

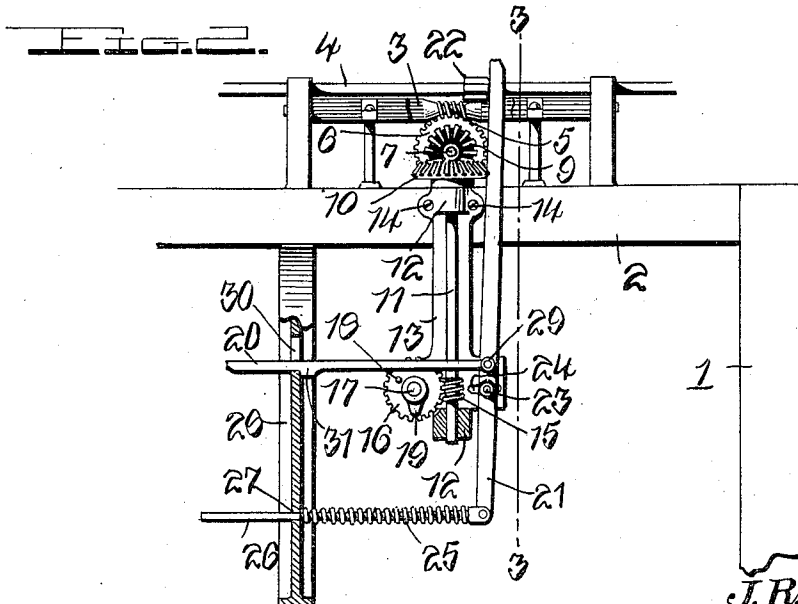
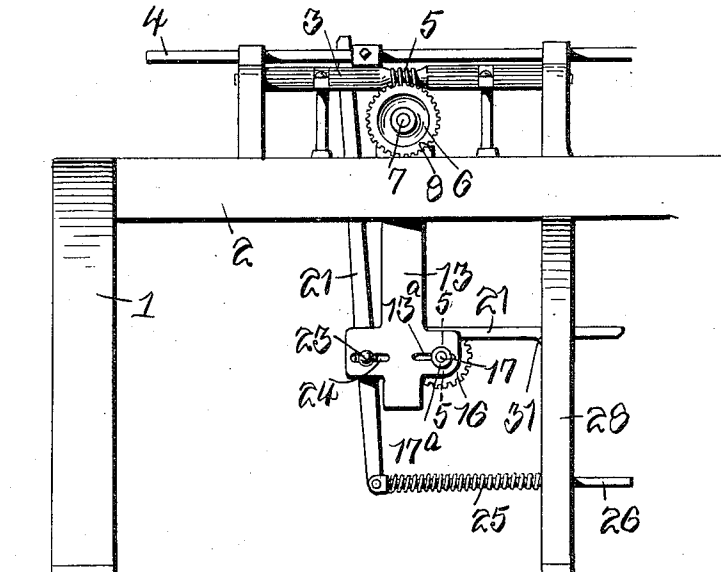
J. R. T. WILSON.
 AUTOMATIC MEASURING AND STOPPING DEVICE.
 APPLICATION FILED MAY 9, 1910.

1,033,855.

Patented July 30, 1912.

2 SHEETS—SHEET 1.

Fig. 1.



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Witnesses

Chas. L. Grubauer.
 E. M. Ricketts.

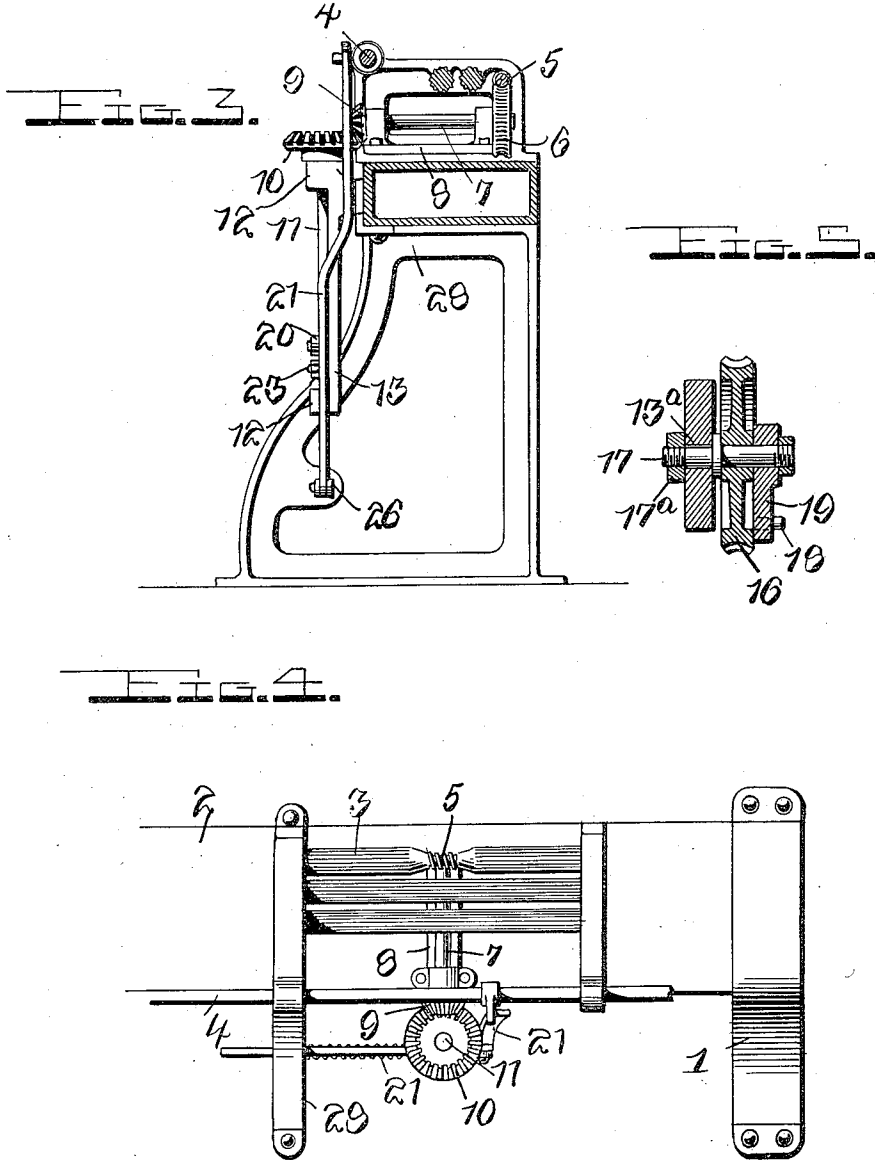
By Watson E. Coleman.
 Attorney

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Witnesses

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UNITED STATES PATENT OFFICE.

JAMES R. T. WILSON, OF CHESTER, SOUTH CAROLINA.

AUTOMATIC MEASURING AND STOPPING DEVICE.

1,033,855.

Specification of Letters Patent.

Patented July 30, 1912.

Application filed May 9, 1910. Serial No. 560,110.

To all whom it may concern:

Be it known that I, JAMES R. T. WILSON, a citizen of the United States, residing at Chester, in the county of Chester and State of South Carolina, have invented certain new and useful Improvements in Automatic Measuring and Stopping Devices, of which the following is a specification, reference being had to the accompanying drawings.

This invention is an improved measuring and stopping device for use on fly frames, roving machines, cotton spinning machines, etc., for automatically measuring the number of yards of roving or yarn wound on bobbins and stopping the machine when the predetermined number of yards have been wound.

The primary object of the invention is to provide a simple and effective device or mechanism of this character which will not be affected by taking up or slacking ends, or changing the tension gear, the construction being such that the use of the device will enable any number of frames of the same hank roving to be knocked off with the same number of yards on all the bobbins.

Another object of the invention is to provide a device of this character in the form of an attachment which may be readily applied to the roller beam and driven from the front steel roll, but which may also be applied to other parts of the machines and driven from the main shaft, the top cone shaft, the spindle plate shaft, or the bobbin shaft.

With the above and other objects in view, the invention consists of the novel construction, combination and arrangement of parts, hereinafter fully described and claimed, and illustrated in the accompanying drawings in which:—

Figure 1 is a view illustrating the application of the invention to a slubber roving machine. Fig. 2 is a rear elevation of a portion of the machine showing the invention applied thereto, parts being broken away and in section. Fig. 3 is a vertical section taken on the plane indicated by the line 3—3 in Fig. 2. Fig. 4 is a top plan view. Fig. 5 is a detail section taken on the plane indicated by the line 5—5 in Fig. 1.

While my improved measuring and knock-off motion or device may be used on fly frames, roving machines, cotton spinning machines and the like, I have illustrated in the accompanying drawings the

preferred embodiment of the invention, and it is in the form of an attachment applied to a slubber roving frame.

In the drawings 1 denotes the main frame on which is mounted a roller beam 2; 3 denotes the front steel roll, and 4 denotes a horizontally disposed shifting bar or member which is adapted to shift a driving belt from a tight to a loose pulley (not illustrated) or to otherwise control the stopping and starting of the machine.

My invention comprises a spring-actuated means for shifting the bar 4, a catch for holding the shifting means inoperative, and a releasing means for the catch actuated from the front roll 3 or other part of the machine. When the roll 3 is employed for this purpose it is provided with a worm 5 which meshes with a worm gear 6 fixed to one end of a shaft 7, the latter being here shown as mounted in bearings on a bracket 8 fixed to the roller beam 2. Fixed to the shaft 7 is a beveled gear or pinion 9 which meshes with a beveled gear 10 on a shaft 11 journaled in bearings 12 on a supporting member 13. The latter is here shown in the form of a plate vertically disposed and depending from the rear side of the beam 2, to which latter it is secured by bolts or fastenings 14. Arranged on the shaft 11 is a worm 15 which meshes with a worm gear 16 mounted on a stub shaft 17 adjustably secured to the plate or member 13. The worm gear 16 is adapted to serve as the measuring wheel and it is removably mounted on the adjustably mounted shaft 17 so that it may be replaced by a similar gear of different size for the purpose of determining the number of yards of roving or yarn to be wound on the bobbins at one operation of the machine. The shaft 17 has its inner end adjustably clamped by a nut 17^a or other means in a slot 13^a in the plate 13, see Fig. 1. By constructing the device in this manner so that the gear 16 may be quickly changed, the machine may be set to automatically wind any predetermined number of yards of yarn on the bobbins. Fixed to the gear 16 is a pin 18 adapted to engage and actuate a cam 19 loosely arranged on the shaft 17 and adapted to in turn engage and actuate a latch lever 20. This lever controls a knock-off or shifting lever 21 which is vertically disposed so that its upper free end engages an adjustably mounted stop 22 provided on the shifting bar or member 4. The inter-

mediate portion of the lever 21 is fulcrumed on a stub shaft 23 which is horizontally adjustable in the supporting plate or member 13 by clamping it in a horizontal slot 24 formed in said plate, see Fig. 4. The lever 21 is actuated in one direction by a coil spring 25 arranged on a guide rod 26 which has one of its ends pivoted to the lower extremity of the lever 21, and the other end of said rod slides through an opening 27 in a support 28 which may be one of the standards of the main frame. The latch lever 20 is horizontally disposed and has one of its ends pivoted at 29 to the lever 21 adjacent the fulcrum 23, and the other end of said lever 20 is slidably arranged in a slot 30 in the support 28. Said latch lever 20 has on it adjacent its free end a stop shoulder 31 which is adapted to engage the support 28 to hold the spring 25 under tension. In effect, the support 28 constitutes also a keeper for engagement by the shoulder 31 of the latch lever.

In operation it will be seen that the motion of the front steel roll 3 will be imparted to the shafts 7, 11, and hence to the measure gear or wheel 16, and when the latter makes a complete rotation, the pin 18 on it will slowly elevate the cam 19 until the latter lifts the latch lever 20 and disengages its shoulder 31 from the support 28. When this happens, the spring 25 actuates the knock-off lever 21 and the upper end of the latter being engaged with the stop 22 shifts the bar 4 which throws the driving belt of the machine from the tight to the loose pulley, thereby stopping the machine. After the machine has been doffed the parts may be reset by lifting the latch lever 20, returning the cam 19 to normal position, and then shifting the lever 21 to place the spring 25 under tension and to engage the shoulder 31 with the support 28, as shown in Fig. 2.

From the foregoing it will be seen that my improved knock-off motion and measuring device is actuated from the front steel roll and is entirely free from connection with the cone rack so that its chief advantage over other similar devices is that it will knock the machine off with the same number of yards on all of the bobbins except where ends or strands of cotton are left down, or roving stretched on account of heavy stock.

I have found in practice that the use of the invention will effect the saving of from 10% to 20% in labor necessary to operate the ordinary fly frames and roving machines; that it will increase the production of the machines using the roving taken from machines equipped with my device from 4 to 5%, since there will be fewer ends down on account of singlings made, making it possible for the operative to keep his frame, or machine, running more regularly; that it

can be creeled faster and easier; that it will improve the quality of the work from 10 to 20%, as there will be fewer ends to be pieced in back of creel, thus eliminating many thick and thin places in stock as it is impossible to piece ends of roving together without making thick or thin places, and of course the fewer piecings made, the better the quality of stock produced; that it will reduce the waste from creeling 50%, and there will be 50% fewer pieces to be run up a second time; that it will produce uniform roving so that the roving of the same hank from any number of machines may be placed in a single machine and have it run out even, the same as if all of the rovings had been taken from one frame.

In the practice of my invention I prefer to provide with the attachment, the shift rod 4 which takes the place of the usual shift rod on the machine.

While I have shown and described in detail the preferred embodiment of my invention, I wish it understood that I do not limit myself to the construction and arrangement of parts set forth, since changes and variations may be made within the spirit and scope of the invention.

What is claimed is:

1. In a machine of the class described having a main frame provided with a fixed keeper, a front roll provided with a worm, a horizontal shaft having its bearings in the main frame and provided with a worm gear which engages the worm of the front roll, said horizontal shaft being also provided with a beveled gear; in combination with a vertical support having its upper end secured to and removable from the main frame, said support being provided with bearings, a vertical shaft mounted in said bearings and provided with a beveled gear and a worm, said beveled gear engaging that on the horizontal shaft, a shaft secured to the said support, a measuring wheel mounted for rotation on said shaft, engaging the worm of the vertical shaft and also provided with a pin, a cam loosely mounted on the same shaft of the measuring gear and disposed in the path of the pin, a lever also mounted on the said support, a spring to move the lever in one direction and a shouldered catch connected to the lever and to engage and coact with the keeper to normally hold the lever against movement by the spring, the said catch being disposed in the path of the cam and tripped by the latter when the cam is moved by the pin of the measuring wheel.

2. In a machine of the class described having a main frame provided with a fixed keeper, a front roll provided with a worm, a horizontal shaft having its bearings on the main frame and provided with a worm gear which engages the worm of the front roll, said horizontal shaft being also provided

with a beveled gear; in combination with
a vertical support having its upper end se-
cured to and removable from the main
frame, said support being provided with
5 bearings and being also provided with a
pair of horizontal slots, a vertical shaft
mounted in said bearings and provided with
a beveled gear and a worm, said beveled
gear engaging that on the horizontal shaft;
10 a shaft secured to the said support and ad-
justable in one of the slots thereof, a meas-
uring wheel mounted for rotation on said
shaft, engaging the worm of the vertical
shaft and also provided with a pin, a cam
15 loosely mounted on the same shaft with the
measuring wheel and disposed in the path

of the pin, a lever having a fulcrum ad-
justably mounted in the other slot of the
support, a spring to move the lever in one
direction and a shoulder catch connected to 20
the lever and to engage and coast with the
keeper to normally hold the lever against
movement by the spring, the said catch be-
ing disposed in the path of the cam and
tripped by the latter when the cam is moved 25
by the pin of the measuring wheel.

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

JAMES R. T. WILSON.

Witnesses:

DAN P. DAVIS,

M. W. DANIEL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."