Jan. 3, 1939. J. T. WRIGHT 2,142,582

REEL MOUNTING

Filed Sept. 10, 1937

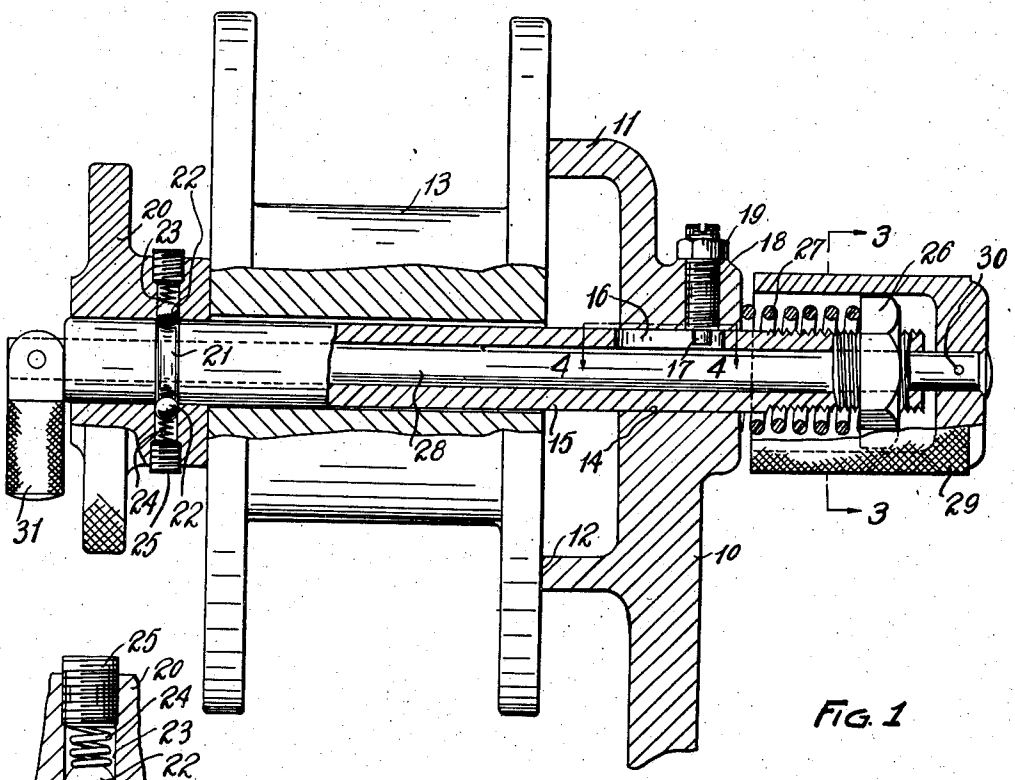


FIG. 1

FIG. 5

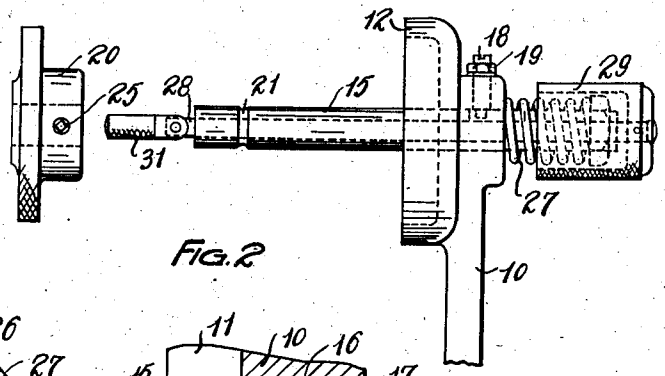


FIG. 2

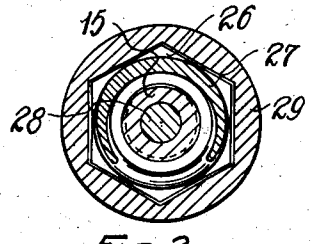


FIG. 3

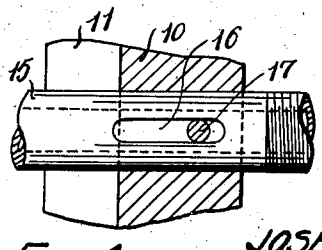


FIG. 4

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REEL MOUNTING

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13 Claims. (Cl. 242—68)

This invention relates to improvements in reel mountings. While the invention is adaptable to the mounting of reels employed for various purposes, the embodiment disclosed herein is intended for application primarily to wire stitching machines where it is of great advantage to be able to change reels quickly and to make adjustments of the wire tension readily, as well as to preserve a given adjustment when reels are changed.

One of the objects of the invention therefore is the provision of a simple reel mounting providing means which permit rapid removal and replacement of reels, especially without varying the adjustment controlling the tension on the wire being drawn from the reel by the machine.

Another object is the provision of a novel and effective means for adjusting the tension of the wire, and especially an adjustment means of such character which is operable from either end of the reel arbor.

Other objects and features of novelty will appear as I proceed with the description of that embodiment of the invention which, for the purposes of the present application, I have illustrated in the accompanying drawing, in which

Fig. 1 is an elevational view, partly in central longitudinal section, of a wire mounting embodying the invention.

Fig. 2 is an elevational view of the same on a smaller scale, with the reel removed and with the reel engaging collar shown detached.

Fig. 3 is a detail sectional view taken substantially on the line 3—3 of Fig. 1.

Fig. 4 is a further detail sectional view taken substantially on the line 4—4 of Fig. 1, and

Fig. 5 is a fragmental sectional view on a larger scale showing the yieldable automatic means for retaining the detachable collar on the arbor.

In the drawing I have indicated at 10 a portion of a bracket such as is usually carried at the top of a wire stitching machine for supporting the wire reel. In this case the bracket on one side is formed with a bearing adapted to frictionally engage one side wall of a wire reel 13. As herein shown this bearing surface may take the form of an annular surface 12 upon a projecting annular extension 11 of the bracket.

Bracket 10 has a bore 14 therethrough concentric with the annular extension 11, in which bore there is loosely fitted a hollow arbor 15 that is adapted to support reel 13 forwardly of the bracket 10. Arbor 15 has a slot 16 therethrough into which extends the smooth constricted end 17 of a set screw 18 which is threaded into the bracket and adapted to be locked in adjusted position by means of a nut 19. By this means the arbor is held against rotation but is permitted to move lengthwise to a limited extent. It will also be apparent that when the screw 18 is threaded upwardly far enough to withdraw the constricted end 17 from the slot 16 the arbor may be withdrawn from the bore 14.

On the forward end of the arbor I mount a collar 20 that is commonly fixed to the arbor, but is preferably removably and replaceable both quickly and easily. To this end the arbor may have an external groove 21 formed therein extending entirely around the arbor and adapted to receive balls 22 which are mounted in radial bores 23 in the collar 20, these bores being constricted at their inner ends, as shown particularly in Fig. 5, to prevent the balls from leaving the bores in a radially inward direction when the collar is removed from the arbor, as indicated in Fig. 2. The balls 22 are pressed inwardly by coil springs 24, the compression of which may be regulated to some extent by set screws 25 threaded into the outer enlarged portions of the bores 23.

It will be obvious that when the collar 20 is placed on the arbor 15 and pushed toward the right the spring-loaded balls 22 will yield slightly, riding on the external surface of the arbor until the groove 21 is reached. Here the balls enter the groove and act as spring detents, removably holding the collar in position.

That end of the arbor which projects to the right of bracket 10 is threaded, as indicated in Fig. 1, to receive a nut 26 which constitutes an abutment for one end of a coil spring 27 that surrounds the arbor, the opposite end of the spring bearing against a boss on bracket 10. Spring 27, through the medium of nut 26, exerts a pull on arbor 15, tending to move it to the right and to cause reel 13 to be pressed up against annular surface 12 by collar 20. Springs 24, while relatively light, act in a radial direction to hold balls 22 in groove 21, and are sufficiently strong to withstand the action of spring 27 working in the longitudinal direction.

A shaft or rod 28 extends entirely through hollow arbor 15, and at its rear end is secured to a socket wrench 29 by any suitable means which will prevent relative rotation between these elements, as for example by a pin 30. The socket of the wrench is shaped and dimensioned to have an easy fit over nut 26, and the skirt of the wrench is long enough to cover and enclose at least the greater part of spring 27.

The forward end of shaft **28** projects from the arbor **15**, as shown in Figs. 1 and 2, and upon this projecting end there is swiveled a short crank **31** of a diameter larger than the bore of arbor **15** but not larger than the outside diameter thereof. It will be obvious that the nut **26** may be turned by the operator from either end of the arbor, that is by grasping the socket wrench **29** at one end or by grasping the crank **31** at the other end when it is in the position illustrated in Fig. 1. The crank **31** will swing up into axial alignment with shaft **28** however when the operator grasps collar **20** and pulls it toward the left in order to remove it from the arbor, the position of the parts during this latter procedure being indicated in Fig. 2.

From the foregoing the operation of the reel mounting herein disclosed will be obvious to those skilled in the art. When the wire upon a given reel is exhausted the operated grasps collar **20** and pulls it off the arbor, crank **31** moving into the axial position. The reel **13** is then removed also and a new reel put in its place, after which collar **20** is put back on the arbor and moved toward the right until the balls **22** snap into the groove **21**. In order to accomplish this, it is necessary for the operator either to pull crank **31** forward longitudinally or to push socket wrench **29** forwardly with one hand while pushing the collar **20** rearwardly with the other hand. As soon as the balls **22** snap into position the new reel is set with precisely the same amount of spring pressure as was used upon the preceding reel, provided of course there is no material difference in the breadth or thickness of the reels. Whenever it becomes desirable to vary the tension upon the wire in the machine, this may be accomplished by turning nut **26** in either direction from either end of the arbor, as may be most convenient. The set screw **17**, **18** working in slot **16** of course prevents rotation of the arbor when shaft **28** turns, but the set screw is easily removable should it be desired to remove the arbor for any reason.

Obviously, the present invention is not restricted to the particular embodiment thereof herein shown and described. Moreover it is not indispensable that all of the features of the invention be used conjointly, since they may be employed advantageously in various combinations and subcombinations.

Having thus described my invention, I claim:

1. In apparatus of the character described, a bracket, an arbor carried thereby and slidable lengthwise therein, a bearing surface on said bracket for engagement with a reel mounted on the arbor, a collar for said arbor adapted to engage the opposite side of the reel, and resilient means tending to move said arbor lengthwise to cause said collar to press the reel against the bearing surface of said bracket.

2. In apparatus of the character described, a bracket, an arbor carried thereby and slidable lengthwise therein, a bearing surface on the forward side of said bracket for engagement with a reel mounted on the arbor, a collar for said arbor adapted to engage the opposite side of the reel, and a spring acting upon the other end of said arbor to the rear of said bracket tending to move the arbor lengthwise to cause said collar to press the reel against the bearing surface of the bracket.

3. In apparatus of the class described, a bracket, an arbor slidable lengthwise in said bracket, removable means mounted on the bracket for guiding and limiting the longitudinal movements of the arbor, a bearing surface on said bracket for engagement with a reel, a collar for said arbor adapted to engage the opposite side of the reel, and resilient means tending to move said arbor lengthwise to cause said collar to press the reel against the bearing surface on said bracket.

4. In apparatus of the class described, a bracket, an arbor carried thereby and slidable longitudinally therein, a bearing surface on said bracket for engagement with a reel, a removable collar for said arbor adapted to engage the opposite side of the reel, a spring surrounding the arbor and engaging said bracket on the side thereof remote from said bearing surface, and an abutment for the opposite end of the spring adjustably mounted on said arbor whereby the arbor is yieldably drawn in a direction to cause the collar to press the reel against said bearing surface.

5. In apparatus of the class described, a bracket, an arbor slidable lengthwise in said bracket, a bearing surface on said bracket for engagement with a reel, resilient means on the opposite side of the bracket engaging one end of the arbor tending to push that end away from the bracket, a collar on the opposite end of the arbor adapted to engage the reel, and means for removably attaching the collar to the arbor at a definite predetermined point longitudinally of the arbor.

6. In apparatus of the class described, a bracket, an arbor slidable lengthwise in said bracket, a bearing surface on said bracket for engagement with a reel, a resilient means on one opposite side of the bracket engaging one end of the arbor tending to push that end away from the bracket, a collar on the opposite end of the arbor adapted to engage the reel, and yieldable means acting automatically to attach the collar to the arbor when the relative movement thereof longitudinally of the arbor has proceeded to a predetermined point.

7. In apparatus of the class described, a bracket, an arbor carried thereby and slidable longitudinally therein, means for preventing rotation of the arbor, a bearing surface on said bracket for engagement with a reel mounted on the arbor, a collar for said arbor adapted to engage the opposite side of the reel, a spring surrounding the arbor and engaging said bracket on the side thereof remote from said bearing surface, the end of said arbor adjacent said spring being threaded, and a nut fitting said threaded portion for engagement with said spring for adjusting the pressure exerted by the spring upon the reel.

8. In apparatus of the class described, a bracket, an arbor carried thereby and slidable longitudinally therein, means for preventing rotation of the arbor, a bearing surface on said bracket for engagement with a reel mounted on the arbor, a collar for said arbor adapted to engage the opposite side of the reel, a spring surrounding the arbor and engaging said bracket on the side thereof remote from said bearing surface, the end of said arbor adjacent said spring being threaded, a nut fitting said threaded portion for engagement with said spring for adjusting the pressure exerted by the spring upon the reel, and means operable from the opposite end of the arbor for turning said nut.

9. In apparatus of the class described, a bracket, a hollow arbor carried thereby and slid-

able longitudinally therein, a bearing surface on said bracket for engagement with a reel mounted upon the arbor, a collar for said arbor adapted to engage the opposite side of the reel, resilient means tending to move said arbor lengthwise to cause said collar to press the reel against the bearing surface on said bracket, and means comprising a shaft extending through said arbor for adjusting said resilient means from either end of the arbor.

10. In apparatus of the class described, a bracket, a hollow arbor carried thereby and slidable longitudinally therein, a bearing surface on said bracket for engagement with a reel mounted upon the arbor, a collar removably mounted on the arbor adapted to engage the opposite side of the reel, resilient means tending to move said arbor lengthwise to cause said collar to press the reel against the bearing surface of said bracket, means comprising a shaft extending through said arbor for adjusting said resilient means, and a crank on the end of the shaft, said crank being pivotally connected with the shaft and of smaller diameter than the arbor, whereby it may be swung into position axially of the shaft to permit the removal of the collar.

11. In apparatus of the class described, a bracket, a hollow arbor carried thereby and slidable longitudinally therein, means for preventing rotation of said arbor, a collar on the forward end of the arbor, said arbor being adapted to support a reel between the collar and said bracket, a coil spring surrounding the arbor to the rear of the bracket, a nut threadably mounted on the arbor rearwardly of the bracket and adapted to engage said spring, a shaft extending into the rear end of the arbor, and a socket wrench mounted on said shaft extending over said nut in operative relation therewith.

12. In apparatus of the class described, a bracket, a hollow arbor carried thereby and slidable longitudinally therein, means for preventing rotation of said arbor, a collar on the forward end of the arbor, said arbor being adapted to support a reel between the collar and said bracket, a coil spring surrounding the arbor to the rear of the bracket, a nut threadably mounted on the arbor rearwardly of the bracket and adapted to engage said spring, a shaft extending entirely through said arbor, a socket wrench fixed to the rear end of said shaft extending over said nut in operative relation therewith, and means at the forward end of the shaft for rotating the same, whereby adjustment of the spring may be effected from either end of the arbor.

13. In apparatus of the character described, a bracket, an arbor carried thereby and movable lengthwise therein, said bracket forming an abutment for a reel mounted on the arbor, a quick detachable collar for said arbor adapted to form an abutment for the opposite side of the reel, spring means surrounding the arbor and functioning through said bracket and said quick detachable collar to exert axial pressure upon the reel for frictionally retarding its rotation, and a nut threaded on said arbor adapted to move the arbor lengthwise for controlling the force of said spring means, whereby reels may be removed and replaced without disturbing the said adjustment.

JOSEPH T. WRIGHT.