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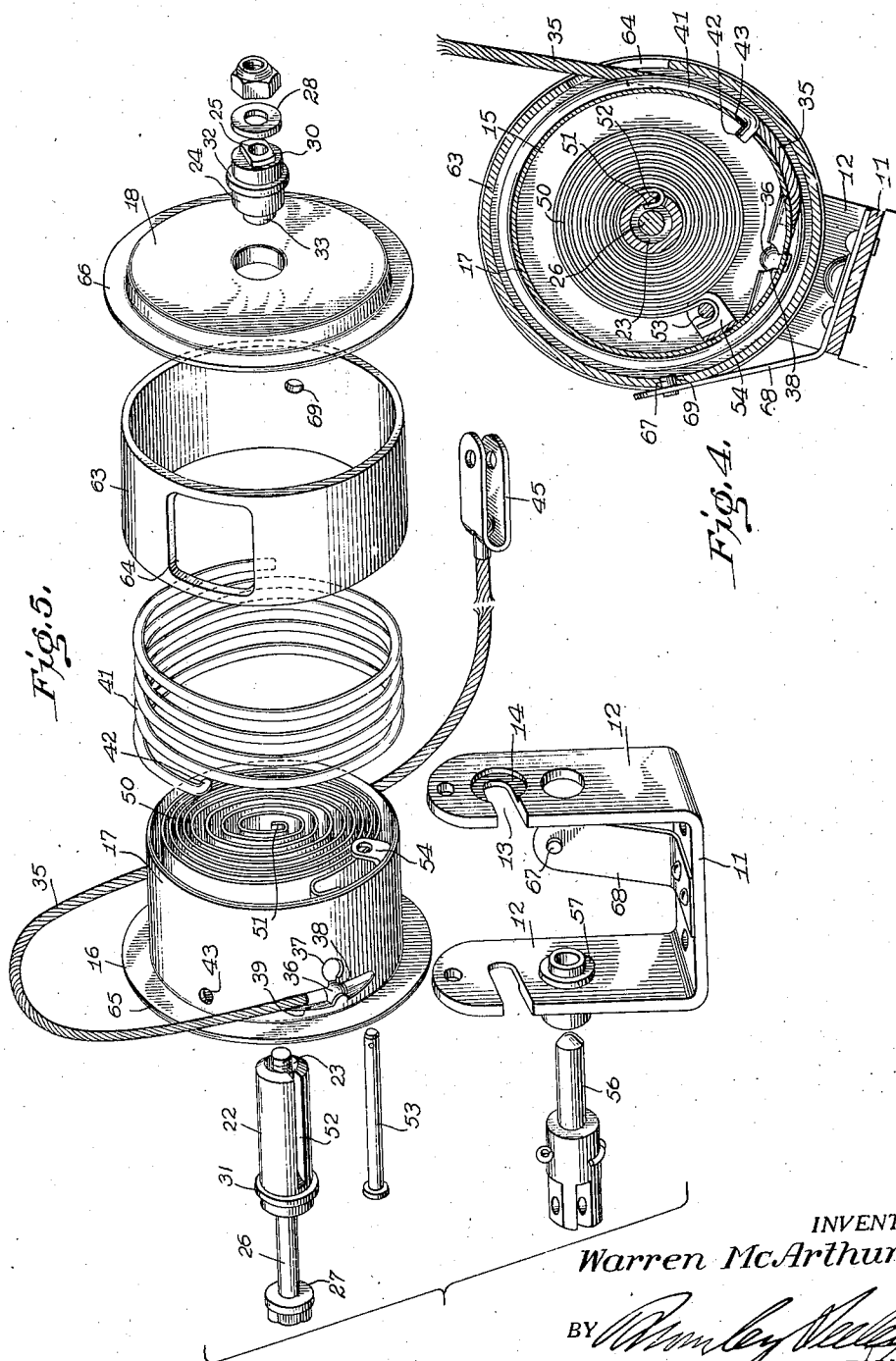
W. McARTHUR

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REEL

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INVENTOR
Warren McArthur
BY *Samuel M. [Signature]*
ATTORNEY

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REEL

Warren McArthur, Bantam, Conn., assignor, by
mesne assignments, to Reconstruction Finance
Corporation, New York, N. Y., a corporation of
the United States

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6 Claims. (Cl. 242-107)

This invention relates to reels and particularly to reels adapted for use in connection with the shoulder harness or the like now employed by airplane pilots to secure them in their seats. Such reels usually have a spring tensioned drum having a drum cable adapted to be easily attached to the shoulder harness when the pilot is seated. The drum is normally secured against rotation so that the pilot is held in his seat, but may be released to permit the pilot to move forward against the tension of the drum spring either to reach the instrument panel or to release the shoulder harness.

An object of this invention is to provide a reel of this type constructed and arranged to be formed of simple, lightweight parts easily and quickly assembled to produce a rugged, serviceable article.

This and other objects which will be apparent to those skilled in the art are accomplished by the present invention, one embodiment of which is illustrated in the accompanying drawings in which:

Fig. 1 is a front elevation of a reel constructed in accordance with one embodiment of this invention;

Fig. 2 is a side elevation thereof, partly in section on the line 2-2 of Fig. 1;

Fig. 3 is a section on the line 3-3 of Fig. 2;

Fig. 4 is a section on the line 4-4 of Fig. 1, and

Fig. 5 is an exploded view showing the various parts disassembled.

The illustrated embodiment of this invention is shown mounted on a frame member 10 of a pilot's seat, or the like, and includes a supporting bracket 11, generally of U-shape, having spaced slotted arms 12, the slots 13 having parallel edges and terminating adjacent countersinks 14 in the outer faces of the arms, see Fig. 5.

A rotary drum 15 is rotatably supported on the bracket. It is preferably formed of lightweight parts which may be of sheet metal and comprise an end plate or disc 16 spotwelded or otherwise secured to the closed end of the drum cylinder 17, the opposite, open end of which is closed by a second disc 18 which frictionally engages the open end of the cylinder 17 to form the completed drum. The axial portions of both the cylinder 17 and end disc 18 are provided with flanges 19 and 20, respectively, see Fig. 3, for rotatably supporting the drum on a sectional supporting sleeve having a section 22 provided with an enlarged bore 23 extending inwardly from one end, and a second section 24. Both sections have axial bores 25 to receive a through bolt or pin

26 extending through the bracket arms 12, and the sectional sleeve for securing the latter in place. Bolt washers 27 and 28 seat in the countersinks 14 in the bracket arms and each end of the sectional sleeve is provided with a parallel sided projection 30 seating in the associated slot 13 for holding the sleeve against rotation. Drum centering circumferential flanges 31 and 32 are formed on the sectional sleeve for positioning the drum on the sleeve. As illustrated, sleeve section 24 has an extension 33 extending into the hollow end of section 22 to form, in effect, a unitary member.

A cable 35 has a bead 36 on one end insertable through an enlarged part 37 of a holding slot 38, the drum face having grooves 39 extending in opposite directions from the slot 38 to receive the cable end. A guide for laying the cable smoother on the drum face to prevent piling up of the cable is formed by a guiding groove formed by a wire 41 in the form of an open helix and having a bent end 42 extending through an opening 43 in the drum face, see Figs. 4 and 5. The free end of the cable is provided with any suitable fixture 45 for fastening to the cooperating part of a shoulder harness or the like, not shown.

The drum is rotationally tensioned on the supporting sectional sleeve by a clock-type spring 50, having a bent inner end 51 secured to the sleeve section 22 by extending through a slot 52 and extending into the enlarged hollow 23, and the other bent end secured to the drum by engaging a spring holding pin 53 extending through the drum disc 16 and perforated pin receiving bracket 54.

The drum can be locked against rotation by a locking pin 56 adapted to project through a bearing sleeve 57 mounted in an opening in a bracket arm 12 and through any one of a series of openings 58 formed in the drum disc 16 and the adjacent, connected end of the drum cylinder 17. The operation and purpose of the locking pin are well understood in the art and the pin is operated by the pilot through suitable mechanism which may include an operating lever 60 normally biased by a spring 61 to yieldingly urge the pin into drum locking position.

A reel cover 63 having an opening 64 through which the cable 35 extends is loosely positioned around the drum between the circumferential drum flanges 55 and 66 formed, respectively, on the end discs 16 and 18. The cover 63 is held against rotation by a pin 67 on a resilient bracket arm 68 mounted on the reel supporting bracket 11, and engaging a hole 69 in the cover.

In use, the cable end fixture 45 is secured to the cooperating part of a shoulder harness, for example, and the spring 50 draws the cable and harness taut when the pilot is in proper position in his seat. The locking pin 56 locks the reel in such position. Should the pilot wish to lean forward, or to release the harness, he retracts the pin 56 by the lever 60 to unlock the drum and then leans forward pulling out the cable against the tension of the spring 50 on the reel drum. When he resumes his position the slack in the cable is automatically taken up by the reel, the locking pin being held retracted for this purpose.

Although a specific embodiment of the invention has been described in detail, it will be apparent that the invention can be variously modified and adapted within the scope of the appended claims.

What is claimed is:

1. The combination in a reel of a bracket having spaced supporting arms, a sectional drum-supporting member non-rotatably mounted in said arms and comprising a partially hollow section having one end secured in one arm, and a second section having a sliding joint with the hollow end of said first section and non-rotatably mounted in said other arm, means securing said sections together and to said arms, and a drum rotatably mounted on said member.
2. The combination in a reel of a bracket, having a pair of spaced supporting arms, a sectional drum-supporting member non-rotatably mounted in said arms and comprising a first section having a hollow end portion and a slot formed therein and a second section forming a sliding joint with said first section, means securing said sections together and to said arms, a drum rotatably mounted on said member, and a coil spring, one end of said spring extending through said slot and into said hollow portion of said first section and the other end of said spring being secured to and rotatable with said drum.
3. The combination in a reel of a bracket having a pair of spaced arms, a pin extending across the space between and secured to said arms, a sectional sleeve mounted on said pin, said sleeve comprising a first section having a hollow end portion forming an annular opening with said pin and having a through slot formed therein, and a second section forming a telescopic joint with said first section, the ends of said sleeve being secured to said arms in a manner to prevent relative rotation, a drum rotatably mounted on said sleeve, and a spiral spring, the inner end of said spring extending through said slot and into said annular opening and the outer end of said spring being secured to said drum for rotation therewith.
4. The combination in a reel of a bracket having spaced reel supporting slotted arms, the slots of said arms opening outwardly at one side of said bracket, a drum supporting slotted sleeve having its ends slidably mounted in said slots and non-rotatably engaging the sides of said slots, the ends of said sleeve being separable upon removal from said bracket, a spiral spring connected at one end to the slot in said sleeve, and a drum rotatably mounted on said sleeve and connected to the other end of said spring.
5. The combination in a reel of a bracket including a pair of spaced arms, each arm having a slot opening outwardly at one side of said bracket, a sleeve having each end removably supported in a corresponding slot and engaging the edges thereof in a manner to prevent relative rotation, clamping means extending through said sleeve and said arms, at least a portion of the interior of said sleeve being spaced from said clamping means to form an opening therebetween, said sleeve having an aperture extending from the exterior thereof to said opening, a drum rotatably mounted on said sleeve, and a spiral spring having one end extending through said aperture and into said opening and its other end secured to said drum.
6. The combination in a reel of a bracket including a pair of spaced arms, each arm having a slot opening outwardly at one side of said bracket, a sleeve having each end removably supported in a corresponding slot and engaging the edges thereof in a manner to prevent relative rotation, clamping means concentric with said sleeve and extending through said sleeve and said arms, a portion of the interior of said sleeve being spaced from said clamping means to form an annular opening therewith, said sleeve having an aperture extending from its exterior to said annular opening, a drum rotatably mounted on said sleeve, and a spiral spring having its inner end extending through said aperture and into said annular opening in a manner to engage the inner surface of said sleeve and having its outer end secured to and rotatable with said drum.

WARREN McARTHUR.