J. EASTWOOD.

MEANS FOR DETECTING ENLARGEMENTS IN THREAD.

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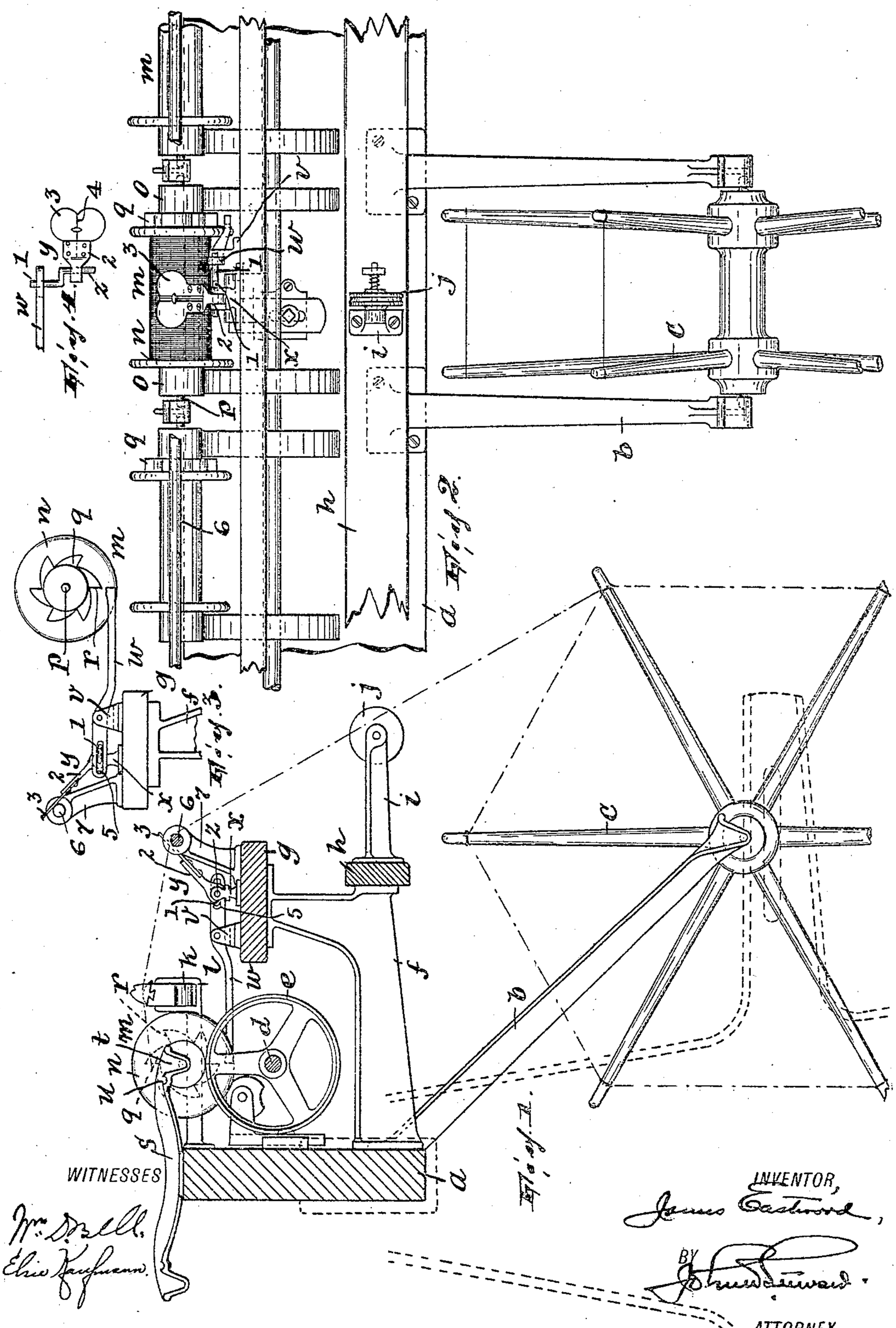
943,662. Patented Dec. 21, 1909.



WITNESSES

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MEANS FOR DETECTING ENLARGEMENTS IN THREAD.

943,662. Specification of Letters Patent. Patented Dec. 21, 1909.

Application filed September 16, 1908. Serial No. 453,308.

To all whom it may concern:

Be it known that I, JAMES EASTWOOD, a citizen of the United States, residing at Paterson, Passaic county, New Jersey, have invented a certain new and useful Improvement in Means for Detecting Enlargements in Thread; and I do hereby 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 characters of reference marked thereon, which form a part of this specification.

This invention relates to means for detecting enlargements in thread, and it has for its object a simple and reliable mechanism of this nature which may, if desired, be attached to and employed with thread winding machinery.

Referring to the accompanying drawings, in which the invention is fully illustrated, Figure 1 shows the superstructure of a winding machine, partly in section, and the improved mechanism attached thereto; Fig. 2 is a front view of what is shown in Fig. 1; and, Figs. 3 and 4 illustrate details.

In the drawings, *a* designates the mid-rail of the superstructure of a winding machine, *b* brackets in which is journaled one of the swifts *c* of the machine, *d* a rotating shaft and *e* driving wheels arranged on said shaft.

f designates one of two or more brackets which carry the fixed rails *g* and *h*, the latter in turn carrying a bracket *i* for a thread tension device *j*, comprising disks one of which is spring-pressed against the other, and the former serving to support a part of the improved mechanism.

k is the reciprocating thread-guide rail and *l* one of the fixed brackets in which it slides.

m is one of the bobbins comprising the bobbin proper *n*, the whirls *o* forming fixed parts of the bobbin proper, one being arranged at each end thereof, and the bobbin spindle *p;* in addition each bobbin *n* comprises a fixed toothed member *q* whose teeth afford radial abutments *r*. The driving wheels *e* are arranged in pairs on shaft *d* and alternating with such pairs of driving wheels, and fixed on the rail *a*, are the racks *s* formed with notches *t* in which the bobbin spindles rest in the normal position of the bobbin and with notches *u* to receive the bobbin spindles when the bobbins are idle. In the normal position of the bobbins their whirls rest on the peripheries of the corresponding pair of driving wheels *e*, so that the bobbins are driven by said wheels. On rail *g* in brackets *v* are fulcrumed levers *w*, one for each bobbin, the same having their inner ends movable vertically in the vertical plane of the toothed members of the bobbins so that when the inner end of any lever is elevated it will be engaged by one of the abutments *r* and stop the bobbin. In another bracket *x* on rail *g* is fulcrumed the detector *y* comprising a pivot *z* having a crank 1, an arm 2 attached to the pivot and a split blade 3 adapted to receive the thread and its slit 4 being of such width that only a predetermined thickness of thread may be drawn therethrough. The crank 1 (Fig. 1) projects inwardly in the normal position, being received by a slot 5 in the outer end of the lever *w;* at this time the detector stands in a forwardly inclined position, resting against a bar 6 secured in brackets 7 on rail *g*.

In the operation, so long as the thread in being wound onto bobbin *m* runs without undue enlargement, the winding will proceed; if an undue enlargement, such as a knot or slug, occurs in the thread it will engage the detector, which will be thereby turned to the left in Fig. 1, with the result that its crank will depress the outer end of the lever *w* and raise its inner end into engagement with the toothed member *q*, thereby positively and instantly stopping the rotation of the bobbin.

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

1. In a mechanism for detecting undue enlargements in thread, the combination of a support, means for drawing the thread lengthwise comprising a rotary part, a lever fulcrumed in said support and movable into engagement with said part to stop the rotation thereof, and a thread-detector operatively connected to said lever and pivoted in said support on a substantially horizontal axis, said detector projecting upwardly from its pivot and having limited movement on its pivot to an inclined position relatively to a perpendicular plane coinciding with its axis of pivotal movement, substantially as described.

2. In a mechanism for detecting undue enlargements in thread, the combination of a support, means for drawing the thread lengthwise comprising a rotary part having an abutment thereon, a lever fulcrumed in said support and movable into the path of movement of said abutment to stop the rotation of the rotary part, and a thread-detector pivoted in said support on a substantially horizontal axis and operatively connected with said lever, said detector projecting upwardly from its pivot and being limited by said lever to move on its pivot to an inclined position relatively to a perpendicular plane coinciding with its axis of pivotal movement, substantially as described.

3. In a mechanism for detecting undue enlargements in thread, the combination of a support, means for drawing the thread lengthwise comprising a rotary part having an abutment thereon, a lever fulcrumed in said support and movable into the path of movement of said abutment to stop the rotation of the rotary part, a thread-detector pivoted in said support on a substantially horizontal axis and operatively connected with said lever, a bar forming a guide for the thread and arranged substantially parallel with the axis of movement of said detector, said detector projecting upwardly from its pivot and being limited by said bar to move to an inclined position relatively to a perpendicular plane coinciding with its axis of pivotal movement, substantially as described.

In testimony, that I claim the foregoing I have hereunto set my hand this 10th day of September 1908.

JAMES EASTWOOD.

Witnesses:
WM. D. BELL,
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