

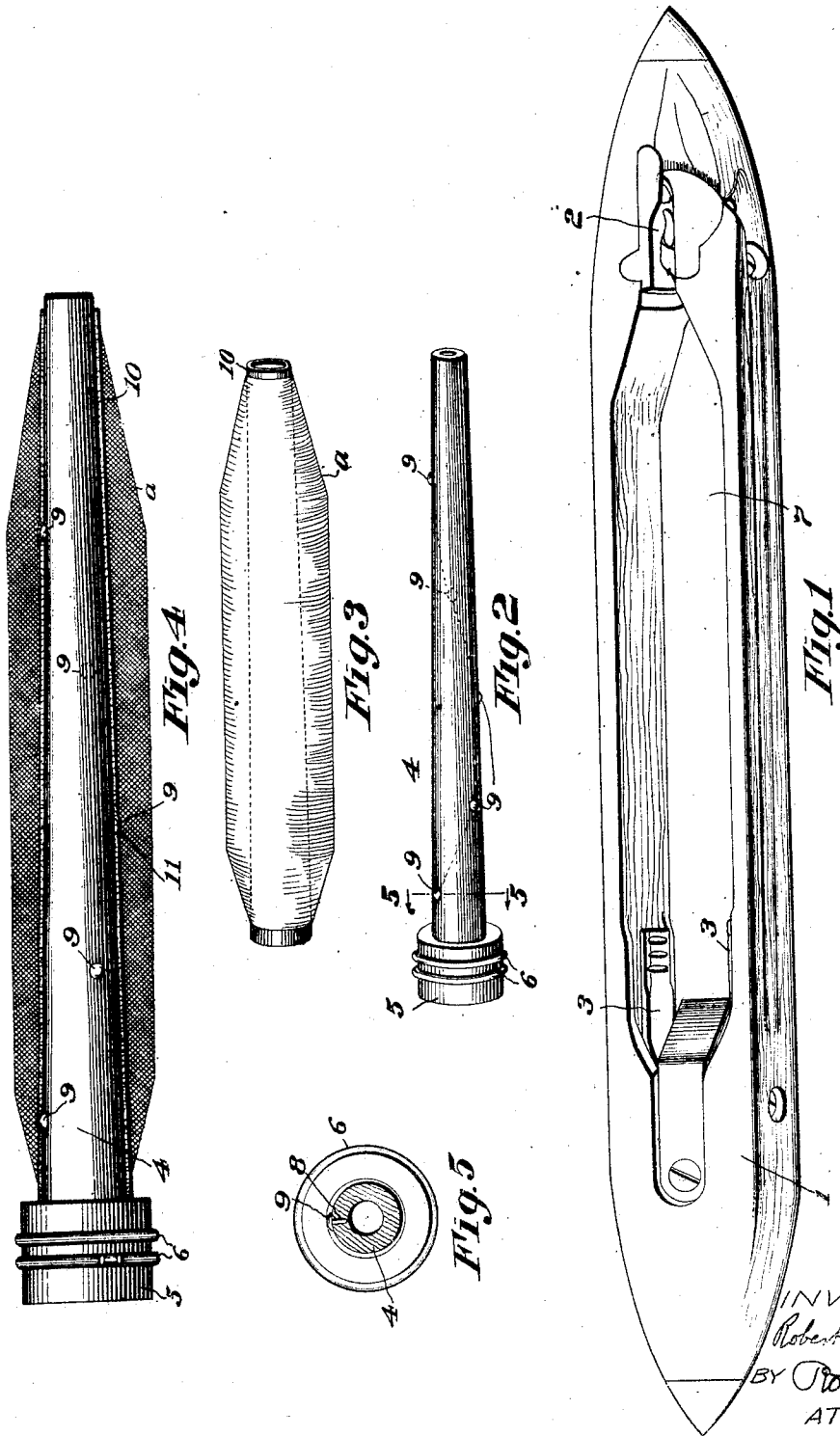
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THREAD CARRIER SUPPORT FOR SHUTTLES

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# UNITED STATES PATENT OFFICE.

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## THREAD-CARRIER SUPPORT FOR SHUTTLES.

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*To all whom it may concern:*

Be it known that I, ROBERT M. GOODNOW, a citizen of the United States, and a resident of Hopedale, in the county of Worcester and State of Massachusetts, have invented an Improvement in Thread-Carrier Supports for Shuttles, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention relates to thread carrier supports for use in shuttles, and more particularly to thread carrier supports for automatically replenishing shuttles, wherein the support itself is periodically ejected from the shuttle during the replenishing operation.

It is now the common practice to wind certain characters of yarn, such, for instance, as silk, artificial silk, or the like, upon paper tubes or "cop" tubes as they may be termed, and where such yarn is to be used as filling during the weaving operation it is ordinarily rewound from such paper or cop tubes on to a carrier or bobbin. Particularly is this the case where the yarn is to be used as filling in a filling replenishing loom, because the cop tube itself has no means for supporting it detachably in the shuttle.

The rewinding of yarn from the paper or cop tube on to a thread carrier or bobbin adapted for use in filling replenishing shuttles is not only an expensive operation, but injury results to the yarn itself, and one of the purposes of the present invention is to provide a thread carrier support having means for detachably holding it in the shuttle during the weaving operation, which will be adapted to properly hold or support the paper or cop tube on which the filling had been originally wound.

In carrying the invention into practical effect, the thread carrier support may be formed as of the usual type, that is, a bobbin having a head portion for detachably engaging the bobbin holding jaws in the shuttle, and in accordance with the present invention, such thread carrier support or bobbin is provided with a series of studs, pins, or the like, preferably provided with headed portions which extend beyond the barrel surface of the bobbin and are arranged in spiral relation along the barrel, to receive

by screwing or turning action of the paper or cop tube the original package without rewinding the same, the construction being such that when the paper or cop tube is screwed on to the thread carrier support or bobbin provided with the present invention, it will be held fixedly with relation thereto and not be disturbed during the weaving operation, and yet will be ejected with the filling carrier support or bobbin on the replenishing of the shuttle.

The invention and novel features thereof will best be made clear from the following description and the accompanying drawings of one good form thereof.

In the drawings:

Fig. 1 is a perspective view of a filling replenishing shuttle;

Fig. 2 is a perspective view of a thread carrier support, such as a bobbin, provided with the present invention;

Fig. 3 is a similar view of a paper or cop tube having yarn or thread wound thereon during the original winding operation;

Fig. 4 is a sectional side elevation of the thread carrier support of the present invention, showing the original paper or cop tube having yarn or thread wound thereon and held fixedly relative to the thread carrier support or bobbin; and

Fig. 5 is a section on the line 5-5 of Fig. 2.

The shuttle indicated in the drawings is of the usual filling replenishing type and in the present instance comprises the body portion 1 having the threading block 2 at its leading end and the paper holding jaws 3 for detachably holding the thread carrier support or bobbin.

The thread carrier support or bobbin 4 comprises the head portion 5 about which are secured the rings 6, of which there may be any suitable number, for detachable engagement with the bobbin holding jaws 3 in the shuttle, the construction being such that during the replenishing operation the thread carrier support or bobbin 4 may be ejected through the usual lower opening 7 in the shuttle.

The barrel of the thread carrier support or bobbin 4 which extends from the head 5 thereof is provided with a series of pins which are spirally arranged along the barrel, as indicated in Figs. 2 and 4. As more clearly indicated in Fig. 5, the thread car-

rier support or bobbin 4 may be appropriately formed of wood, as usual, and in the barrel portion thereof are inserted a series of pins, studs, or the like 8, which are preferably provided with headed portions 9 which extend slightly outward from the normal surface of the bobbin barrel. Where the pins, studs or the like 8 are formed as indicated in Fig. 5, they may be conveniently driven or forced into the wooden barrel of the bobbin in spiral relation such that the headed portions thereon may engage the interior surface of a paper or cop tube having yarn wound thereon.

The yarn in some instances, as is the case with silk, artificial silk, and the like, is originally wound on a paper or cop tube 10, as indicated in Figs. 3 and 4, and such paper or cop tube may be of an interior diameter such as to properly fit the thread carrier support or bobbin 4. As shown, such paper or cop tube is usually formed tapering on its interior, in corresponding taper to the thread carrier support, with the result that when the paper or cop tube 10 with the filling *a* wound thereon in the original package, is placed upon the thread carrier support or bobbin and is turned or screwed downwardly towards the head 5 of the thread carrier support or bobbin, the projecting portions of the pins or studs spirally arranged on the thread carrier support or bobbin barrel, sink into the interior portion of the paper or cop tube, as indicated at 11, Fig. 1, and form in effect a spirally arranged holding means for frictionally holding the paper or cop tube with the filling wound thereon in undisturbable relation with the thread carrier support or bobbin.

Inasmuch as it is now the usual practice to employ filling carrier supports or bobbins formed of wood, having a head portion adapted for detachable engagement with the bobbin holding jaws of a filling replenishing shuttle, it is convenient, as one means of carrying out the present invention, to insert into the wooden barrel of the thread carrier support or bobbin a series of headed pins such as described, with the head portions thereof projecting slightly from the wooden barrel, and adapted to engage the interior surface of the paper or cop tube.

From the construction described as one good embodiment of the present invention, it will be apparent that the yarn *a* wound in the original package on the paper or cop tube 10 may be screwed upon the thread carrier support or bobbin for use in filling replenishing shuttles, and that upon the replenishing operation when the thread carrier support or bobbin is ejected, the paper or cop tube will accompany the ejected filling carrier support or bobbin and may there-

after be removed from the thread carrier support or bobbin by a reverse turning action of the paper or cop tube. Thus, in the use of certain characters of filling which have heretofore required to be rewound for adaption as filling in a filling replenishing shuttle, and especially with silk, artificial silk, and other fine yarn, the injuries incident to rewinding are overcome and the yarn wound in the original package on the paper or cop tube may be advantageously employed in connection with a thread carrier support for detachable engagement with means in the shuttle.

What is claimed is:

1. A thread carrier support for automatically replenishing shuttles, comprising a bobbin having a head portion to detachably engage bobbin holding jaws in a shuttle, and a series of spirally arranged studs driven into the bobbin and having heads extending from the barrel of the bobbin for holding engagement with the interior of a paper tube carrying yarn wound thereon.

2. A thread carrier support for automatically replenishing shuttles, comprising a wooden bobbin having a head portion for detachable engagement with bobbin holding jaws in a shuttle, and a series of pins driven into the bobbin and having heads projecting from the barrel of the wooden bobbin to engage and hold a cop tube on the bobbin.

3. A thread carrier support for automatically replenishing shuttles, comprising a bobbin having a head for detachable engagement with the bobbin holding jaws of a shuttle, and a series of pins extending into the barrel of the bobbin in spiral relation and having heads to hold a paper tube on the bobbin.

4. A thread carrier support for automatically replenishing shuttles, comprising a wooden bobbin having a series of pins forced into the bobbin in spiral relation along the barrel of the bobbin and having projecting heads to engage the interior of a cop tube containing a supply of yarn for use as filling.

5. A filling replenishing bobbin having means for detachably holding it in a shuttle and provided with a series of headed pins driven into the barrel of the bobbin, with the heads exposed to engage the interior of a cop tube.

6. A filling replenishing bobbin having means for detachably holding it in a shuttle and provided with a series of headed pins the non-headed portions of which are driven into the bobbin with the heads arranged in spiral relation along the barrel.

In testimony whereof, I have signed my name to this specification.

ROBERT M. GOODNOW.