

Feb. 24, 1953

L. S. ROARK

2,629,630

OXYGEN ACETYLENE HOSE REEL

Filed Jan. 15, 1951

2 SHEETS—SHEET 1

Fig. 1.

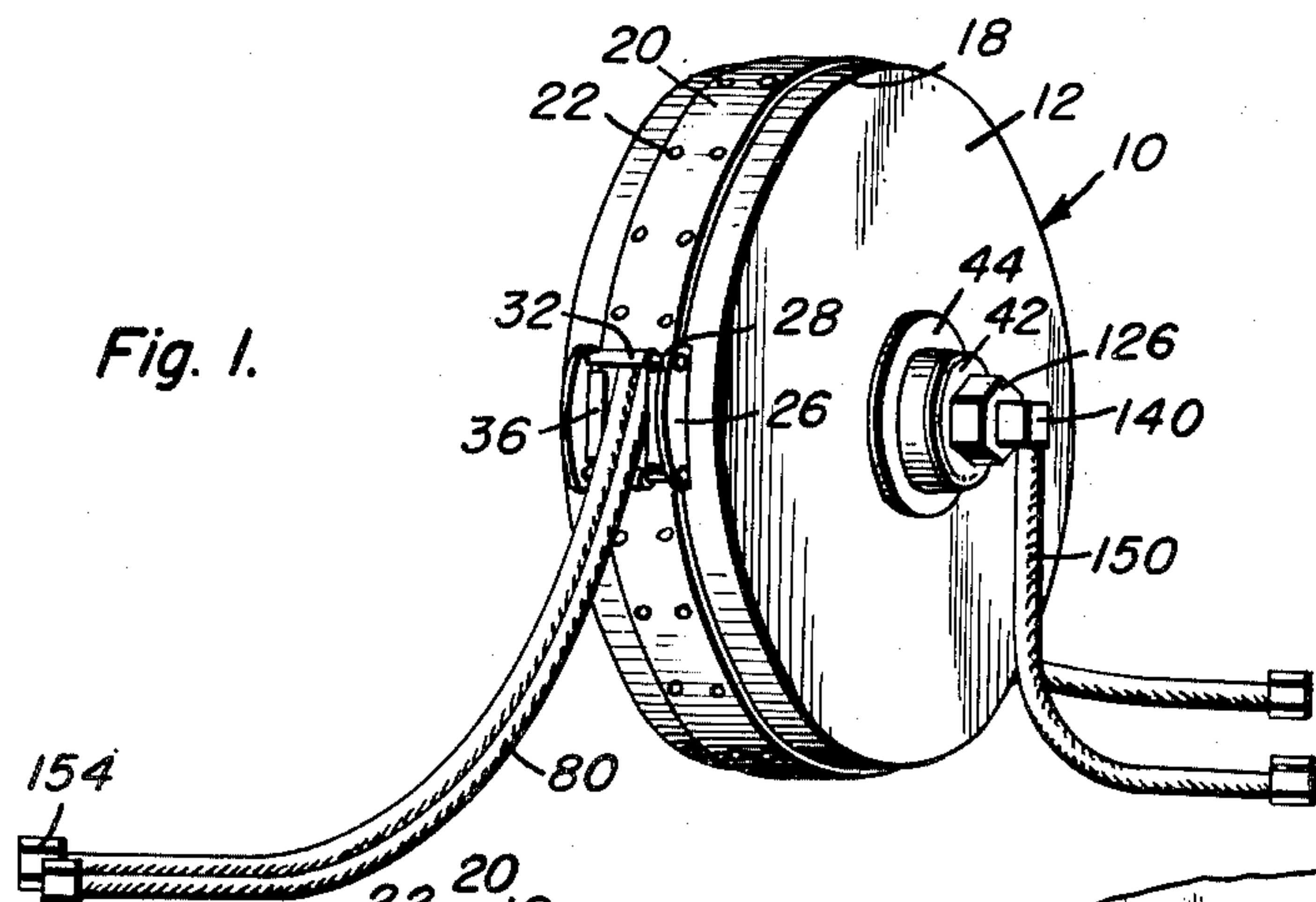


Fig. 6.

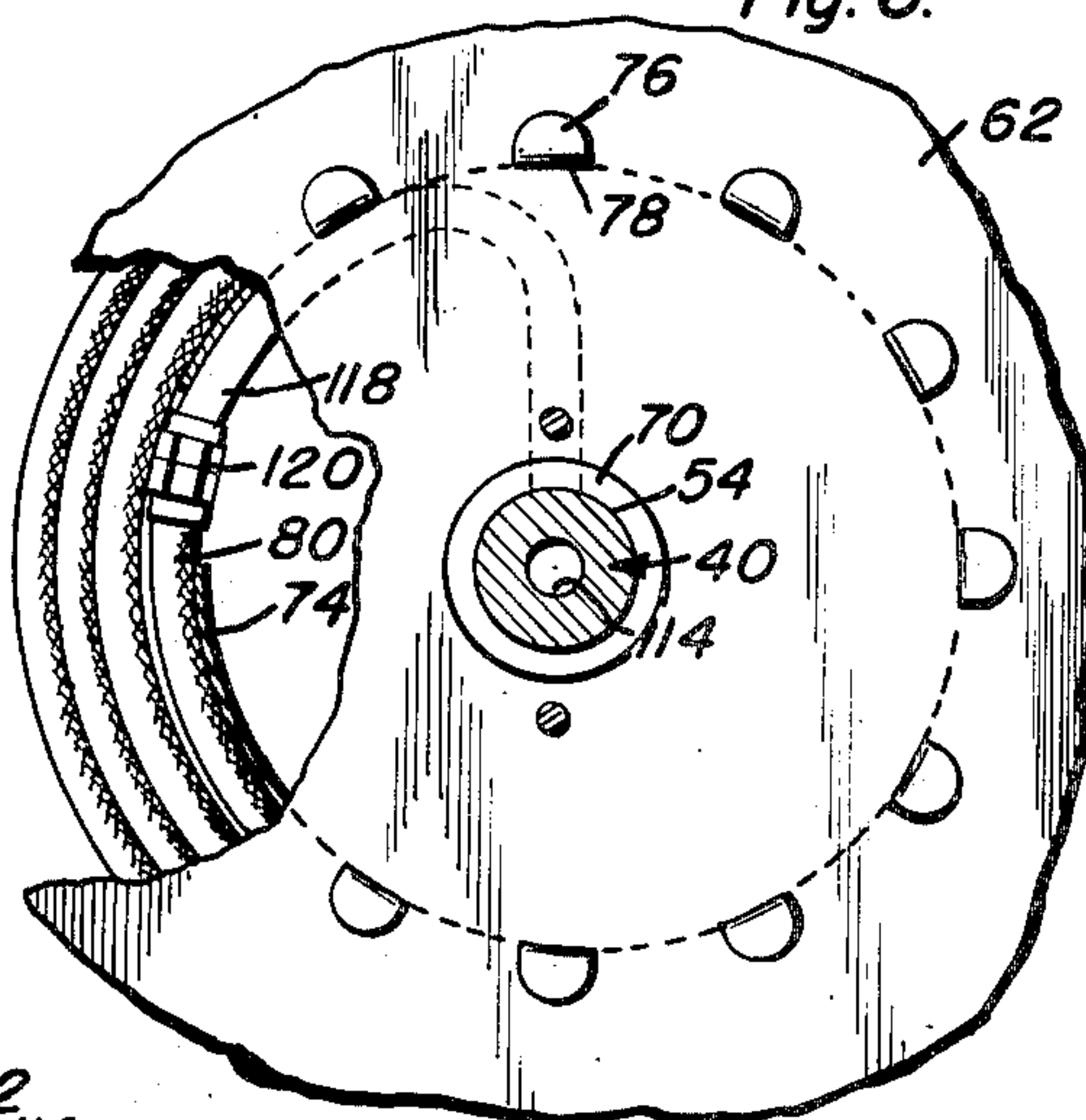
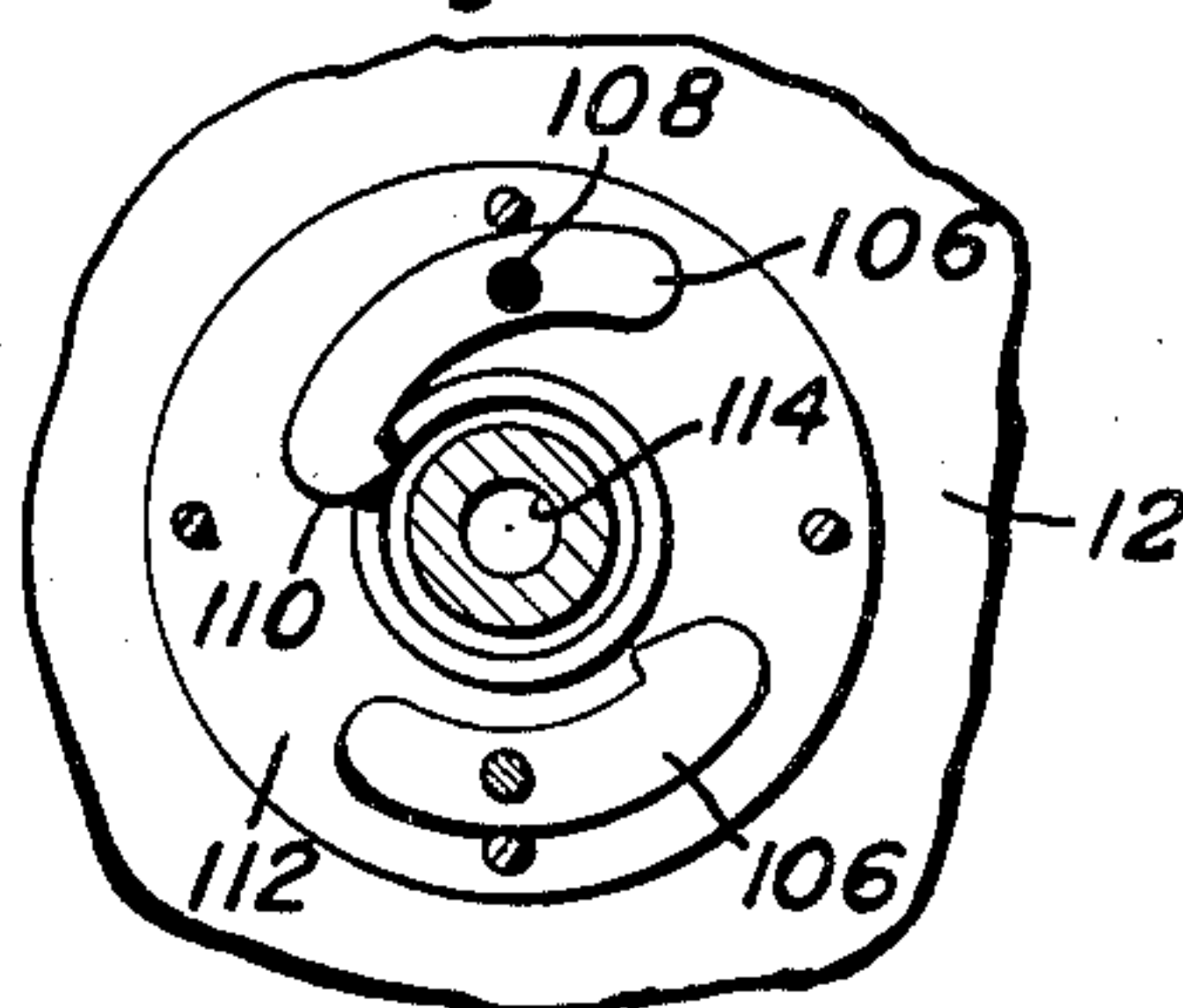


Fig. 7.



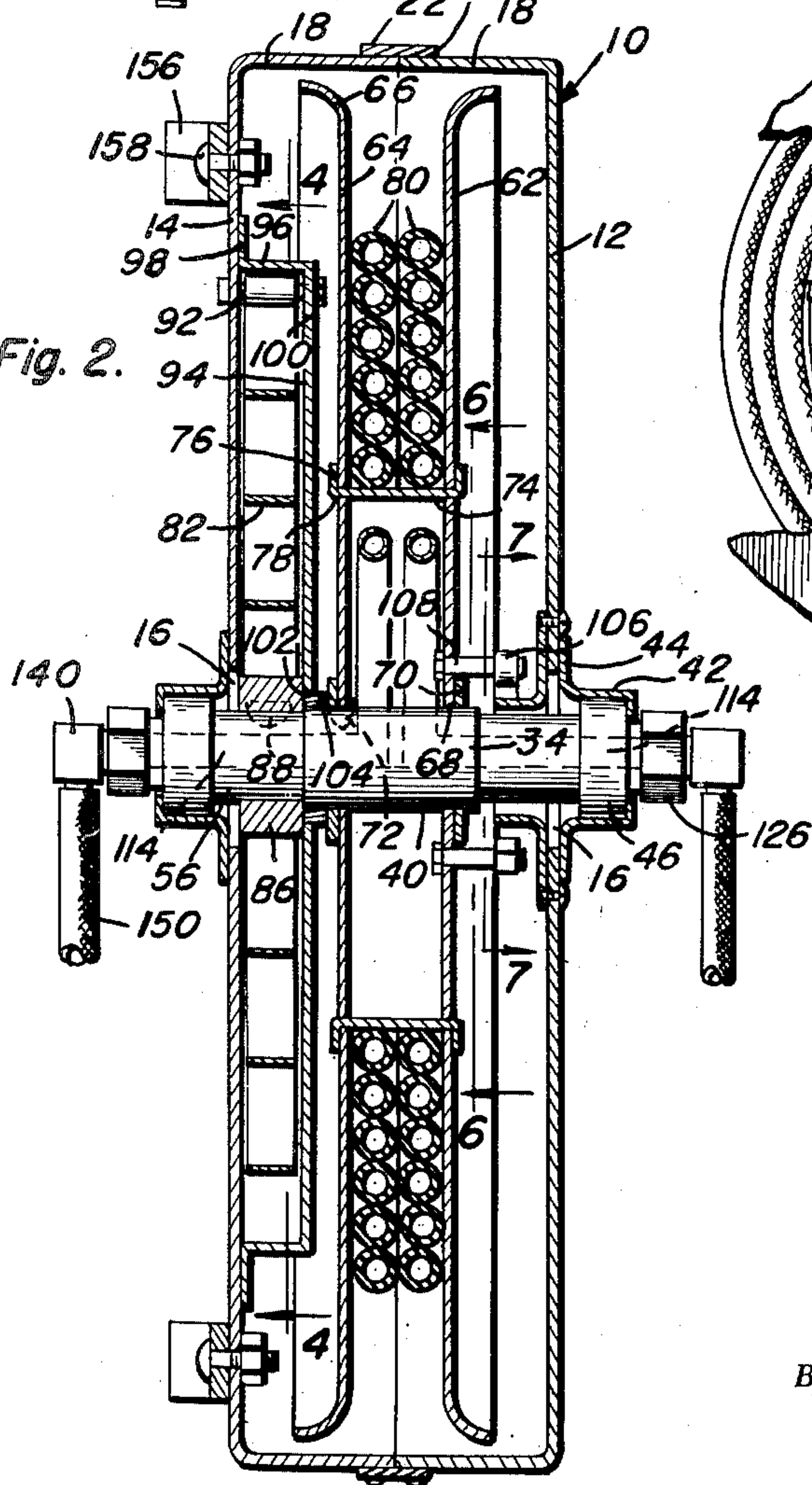
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Fig. 2.



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2 SHEETS—SHEET 2

Fig. 4.

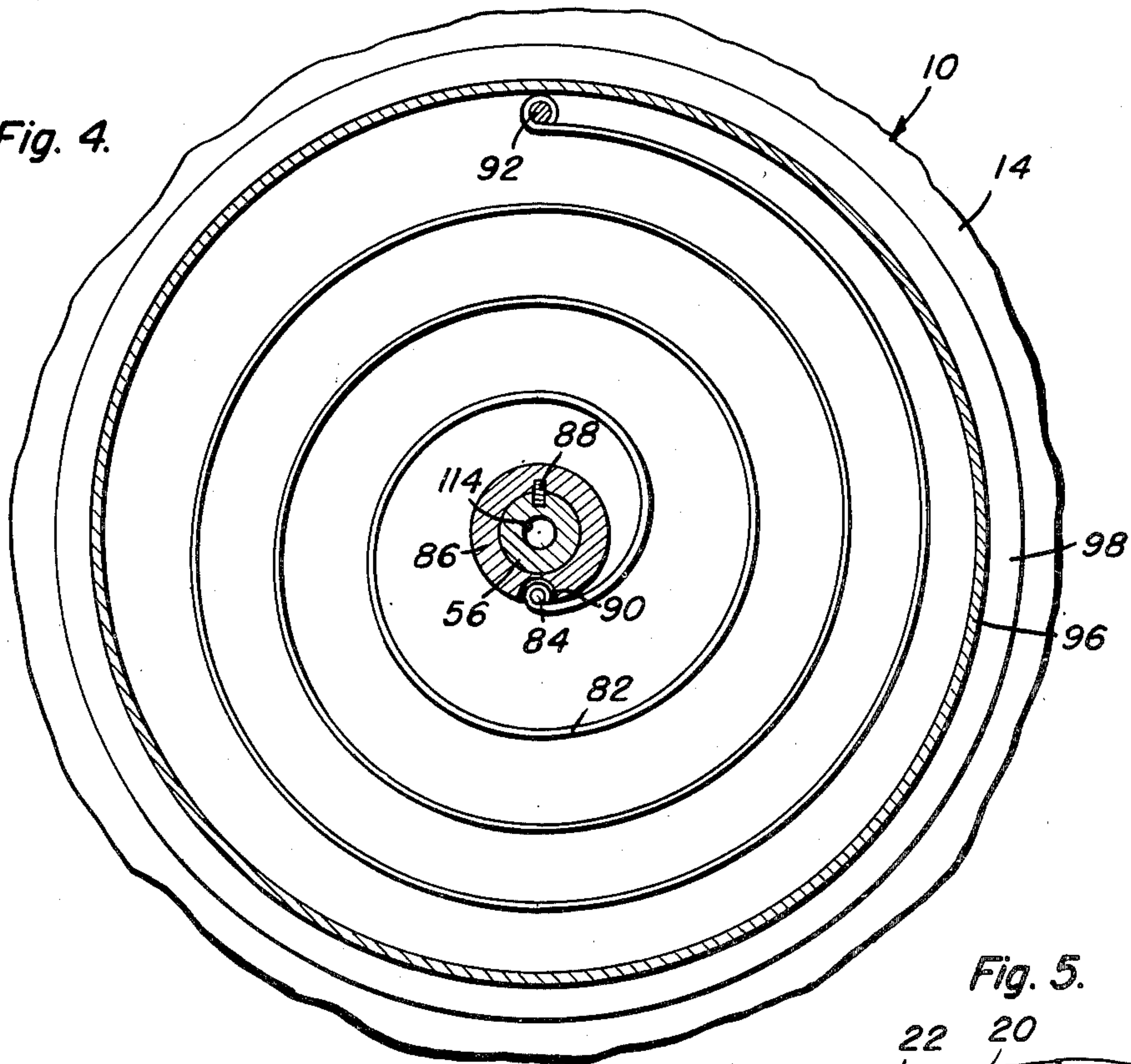


Fig. 5.

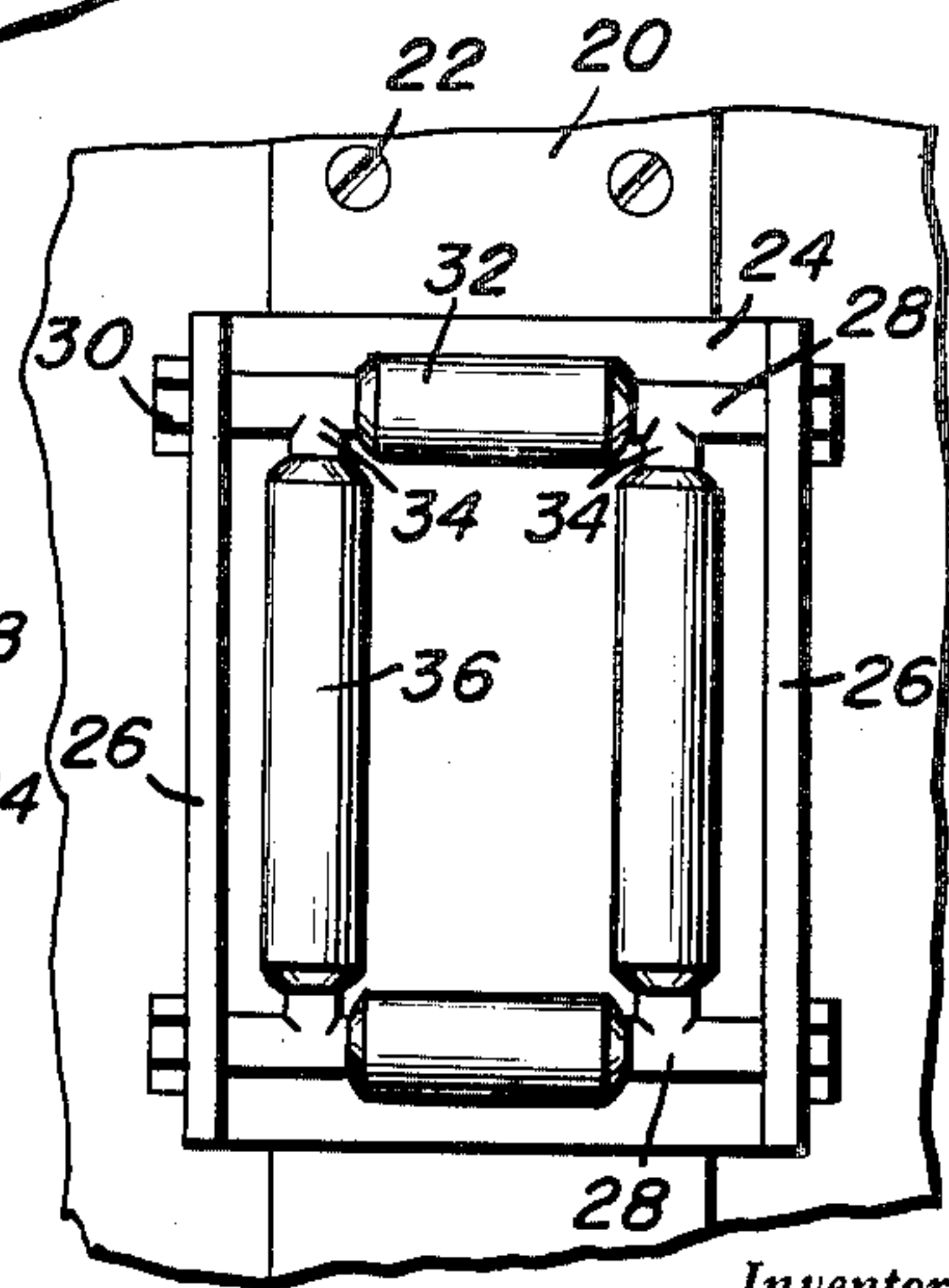
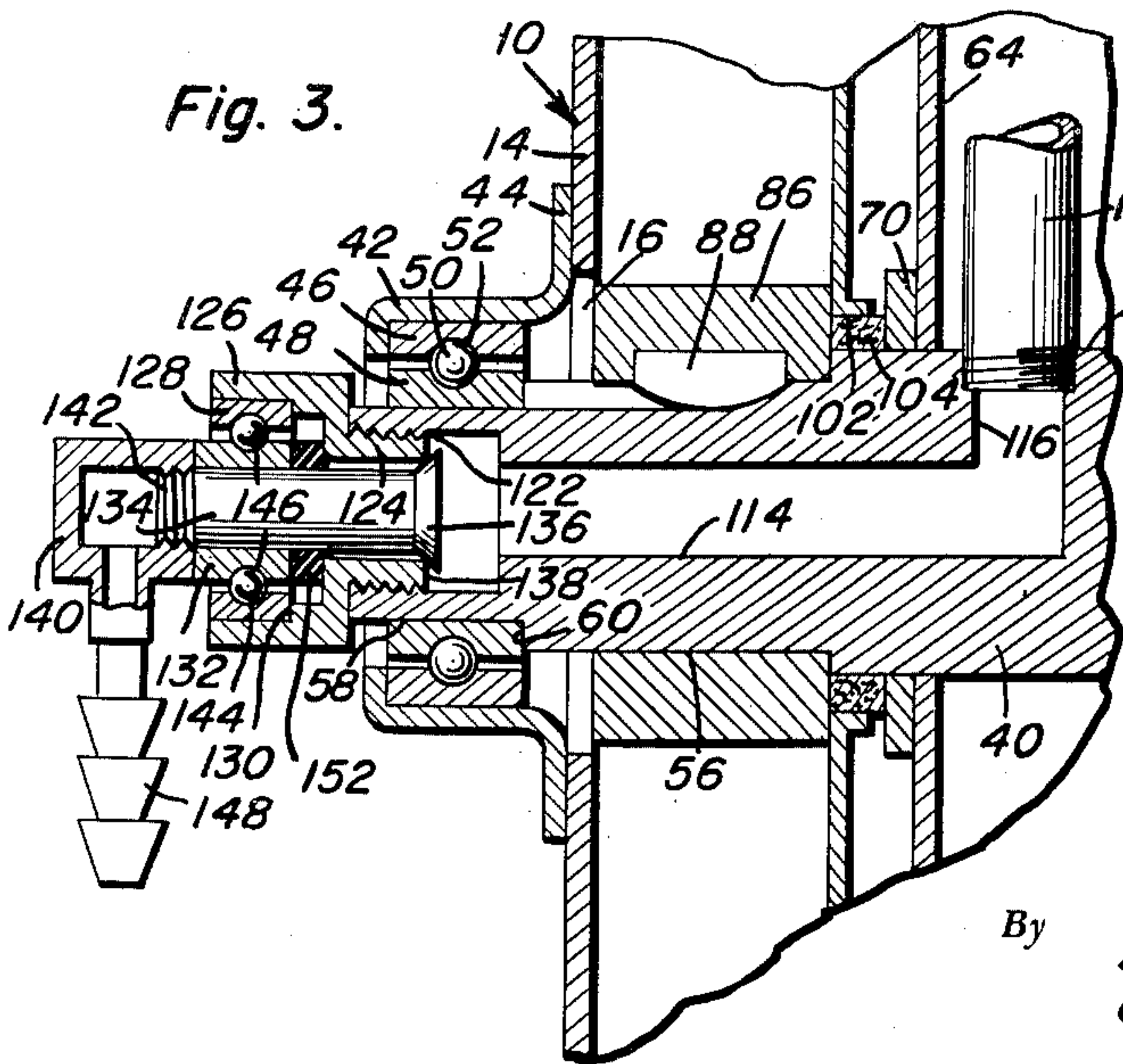


Fig. 3.



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UNITED STATES PATENT OFFICE

2,629,630

OXYGEN ACETYLENE HOSE REEL

Leon S. Roark, Shreveport, La., assignor of twenty-five per cent to Curtis Kinard, twenty-five per cent to Dawson Hawkins, and twenty-five per cent to Lloyd Puryear, all of El Dorado, Ark.

Application January 15, 1951, Serial No. 205,990

4 Claims. (Cl. 299-78)

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This invention comprises novel and useful improvements in winding and reeling apparatus, and more particularly pertains to a reel for winding and assembling a pair of fluid conducting hoses.

An important object of this invention is to provide a winding and reeling apparatus for selectively winding and assembling a pair of oxygen and acetylene welding hoses, which apparatus is of simple and durable construction and which may be readily assembled and disassembled for repairs and the like.

Another important object of this invention is to provide a winding and reeling apparatus which will normally bias the reel in a direction to wind a hose thereon, to thereby maintain the hose between the reel and the dispensing apparatus on the end of the reel, in a taut condition, when the hose is being wound and unwound, whereby the hose is prevented from dragging upon the floor.

Yet another object of this invention is to provide an improved mechanism for rotatably coupling the stationary conduit to the hose which moves about the reel, which connecting means is of simple and compact construction, and which will prevent the escape of fluid at the connections.

An important feature of this invention resides in the provision of a housing, with a shaft rotatably journaled in the housing, together with a pair of disks non-rotatably attached to the shaft within the housing, a passage extending through the shaft and opening between the disks, in communication with the hose which is disposed between the disks, together with a means rotatably connecting the conduit to the end of the shaft in communication with the passage.

Another important feature of this invention resides in the provision of a winding and reeling apparatus in accordance with the foregoing features, in which a spring is disposed in the housing and internally secured to the housing and the shaft for yieldingly urging the shaft and disks in a direction to wind a hose thereon, together with a pair of centrifugally actuated pawls for selectively locking the disks against rewinding rotation.

These, together with various ancillary objects and features are attained by this device, the preferred embodiment of which has been illustrated, by way of example only, in the accompanying drawings wherein:

Figure 1 is a perspective elevational view of the winding and reeling apparatus;

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Figure 2 is a transverse sectional view of the winding and reeling apparatus;

Figure 3 is a fragmentary transverse sectional view, parts being enlarged to show details of construction;

Figure 4 is a fragmentary sectional view, taken substantially on the plane 4-4 of Figure 2;

Figure 5 is a fragmentary front elevational detail view, showing the hose guide attached to the housing;

Figure 6 is a fragmentary sectional view, taken substantially on the plane 6-6 of Figure 2; and

Figure 7 is a fragmentary sectional view taken substantially on the plane 7-7 of Figure 2.

Reference is now made more specifically to the accompanying drawings, wherein like numerals designate similar parts throughout the various views, and in which the winding and reeling apparatus is indicated generally by the numeral 10.

The housing for the winding and reeling apparatus includes a pair of circular side walls 12 and 14, each having an axial opening 16, and inwardly directed peripheral flanges 18. In order to secure the side walls of the housing together, there is provided an annular split band 20, which is secured to the flanges 18, as by fasteners 22. A rectangular frame member 24 having upstanding flanges 26 along the opposite sides thereof is secured to the ends of the band 20 and overlies an opening in the flanges 18. A first set of shafts 28 is secured, as by fasteners 30, between the flanges 26, and a first set of rollers 32 is rotatably journaled on the first set of shafts. A second set of shafts 34 is terminally secured to the first set of shafts, and parallels the flanges 26, a second set of rollers 36 being rotatably journaled on the second set of shafts, whereby there is provided a device for guiding the hose onto the reel which is enclosed in the housing. Since the frame 24 is secured to the annular band 20, it will be appreciated that the hose guiding mechanism will be removed from the housing, when the band is removed.

A shaft 40 is rotatably journaled in the side walls of the housing, and for this purpose there is provided a pair of shaft bearing retaining caps 42 which have the outwardly flared ends 44 thereof secured to the side walls 12 and 14, an anti-friction bearing assembly including an outer bearing ring 46 which is press-fitted into the caps 42, and an inner bearing race 48 which is press-fitted on the ends of the shafts 40. As is apparent from a consideration of Figure 3, anti-friction bearing elements 50 are disposed in complementary recesses 52 in the inner and

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outer bearing races 48 and 46, respectively, whereby the bearing assembly not only serves as a radial bearing but also serves as a thrust bearing to limit axial movement of the shaft 40 relative to the housing.

The shaft 40 includes a central portion 54, an intermediate portion 56 of relatively reduced diameter, and an outer end portion 58 of a diameter less than that of the intermediate portion, the inner bearing race 48 being press-fitted on the outer end portion and abutting the shoulder 60, between the intermediate and outer portions of the shafts 40.

A pair of drum-forming disks 62 and 64, having an outwardly flared peripheral rim 66, each has a central opening 68 which is reinforced by an annular washer 70, which is spot-welded to the disk, the disks and washers being press-fitted onto the central portion 54 of the shafts 40, and non-rotatably keyed thereto as by the key 72.

A split, spirally formed band 74 is disposed between the disks 62 and 64, which band is provided with a plurality of outwardly extending ears 76 which extend through the spirally positioned apertures 78 in the disks 62 and 64, which ears are bent so as to abut the outer faces of the disks 62 and 64, and thereby detachably retain the disks and the split ring members 74 in engagement with each other. As will be appreciated from a consideration of Figure 6, the ends of the split bands 74 are offset from each other to permit the passage of the flexible hoses 80 therethrough, without necessitating a sharp bend in the hose.

In order to yieldingly bias the shafts 40 and the reel in a direction to wind the hose 80 thereon, there is provided a helical spring 82 which has the inner end thereof secured, as by a pin 84, to an annular hub member 86, which hub is non-rotatably attached to the intermediate portion 56 of the shafts 40, as by a key 88, the pin being disposed in a suitable recess 90 in the hub member. As is apparent from a consideration of Figures 2 and 3, the hub member 80 abuts the shoulder between the intermediate portion and the central portion of the shaft 40. The outer end of the helical spring 82 is secured, as by a pin 92 to one of the side walls, such as 14, of the housing. A spring shield plate 94 having a peripheral rim 96 and an outwardly extending flange 98 is detachably secured to the side walls 14 as by the nut 100 which is carried by the pin 92, a plurality of such pins preferably being provided, one of which serves as the anchor for the outer end of the helical spring 82. The shield plate 94 has a central opening 102 which abuts the packing ring 104 which is disposed above the central portion of the shafts 40, the shield plate also engaging the inner edge of the hub member 86, in a manner clearly apparent from a consideration of Figures 2 and 3.

A pair of centrifugally actuatable pawls 106 are pivotally attached to the disk 62 by means of stub shafts 108 which are secured to the disks, the pawls being selectively engageable with a notch 110 in the flanged sleeve 112 which is secured to the side walls 12 of the housing. It will be readily appreciated that whenever the disks 62 and 64 are rotated at a relatively rapid rate, the pawls will be centrifugally actuated into a position out of engagement with the notch 110, but whenever the disks are rotated at a relatively lower rate, the pawls will be

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gravity-actuated into engagement with the notch.

The shaft 40 is provided with a pair of longitudinally extending passages 114, each of which has an offset portion 116 extending radially of the shafts 40, an opening between the disks 62 and 64, a pair of substantially L-shaped pipes 118 having one end thereof threadedly connected to the shafts 40, in communication with the passage 114, being disposed between the disks 62 and 64, and communicative with the flexible hose 80, by means of a coupling 120. The outer ends of the shafts 40 are provided with an internally threaded counterbore 122 which counterbore threadedly receives one end 124 of an anti-friction bearing cup 126. An outer bearing race 128 is slidably fitted into the cup 126 and abuts a shoulder 130 which limits inward movement of the outer bearing race 128 relative to the cup, the inner bearing race 132 being slidably fitted on a sleeve 134 which is rotatably disposed within the bearing cup 126. The sleeve 134 has an outwardly flared end 136 which engages the inner end 138 of the bearing cup 126, a hose elbow 140 being threadedly received on the outer end 142 of the sleeve 134, the hose coupling abutting the inner bearing race 132, in a manner clearly apparent from a consideration of Figure 3. As is conventional, suitable anti-friction bearing elements 144 are disposed between the inner and outer bearing races, in corresponding recesses 146, whereby the bearing assembly serves not only as a radial bearing but also as a thrust bearing so that tightening of the hose elbow 140 on the sleeve 134 will urge the outwardly flared inner ends 136 of the sleeve into engagement with the inner end of the bearing cup 126. The elbow 140 has a convoluted extension 148 extending therefrom, for the reception of a suitable conduit 150 which is connected to the source of supply (not shown). An annular packing ring 152 is disposed about the sleeve 134 between the inner bearing race 132 and the offset externally threaded portion of the cup 126, to further aid in preventing the escape of fluid through the coupling, the packing ring 152 further serving to yieldingly bias the flared end 136 of the sleeve 134 into seating engagement with the inner end 138 of the bearing cup 126, when the elbow 140 is tightened against the inner bearing race 132.

It is intended that the winding and reeling apparatus set forth is utilized to selectively wind and unwind a pair of hoses 80 which are adapted to convey oxygen and acetylene to the welding and cutting torches, which are connected by couplings 154 to the hoses 80. It is accordingly intended that the spaces between the disks 62 and 64 be such as to snugly accommodate a pair of the hoses 80, in sidewise alignment, as is best shown in Figure 2.

The housing of the winding and reeling apparatus is connected to a supporting structure by means of brackets 156, which are connected to the housing, as by fasteners 158, which brackets may be of any suitable construction, depending upon the type of supporting structure to which the housing is to be attached.

From the foregoing, it is thought that the operation and construction of the device will be readily understood, and further discussion is therefore believed to be unnecessary. However, since numerous modifications will readily occur to those skilled in the art after a consideration

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of the foregoing specification and accompanying drawings, it is not intended to limit the invention to that shown and described, but all suitable modifications may be resorted to falling within the scope of the appended claims.

Having described the invention, what is claimed as new is:

1. A hose reel comprising a housing including a pair of spaced side walls, a shaft rotatably journaled in said side walls, said shaft extending transversely of said housing, a pair of drum forming disks non-rotatably secured on said shaft, a split spirally formed band disposed between said disks, each of said disks having a row of apertures positioned adjacent the edge of said spirally formed band, ears on said band extending through said apertures, said ears being distorted to abut the outer faces of said disks, said shaft having a passage therein opening at one end thereof, means rotatably connecting a conduit to the end of said shaft and in communication with said passage, said passage having a transverse opening between said disks, a pipe secured in said transverse opening, said pipe extending in parallel relation with said spirally formed band and terminating at the split, a flexible conduit coupled to said pipe and adapted to be wound on said split band.

2. A hose reel comprising a housing including a pair of spaced side walls, a shaft rotatably journaled in said side walls, said shaft extending transversely of said housing, a pair of drum forming disks non-rotatably secured on said shaft, a split spirally formed band disposed between said disks, each of said disks having a row of apertures positioned adjacent the edge of said spirally formed band, ears on said band extending through said apertures, said ears being distorted to abut the outer faces of said disks, said shaft having a passage therein opening at one end thereof, means rotatably connecting a conduit to the end of said shaft and in communication with said passage, said passage having a transverse opening between said disks, a pipe secured in said transverse opening, said pipe extending in parallel relation with said spirally formed band and terminating at the split, a flexible conduit coupled to said pipe and adapted to be wound on said split band, a flanged plate disposed in said housing coaxially with said shaft, said plate being detachably secured to one of said side walls, a spring mounted between said plate and said side wall, said spring being terminally secured to said shaft and said housing to yieldingly urge said shaft in a direction to wind said flexible conduit on said split spirally formed band.

3. A hose reel comprising a housing including a pair of spaced side walls, a shaft rotatably journaled in said side walls, said shaft extending transversely of said housing a pair of drum forming disks non-rotatably secured on said shaft, a split spirally formed band disposed between said disks, each of said disks having a row of apertures positioned adjacent the edge of said spirally

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formed band, ears on said band extending through said apertures, said ears being distorted to abut the outer faces of said disks, said shaft having a passage therein opening at one end thereof, means rotatably connecting a conduit to the end of said shaft, and in communication with said passage, said passage having a transverse opening between said disks, a pipe secured in said transverse opening, said pipe extending in parallel relation with said spirally formed band and terminating at the split, a flexible conduit coupled to said pipe and adapted to be wound on said split band, a flanged plate disposed in said housing coaxially with said shaft, said plate being detachably secured to one of said side walls, a spring mounted between said plate and said side wall, said spring being terminally secured to said shaft and said housing to yieldingly urge said shaft in a direction to wind said flexible conduit on said split spirally formed band, a centrifugal pawl carried by said drum, a tooth carried by said housing, said pawl being engageable with said tooth to selectively lock said drum against rotation.

4. A hose reel comprising a housing including a pair of spaced side walls, a shaft rotatably journaled in said side walls, said shaft extending transversely of said housing, a pair of drum forming disks non-rotatably secured on said shaft, a split spirally formed band disposed between said disks, each of said disks having a row of apertures positioned adjacent the edge of said spirally formed band, ears on said band extending through said apertures, said ears being distorted to abut the outer faces of said disks, said shaft having a passage therein opening at one end thereof, said shaft having an internally threaded end portion, a bearing cup threadedly connected to said shaft and communicating with said passage, a sleeve disposed axially of said cup, an antifriction bearing assembly including an outer race disposed in said cup and an inner race disposed in said sleeve, a conduit coupling attached to the outer end of said sleeve, said passage having a transverse opening between said disks, a pipe secured in said transverse opening, said pipe extending in parallel relation with said spirally formed band and terminating at the split, a flexible conduit coupled to said pipe and adapted to be wound on said split band.

LEON S. ROARK.

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