

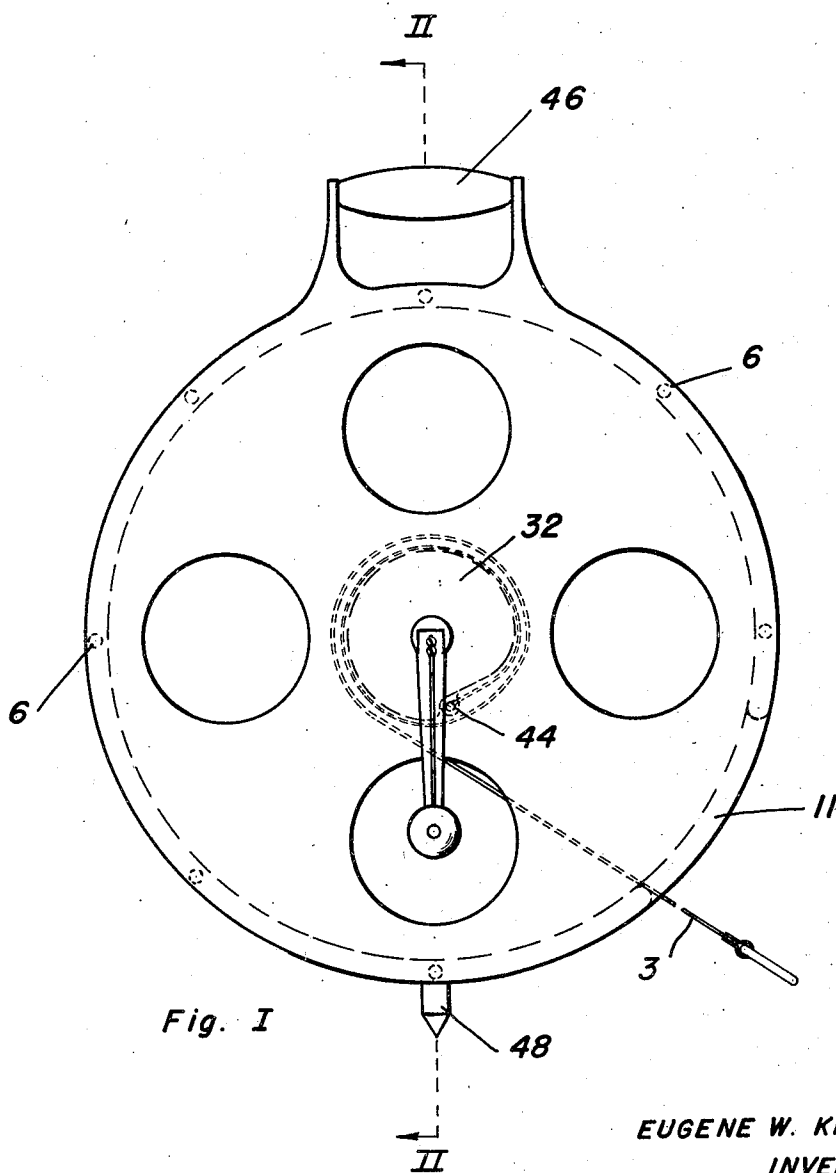
July 19, 1949.

E. W. KRAFT
BAND CHAIN REEL

2,476,878

Filed Sept. 4, 1948

2 Sheets-Sheet 1



EUGENE W. KRAFT
INVENTOR

BY *J. Russell Juten*
ATTORNEY

July 19, 1949.

E. W. KRAFT
BAND CHAIN REEL

2,476,878

Filed Sept. 4, 1948

2 Sheets-Sheet 2

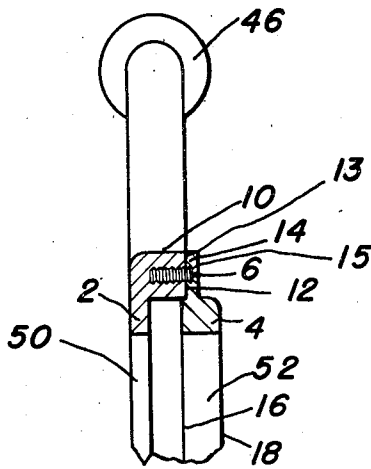


Fig. IV

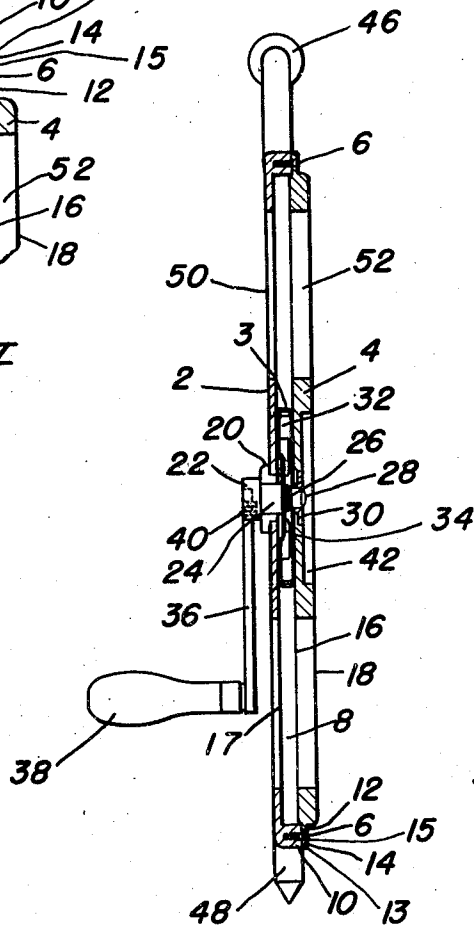


Fig. II

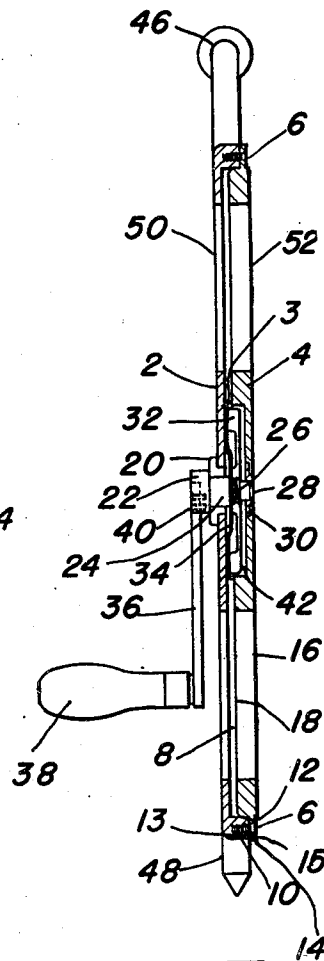


Fig. III

EUGENE W. KRAFT
INVENTOR

BY *J. Russell J. J. J.*
ATTORNEY

UNITED STATES PATENT OFFICE

2,476,878

BAND CHAIN REEL

Eugene W. Kraft, Chicago, Ill., assignor to Keuffel & Esser Company, Hoboken, N. J., a corporation of New Jersey

Application September 4, 1948, Serial No. 47,775

5 Claims. (Cl. 242—84.8)

1

This invention relates to a reel for band chains or measuring tapes and is particularly useful for reels which must take relatively long lengths of band chain or tape, i. e. of the order of 300 ft. and longer.

Band chains or long measuring tapes are normally made in two standard widths which are $\frac{1}{8}$ " and $\frac{5}{16}$ ". Reels are known in the art which are capable of taking band chains of either of these widths or of other widths.

One of the objects of this invention is to provide a reel of the type described capable of receiving band chains or other equivalent measuring tapes of at least two different widths.

Another object of the invention is to simplify the manufacture of band chain reels by making only one type of reel suitable for two or more band chain widths depending on the manner in which it is assembled.

These and other objects of the invention and the method of their attainment will become more apparent from the following description taken in connection with the accompanying drawing in which:

Fig. I is a view in front elevation showing the new band chain reel.

Fig. II is a view in sectional side elevation taken through the centerline II—II of Fig. I showing the band chain reel.

Fig. III is a view in sectional side elevation taken through the centerline II—II of Fig. I showing the new band chain reel assembled to receive a narrower band chain.

Fig. IV is a view in enlarged sectional side elevation showing part of the new band chain reel to more clearly indicate the manner in which it is assembled.

Referring to the figures, the flat members 2 and 4 which in this embodiment may be described as disclike plates are fastened together as by means of the screws 6 forming a band chain retaining space 8 to receive the band chain 3. The plates 2 and 4 may be conveniently cast out of suitable material such as aluminum. The plate 2 is provided with an annular projection 10 which is provided with a spacing surface 12. The plate 4 is provided with an outer flange having spacing surfaces 13 and 15 on each side either one of which may engage and be secured in engagement with as by means of screws 6 the spacing surface 12 of plate 2. As shown in Figs. II, III and IV the spacing surfaces 13 and 15 are flat but they need not be so limited. The annular projection 10 is cut away at 11 (see Fig. I)

2

to permit the band chain 3 to pass into and out of the closure 8.

The surfaces of the flange 14 are spaced at different distances from the tape confining surfaces 16 and 18 of the plate 4. In the limiting case one of the surfaces of the flange 14 may be at zero distance or coincide with the adjacent surface of the plate 4. The surfaces 16 and 18 of the plate 4 terminate at the proper radius to fit closely within the annular projection 10 of the plate 2. Either one or the other of spacing surfaces 13 and 15 may engage spacing surface 12. The size of the closure 8 and the width of the tape which it can receive depend upon which side of the surfaces 16 and 18 of plate 4 are faced toward the plate 2 during assembly and which of the spacing surfaces 13 and 15 are secured in engagement with surface 12.

The plate 2 is provided with a central hole which receives the bushing 20. This bushing 20 may be of a material having better bearing properties than that of the plate 2. For example the plate 2 may be of a die cast aluminum alloy and the bushing 20 may be bronze.

The axle 22 is provided with a reduced journal portion 24 journaling in the bushing 20. Beyond the reduced journal portion 24 the axle 22 is provided with a further reduced threaded portion 26, beyond which it is provided with a second reduced journal portion 28. The threaded portion 26 engages internal threads in the spool 32, thereby centering it in the band chain retaining space 8. The journal portion 28 journals in the bushing 30 provided in a central hole of the plate 4. A spring washer 34 is provided between the plate 2 and the spool 32 which serves to hold the axle 22 in position against the bushing 20.

The crank arm 36 is fastened to the axle 22 as by the screws 40. The crank handle 38 is pivotally mounted to the crank arm 36. The crank arm 36 and crank handle 38 provide means for rotating the spool 32 to wind the band chain 3 on the reel. The spool 32 is provided with fastening means 44 (see Fig. I) to which the band chain 3 is attached. The cylindrical outer surface of the spool is recessed in the region of the fastening means 44 so that the latter does not interfere with the winding up of the band chain 3.

The plate 4 is provided with a recess 42 larger than the outside diameter of the spool 32. When the plate 4 is reversed from the position shown in Fig. II to the position shown in Fig. III, part of the spool 32 fits into the recess 42 and the closure 8 is limited by the confining surface 18

of plate 4 and the confining surface 17 of plate 2 and the reel is adapted to receive a narrow width band chain. The adaption of the reel from one side to another is readily accomplished with only a screw driver for removing and reinserting the screws 6.

The plate 2 is provided with a handle 46 at its upper end and a point 48 at its lower end which is used for anchoring the reel when rolling or unrolling the band chain. The plates 2 and 4 are provided with air holes 50 and 52 which allow air to move in or out of the closure 8 as the tape is reeled or unreel.

The flat member 4 need not necessarily be formed from a casting but may be made for example from two flat pieces of sheet material such as sheet metal joined at their flat surfaces at the plane forming the bottom of the recess 42. One of the flat pieces will then have a central hole the size of the recess 42 and the other will carry the bushing 30. In this case the plane at which the flat pieces join will preferably also coincide with a spacing surface of the flange 14. The two flat pieces will differ in outside diameter by twice the width of the annular projection 10 of the flat member 2. The two flat pieces could be joined by riveting or other suitable means.

It is not necessary that the flat members 2 and 4 have a circular form. For example they could be spoked flat members. In one of the spoked flat members each spoke would be provided with a projection having the same sectional structure as shown for the projection 10 in Fig. II to provide a spacing surface. In the other spoked flat member each spoke would end in a portion of reduced thickness having surfaces spaced at different distances from the confining surfaces of the spoked plate member corresponding to the surfaces of the flange 14.

These spoked flat members could be conveniently built up from flat metal pieces or sheet in the manner already described for circular or disk-like flat members to provide flange surfaces at different distances from the confining surfaces of the flat members. The projections at the ends of the spokes of the one plate member could be conveniently joined by rivets or other means to the ends of the flat spoked piece formed from sheet material.

If desired the invention may be extended to permit the reel to take any one of four band chains of different widths by making the flat member 2 reversible as well as the flat member 4. In which case the flat member 2 could be provided with an annular projection on both sides to provide spacing surfaces at different distances from the confining surfaces of the flat member. Alternately, the projection 6 could be made detachable from the flat member 2, in which case flat member 2 could be provided with a flange similar to flat member 4 and the different spacings would be accomplished in the same manner which has been shown for plate 2. In an embodiment having both plates reversible it would be necessary to remove the axle 22 from the plate 2 and reposition it after the plate had been reversed.

Although the invention has been described in connection with an embodiment of a reel used for band chain in relatively long lengths, it should be realized that the principles herein taught will be useful in a reel for any type of flexible measuring tape whether of long or short length and the

term band chain as used herein is meant to embrace these other measuring tapes.

What is claimed is:

1. In a band chain reel for receiving a band chain, two flat members having confining surfaces to confine the edges of a coiled band chain in parallel planes, one of said flat members having confining surfaces on each side thereof, each flat member having spacing surfaces, the flat member having confining surfaces on each side thereof having spacing surfaces adjacent to its edge on both sides differently spaced from the adjacent confining surface of said flat member, said flat members being capable of being assembled in two ways, when assembled in one way the spacing surface on one side of said flat member having confining surfaces on each side thereof being made to engage and being secured in engagement with the spacing surface of the other flat member to form a band chain retaining space between said flat members for taking a narrow band chain, when assembled in the other way the spacing surface on the other side of said flat member having confining surfaces on each side thereof being made to engage and being secured in engagement with the spacing surface of the other flat member to form a band chain retaining space between said flat members for taking a wider band chain, spool means in said tape retaining space about which the band chain may be wound, means for fastening the band chain to said spool means and means for rotating said spool means for winding band chain on the reel.

2. In a band chain reel for receiving a band chain, two substantially disklike plate members having surfaces to confine the edges of a coiled band chain in parallel planes, one of said disklike plate members having confining surfaces on each side thereof, each disklike plate member having spacing surfaces, the disklike plate member having confining surfaces on each side thereof having a flange at its periphery the surfaces on both sides of which form spacing surfaces differently spaced from the adjacent confining surface of said disklike plate member, said disklike plate members being capable of being assembled in two ways, when assembled in one way the spacing surface on one side of said flange being made to engage and being secured in engagement with the spacing surface of the other disklike plate member to form a band chain retaining space between said disklike members for taking a narrow band chain, when assembled in the other way the spacing surface on the other side of said flange being made to engage and being secured in engagement with the spacing surface of the other disklike plate member to form a band chain retaining space between said disklike members for taking a wider band chain, spool means in said tape retaining space about which the band chain may be wound, means for fastening the band chain to said spool means and means for rotating said spool means for winding band chain on the reel.

3. In a band chain reel for receiving a band chain, two flat members having surfaces to confine the edges of a coiled band chain in parallel planes, one of said flat members having confining surfaces on each side thereof, each flat member having spacing surfaces, the flat member having confining surfaces on each side thereof having spacing surfaces adjacent to its edge on both sides differently spaced from the adjacent confining surface of said flat member, said flat member having confining surfaces on each side

5

thereof being made up of two pieces of sheet material having corresponding surfaces which are secured in contact one of the corresponding surfaces extending beyond the other to form one of the spacing surfaces of the flat member, said flat members being capable of being assembled in two ways, when assembled in one way the spacing surface on one side of said flat member having confining surfaces on each side thereof being made to engage and being secured in engagement with the spacing surface of the other flat member to form a band chain retaining space between said flat members for taking a narrow band chain, when assembled in the other way the spacing surface on the other side of said flat member having confining surfaces on each side thereof being made to engage and being secured in engagement with the spacing surface of the other flat member to form a band chain retaining space between said flat members for taking a wider band chain, spool means in said tape retaining space about which the band chain may be wound, means for fastening the band chain to said spool means and means for rotating said spool means for winding a band chain on the reel.

4. In a band chain reel for receiving a band chain, two flat members provided with radially extending spokes having surfaces to confine the edges of a coiled band chain in parallel planes, one of said flat members having confining surfaces on each side thereof, each flat member having spacing surfaces, the flat member having confining surfaces on each side thereof having spacing surfaces adjacent to its edge on both sides differently spaced from the adjacent confining surface of said flat member, said flat members being capable of being assembled in two ways, when assembled in one way the spacing surface on one side of said flat member having confining surfaces on each side thereof being made to engage and being secured in engagement with the spacing surface of the other flat member to form a band chain retaining space between said flat members for taking a narrow band chain, when assembled in the other way the spacing surface of the other side of said flat member having confining surfaces on each side thereof being made

6

to engage and being secured in engagement with the spacing surface of the other flat member to form a band chain retaining space between said flat members for taking a wider band chain, spool means in said tape retaining space about which the band chain may be wound, means for fastening the band chain to said spool means and means for rotating said spool means for winding the band chain on the reel.

5. In a band chain reel for receiving a band chain, two flat members provided with radially extending spokes having surfaces to confine the edges of a coiled band chain in parallel planes, one of said flat members having confining surfaces on each side thereof, each flat member having spacing surfaces, the flat member having confining surfaces on each side thereof having spacing surfaces adjacent to its edge on both sides differently spaced from the adjacent confining surface of said flat member, said flat member having confining surfaces on each side thereof being made up of two pieces of sheet material having corresponding surfaces which are secured in contact one of the corresponding surfaces extending beyond the other to form one of the spacing surfaces of the flat member said flat members being capable of being assembled in two ways, when assembled in one way the spacing surface on one side of said flat member having confining surfaces on each side thereof being made to engage and being secured in engagement with the spacing surface of the other flat member to form a band chain retaining space for taking a narrow band chain, when assembled in the other way the spacing surface on the other side of said flat member having confining surfaces on each side thereof being made to engage and being secured in engagement with the spacing surface of the other flat member to form a band chain retaining space for taking a wider band chain, spool means in said tape retaining space about which the band chain may be wound, means for fastening the band chain to said spool means and means for rotating said spool means for winding band chain on the reel.

EUGENE W. KRAFT.

No references cited.