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W. BAXTER.

UNWRAPPING MECHANISM FOR YARN CHAINS.

APPLICATION FILED SEPT. 21, 1903.

NO MODEL.

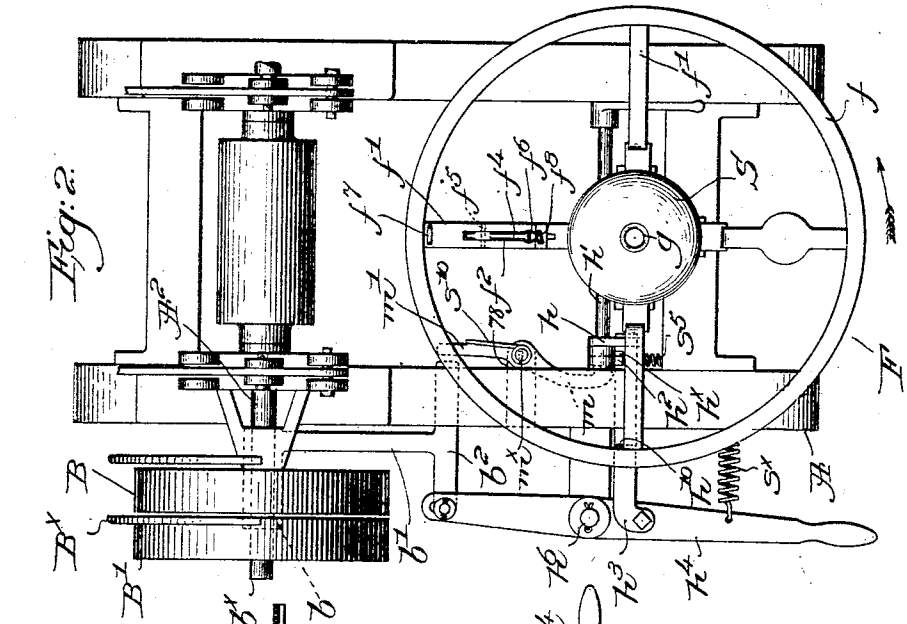

Fig. 2.

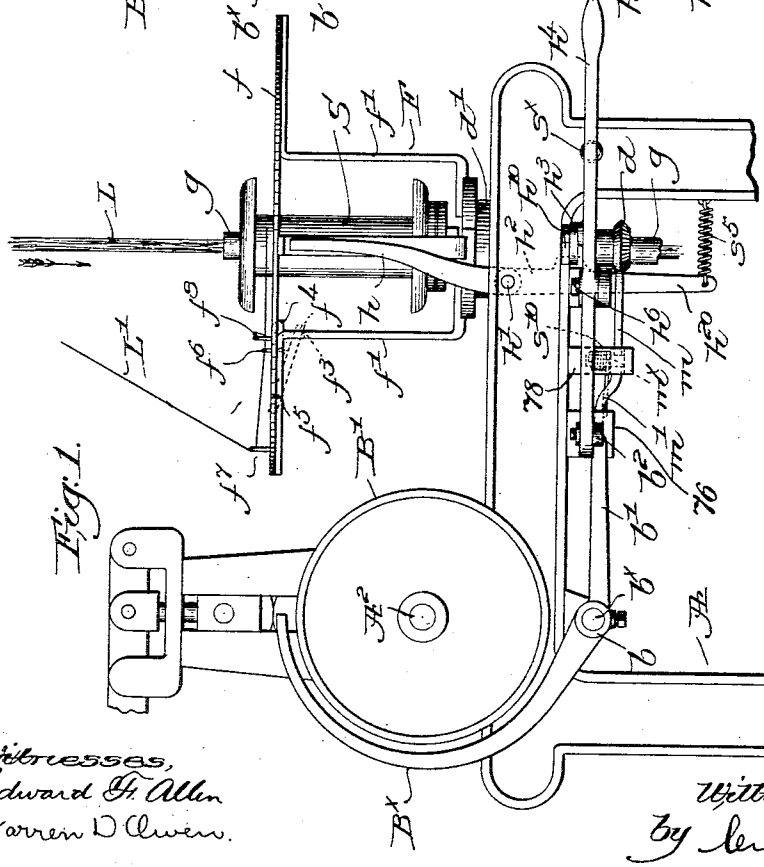

Fig. 1.

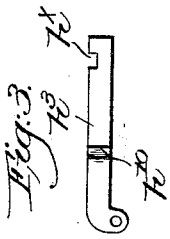

Fig. 3.

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No. 745,993. Patented December 8, 1903.

UNITED STATES PATENT OFFICE.

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UNWRAPPING MECHANISM FOR YARN CHAINS.

SPECIFICATION forming part of Letters Patent No. 745,993, dated December 8, 1903.

Application filed September 21, 1903. Serial No. 173,998. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM BAXTER, a subject of the King of Great Britain, and a resident of Fitchburg, county of Worcester, State of Massachusetts, have invented an Improvement in Unwrapping Mechanism for Yarn Chains, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

This invention relates to apparatus for removing the wrapping-cord from a yarn chain of the general type forming the subject-matter of United States Patent No. 550,656, dated December 3, 1895. In such patent the chain is moved longitudinally at a certain speed and the cord is unwrapped therefrom by a rotary unwrapping mechanism and wound upon a cord-receiver, means being provided to vary the ratio between the linear speed of the chain and the rotary speed of said unwrapping mechanism. The latter includes a flier having guide-eyes through which the cord passes to the spool or receiver, and between said eyes the cord coöperates with and maintains inoperative a latch mounted on the flier. Upon breakage or slackening of the cord during the unwrapping process the latch is released and immediately assumes its operative position, and the rotation of the flier causes the latch to engage and operate a knock-off lever, and thereby effect the actuation of suitable stopping mechanism for the machine. It has been found in practice that sometimes the flier will rotate one or more times after the initial operation of the knock-off lever, so that the latter will again be struck by the latch, inasmuch as the lever returns to normal position after it has acted to effect the actuation of the stopping mechanism.

My present invention has for its object the production of simple and effective means to obviate the unnecessary and objectionable reëngagement of latch and knock-off lever after the same has been properly operated. Such reëngagement is objectionable, because it tends to unduly wear the parts and sometimes results in injury to either the latch or the lever.

The various novel features of my invention will be described in the subjoined specification and particularly pointed out in the following claims.

Figure 1 is a detail in side elevation of a sufficient portion of an apparatus for unwrapping yarn chains to be understood with one embodiment of my invention applied thereto, the parts being in normal position. Fig. 2 is a top or plan view of the mechanism shown in Fig. 1; and Fig. 3 is a detail in plan of the shipper lock or detent, to be described.

In the drawings, Figs. 1 and 2, I have only shown enough of the apparatus to be understood. The main driving-shaft A^2, having fast and loose pulleys B and B′ thereon, the cord receiver or spool S, mounted on the upper end of the traverse-tube g, the bevel-gear d, Fig. 1, having its hollow hub extended through a sleeve-like bearing d', secured to the main frame, and the flier F, secured to the upper end of the said hub, may be and are all substantially as in United States Patent No. 550,656. The tube g passes through the hub of the gear d and in practice is vertically reciprocated, as shown in said patent. Herein I have omitted the intervening connections between the shaft A^2 and the gear d, as such connections form no part of my invention and may be all as shown and described in the patent aforesaid, it being understood that the chain L is drawn down through the traverse-tube g by suitable means, (not shown in detail herein,) while the wrapping-cord L′ is unwound from the chain and wound upon the receiver S by the unwrapping mechanism. The latter is shown as a flier F, comprising the circular rim f and supporting-arms f', bent outwardly at their upper ends, Figs. 1 and 2, one of said arms being slotted at f^2 f^3 in its horizontal and upright portions, and a latch or actuator f^4 is pivoted at f^5 in the slot, the latch having an eye f^6, normally interposed between guide-eyes f^7 and f^8, the former being located at the outer end of the slotted horizontal arm and the latter at the upper end of the slotted upright of the flier, as in said patent. As therein provided, the end of the wrapping-cord L′, Fig. 1, which has been detached from the yarn chain, is passed

through the guide-eye f^7, then through the latch-eye f^6, and finally through guide-eye f^8, passing thence to the receiver S. When the cord is being properly unwrapped, the tension thereof will lift the latch or actuator, so that it will be free to revolve with the flier, and the unwrapping of the yarn chain will proceed. If the cord breaks or slackens, however, the actuator f^4 will be permitted to drop into dotted-line position, Fig. 1, and in the rotation of the flier the inner end of the actuator will then be brought against the upturned arm h of a knock-off member or lever h h^2, fast on a rock-shaft h'. Such engagement of the actuator and knock-off member tilts the latter, turning the rock-shaft h' and withdrawing the depending portion or finger h^2 of said member from a notch $h^\times$, Figs. 2 and 3, in a shipper lock or detent h^3, shown as a flat bar or link pivotally connected at its outer end to the shipper h^4 and longitudinally movable in a suitable bearing on the main frame A of the apparatus. The shipper is fulcrumed at h^6, and a strong spring $s^\times$ normally tends to draw the outer end of the shipper to the right, Fig. 2, to slide the belt-fork $B^\times$ to the left and ship the belt from the fast to the loose pulley. I have shown the belt-fork provided with a hub b to slide on a stud $b^\times$, fast on the main frame, said hub having a rigid extension b', provided with a cross-bar b^2, the outer end of the latter being jointed to the inner end of the shipper, as clearly shown in Fig. 2, the inner end of the cross-bar being slidably supported in a bearing 76. (See Fig. 1.) When the shipper is in running position, Figs. 1 and 2, the finger h^2 of the knock-off member enters the notch $h^\times$ of the shipper lock or detent h^3 and positively maintains the shipper in running position against the pull of the spring $s^\times$ so long as such engagement continues. The tension of the cord governs the latch or actuator f^4 for the stop-motion, and the leverage exerted by said actuator on the arm h is amply sufficient to tilt it enough to withdraw the finger h^2 from the notch $h^\times$.

In practice it is found that sometimes the flier may rotate one or more times after the belt has been shipped, and the actuator strikes the arm h on each revolution, causing undue wear of the parts and at times injuring them. Herein I have provided means to retain the arm h out of the path of the actuator after initial engagement of said parts, and the movement of the shipper to running position to start the apparatus is made effective to automatically release the knock-off member, so that it will reëngage with the detent h^3.

A catch m is fulcrumed on a stud $m^\times$, carried by an ear 78 on the main frame A, the free end of the catch being normally held against the flat outer face of the finger h^2 by a suitable spring s^{10}, Figs. 1 and 2; but when the finger is withdrawn from the detent h^3 the spring s^{10} immediately throws the free end of the catch in front of the finger and holds it and the upturned arm h in tilted position with the arm h out of the path of the actuator f^4. The catch has a rearward extension or tail m', which projects in front of the inner end of the cross-bar b^2, and when the shipper is released the said cross-bar is moved outward away from the tail m'. When the operator moves the shipper to running position, however, the cross-bar is moved inward and hits the tail, swinging the catch m to the left, Fig. 2, from in front of the finger h^2, and the knock-off member is returned to operative position (shown in the drawings) by the action of the spring s^5, Figs. 1 and 2, attached to a depending extension h^{20} of the finger h^2. A slight clearance is permitted between the tail m' and cross-bar b^2, as shown in Fig. 2, corresponding to the clearance provided for in the notch $h^\times$, inasmuch as the operator in moving the shipper to running position always moves it as far as it will go to insure engagement of the finger h^2 in the said notch. The releasing movement of the shipper is limited by a stop-lug h^{10} on the detent h^3, which stop-lug engages the side of the frame when the shipper is released.

My invention is not restricted to the precise construction and arrangement shown and described herein, as the same may be modified or changed in various details without departing from the spirit and scope of my invention.

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

1. In an apparatus for unwrapping yarn chains, a receiver, means to unwrap the cord and wind it upon the receiver, a stop-motion for the apparatus, including a knock-off member, a revolving actuator therefor rendered operative by slackening or breakage of the cord, and a device to prevent reëngagement of the actuator and knock-off member after the latter has been actuated.

2. In an apparatus for unwrapping yarn chains, a receiver, means to unwrap the cord and wind it upon the receiver, a stop-motion for the apparatus, including a knock-off member, a revolving actuator therefor rendered operative by slackening or breakage of the cord, and a device to coöperate with the knock-off member and maintain it out of the path of the actuator subsequent to initial engagement therewith.

3. In an apparatus for unwrapping yarn chains, a receiver, a positively-rotated flier to unwrap the cord and wind it upon the receiver, a stop-motion for the apparatus, including a knock-off member, an actuator therefor on the flier and rendered operative by slackening or breakage of the cord, and a device to prevent reëngagement of the actuator and knock-off member after the latter has been actuated.

4. In an apparatus for unwrapping yarn chains, a receiver, means to unwrap the cord

and wind it upon the receiver, a stop-motion for the apparatus, including a knock-off member, a revolving actuator operative upon slackening or breakage of the cord to tilt the knock-off member, and a catch to retain said member in tilted position after it has been tilted.

5. In an apparatus for unwrapping yarn chains, a receiver, a positively-rotated flier to unwrap the cord and wind it upon the receiver, a stop-motion for the apparatus, including a knock-off lever, an actuator therefor carried by the flier and rendered operative by slackening or breakage of the cord to tilt said lever, and a catch to automatically coöperate with the lever when tilted and retain it out of the path of the actuator.

6. In an apparatus for unwrapping yarn chains, a receiver, means to unwrap the cord and wind it upon the receiver, a stop-motion for the apparatus, including a shipper, a lock therefor, and a tilting lever to normally cooperate therewith, a revolving actuator rendered operative by slackening or breakage of the cord to engage and tilt said lever and release the shipper-lock, and a catch to automatically coöperate with the lever when tilted and retain it out of the path of the actuator.

7. In an apparatus for unwrapping yarn chains, a receiver, means to unwrap the cord and wind it upon the receiver, a stop-motion for the apparatus, including a shipper, and a knock-off lever therefor, a revolving actuator rendered operative by slackening or breakage of the cord to engage and move the lever to release the shipper, a catch to automatically coöperate with said lever when so moved and retain it out of the path of the actuator, and means operated by movement of the shipper to running position to disengage the lever from the catch.

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

WILLIAM BAXTER.

Witnesses:
GEORGE W. DUNN,
RUSSELL B. LOWE.