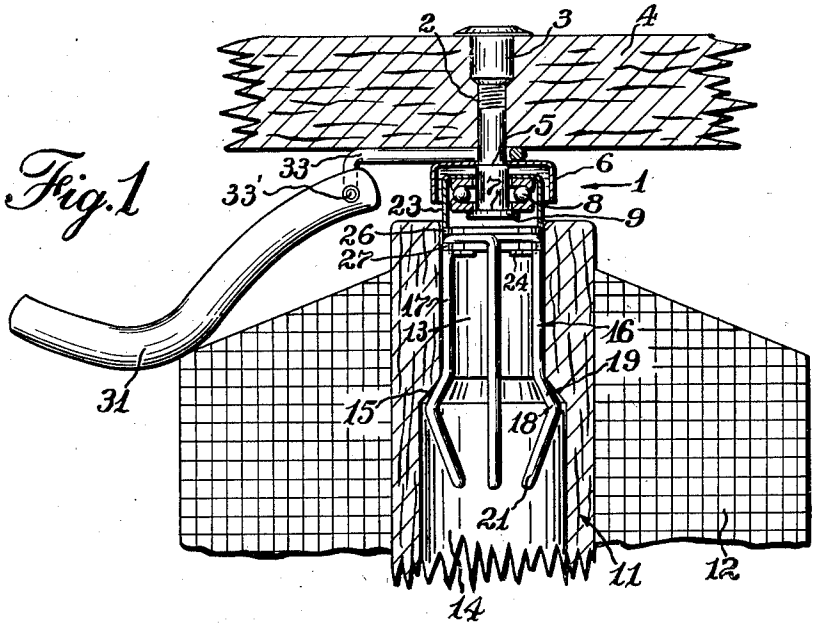
Dec. 16, 1947. G. R. FASSETT 2,432,612

BOBBIN HOLDER

Filed Aug. 9, 1945 2 Sheets-Sheet 1

Fig. 1



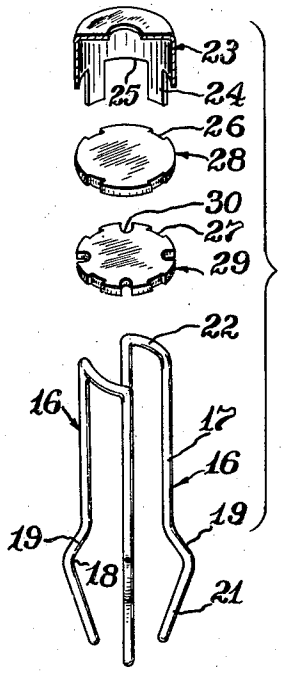


Fig. 2



Fig. 3

WITNESS

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Fig. 4

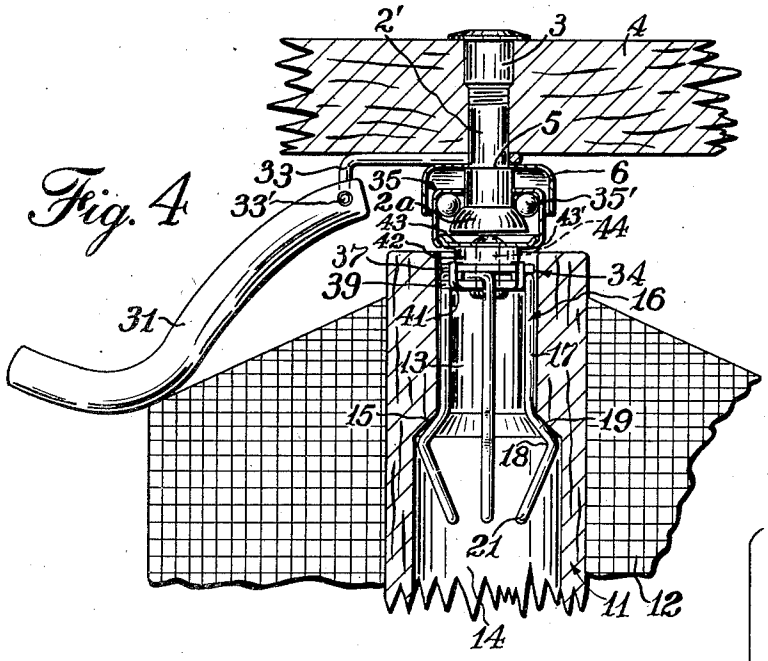
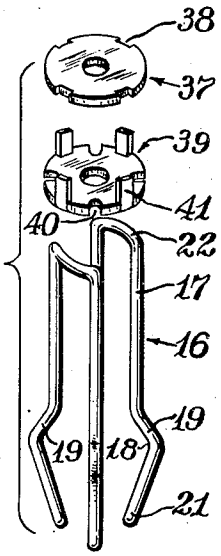


Fig. 5



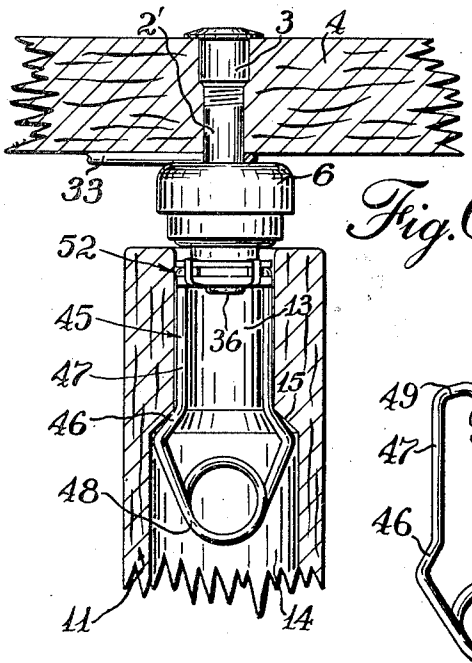


Fig. 6

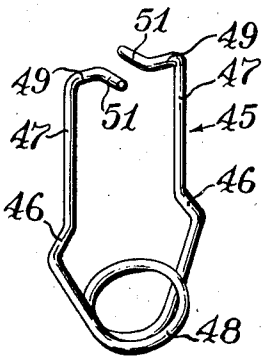


Fig. 7

WITNESS

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2,432,612

UNITED STATES PATENT OFFICE

2,432,612

BOBBIN HOLDER

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Application August 9, 1945, Serial No. 609,822

5 Claims. (Cl. 242—130)

1

The present invention relates to holders for rotatably supporting bobbins from the creelboards of spinning frames and the like, and more particularly to an anti-friction holder for pendulously supporting a bobbin.

Pendulous bobbin holders, as disclosed for instance in the patent to Mann, No. 2,145,362, comprise generally means for attachment to the underside of a creelboard, a spring coupling for detachable connection with a bobbin to be supported, and a swivel connection therebetween permitting a limited amount of universal movement.

It is an object of the present invention to provide a novel anti-friction bobbin holder which is simple in construction and assembly, economical to manufacture and adapted to operate satisfactorily with bobbins having various sizes of central openings.

It is a further object to provide such a device which is light in weight but amply strong for the service required of it.

It is a further object to provide such a device in which bobbin-gripping elements are formed in pairs from a common stock material of small, round cross-section such as spring wire so that the curved ends of the elements may pass by each other when they are compressed by insertion in the hole of the bobbin to be supported.

It is a further object to provide such a device wherein the fixed ends of the bobbin-gripping members have portions so shaped as to render the members self-erecting when clamped into the head assembly and also have straight portions to prevent tilting of the bobbin on the holder.

It is another object to provide such a device having interfitting members which locate and clamp the bobbin-gripping members in place when assembled.

It is a still further object to provide such a device in which the same bobbin-gripping members may be used for various sizes of bobbins by changing the size of the clamping discs by which said members are retained.

It is a further object to provide such a device wherein each bobbin-gripping member has two opposite seating surfaces on which the bobbin rests, said surfaces being united at the bottom by a spring loop for yieldably spacing the surfaces a definite distance apart.

It is a further object to provide such a device in which the thrust bearing on which the bobbin holder hangs is adapted to permit limited side sway of the holder.

Further objects and advantages will be apparent to those skilled in the art by reference to the accompanying specification and drawings in which:

2

Fig. 1 is a side elevation partly in section of a preferred embodiment of the present invention;

Fig. 2 is a perspective detail view of the bobbin-supporting springs and their anchoring structure, shown in disassembled relation;

Fig. 3 is a top view of one of the bobbin-gripping elements shown in Fig. 1;

Fig. 4 is a side elevation partly in section of a second embodiment of the invention;

Fig. 5 is a perspective detail view of the bobbin-gripping member and clamping arrangement of Fig. 4 shown in disassembled relation;

Fig. 6 is a side elevation of a bobbin holder illustrating another form of bobbin-gripping member; and

Fig. 7 is a perspective view of the bobbin-gripping members shown in Fig. 6.

In Fig. 1 of the drawings, a preferred form of bobbin holder indicated generally by the numeral 1 is shown attached by an attachment member or bolt member 2 and nut 3 beneath a creelboard 4. The bolt 2 has an enlarged diameter near its lower end providing a shoulder 5 for clamping a dust cap 6 beneath the creelboard in position to shelter the bobbin holder from the entrance of lint. The bolt also has a shoulder 7 for seating an anti-friction thrust bearing 8 against the head 9. A bobbin 11 having a package of roving 12 wound thereon is arranged to be pendulously supported beneath the creelboard by the holder 1. As is customary, the bobbin has an axial bore 13 and a counterbore 14 forming a shoulder 15 which is utilized by the holder to support the bobbin.

According to the present invention, spring coupling means for detachably connecting the bobbin 11 to the holder 1 are provided in the form of bobbin-gripping members 16 having vertical flexible fingers 17 joined together at the top ends. The bobbin-gripping members 16 are shaped somewhat like an inverted U with straight and parallel upper arms and are made of common stock such as spring wire. Any desired number of bobbin-gripping members 16 can be used in supporting the bobbin 11, the number depending on the size of the bore 13 and the stiffness of the spring stock used in the flexible fingers 17. The fingers 17 have outwardly directed angular protrusions 18 formed near the bottom thereon which provide the seating surfaces 19 on which shoulder 15 of the bobbin rests when the bobbin is assembled to the holder. It will be noted that the

lower ends 21 of the flexible fingers 17 are bent inwardly to facilitate starting the bobbin over the fingers and since the spring fingers are made of round stock, the ends 21 will slip past each other in case the bobbin holder is inserted in a small bobbin hole 13.

As best shown in Fig. 3, means are provided for maintaining the fingers 17 erect in the form of the arcuate connecting portion 22 which has the same effect as a right-angled brace arm having a length equal to the distance *a*, formed integral with the bobbin-gripping member. Since the arcuate portions 22 are tightly clamped in place when assembled, the proper spring action of the fingers 17 is thereby assured.

In this form of the invention, means are provided for enclosing the bearing 8 and clamping the bobbin-gripping members in the form of a bearing casing 23 supported by the upper race of the bearing and having suitable clearances to permit limited swaying motion thereof. The clamping function is provided by the extensions or tabs 24 on the lower edge 25 of the casing 23, said extensions being fitted within the corresponding slots 26 and 27 on plates 28 and 29 respectively and bent over the underside of plate 29 to complete the assembly of the bobbin-gripping members 16. Slots 30 around the periphery of plate 29 are supplied to properly position the bobbin-gripping members 16 both angularly and radially from the center of the plate. It will be understood that the number of slots 30 and bobbin-gripping members 16 may be increased to accommodate various sizes and weights of bobbins.

Auxiliary devices such as a tension bar 31 of the character shown in the patent to Mann, 2,109,543, may be held by the same bolt 2 which holds the bobbin holder. In the arrangement shown in Fig. 1, bracket 33 is interposed between the creelboard 4 and the dust cap 6 and the outer end of the bracket is formed as a pivot pin 33' to position the tension bar for the proper contact with the package of roving 12.

When assembling the bobbin holder, the thrust bearing 8 is first slipped over the bolt 2 against the shoulder 7 and the bearing casing 23 is then placed over the bearing. Next the plate 28 is seated against the edge 25 of the casing; and the plate 29, with the bobbin-gripping members 16 assembled in its slots 30, is pressed against plate 28 while the extensions or tabs 24 are bent underneath and compressed in order to permanently lock these parts together.

In use, a bobbin is pushed up onto the holder from below, the spring fingers being compressed by the wall of the bore 13 of the bobbin until the projection 18 of the fingers passes beyond the shoulder 15 in the bobbin whereupon the fingers expand and hold the bobbin suspended by contact with said shoulder. The strength and stiffness of the fingers, and the inclination of the projections 18 thereof, are made sufficient to reliably hold the heaviest bobbin load which it is desired to employ, while being so limber as not to unduly resist withdrawal of the bobbin from the holder by a downward pull exerted thereon by the operator.

In Fig. 4 of the drawings, a form of the invention is shown which is in general similar to the embodiments of Figs. 1 to 3 but incorporates a universal type of bearing of the type illustrated in the patent to Mann, 2,091,181. As here shown, the spring supporting fingers 16 are clamped in a retaining head 34 which is suspended from a

universal bearing indicated generally by numeral 35. Retaining head 34 as shown in detail in Fig. 5 comprises an upper disc 37 and a lower disc 39 having notches 40 for reception of the spring arms 16, and lugs 41 extending upwardly through the notches 38 in the upper plate, and adapted to be bent over the top of the upper plate to hold the unit rigidly assembled.

In order to support the head 34, a spacing washer 42 is placed thereon, and a disc 43 is superimposed and united therewith by means of a rivet 44 passing axially through the assembly. A bearing housing member 35 is mounted on the bolt 2' and forms the upper race for a set of bearing balls 35'. The head 2*a* of the bolt 2' is formed as a zone of a sphere and cooperates with the balls 35' to provide a universal swivel bearing for head 34. The lower rim of the housing member 35 is crimped over the edge of disc 43 as indicated at 43' to hold the parts in assembled relation.

An embodiment of the invention is illustrated in Fig. 6 in which the spring means for gripping and supporting the bobbin is in the form of a plurality of members 45, formed from flexible material such as spring wire and having integral bobbin-retaining seat 46 similar to the sheets 19 of spring fingers 17 shown in Fig. 2. In this form of bobbin-retaining member, the lower ends of the fingers 47 are connected by a spring loop 48 which serves to stiffen and reinforce the fingers. Fingers 47 are parallel and serve to align the bobbin on the holder similarly to the portions 17 of the bobbin-retaining members 16 in Fig. 1. At the upper ends of the fingers 47, the spring wire is given a double bend, the first bend 49 being formed to afford a shoulder for supporting the bobbin, and the second bend 51 being a transverse or sideways bend to provide means for keeping the supporting member 45 erect when it is clamped in the head 52. The other portions of the bobbin holder are similar to corresponding parts already described and illustrated in Fig. 3, and are similarly numbered.

Although certain forms of the invention have been shown and described in detail, it will be apparent that other forms are possible and changes may be made in the arrangement and proportions of the parts without departing from the spirit of the invention.

What is claimed is:

1. In a bobbin holder, an attachment member and an anti-friction thrust bearing mounted thereon, a retaining head having an upper and a lower plate clamped together and supported by said bearing, a spring member having opposite bobbin-gripping elements joined at the bottom by a yielding spacing portion and having means at the upper ends of said bobbin-gripping elements held between said upper and lower plates for maintaining said spring members erect.

2. In a bobbin holder, an attachment member and an anti-friction bearing mounted thereon, a plurality of bobbin-gripping members, and means for enclosing said bearing and clamping said bobbin-gripping members said means including a casing having elongated tabs projecting from the lower edge thereof, and a pair of slotted plates clamped to said bearing casing by said tabs to fixedly assemble the bobbin-gripping members to said casing.

3. In a pendulous support for hollow rotary bobbins, a plurality of spring fingers formed to frictionally engage the interior of a bobbin, each finger having near one end an anchoring portion

extending in a plane substantially normal to the body of the finger and a free portion at its other end, and clamping means for holding said anchoring portions of the fingers in co-planar relation spaced a predetermined distance radially from the axis of the support.

4. A pendulous bobbin support as set forth in claim 3 in which said anchoring portions of the fingers are bent laterally in said plane to co-operate with said clamping means to maintain the fingers substantially perpendicular to said plane.

5. A pendulous bobbin support as set forth in claim 3 in which the free ends of said fingers are bent toward each other, and the fingers are

formed of material having a substantially circular cross section, whereby when the fingers are compressed by introduction into a bobbin, the free ends thereof pass by each other without interference.

GEORGE R. FASSETT.

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The following references are of record in the file of this patent:

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Number	Name	Date
2,091,181	Mann	Aug. 24, 1937
2,250,675	Markle, Jr.	July 29, 1941