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K. E. PORTER

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REEL

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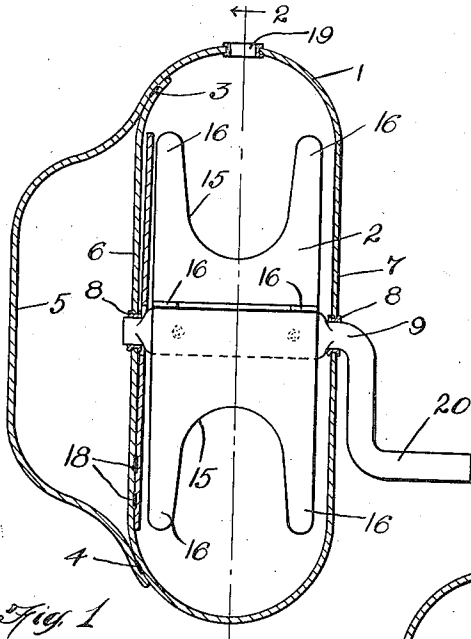
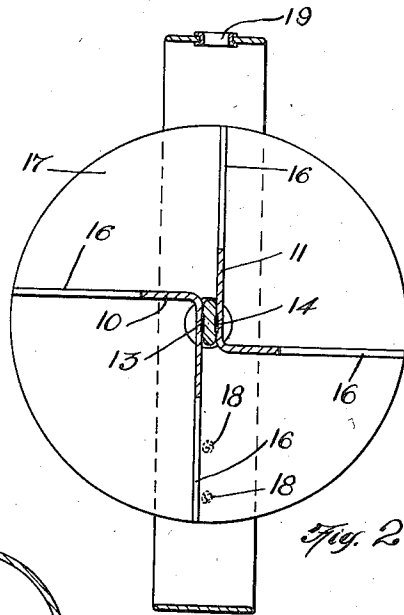
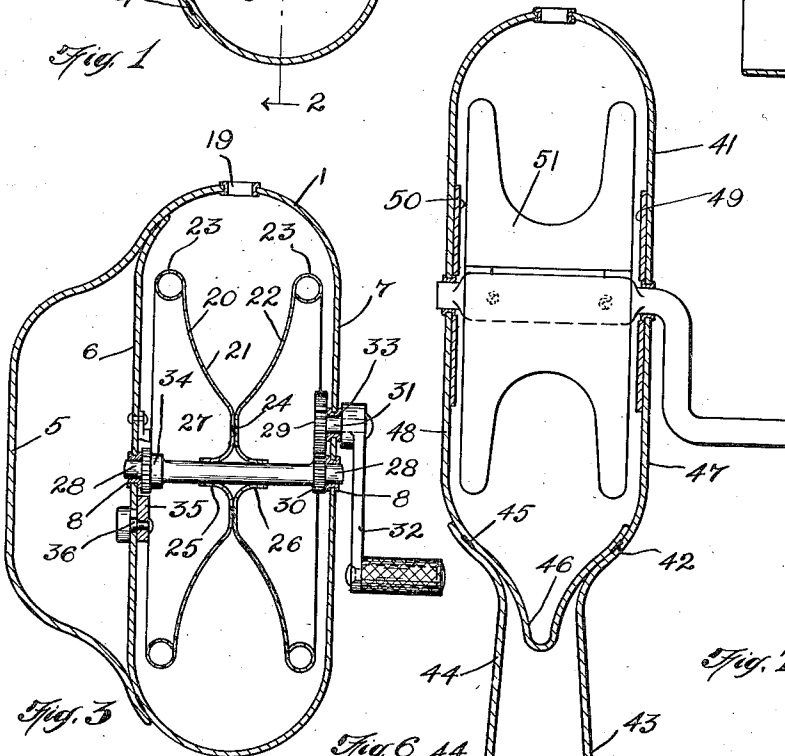
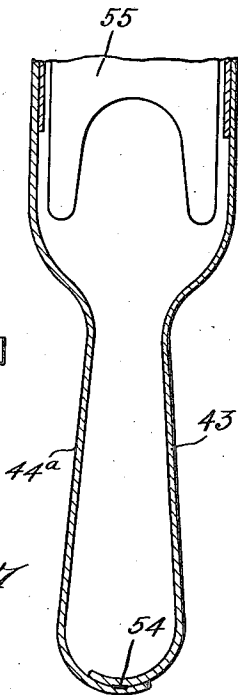
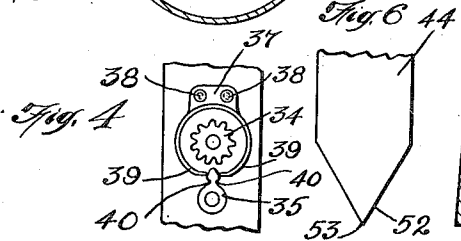


Fig. 1

Fig. 2

Fig. 3

Fig. 4

Fig. 5

Fig. 6

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REEL

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7 Claims. (Cl. 242—101)

This invention relates as indicated to reels and pertains more particularly to forms of reel construction of the type adapted to be held in the hand and used for such purposes as in fishing, flying kites, winding up clothes lines and the like.

It is a principal object of my invention to provide a form of reel construction which is particularly strong and durable, light in weight, and relatively simple and inexpensive to manufacture.

It is a further and more particular object of my invention to provide a frame for rotatably supporting a reel spool, which frame is characterized by its simplicity of construction and which frame also possesses marked advantages from the standpoint of its ease of manipulation in operating the reel or more particularly, the spool contained within such frame.

Other objects of my invention will appear as the description proceeds.

To the accomplishment of the foregoing and related ends, said invention, then consists of the means hereinafter fully described and particularly pointed out in the claims.

The annexed drawing and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting, however, but one of the various mechanical forms in which the principle of the invention may be used.

In said annexed drawing:

Fig. 1 is a transverse sectional view through a reel showing one form of construction in accordance with the principles of my invention; Fig. 2 is a sectional view of the structure illustrated in Fig. 1 taken on a plane substantially indicated by line 2—2; Fig. 3 is a view similar to Fig. 1 showing a modification of the structure illustrated in said last-named figure; Fig. 4 is a fragmentary side elevational view of a part of the structure illustrated in Fig. 3; Fig. 5 is a transverse sectional view of yet another form of reel structure embodying the principles of my invention; Fig. 6 is a fragmentary side elevational view of a portion of the structure illustrated in Fig. 5; and Fig. 7 is a fragmentary view of a reel structure similar in certain respects to that illustrated in Fig. 5 but showing a slightly different form of such construction.

Referring now more specifically to the drawing and more especially to Figs. 1 and 2, the reel herein illustrated consists generally of a frame 1 and a spool 2. The frame 1 is formed of a single strip of metallic stock which is looped and which has its opposite ends arranged in overlying rela-

tion, i. e., lapped, and secured together in spaced areas as at 3 and 4. The overlying sections 5 and 6 of the lapped joint are spread apart so that the section 5 serves as a handle by which the reel may be held in the hand. The lapped section 6, as well as the opposite section 7 are respectively provided with axially aligned openings in which bushings such as 8 may be secured to serve as bearings for the axle 9 of the spool 2.

The spool 2 may be of any suitable form; however, the particular type illustrated in the drawing comprises two angle-shaped members 10 and 11 respectively secured as at 13 and 14 to flattened faces of the axle 9 between the bushings 8. The legs of the angle members 10 and 11 may be recessed as at 15 in order to provide radially extending legs 16 between which the cord or the like is wound upon the reel.

A generally circular plate 17 is secured by means such as spot welds 18 to the inner face of the lapped section 6 for the dual purpose of providing a shield for the user's hand grasping the handle 5, so that the reel may not come into engagement with the user's hand, and as a braking means for the spool 2. When the user holds the reel by grasping the handle 5, he may move the plate 17 to the right, as viewed in Fig. 1, by means of thumb pressure or otherwise, until such plate moves into engagement with the spool 2 to act as a frictional brake. The frame, generally indicated at 1, may be provided with a suitable eyelet, such as 19, through which the cord or line may be led onto the spool 2. The axle 9 of the spool 2 may be continued in rebent form as at 20 to provide a handle by which the spool 2 may be rotated relatively to the frame 1.

The construction illustrated in Fig. 3 is generally similar to that illustrated in Fig. 1 and accordingly, like reference characters will be employed to designate like parts. The principal difference between the constructions respectively illustrated in Figs. 1 and 3 is in the form of spool employed and the means by which such spool may be actuated. The spool 20 illustrated in Fig. 3 comprises two cup-shaped members 21 and 22, which, at their outer edges, may be rolled into reinforcing beads such as 23, and centrally secured together by means such as spot welds 24. The spool sections 21 and 22 may centrally be provided with oppositely directed cup-like axial projections 25 and 26 extending in opposite directions to receive the axle or spindle 27 of the reel. It is understood, of course, that the projections 25 and 26 may be secured to the axle 27 by any suitable means. The axle 27 is terminally

provided with bearing areas 28 which are snugly engaged by the bushings 8 and the spool thus rotatably supported relatively to the frame 1. Instead of providing a direct extension of the axle 27 as the means for rotating the spool, a speed changing arrangement comprising gears 29 and 30 respectively secured to a stub shaft 31 and the axle 27 may be employed for driving the reel by means of a handle 32 which is likewise keyed to the stub shaft 31. A suitable bushing such as 33 may, of course, be provided in the section 7 of the frame to properly rotatably support the stub shaft 31. The gears 29 and 30 will preferably be of different sizes and as to which of the two gears is largest will depend upon the type of use to which the reel is adapted. For certain uses the gear 29 will be larger than the gear 30 so as to cause the spool 20 to be rotated at a speed faster than the speed of the handle 32 or for other uses, the gear 29 may be smaller than the gear 30 to cause the spool 20 to rotate at a rate of speed slower than the rate of rotation of the handle 32.

Frictionally mounted on the axle 27 adjacent its left hand end is a gear-like annulus 34 which, when arrested against rotation, will exert a braking influence upon the axle 27 and consequently, the spool 20.

Slidably mounted upon the inner face of the lapped section 6 is a detent 35 carried by a button 36, the shaft of which extends through an elongated opening in the section 6. Rotation of the detent 35 is prevented by means of a split collar 37 which may be secured to the inner face of the section 6 by means such as rivets 38 or any suitable means and the lower ends 39 of such collar resiliently engage the stem of the detent 35 so that when the button 36 is moved upwardly, as viewed in Fig. 3, such spring ends 39 will engage in the notches 40 and hold the detent in engagement with the gear-like collar 34, thus maintaining a braking action upon the axle 27 and consequently, the spool 20.

The gear-like member 34 has been described as frictionally secured to the axle 27 for the purpose of frictionally retarding the rotation of such axle as rotation of the gear member 34 is arrested. It is to be understood, however, that the gear member 34 may be fixedly secured to the axle 27, in which case movement of the detent 35 into engagement with the gear member 34 will positively arrest rotation of the spool 20.

The modification of the previously described frame constructions illustrated in Fig. 5 comprises a looped band generally indicated at 41, which is closed by spot welding or the like at 42. One end of such band 41, as at 43, extends as a handle, which may be augmented by a second section 44 secured by means such as spot welding at 45 to the looped band. The area 46 of the looped band between the spot welds 42 and 45 is so formed as to provide resilient means against which the opposite sides 47 and 48 of the looped band may be moved towards each other until the same or auxiliary plates, such as 49 and 50, engage the opposite faces of the spool 51 to exert a braking action thereon. The spool 51 is generally similar to the spool 2, so that like reference characters will be employed to designate like parts. The lower ends of the handle sections such as 44 may be tapered as at 52 to a sharp point 53, so that the reel may be forced into the ground or other suitable soft receiving means to support the reel in such position. It will be noted that while the handle section 44 has been shown as formed of

a separate piece welded to the looped band 41, nevertheless, it is within the contemplation of my invention to modify the construction illustrated in Fig. 5 by carrying the opposite ends of the band 41 downwardly to form the handle sections 43 and 44 respectively and to then bridge the two sections by means of a separate piece similar to 46 extending between the spot welds 42 and 45.

The modification illustrated in Fig. 7 is generally similar to that illustrated in Fig. 5 with the exception that the lower ends of the handle sections 43a and 44a instead of being separate as illustrated in Fig. 5, are joined together as at 54. The type of spool 55 which may be employed in conjunction with the modification illustrated in Fig. 7 may be any suitable form of spool such as those illustrated in the previous figures.

Throughout the foregoing description, the frame which houses the spool has been defined as formed of a flat ribbon of metallic stock bent to assume the shapes illustrated in the drawing. It is to be understood, however, that the frame instead of being formed from flat ribbon stock, as explained, may be formed of any suitable type of material such as wire, specially rolled sections, etc. In case wire is employed to form the looped frame herein described, the areas wherein it is necessary to provide bearing openings for the spool axle and the like, the wire may either be looped to provide such bearing openings or preferably flattened and drilled to provide an opening of such size as is required to receive the spool axle.

It will be noted that when any one of the hereinbefore described forms of frame construction are employed, any suitable type of spool may be employed in conjunction therewith, it not being necessary to employ the particular types of spools illustrated for purposes of convenience in the drawing.

It is to be understood that if desired, the handle portion 5 for example, as shown in Fig. 1, may be formed of a separate piece and welded or otherwise suitably secured to a looped frame made from a single piece of stock with its ends directly joined together and with the axle of the spool journaled in such frame similar to the general arrangement shown in the drawing. Furthermore, if the stock from which the frame illustrated in Fig. 7 is of sufficient rigidity it may not be necessary to secure together as at 54 the handle sections 43a and 44a but instead, the same may be left open at the lower end of the frame similar to the illustration in Fig. 5.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

I, therefore, particularly point out and distinctly claim as my invention:

1. In a reel, a spool frame comprising a looped continuous metallic element having its opposite ends lapped and secured together in spaced areas, the lapped sections between said spaced areas separated so that one of the same serves as a handle for the frame, and a spool rotatably supported between opposite sections of said looped element and in such close proximity thereto that upon flexure of said band the latter will engage said spool and effect a braking action thereon.

2. In a reel, a spool frame comprising a looped flat band having its opposite ends lapped and

secured together in spaced areas, the lapped sections between said spaced areas separated so that one of the same serves as a handle for the frame, and a spool rotatably supported between opposite sections of said looped flat band and in such close proximity thereto that upon flexure of said band the latter will engage said spool and effect a braking action thereon.

3. In a reel, a spool frame comprising a looped continuous metallic element having its opposite ends secured together and in different areas so formed that opposite sections thereof provide respectively a handle and a spool-supporting area and a spool rotatably supported in said last-named area in such close proximity to the opposite sides of said frame that flexure together of said handle sections will cause the opposite side of said frame to move into braking engagement with said spool.

4. In a reel, a spool frame comprising a looped flat band having its opposite ends lapped and secured together in spaced areas separated so that one of the same serves as a handle for the frame, a spool rotatably supported between opposite sections of said looped element, means for varying the rotating speed of said spool comprising gears

respectively secured to the axle and a stub shaft, and a handle keyed to said shaft.

5. In a reel, a spool frame comprising a looped flat band having its opposite ends lapped and secured together in spaced areas separated so that one of the same serves as a handle for the frame, a spool supporting axle and braking means therefor comprising a gear-like annulus frictionally mounted on said axle and a detent slidably mounted adjacent thereto and adapted to be moved into braking engagement therewith.

6. In a reel, a spool frame comprising a looped flat band having its opposite ends lapped and secured together in spaced areas separated so that one of the same serves as a handle for the frame, a spool supporting axle and arresting means therefor comprising a gear-like annulus fixedly mounted on said axle and a detent slidably mounted adjacent thereto and adapted to be moved into arresting engagement therewith.

7. In a reel, a spool frame comprising a flat band, in the form of a loop and a handle, said handle being integral with said loop, the ends of said band being attached to said band at spaced locations to form said handle.

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