June 14, 1938. R. F. SEDGLEY 2,120,944

REELING MECHANISM

Filed July 30, 1936

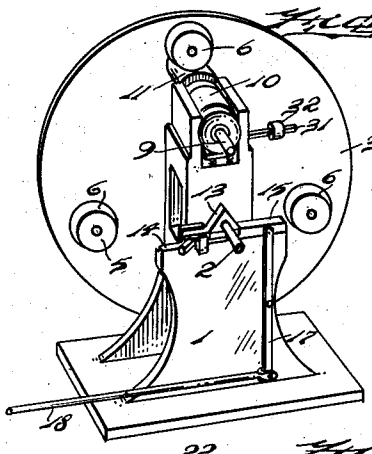


Fig. 1.

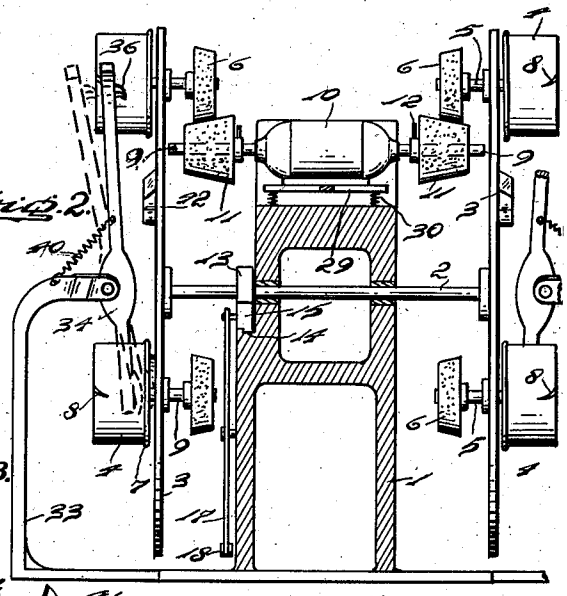


Fig. 2.

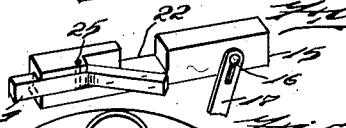


Fig. 3.

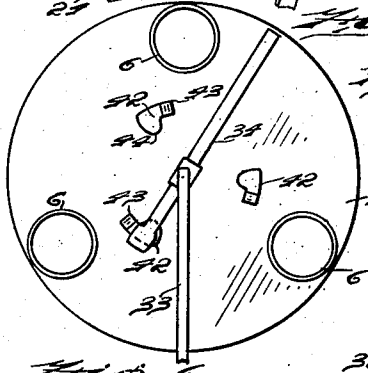


Fig. 4.

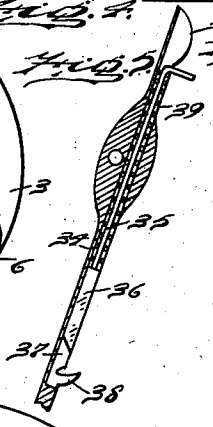


Fig. 5.

Fig. 6.

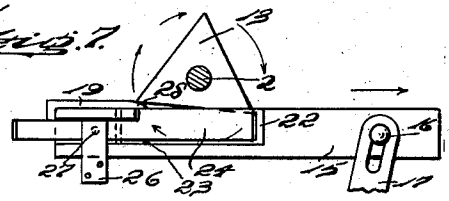


Fig. 7.

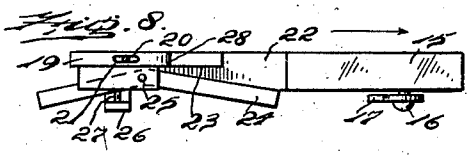
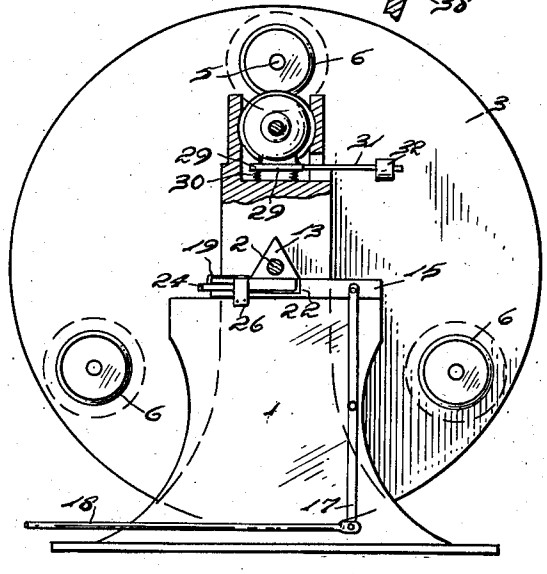


Fig. 8.



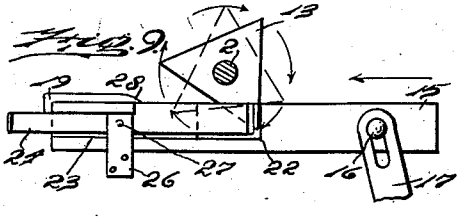


Fig. 9.

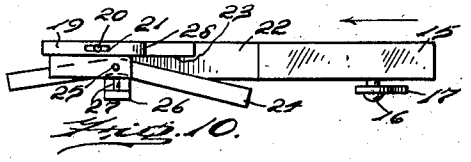


Fig. 10.

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2,120,944

REELING MECHANISM

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Application July 30, 1936, Serial No. 93,396

8 Claims. (Cl. 242—18)

The object of this invention is to devise a novel reeling mechanism wherein a reel is automatically disconnected from its driving means when a predetermined amount of strand material has been wound, and another reel is brought into driven engagement with the driving means.

The reels are of novel construction and provision is made for attaching the strand to them while they are revolving.

With the above and other objects in view as will hereinafter clearly appear, my invention comprehends novel reeling mechanism which is especially adapted to reel a tensioned metallic strand which is in the form of a continuous helical coil.

It further comprehends a novel reeling mechanism having a novel construction and arrangement of reeling members, novel driving means for said members, and novel means for controlling the period during which said members are driven and for bringing said reels into and out of their driving position.

Other novel features of construction and advantage will hereinafter more clearly appear in the detailed description and the appended claims.

For the purpose of illustrating the invention, I have shown in the accompanying drawing a typical embodiment of it, which, in practice, will give satisfactory and reliable results.

Figure 1 is a perspective view of a reeling mechanism embodying my invention and having parts thereof removed for the sake of clearness of illustration.

Figure 2 is a sectional elevation.

Figure 3 is a perspective view, in detached position of a portion of a locking and releasing mechanism.

Figure 4 is a side elevation of a portion of Figure 2.

Figure 5 is a sectional elevation of a strand cutter.

Figure 6 is a sectional elevation partly broken away for clearness of illustration.

Figure 7 is a side elevation of portions of the cam locking, releasing and turning means.

Figure 8 is a top plan view of the construction seen in Figure 7, with the cam removed.

Figure 9 is a side elevation similar to Figure 7, but showing certain of the parts in a different relation from that seen in Figure 7.

Figure 10 is a top plan view of the construction seen in Figure 9, with the cam removed.

Similar numerals indicate corresponding parts.

Referring to the drawing:

1 designates a frame, the construction and arrangement of which may vary widely in practice. A shaft 2 is journalled in the frame and has a reel carrier 3 fixed to each end of it. A desired number of cylindrical tubular spools which form the reels 4 are each provided with a shaft 5 journalled in its carrier and provided with a cone shaped frictional driving member 6. Each of the reels 4 at its inner end has an annular flange 7 connected by a fillet with the cylindrical outer face of the reel. The reels are preferably hollow and cylindrical, and, at their outer or free ends, are each provided with an inclined cut 8, which facilitates the securing of a strand thereon while the reel is revolving. 9 designates a driving member for the reels, and which, for purpose of illustration only, has been shown as the shaft of an electric motor 10. Cone shaped frictional driving members 11 are secured in adjusted positions on the shafting by set screws 12, to provide the required driving speed. The shaft 2 has fixed to it a polygonally shaped cam 13, which, for purposes of illustration, has been shown as triangular.

The frame 1 is cut away to form a track 14 on which a reciprocating member in the form of a push bar 15 is slidable. The push bar 15 has at one end a pin and slot connection as at 16 with one end of a lever 17 fulcrumed on the frame, the other end of said lever being pivotally connected with a controlling rod 18 which may be automatically actuated, or controlled by the operator in any desired manner. The push bar 15 at its forward end has fixed to it an angularly shaped cam member 19 by fastening devices 20 one of which passes through a slot 21 in its upper stretch to provide for its longitudinal adjustment on the bar. The bar is recessed at 22 to provide clearance for the turning of the cam 13, and it is also recessed at the side as at 23 to receive an angularly shaped latch 24 pivoted to the push bar at 25. 26 is a latch block fixed to the frame and provided with a pin or boss 27 cooperating with the latch to cause the latch to be positioned beneath a flat face of the cam 13 or to be moved out of the path of the cam 13 when it is desired to partially revolve the reel head to bring a wound reel out of driven relation with the driving means and a reel on which the strand is to be wound, into driving relation with the driving means. This turning of the reel heads begins when the cam 28 on the cam member 19 is moved beneath the cam 13.

The mounting 29 for the motor is resiliently mounted, for example on the springs 30, and a rod 31 is connected with the journal boxes and

provided with a weight 32 which is longitudinally adjustable of the rod to provide the proper frictional engagement between the driving and driven friction members 11 and 6 respectively.

The frame has brackets 33 at opposite sides, on which strand cutters 34 are pivoted. The body portion of a cutter is apertured to receive a rod 35 connected with a movable blade 36 which cooperates with a stationary blade 37 having an outwardly extending hook 38 to direct a strand between the blades. The rear end of the rod 35 is bent outwardly to form a cam engaging member. A spring 39 tends to move the movable blade away from the fixed bade. A spring 40, see Figure 2, tends to move the cam 41 at the lower end of a cutter into the path of the cams 42, circumferentially spaced on the reel carrier. As the reel revolves to bring a reel to be wound into reeling position the cam 41 riding on the outer face 43 of a cam 42 causes the upper end of the cutter to move inwardly and the strand leading to the wound reel passes between the cutter blades. The under cam face 44 of said cam 42 acts against the rod 35 to move the blade 36 towards the blade 37 and sever the strand.

The strand is thus automatically cut as a wound reel moves into the position for removal of the skein.

The operation of my novel reeling mechanism will now be apparent to those skilled in this art and is as follows:

The cone shaped friction driving members may be driven by any desired source of power, and, when the cone shaped driven members 6 are brought into driven relation with the cone shaped, frictional driving members 11, the upper reels 4 for receiving strands of material will be revolved and one or more strands wound thereon. The strand is connected with a revolving reel by the operator pushing it against the outer face of the reel so that it catches in the slot 8.

When a sufficient amount of strand material has been wound on the reels which are being driven, the reeling mechanism is tripped, and the strands leading to the wound reel are cut automatically or by the operator. In order to effect this tripping action, the operator moves the controlling rod 18 to the left, which causes the push bar 15 to move towards the right which moves the cam 28 beneath the bottom flat face of the cam 13. This effects the partial revolution of the cam 3, and thereby of the reel carriers. As the push bar 15 moves in the direction of the arrow in Figure 7, the cam 13 rides up on the cam 28, thereby turning the cam 13 which enters the recess 22 in the push bar 15. As the push bar is moved to the right as in Figure 7, the latch 24 is swung outwardly by the pin 27, see Figures 7 and 8, from beneath the cam 13 to provide the necessary clearance for the partial revolution of the cam 13.

The operator now moves rod 18 to the right, which causes the push bar to move to the left and the shoulder of the recess 22 turns the cam 13 during the movement to the left of the push bar. Since the pin 27 is stationary, the portion of the latch 24 on which the flat face of the cam 13 is to rest will be moved inwardly to receive such flat face and thus retain the reel carriers in their locked and stationary position during the winding of the strands on the driven unwound reels, which are now being driven by the cooperating friction members 6 and 11.

As the reel carriers revolve the strand or strands leading to a wound reel engages the hooks on the cutters and is drawn beneath the cutting blades which have been moved into strand receiving position by a cam on the reel. Such cam also causes the advancement of the movable blade to effect the severing of the strand during the revolution of a carrier.

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

1. In a reeling mechanism, a frame, a shaft journalled in said frame, a reel carrier on said shaft, a cam on said shaft, reels rotatably mounted on said carrier, a drive into cooperative driving relation with which the reels are progressively brought on the revolution of the carrier, a bar slidable along said cam and having a cam member to partially revolve said cam, a locking and releasing member for said cam movably mounted on said slidable bar, means to move said locking and releasing member into and out of locked position, and means to actuate said slidable bar.

2. In a reeling mechanism, a frame, a shaft, journalled in said frame, a reel carrier on said shaft, a cam on said shaft, cylindrical tubular reels rotatably mounted on said carrier, and having strand receiving slots, a drive into cooperative driving relation with which the reels are progressively brought on the revolution of the carrier, a bar slidable along said cam and having a cam member to partially revolve said cam, a locking and releasing member for said cam movably mounted on said slidable bar, means to move said locking and releasing member into and out of locked position, and means to actuate said slidable bar.

3. In a reeling mechanism, a frame, a reel carrier normally stationary and rotatably mounted in the frame for intermittent rotation, reels revoluble on the carrier, a cam fixed on said carrier and having sides corresponding to the number of reels, a reciprocatory bar having a recess in which the cam can turn to intermittently rotate the reel carrier, a latch on the bar in the path of the cam to prevent its turning, latch releasing means, means to reciprocate said bar to actuate said latch releasing means and effect the turning of the reel carrier to bring a new reel into winding position, and reel driving means into cooperation with which the reels are successively brought by rotation of said reel carrier.

4. In a reeling mechanism, a frame, a reel carrier normally stationary and rotatably mounted in the frame for intermittent rotation, reels revoluble on the carrier, a cam fixed on said carrier and having sides corresponding to the number of reels, a reciprocatory bar having a recess in which the cam can turn to intermittently rotate the reel carrier, a latch on the bar in the path of the cam to prevent its turning, latch releasing means, a cam carried by the bar to cause an initial turning movement on release of the latch, means to reciprocate said bar to actuate said latch releasing means and effect the turning of the reel carrier to bring a new reel into winding position, and reel driving means into cooperation with which the reels are successively brought by rotation of said reel carrier.

5. In a reeling mechaism, a frame, a reel carrier normally stationary and rotatably mounted in the frame for intermittent rotation, reels revoluble on the carrier, a cam fixed on said carrier and having sides corresponding to the number of reels, a reciprocatory bar having a recess in which the cam can turn to intermittently rotate

the reel carrier, a latch on the bar in the path of the cam to prevent its turning, latch releasing means, a cam carried by the bar to cause an initial turning movement on release of the latch, means to reciprocate said bar to actuate said latch releasing means and effect the turning of the reel carrier to bring a new reel into winding position, reel driving means into cooperation with which the reels are successively brought by rotation of said reel carrier, and a strand cutting mechanism including means on the carrier to time its cutting action.

6. In a strand reeling mechanism, a reel carrier rotatably mounted, reels revoluble on the carrier, a cam fixed to the carrier and having the same number of sides as the number of reels, a bar slidably mounted alongside of the cam and having a recess into which the cam can turn when in alignment therewith, a latch pivoted to the bar and having a portion to extend into the recess to prevent turning of the cam, a cam releasing member in the path of the latch, a cam on the bar to initially turn the cam on movement of the bar, the completion of the turning movement of the cam being caused by a shoulder of said recess, means to reciprocate said bar, and means to revolve a reel when in reeling position.

7. In a reeling mechanism, a frame, a reel carrier normally stationary and rotatably mounted in the frame for intermittent rotation, reels revoluble on the carrier, and each having a slot opening through its periphery to receive a strand during the revolution of its reel, a cam fixed on said carrier and having sides corresponding to the number of reels, a reciprocatory bar having a recess in which the cam can turn to intermittently rotate the reel carrier, a latch on the bar in the path of the cam to prevent its turning, latch releasing means, means to reciprocate said bar to actuate said latch releasing means and effect the turning of the reel carrier to bring a new reel into winding position, and reel driving means into cooperation with which the reels are successively brought by rotation of said reel carrier.

8. In a reeling mechanism, a frame, a reel carrier normally stationary and rotatably mounted in the frame for intermittent rotation, reels revoluble on the carrier, a cam fixed on said carrier and having sides corresponding to the number of reels, a reciprocatory bar having a recess in which the cam can turn to intermittently rotate the reel carrier, a latch on the bar in the path of the cam to prevent its turning, latch releasing means, a cam carried by the bar to cause an initial turning movement on release of the latch, means to reciprocate said bar to actuate said latch releasing means and effect the turning of the reel carrier to bring a new reel into winding position, reel driving means into cooperation with which the reels are successively brought by rotation of said reel carrier, a cutting lever, a cutting blade thereon, and cam means on a carrier to first move the cutting lever into cutting position and thereafter actuate the blade to cut the strand of a wound reel.

REGINALD F. SEDGLEY.