Nov. 25, 1941. S. GRIMSHAW 2,264,149

WIRE REEL

Filed July 10, 1939

Fig. 1.

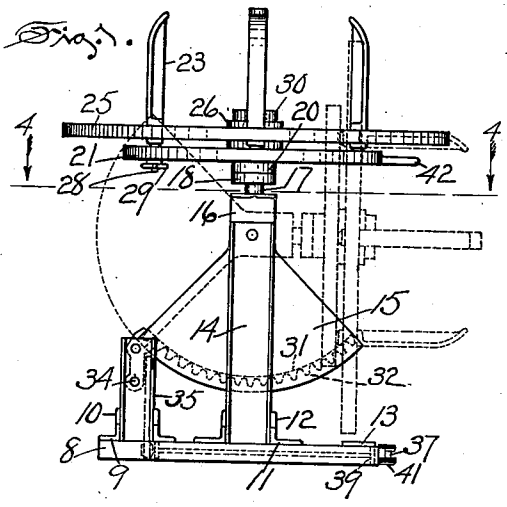


Fig. 2.

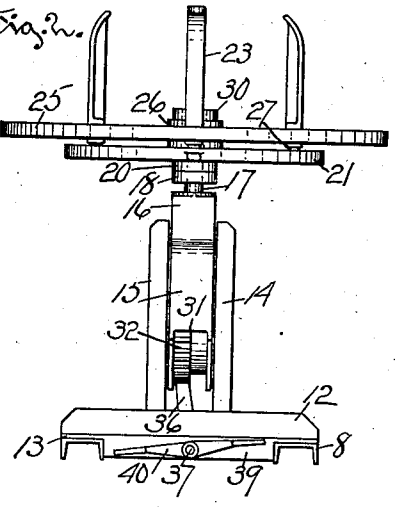


Fig. 3.

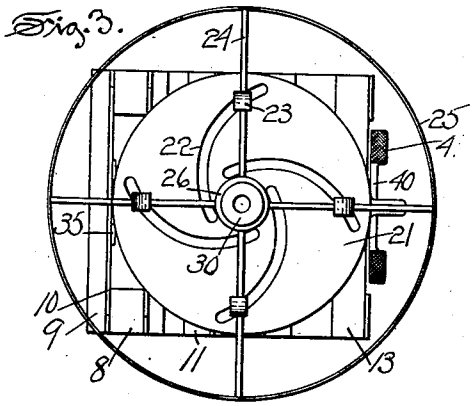


Fig. 4.

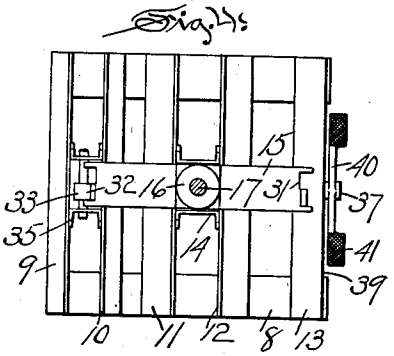


Fig. 5.

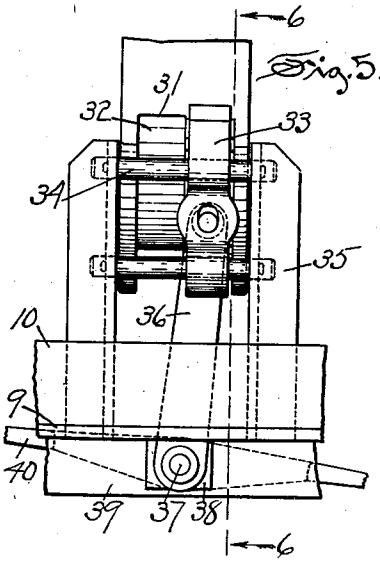


Fig. 6.

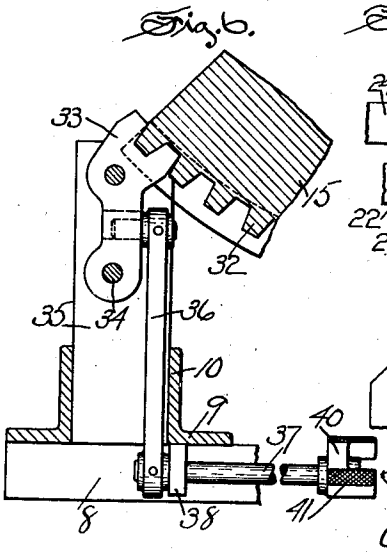
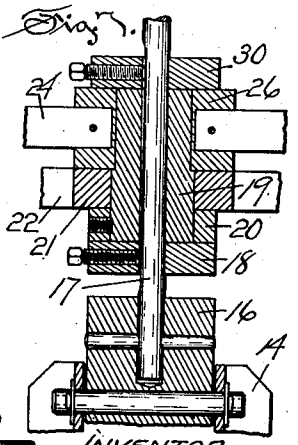


Fig. 7.



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2,264,149

WIRE REEL

Sydney Grimshaw, New Haven, Conn., assignor to The F. B. Shuster Company, New Haven, Conn., a corporation of Connecticut

Application July 10, 1939, Serial No. 283,601

7 Claims. (Cl. 242—85)

My invention relates to the class of devices which are employed for supporting coils of wire in a manner to permit such wire to be unwound for various purposes, as an example, for supply to a machine for straightening wire to remove bends, kinks, etc., and an object of my invention, among others, is the production of a reel which may be readily positioned for placing a coil of wire thereon and then arranged to support the coils in various positions to permit the wire to be unwound as required; and a further object of the invention is the production of a structure of this type that shall be particularly rigid and strong and well capable of resisting severe usage to which it is subjected.

One form of a wire reel embodying my invention and in the construction and use of which the objects herein set out, as well as others, may be attained is illustrated in the accompanying drawing, in which—

Figure 1 is a view in elevation of my improved wire reel.

Figure 2 is a similar view but looking from a point of view at right angles to the point of view of Fig. 1.

Figure 3 is a top plan view.

Figure 4 is a view in horizontal section on a plane denoted by the dotted line 4—4 of Fig. 1.

Figure 5 is a view on enlarged scale illustrating the counterbalancing segment and the detent for holding it in position.

Figure 6 is a view in section on a plane denoted by the dotted line 6—6 in Fig. 5.

Figure 7 is a view in section illustrating the mounting of the disk for positioning the wire supporting arms and the guide bars for such arms.

The base comprising the main support for this improved reel is constructed principally from bars of channel or other angle iron forms and is preferably of rectangular shape. It comprises two base bars 8 of channel iron bounding two sides of the structure and with the flat sides up and tied together by cross bars of angle iron. A pair of these cross bars comprising two members 9 of L-shape are located in spaced relation at one side of the base, as shown in Fig. 4, with upstanding flanges 10 facing each other for the attachment of posts to be hereinafter described. Another pair of bars 11 of similar construction are secured at their ends in spaced relation at opposite sides of the center and have upstanding flanges 12 for the attachment of posts to support the reel structure. A tie bar 13 is secured at its opposite ends to the opposite side of the frame from the bars 9, the flange of this tie bar being cut away at its ends to receive the ends of the base bars 8, the balance of said flange being bent downwardly between the base bars to form a support for a detent actuating shaft to be hereinafter described. All of the bars and posts hereinbefore described may be secured together in any suitable manner, as by welding or otherwise.

Reel supporting posts 14 of channel construction are secured at their lower ends to the flanges 12 of the bars 11 and substantially at the lengthwise center of said bars, that is, in the center of the supporting base. These bars are of channel iron with the flat sides facing each other. A counterbalance is pivotally supported for swinging movement between and at the upper ends of the posts 14, this counterbalance comprising a segment 15 and a head 16, the latter preferably extending above the upper ends of the posts. A hole is bored into the end of the head 16 and a reel supporting spindle 17 is secured within the hole and extends outwardly therefrom as shown in Fig. 7. A seat 18 for the reel structure is secured to said spindle preferably a slight distance from the end of the head 16 and a sleeve 19 is rotatably mounted upon the spindle 17 against the seat 18, said sleeve having a flange 20 preferably removably secured thereto.

A cam disk 21 is rotatably mounted on the spindle said disk having cam slots 22 for the actuation of coil supporting arms 23. These arms are slidably supported upon bars 24 secured at their outer ends to a bar supporting ring 25 and at their inner ends by a collar 26 secured to the sleeve 19, said bars projecting into recesses in said collar and being secured therein. The arms 23 have holes through which the bars 24 extend and the lower ends of the arms are provided with studs 27 that project in to the cam slots 22, one of these studs 28 extending through the cam disk 21 and being threaded to receive a clamp nut 29, this clamp nut acting to secure its arm as well as all of the other arms against sliding movement and thereby retaining the cam disk 21 in position. A retaining disk 30 may be secured to the spindle 17 to hold the reel structure just described in place on said spindle.

The segment 15 is of considerable thickness to provide weight to counterbalance that of a coil of wire supported on the arms 23. A groove 31 is formed in the edge of the segment 15, the bottom of this groove on one side having teeth 32. These teeth extend for substantially one-half the width of the groove, the balance of the groove being untoothed. A detent 33 is slidably mount-

ed upon detent supporting rods 34 extending between detent supporting posts 35, these posts having been hereinbefore referred to as secured to the flanges of the tie bars 9. In its holding position the detent 33 is engaged with the teeth 32 of the segment 15 but may be freed from said teeth by a sliding movement in which position it will be located in the untoothed part of the groove 31.

The detent is actuated by a detent actuating arm 36 secured at its upper end to the detent as shown in Fig. 6 and secured at its lower end to a detent actuating shaft 37 rotatably mounted at its inner end in a block 38 secured to one of the tie bars 9, the opposite and outer end of said shaft being rotatably supported by a flange 39 projecting downwardly from the tie bar 13 hereinbefore referred to. A treadle lever 40 is secured to the shaft 37 as a means for operating the detent 33, foot pads 41 located at opposite ends of the lever serving as a means for operating it, foot pressure upon one pad serving to disengage the detent from the teeth 32 of the segment 15 and pressure upon the other pad serving to engage said parts.

When it is desired to load the reel by placing a coil of wire upon the arms 23 one of the pads 41 is pressed downwardly thereby disengaging the detent 33 from the segment 15. The reel may now be tipped to the position shown in dotted line in Fig. 1, and a coil of wire having been placed thereon the reel is tipped backwardly to its former position and it is here noted that this operative position of the reel may be in a vertical position as shown in Fig. 1, or in any other angular position between said vertical and a horizontal position, the teeth 32 on the segment 15 enabling engagement of the detent 33 therewith to hold the reel in any of these desired positions. The cam plate or disk 21 may be rotated independently of the other parts of the reel and for adjustment of the wire supporting arms as by means of a handle 42 projecting from one side of the cam plate.

In accordance with the provisions of the patent statutes I have described the principles of operation of my invention, together with the device which I now consider to represent the best embodiment thereof; but I desire to have it understood that the device shown is only illustrative and that the invention may be carried out by other means and applied to uses other than those above set out.

I claim:

1. A wire reel structure comprising a base including base bars of channel form placed to rest on the edges of their flanges with the outer flat faces of the base bars upward, pairs of angle iron tie bars secured to the upward facing flat faces of said base bars, with the upstanding flanges from the edges of each pair of tie bars facing each other and spaced to receive supporting posts between them, pairs of supporting posts each member of each pair being composed of channel iron of the width of the space between the pairs of tie bars and with the opposite flanges of each supporting post secured to the upstanding flanges of one of the tie bars, a wire reel pivotally adjustably supported by one pair of supporting posts, and means supported by the other pair of supporting posts for retaining said reel in different angular positions.

2. A wire reel structure comprising a base including base bars of channel form placed with their outer flat faces upward and resting on the edges of their flanges, pairs of angle iron tie bars secured to the upwardly facing flat faces of said base bars with the upstanding flanges from opposite edges of each pair of tie bars facing each other and spaced to receive supporting posts between them, pairs of supporting posts, each member of each pair being composed of channel iron of a width of the space between the pairs of tie bars and with the opposite flanges of the supporting posts secured to the upstanding flanges of one of the tie bars, a tie bar of angle iron secured to the tops of the base bars at one edge of the base with its flange cut away at the ends to receive said base bars and projecting downwardly, a wire reel pivotally adjustably supported by one pair of supporting posts, means supported by the other pair of supporting posts for retaining said reel in different angular positions, and a shaft mounted at one end in the flange of said last mentioned tie bar and operatively connected at its opposite end with the reel retaining means for operation of the latter.

3. A wire reel structure comprising a base including base bars of channel form placed to rest on the edges of their flanges with the outer flat faces of the base bars facing upward, pairs of angle iron tie bars resting on and secured to said upward facing flat faces of the base bars with the upstanding flanges of the tie bars facing each other and spaced to receive supporting posts between them, pairs of supporting posts, each member of each post being composed of channel iron of a width of the space between the pairs of tie bars, and with opposite flanges of each supporting post secured to the upstanding flanges of the tie bars, a wire reel supported by one pair of supporting posts, a counterweight depending from said reel and formed as a segment, said weight having closely arranged gear teeth on the periphery thereof, and a detent supported by the other pair of supporting posts at a distance from the first pair of supporting posts and engageable with said gear teeth to hold said reel in different but closely located positions of adjustment.

4. A wire reel structure comprising a base, a supporting frame secured to and rising from said base, a wire reel support rotatably mounted on said frame, a wire reel rotatably mounted on said wire reel support, a counter-balancing weight secured to and depending from said reel support, said weight being in the form of a segment having a groove in its edge, gear teeth closely associated with each other projecting from the bottom of said groove at one side thereof leaving a supplemental groove extending alongside said teeth, a detent extending into said segmental groove and engageable with said gear teeth by a movement lengthwise of said teeth, and means for imparting lateral movement to said detent to effect said engagement.

5. A wire reel structure comprising a base, a supporting frame secured to and rising from said base, a wire reel support rotatably mounted on said frame, a wire reel rotatably mounted on said wire reel support, a counterbalancing weight secured to and depending from said wire reel support, said weight being in the form of a segment having a groove in its edge, gear teeth closely associated with each other projecting from the bottom of said groove, a detent extending into said groove and engageable with said teeth, and means for operating said detent to engage it with and to disengage it from said teeth.

6. A wire reel structure comprising a base, a supporting frame secured to and rising from said

base, a wire reel support rotatably mounted on said frame, a wire reel rotatably mounted on said support, a counterbalancing weight secured to and depending from said wire reel support, gear teeth closely associated with each other projecting from said counterbalancing weight, a pair of posts rising from said base to receive the edge of said weight between them for the support of said weight, guide bars extending between said posts, a detent slidably mounted on said guide bars to engage with and disengage from said teeth by movement endwise thereof, and means for actuating said detent.

7. A wire reel structure comprising a base including base bars at opposite edges thereof, tie bars connecting said base bars, one of said tie bars being of angle iron with its flange cut away at opposite ends to receive said base bars and with the balance of said flange projecting between said base bars, a supporting frame secured to and rising from said base, a wire reel support rotatably mounted on said frame, a wire reel rotatably mounted on said support, a counterbalancing weight secured to and depending from said wire reel support, gear teeth closely associated with each other and projecting from said weight, a detent engageable with and disengageable from said teeth by movement endwise of said teeth, a shaft rotatably mounted in said base and extending thereacross from side to side with its outer end rotatably mounted in said flange, an operative connection between the end of said shaft opposite said flange and said detent, and a treadle secured intermediate its ends to said shaft at that end opposite said detent whereby pressure on opposite ends of the treadle will rotate said shaft in opposite directions to operate said detent.

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