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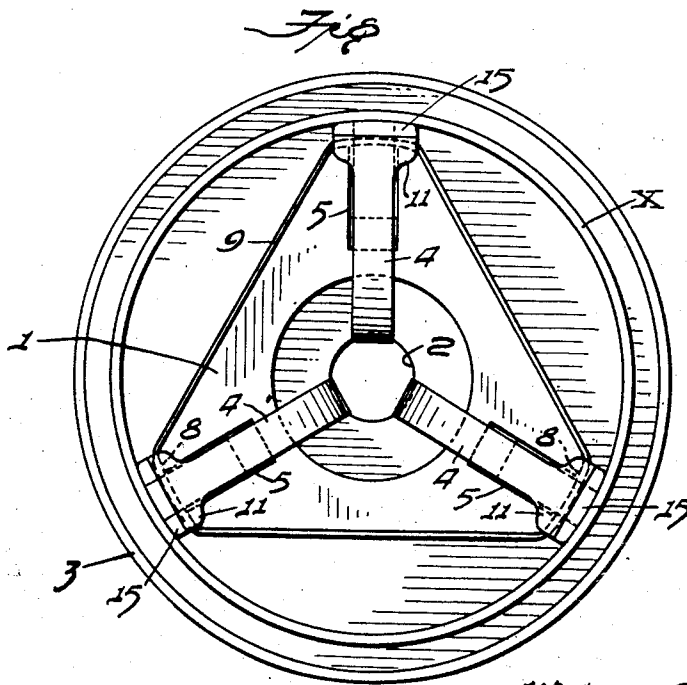
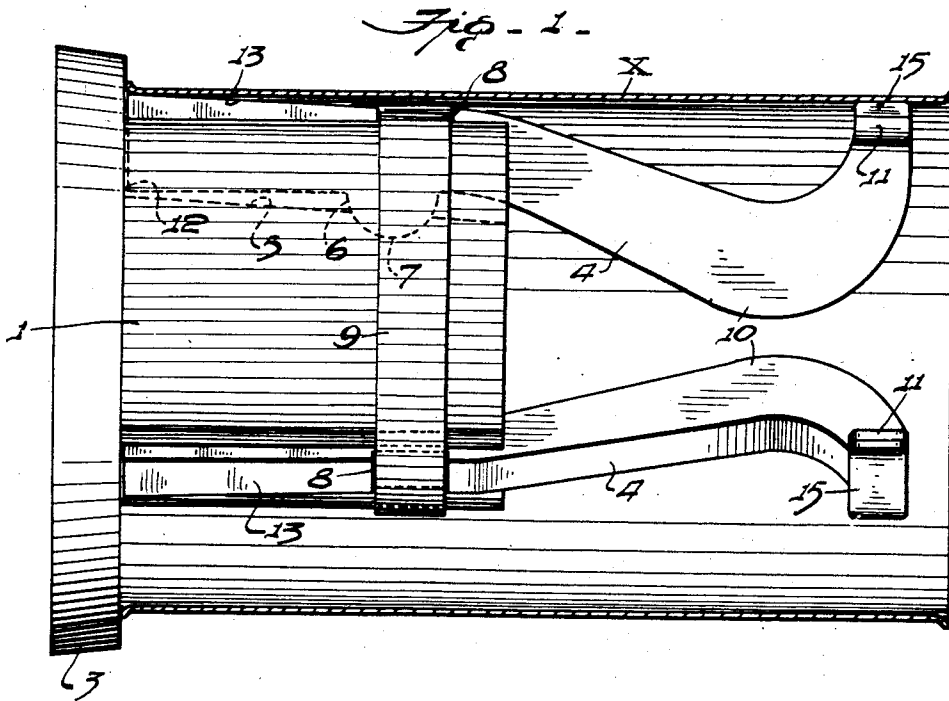
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1,882,950

HOLDER FOR BOBBINS OR SPOOLS

Filed Sept. 12, 1930

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

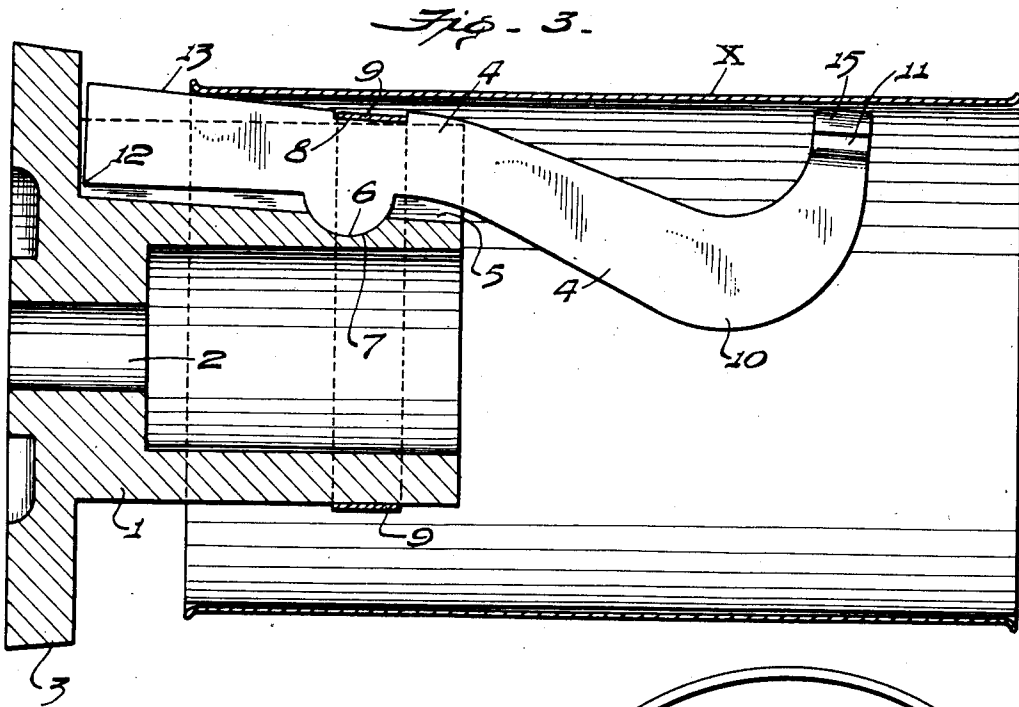


Fig. 4.

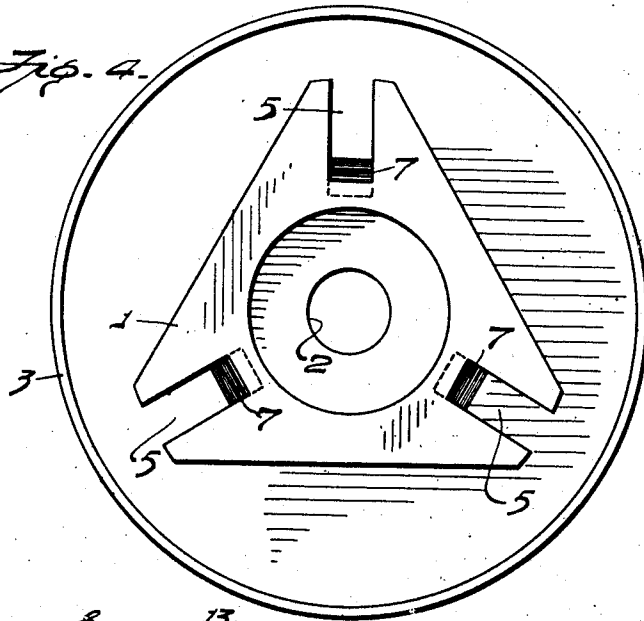


Fig. 6.

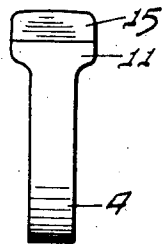
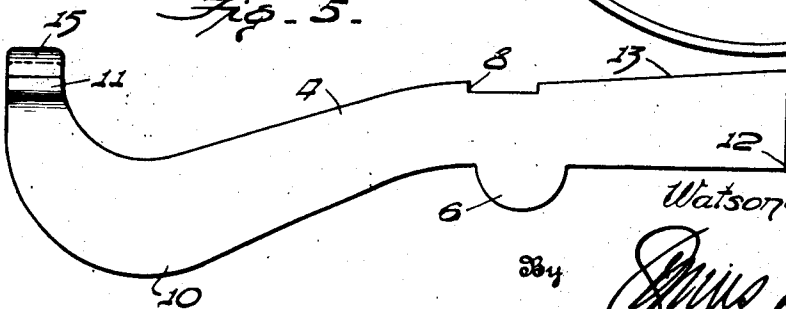


Fig. 5.



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HOLDER FOR BOBBINS OR SPOOLS

Application filed September 12, 1930. Serial No. 481,569.

The present invention relates to holders for spools and other hollow articles and it relates more particularly to holders for hollow bobbins or spools as used in the textile industry for the winding of yarn or other purposes, and the primary object of the invention is to provide a novel and improved holder for hollow bobbins or spools which is capable of expeditiously gripping and releasing the bobbin or spool but which will securely hold the bobbin or spool in properly centered position and so that it can be rotated in either direction without releasing its grip thereon, which will compensate for variations in the diameter of the spool, and which is simple in construction and subject to minimum wear and the parts of which are readily accessible so that they may be easily cleaned when necessary.

To these and other ends, the invention consists in certain improvements and combinations and arrangements of parts all as will be hereinafter more fully described, the features of novelty being pointed out particularly in the claims at the end of the specification.

In the accompanying drawings:—

Fig. 1 is a side elevation of a bobbin or spool holder constructed in accordance with the present invention, a hollow bobbin or spool being shown in section mounted and secured on the holder;

Fig. 2 is an end elevation of the holder and bobbin or spool as viewed from the right in Fig. 1;

Fig. 3 is a view similar to Fig. 1 but showing the hollow bobbin or spool in released relation with the holder, as when partially mounted upon or removed from the holder;

Fig. 4 is an end elevation of the holder with the gripping fingers removed;

Fig. 5 is a detail longitudinal view of one of the gripping fingers removed from the holder; and

Fig. 6 is an end view of the gripping finger as viewed from the left in Fig. 5.

Similar parts are designated by the same reference characters in the several figures.

The present invention provides a holder or mandrel which is adapted to be used for grip-

ping and centering hollow devices of various kinds, it being shown in the present instance as adapted to removably grip and center the hollow bobbins or spools as used in the textile industry. The preferred embodiment of the invention is shown in the accompanying drawings and will hereinafter be described in detail but it is to be understood that the invention is not restricted to the precise construction shown since equivalent constructions are contemplated and such will be included within the scope of the claims.

The holder as shown in the present instance comprises a head 1 which may be composed of suitable material having a bore 2 to receive a spindle on which it may be mounted for rotation and by which the holder and the bobbin or spool thereon may be revolved, the body or head being preferably formed at one end with a circumferential flange 3. The body 1 is provided with a suitable number of bobbin or spool gripping fingers, three of these fingers being shown for example in the present instance, and these fingers are spaced preferably equidistantly in a direction circumferentially of the body. These fingers, which are preferably flat or parallel-sided in cross section, are inserted in slots 5 which are formed radially in the body 1 and extend longitudinally of the axis thereof, the fingers being capable of rocking in their respective slots and the slots being preferably spaced equidistantly around the circumference of the body. Each gripping finger is rockably mounted in its respective slot, it being preferably provided with a segmental fulcrum 6 which is rotatably seated in a concentric recess or socket 7 formed in the inner or bottom wall of the slot, and the outer edge of each gripping finger is formed, at a point substantially opposite to its fulcrum 6, with a notch 8 to receive the flexible band 9 of rubber, metal or other suitable material, this flexible band serving to retain the gripping fingers in the body of the holder with their fulcrums properly bearing in their cooperating recesses or seats.

One end 10 of each gripping finger extends from the fulcrum 6 beyond the body 1 and is provided with a pad 11 which is adapted to

bear against the inner side of the hollow bobbin or spool X, and the other end 12 of each gripping finger extends in the opposite direction from the fulcrum 6 toward the flange 3 of the body, and the outer edge or surface 13 of this end of the gripping finger is bevelled or inclined upwardly or outwardly relatively to the pad 11, this edge or surface of each gripping finger being adapted to engage within an end of the hollow bobbin or spool X.

In using a bobbin or spool holder constructed as hereinbefore described, one end of the bobbin or spool X is inserted endwise over the pads 11 of the gripping fingers and pushed axially against the flange 3 on the body of the holder whose face is perpendicular to the axis of the holder. As the end of the bobbin or spool engages and rides upon the bevelled or inclined edges 13 of the gripping fingers, the latter will be rocked about their fulcrums 6 in a direction to force the pads 11 outwardly against the inside wall or surface of the hollow bobbin or spool, as will be seen from Fig. 3, and when the bobbin or spool has been fully inserted upon the holder as shown in Fig. 1, the bobbin or spool will be firmly gripped by the outward pressure exerted thereon by the pads 11 and by the edges 13 of the gripping fingers, and when the bobbin or spool is fully inserted upon the holder, its inner end bears uniformly against the face of flange 3. Since the gripping fingers are spaced equidistantly circumferentially of the holder, the bobbin or spool will be automatically centered upon the holder and since it bears against the face of flange 3 perpendicular to the axis of the holder, it will be firmly supported both radially and axially and will not be subject to tilting relatively to the holder. To remove the bobbin or spool, it is only necessary to withdraw it endwise therefrom, such withdrawal of the bobbin or spool causing its end which engages the inclined edges 13 of the gripping fingers to ride downwardly or inwardly thereon, thereby permitting the gripping fingers to rock into positions which will release the pads 11 thereof from the bobbin or spool.

In order to enable the holder to compensate for variations in diameters of the bobbins or spools, the spool engaging portion of the pads 11 are preferably faced with rubber or other suitable flexible or compressible material indicated at 15, these flexible or compressible facings yielding, more or less according to variations in the diameters of the hollow bobbins or spools and thereby enabling the holder to substantially uniformly grip and hold the bobbins or spools, and such flexible facings on the pads of the gripping fingers increase the hold of the fingers upon the bobbin or spool.

The fulcrums 6 of the gripping fingers are preferably located toward the ends thereof having the inclined surfaces 13 thereon so that the inclined surfaces 13 which, in cooper-

ation with the end of the bobbin or spool effect the rocking of the gripping fingers into locking and released positions, may be made relatively short, with the result that the slightest withdrawal of the bobbin or spool from the holder unlocks the gripping fingers and facilitates removal of the bobbin or spool and wear of the gripping fingers is reduced to a minimum.

The flexible band 9 which retains the fulcrums 6 of the gripping fingers in their recesses or seats 7 preferably has a normal tendency to contract and the notches 8 in the gripping fingers in which this band rests are preferably located at the sides of the centers of the fulcrums 6 which are toward the outer ends or pads 11 of the gripping fingers, so that the contracting tendency of the band 9 will hold the pads 11 in relatively retracted position, thus facilitating the insertion of a bobbin or spool thereover. While the bobbin or spool is in locked position on the holder, the compression which it exerts on the opposite ends of the gripping fingers will firmly retain the fulcrums 6 of the gripping fingers in the respective recesses or seats 7 in the body of the holder, thereby precluding endwise displacement of the gripping fingers while a bobbin or spool is mounted on the holder.

A holder or mandrel constructed substantially as hereinbefore described enables a bobbin, spool or other hollow device to be securely supported in truly centered position thereon and rotated in either direction without liability of releasing the grip of the holder thereon, since the grip of the fingers can be released only by a movement of the bobbin or spool axially of the holder and is unaffected by any possible slip between the holder and the bobbin or spool due to acceleration in its speed of rotation, and the grip of the fingers on the bobbin or spool is at the maximum when the latter is fully inserted on the holder. Any lack of uniformity in the diameter of the bobbins or spools will be compensated for by the flexible or yieldable faces on the pads of the gripping fingers, assisted by the flexibility of the lever-like fingers under the pressure imposed upon their extreme ends at the opposite sides of their fulcrums. While three gripping fingers are shown which are spaced equidistantly circumferentially of the holder, providing six supporting points for the bobbin or spool, it will be understood that a different number of fingers may be used if desired.

By mounting the fingers on fulcrums located in slots in the body, the fingers may be easily and quickly removed for cleaning or other purposes after removing the flexible retaining band, and displacement of the fingers while a bobbin or spool is on the holder is precluded since the inward pressure then exerted on both ends of the fingers firmly locks the

fulcrums thereon in the recesses in the body of the holder.

I claim as my invention:—

5 1. A holder for hollow bobbins or spools comprising a body having radial slots there-
in spaced circumferentially thereof, flat grip-
10 ping fingers inserted edgewise in said slots and having fulcrum portions thereon located at their inner sides and between their ends and seated in the bottom of said slots in the
15 body, and a band encircling said fingers for retaining the fingers removably in said slots.

2. A holder for hollow bobbins or spools comprising a body having recesses therein
15 spaced circumferentially thereof, gripping fingers having fulcrum portions thereon lo-
cated at their inner sides and between their
20 ends and seated in said recesses in the body and having their bobbin or spool receiving
ends projecting beyond said body, and a flex-
ible band bearing on the outer sides of the
25 fingers at the side of the fulcrum portions thereon toward said projecting ends of the
fingers and normally holding said projecting
ends of the fingers in retracted relation.

3. A holder for hollow bobbins or spools comprising a body and lever-like gripping
30 fingers spaced circumferentially thereof and fulcrumed thereon at points between their
ends, the ends of the fingers at one side of
their fulcrums providing outwardly inclined
supporting surfaces to enter and grip the hol-
low bobbins or spools and to rock the fingers
35 on their fulcrums and the other ends of the
fingers at the opposite side of their fulcrums
having yieldable facings thereon to engage
the bobbins or spools by said rocking of the
fingers.

40 In testimony whereof I have hereunto set
my hand.

WATSON B. RULON, JR.

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