanism better operation could be accomplished. The shaft P has been placed on the inner side of the roving A and the lever *u* has been positioned above the ratchet wheel *h;* the spring lever *u'* has been transferred to a forward position so that in case of a break in the roving the wheel *t*, the lever *s* and accompanying parts will be caused to fall away from the machine instead of toward the machine; and the lever *u* having the hook-shaped extremity u^2 is brought into contact with the revolving ratchet wheel *h* in an opposite way to that illustrated in Fig. 3. The lever *s* is secured in a backward position within the recess *x* in the hook shape part *y*.

In designing the mechanism in this way, it will be clearly seen that I have not departed from the fundamental principles of the invention, but simply in the relative arrangement of the parts.

What I claim is:

1. In an alarm device for spinning machinery, in combination with feed rolls for the roving, a shaft, means for actuating said shaft from said feed rolls, a wheel loose on the shaft and formed with a tooth, and a cam lip on said wheel, an alarm device rotatable with the shaft and having an actuating part for engagement with said cam lip, a pulley fixed on the shaft, a friction band engaging the pulley and secured to said wheel, a second shaft, a lever connected to such second shaft and having its free end engaging the roving, a weight connected to the second shaft to partially rotate same, and a part carried by the second shaft for engagement with the tooth of said wheel to hold the latter against rotation to thereby cause said lip to operate the alarm device.

2. In an alarm device for spinning machinery, in combination with roving feeding means, a shaft, and means for driving same, an alarm bell fixed on and revoluble with the shaft and having a finger piece in cooperative proximity to a cam lip, which is formed as a lateral projection upon a wheel loose on the shaft and having a ratchet shaped tooth at its edge, means for frictional connection between the shaft and said wheel to normally cause the two to rotate in unison, a pivoted device having a part adapted to engage the roving and a second part adapted to engage said tooth, whereby on breaking of the roving said second part of the pivoted device will be moved to engage said tooth to hold the wheel stationary relatively to the continuously revolving shaft and bell.

Signed by me at Springfield, Mass., in presence of two subscribing witnesses.

MICHAEL E. WALSH.

Witnesses:
G. R. DRISCOLL,
WM. S. BELLENS.