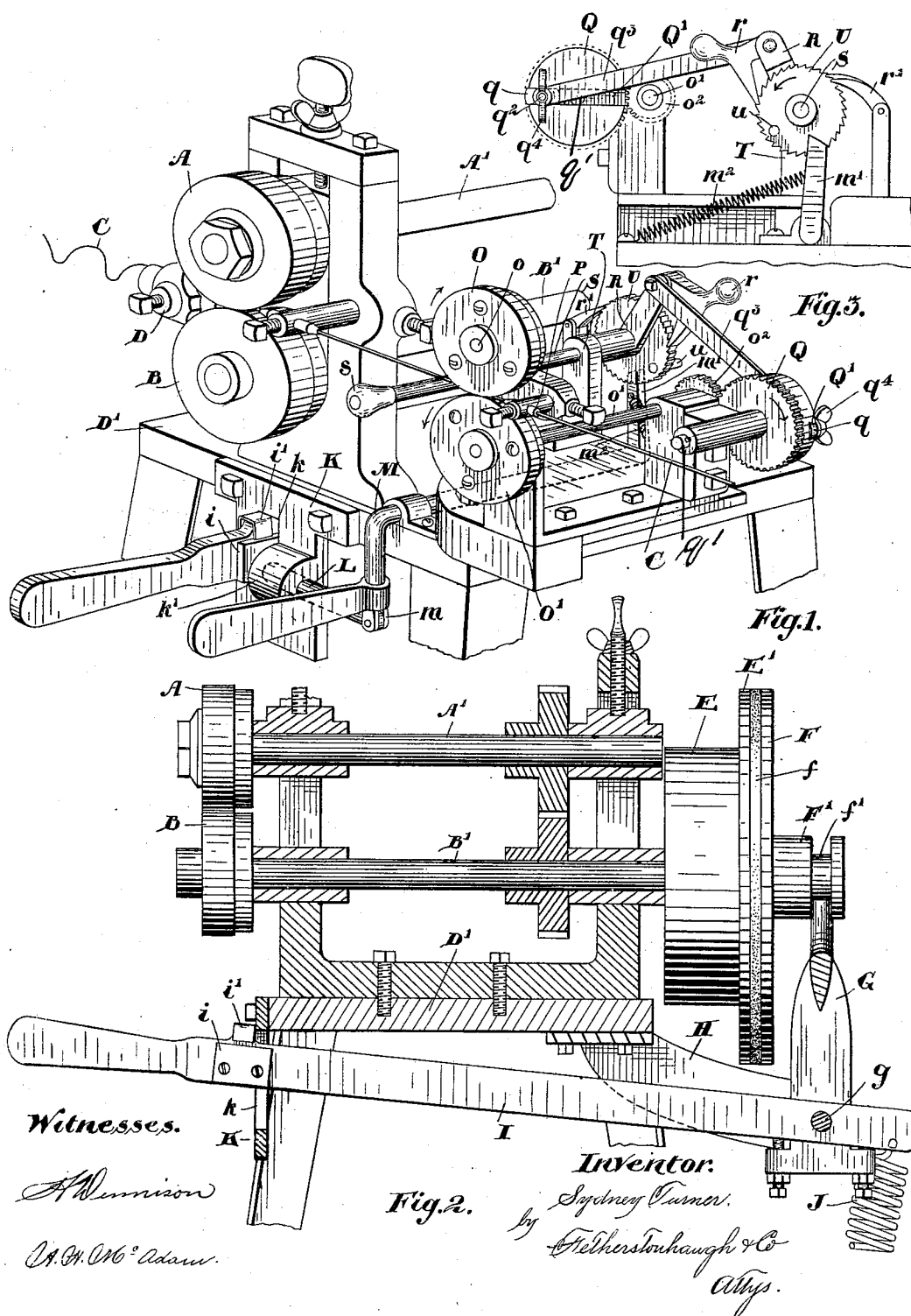


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STOP MECHANISM FOR WIRE COILING MACHINES.

(Application filed Feb. 25, 1899.)

(No Model.)



UNITED STATES PATENT OFFICE.

SYDNEY TURNER, OF TORONTO, CANADA.

STOP MECHANISM FOR WIRE-COILING MACHINES.

SPECIFICATION forming part of Letters Patent No. 643,994, dated February 20, 1900.

Application filed February 25, 1899. Serial No. 706,858. (No model.)

To all whom it may concern:

Be it known that I, SYDNEY TURNER, manufacturer, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Automatic Stops for Wire-Coiling Machines, of which the following is a specification.

My invention relates to improvements in automatic stops for wire-coiling machines; and the object of the invention is to devise a suitable means whereby the length of the coil of wire may be predetermined and the machine stopped at a desired point automatically, so that the coil may be cut off into equal lengths suitable for mattresses and other commercial uses; and it consists, essentially, of a lever provided with a suitable connection at one end to a friction-disk secured on the shaft and designed to engage with a loose pulley thereon and a catch at the opposite end engaged by a locking-bolt, which is released through the medium of friction-disks driven by the wire passing into the coiling device, such disks operating through the gear and ratchet-and-pawl mechanism to withdraw the bolt, this depending upon how the mechanism is set, as hereinafter more particularly explained.

Figure 1 is a perspective view of the portion of the machine to which my invention relates. Fig. 2 is a longitudinal section through the machine. Fig. 3 is a side elevation from the opposite side to that shown in Fig. 1 of portion of the automatic stop mechanism.

In the drawings like letters of reference indicate corresponding parts in each figure.

A and B are the main feed-rollers of the machine, through which the wire C passes into the coiling device D and out of the same as a coil. The rollers A and B are secured on the ends of the shafts A' and B', which are supported in suitable bearings in the frame of the machine, bolted to a suitable base-plate D', as indicated.

E is a driving-pulley loose on the shaft B' and provided with an end friction-disk E'.

F is a friction-disk secured on the main spindle or shaft B' and provided with a leather face *f* and having a hub F', provided with an annular groove *f'*.

G is an arm provided with a forked end extending into the annular groove and pivoted at *g* on the bracket H.

I is a lever rigidly connected to the arm G and having a spiral spring J connecting one end thereof to a suitable portion of the frame. The opposite end of the lever I is provided with a handle.

i is a catch-plate secured near the handle, and *i'* is a spring secured to the lever and projecting over the catch-plate, the bolt L passing above this spring to prevent the rising of the lever I. The lever I extends through a slot *k* in the plate K, secured to the bed-plate D'.

L is a bolt supported in a suitable bearing *k'*, forming part of the plate K. The bolt L extends through the bearing *k'* and is designed to coact with the spring *i'*, as will hereinafter appear. The outer end of the bolt is connected to the forked bent end *m* of the rod M, which is supported in suitable bearings in the bed-plate, as indicated, and has located at the opposite end an arm *m'*, having an upper engaging end, as indicated. A spiral spring *m²* is connected to the arm *m'*, and the same serves to hold the bolt L at the opposite end against the catch-plate *i* or bent spring *i'*.

O and O' are friction-disks supported on the stud and spindle *o* and *o'*, respectively, between which disks the wire passes, such wire in its course serving to rotate such disks, and thus communicate motion to the spindle *o'*. The stud *o* and spindle *o'* are supported in suitable bearings on the bed-plate. The wire is fed through a suitable guide P to the friction-rollers. On the end of the spindle *o'* I secure a gear-pinion *o³*, which meshes with a gear-wheel Q, secured on the stud *q'*, supported in suitable bearings. The face of the gear-wheel Q is provided with a diametric face-groove Q', dovetail in shape, in which fits a block *q* of corresponding cross-section to the groove. The block *q* has a threaded stem *q²*, to which the link *q³* is connected, being secured in place by the thumb-nut *q⁴*. The opposite end of the link *q³* is connected to an arm R, journaled loosely on the spindle S, having suitable bearings in the standard T. *r* is a pawl pivotally connected to the arm R and engaging with the ratchet-wheel U, se-

cured on the end of the spindle S. The opposite end of the spindle is provided with a handle *s*, whereby the pin *u* on the ratchet-wheel U may be turned to the desired point ready to start.

r' is a retaining-pawl engaging with the ratchet-wheel U. The arm *m'* is in the path of the pin *u* as it is caused to rotate and is tripped or rotated thereby.

It will be seen by loosening the thumb-nut *q'* and adjusting the block *q* in the diametric groove *Q'* that any predetermined throw may be given to the pawl *r*. The friction-disks O and O' being driven by the wire as it passes through to the coiling device communicate motion through the gears *o*² and Q and link *q*³ to the pawl *r*, which upon every revolution of the gear-wheel gives a forward impetus to the ratchet-wheel U, the distance of such impetus depending upon where the block *q* is located in the diametrical groove *Q'*. It will thus be seen that the length of travel of the wire has a definite relation to the length of travel of the ratchet-wheel U and that such relation can be varied, so that the length of the wire passing between the friction-disks O and O' may be predetermined as to its feed by the pin *u* on the ratchet-wheel U, which comes in contact with the arm *m'*, thereby upsetting it and withdrawing the bolt L from on top of the spring *v'* to allow the lever to rise to assume the position shown in Fig. 2. The spring *v'* prevents the bolt from projecting too far over the edge of the plate *i*, as otherwise the bolt could not be easily withdrawn.

In Fig. 1 the bolt L is shown disengaged to allow the parts to be clearly shown, the lever I appearing in the position it assumes just after being released by the pin *u* operating the part *m'*.

It will now be understood that when the lever is released the friction-disk F is thrown from engagement with the friction-disk E' on the loose pulley E, and consequently as the loose pulley is the driving-pulley the rotary motion of the feed-roller is automatically stopped. The wire coil then made may be cut at any desired point. By throwing down the lever I again, so that the bolt L passes above the spring *v'*, the feed of the wire and coiling of the same will again take place until the pin *u* on the ratchet-wheel U again engages with the arm *m'*, when the operation is repeated, as hereinbefore described.

What I claim as my invention is—

1. The combination with the feed-rollers, and means for driving the same, of the friction-disks rotated by the wire passing into the machine, and means connecting such friction-disks with the driving means of the rollers whereby such driving means is thrown out of operation, as and for the purpose specified.

2. The combination with the feed-rollers supported on suitable spindles and the loose pulley on one of the spindles provided with an end face friction-disk, the friction-disk se-

cured on the main spindle and provided with a grooved hub, the forked arm extending into such groove, and the spring-held lever rigidly connected to the bottom of the same, of the peripheral friction-disks designed to be rotated by the wire as it passes into the machine, a tripping means operated by such friction-disks to release the spring-held lever to throw the driving-frictions apart, as and for the purpose specified.

3. The combination with the feed-rollers supported on suitable spindles and the loose pulley on one of the spindles provided with an end face friction-disk, the friction-disk secured on the main spindle and provided with a grooved hub, the forked arm extending into such groove, and the spring-held lever rigidly connected to the bottom of the same, of the peripheral friction-disks designed to be rotated by the wire as it passes into the machine, the catch-plate secured to the lever and the spring located above the same, the bolt designed to engage with the spring above the catch-plate to hold the lever down, and tripping means to release the bolt and allow the lever to rise to throw the driving friction-disks apart, as and for the purpose specified.

4. The combination with the feed-rollers supported on suitable spindles and the loose pulley on one of the spindles provided with an end face friction-disk, the friction-disk secured on the main spindle and provided with a grooved hub, the forked arm extending into such groove, and the spring-held lever rigidly connected to the bottom of the same, of the peripheral friction-disks designed to be rotated by the wire as it passes into the machine, the catch-plate secured to the lever, and the spring located above the same, the bolt designed to engage with the spring above the catch-plate to hold the lever down, the rod journaled on the bed-plate and pivotally connected to the bolt and having an arm at the opposite end, and means operated through the rollers for tilting such arm to throw the bolt away from the lever, as and for the purpose specified.

5. The combination with the feed-rollers supported on suitable spindles and the loose pulley on one of the spindles provided with an end face friction-disk, the friction-disk secured on the main spindle and provided with a grooved hub, the forked arm extending into such groove and the spring-held lever rigidly connected to the bottom of the same, of the peripheral friction-disks designed to be rotated by the wire as it passes into the machine, the catch-plate secured to the lever and the spring located above the same, the bolt designed to engage with the spring above the catch-plate to hold the lever down, the rod journaled on the bed-plate and pivotally connected to the bolt and having an arm at the opposite end, the ratchet-wheel, means for suitably driving it from the wire-driven friction-rollers, and a pin extending from the

ratchet-wheel designed to engage and tilt the arm on the end of the cross-rod, as and for the purpose specified.

6. The combination with the feed-rollers
5 supported on suitable spindles and the loose pulley on one of the spindles provided with an end face friction-disk, the friction-disk secured on the main spindle and provided with a grooved hub, the forked arm extending into
10 such groove and the spring-held lever rigidly connected to the bottom of the same, of the peripheral friction-disks designed to be rotated by the wire as it passes into the machine, the catch-plate secured to the lever,
15 and the spring located above the same, the bolt designed to engage with the spring above the catch-plate to hold the lever down, the

rod journaled on the bed-plate and pivotally connected to the bolt and having an arm at the opposite end, the ratchet-wheel, the gear 20 at one end of the lower friction-disk and the diametric slot on the face of one of the gears Q, the arm on the spindle of the ratchet-wheel, the dog pivotally connected to the arm and engaging with the ratchet-wheel, and the link 25 connecting the arm to the stud on the gear-wheel Q and the pin extending laterally from the face of the ratchet-wheel and designed to tilt the arm on the end of the cross-rod, as and for the purpose specified.

SYDNEY TURNER.

Witnesses:

B. BOYD,
W. ARMS.