June 30, 1931. J. A. RILEY 1,812,805

REEL

Filed Aug. 21, 1929

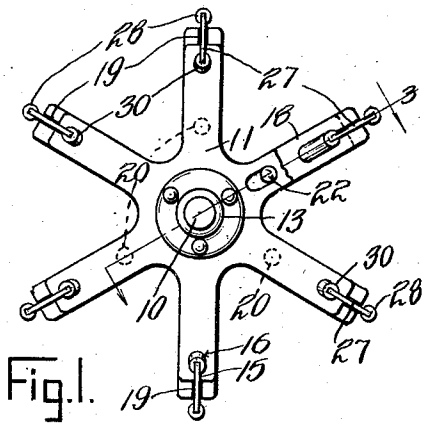
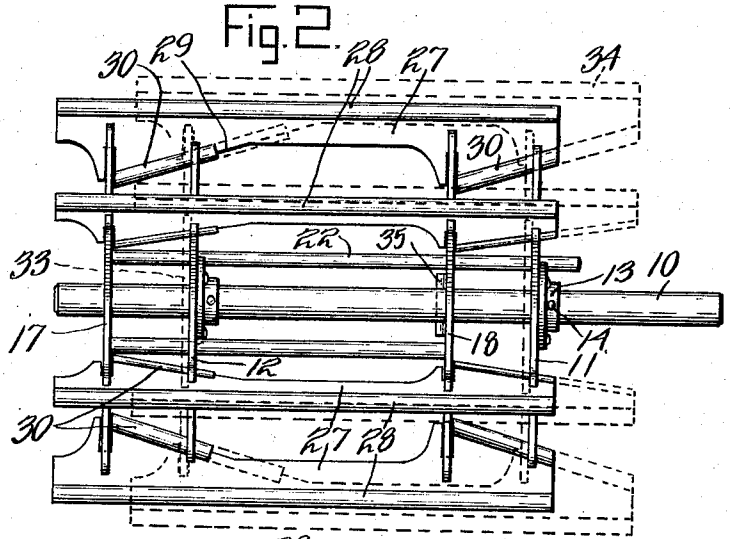


Fig. 1.

Fig. 2.



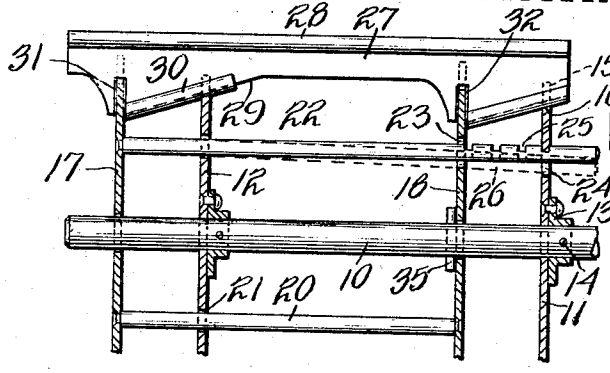


Fig. 3.

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UNITED STATES PATENT OFFICE

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REEL

Application filed August 21, 1929. Serial No. 387,519.

This invention relates to reels which are adjustable to vary their circumference to increase or decrease the effective size of the reels.

An object is to provide a reel which will be quickly adjustable and further a reel in which such parts as are liable to become worn may be readily removed and replaced by new ones without replacing the whole reel.

A further object is to provide a reel of such material as will make it acid resistant to lengthen the life of the reel.

Referring to the accompanying drawings, which are made a part hereof and on which similar reference characters indicate similar parts,

Figure 1 is an end elevation of the reel,

Figure 2, a side elevation, and

Figure 3, a section on line 3—3 of Figure 1.

In the drawings reference character 10 indicates a shaft having spider like disks 11 and 12 secured thereon, the spiders being secured by means of a hub 13 secured to the spider, the hub in turn being secured to the shaft 10 by set screws 14. The outer ends of the spider arms are slotted at 15 the bottom of each slot terminating in an enlarged circular opening 16. Spiders 17 and 18 are slidably mounted on the shaft 10. The outer ends of the arms of these spiders have a relatively deep slot 19. The spider arms are also longer than the arms of the spiders 11 and 12. The spiders 17 and 18 are secured to each other by means of rods 20 which are secured at their ends in the spiders and which pass loosely through perforations 21 in the arms of the spider 12. A rod 22 is secured at one end in the spider 17 and passes through perforations 21 and slots 23 and 24 in the spiders 12, 18 and 11 respectively. The free end of the rod 22 is notched at 25, these notches being adapted to engage the outer end of the slot 24. The rod 22 may be flexed to the dotted line position 26 to release the notches 25 from engagement with the side of the slot 24. The purpose of the rod 22 is to provide means for moving the spiders 17 and 18 toward and from the spiders 12 and 11 and for locking them in the adjusted position. Plates 27 which form the outer cylindrical surface of the roll are positioned in the slots 19 and 15 of the movable and stationary spiders respectively. The plates 27 have outer bars 28 which are shrunk upon the outer edge of the plate, the bars 28 serving to take such wear as the outer cylindrical surfaces of the roll is subjected to. The inner edges of the plates 27 are tapered as shown at 29 and have short cylindrical bars 30 shrunk on their edges. The purpose of the bars 30 serving in connection with the opening 16 is to hold the plates from moving out of the slots in the spiders. The plates also are provided with slots 31 and 32 which fit over the spiders 17 and 18 to hold them against axial movement while bars 30 hold them against radial movement. From the construction so far described it will be seen that as spiders 17 and 18 are moved axially of the rod 10 by means of the bar 22 the plates 27 will be moved radially due to the angular position of the bars 30. For example when the spiders 17 and 18 are moved to the dotted line position 33 the bars will assume the radial position shown at 34 in which position the effective circumference of the reel is increased. Any one of the notches 25 in the bar 22 may be brought to engage the edge of the slot 24 to position the plates 27 in any one of four positions as shown in dotted lines. A pin 35 in the shaft 10 prevents movement of the spiders 17 and 18 too far to the left. If it is desired to have the plates 27 released from locking engagement with the spiders 12 and 11 the pin 35 is removed and the spiders 17 and 18 shifted to the left until the bars 30 are released from the notches in the spiders 12 and 11 at which time the plates 27 may be lifted from the slots in which they are held. While I have shown four notches 25 in the flexible bar 22 which limits adjustment to four positions, it should be distinctly understood that I do not limit myself to this number of adjusted positions. One reason for showing this number of adjustable locking positions is that this particular roll was designed primarily for its use in artificial silk processing machines. The silk is wound around one of the rolls, then passes to an-

other passing over three rolls altogether. In treating the silk it shrinks or stretches as it passes through some of the baths, the amount of shrinkage which will occur in a given bath is predetermined so that the roll may be adjusted to correspond to that particular shrinkage. In the machine in which this particular roll is used three rolls are necessary, the fourth locking notch being provided for moving the plates of the reel to a still smaller circumference so that the reel may be slipped out of the skein of silk which has been finished.

One improved feature of my invention is that the parts are made of material which is not affected by the acid which forms a part of the baths in which the silken thread is treated. While I may use any suitable acid resisting material I have found that I secure particularly effective results by the use of what is known as Monel metal which is an acid resisting alloy.

It will be obvious to those skilled in the art that various changes may be made in my device without departing from the spirit of the invention and therefore I do not limit myself to what is shown in the drawings and described in the specification, but only as indicated in the appended claims.

Having thus fully described my said invention, what I claim as new and desire to secure by Letters Patent, is:

1. A reel comprising a shaft, a pair of disks mounted on the shaft and secured against axial movement thereon, a pair of disks mounted on the shaft, but movable axially of the shaft, the disks having slots in their outer edges, the said slots having blades mounted therein, the said blades being movable radially in the slots in the movable disks and slidable axially in the slots on the stationary disks, the blades having oblique edges in engagement with the stationary disks, whereby movement of the movable disks axially will move the blades radially to vary the effective circumference of the reel and a rod fixed at one end to one of the said movable disks and the other end adapted to be flexed in and out of locked engagement with one of said stationary disks for adjustment of the movable disks relative to the stationary disks, substantially as set forth.

2. A reel comprising a shaft, a pair of disks mounted on the shaft and secured against axial movement thereon, a second pair of disks mounted on the shaft, but free to move axially of the shaft, the said disks having slots in their outer edges to receive blades, blades mounted in the slots, the blades having oblique inner edges in engagement with the stationary disks, the edges having a bead thereon co-operating with narrow portions in the slots on the stationary disks for holding the blades in position on the disks, the blades being movable radially in the slots on the movable disks and slidable axially in the slots on the stationary disks and a rod secured to one of the movable disks for adjusting the movable disks relative to the stationary disks for changing the size of the reel, substantially as set forth.

3. A reel for winding fabric or the like comprising a shaft, a pair of disks secured to the shaft, a pair of disks mounted on the shaft and movable axially thereon, the disks having slots in their outer edges, blades mounted in the slots, the inner edges of the blades being tapered, the blades being secured in the slots of the movable disks to prevent axial movement relative to the disks and being slidable in the slots in the fixed disks and a rod secured in one of the movable disks for moving them relative to the fixed disks to move blades radially to vary the circumference of the reel, the said rod having notches therein engageable with a fixed disk for locking the movable disks in adjusted position, substantially as set forth.

In witness whereof, I have hereunto set my hand at Johnson City, Tennessee, this 20th day of August, A. D. nineteen hundred and twenty-nine.

JAMES A. RILEY.