

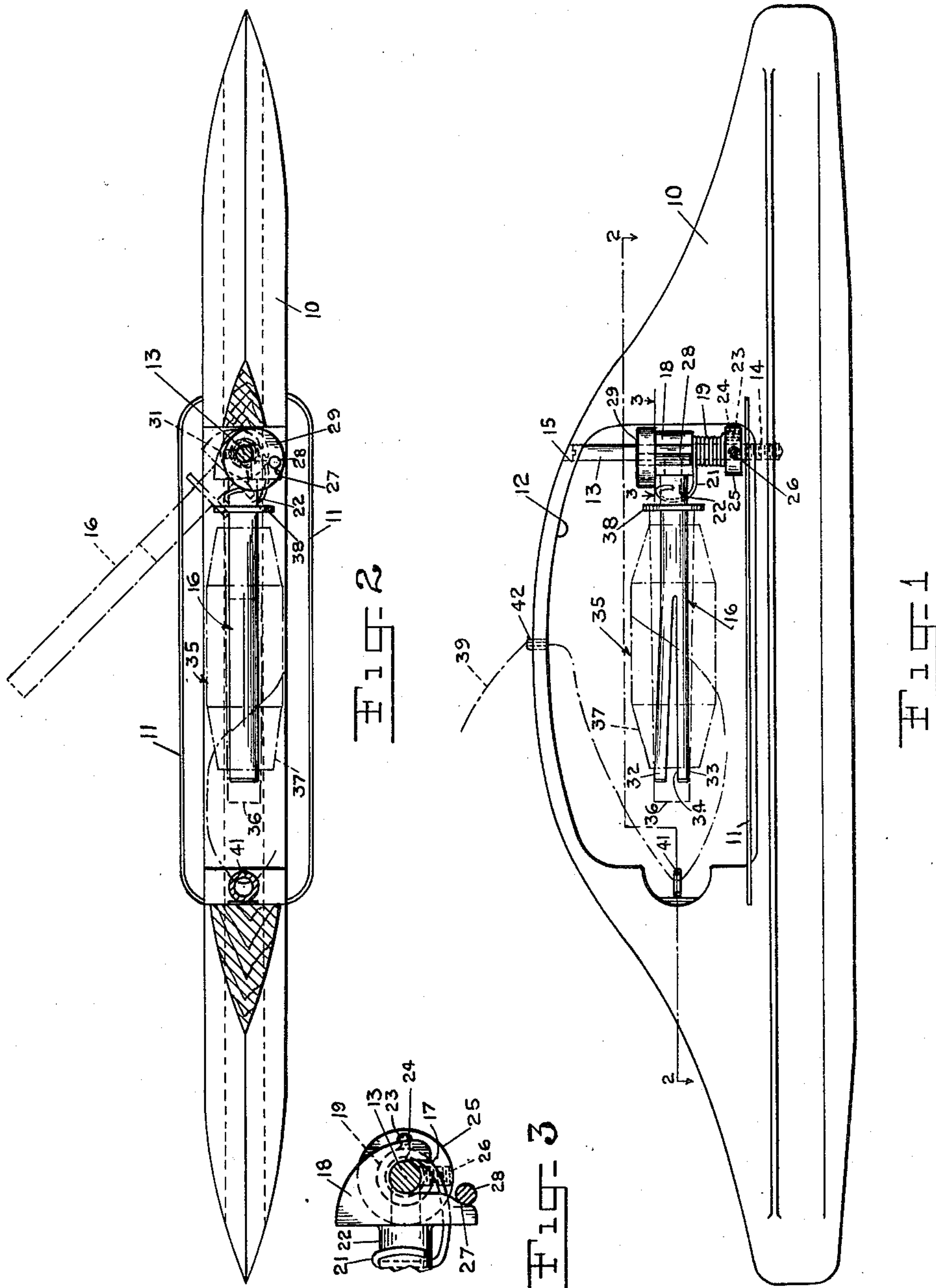
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BOW SHUTTLE

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BOW SHUTTLE

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This invention relates to shuttles, and relates more particularly to shuttles employed in the weaving of narrow fabrics.

As is well known, in weaving narrow fabrics such as ribbons, it is customary to employ shuttles in which the yarn leaves the shuttle through guide means positioned centrally of the ends of the shuttle. Heretofore, it has been the practice to fill said shuttles with parallel wound bobbins and deliver the yarn to the guide means by the unrolling action of the filling bobbin. While shuttles of this type give satisfactory results when employed for weaving fabrics ranging from about $\frac{3}{8}$ to 3 inches in width, they are not suitable for weaving somewhat wider fabrics ranging from about 3 to 6 inches in width. During the weaving of these latter fabrics, the inertia developed in the rotating bobbin as the yarn is drawn therefrom causes an excess of yarn, of varying amount, to be unwound from the bobbin with the result that the delivery of yarn is irregular producing a defective fabric. Moreover parallel wound bobbins are difficult to wind and are easily damaged during handling.

It is an important object of this invention to provide a shuttle which will be free from the foregoing and other disadvantages of the prior shuttles and which will be especially simple in construction and efficient in operation.

A further object of this invention is the provision of a shuttle adapted for the weaving of narrow fabrics, in which the yarn leaves the shuttle through guide means positioned centrally of the ends of the shuttle and in which the yarn is drawn over the end of the filling bobbin.

Another object of this invention is the provision of a shuttle adapted for the weaving of narrow fabrics, in which a cross-wound package of yarn may be employed as the filling bobbin.

Other objects of this invention, together with certain details of construction and combinations of parts, will be apparent from the following detailed description and claims.

I have now discovered that the difficulties experienced in weaving narrow fabrics ranging from about 3 to 6 inches in width may be overcome by providing a shuttle in which the yarn leaves the shuttle through guide means located centrally of the ends of the shuttle, and in which the yarn is drawn over the end of the filling bobbin. This not only eliminates the irregular delivery of the yarn frequently encountered when employing a rotating bobbin, but also permits cross-wound filling bobbins to be employed, such bobbins being wound

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more readily, and being less likely to be damaged during handling.

A preferred embodiment of this invention is illustrated in the accompanying drawing, in which

Fig. 1 is a side elevation of the shuttle with a filling bobbin mounted therein,

Fig. 2 is a view in section, on the line 2—2 of Fig. 1 in the direction of the arrows, showing the manner in which the filling bobbin is mounted in the shuttle, and

Fig. 3 is a detail sectional view, on an enlarged scale, taken on line 3—3 of Fig. 1 in the direction of the arrows, showing the manner in which the bobbin support is mounted in the shuttle.

Referring now to the drawing, the reference numeral 10 designates the shuttle body which is provided with conventional bumpers 11 and which has an aperture 12 extending therethrough. Positioned at one side of the aperture 12 is a supporting rod 13, which is threaded at its lower end into an aperture 14 and which extends at its upper end through an aperture 15 in the shuttle body.

A bobbin support, indicated generally by reference numeral 16, is mounted in the aperture 12. The bobbin support is provided with a U-shaped opening 17 in hub 18 thereof for pivotal engagement with the supporting rod 13. The bobbin support 16 is held in position by means of a spring 19 which encircles the supporting rod 13 and which is provided at its upper end with a hook 21 that engages neck 22 of said bobbin support. The lower end of the spring 19 is provided with an extension 23 adapted to be held within an aperture 24 in a collar 25 adjustably fastened to the supporting rod 13 by means of a set screw 26, permitting the tension in said spring to be varied over a wide range. The torque exerted by the spring 19 on the bobbin support 16 tends to rotate said bobbin support about the supporting rod 13 as an axis. To limit the extent of such rotation and to hold the bobbin support 16 parallel to an axis extending along the length of the shuttle body 10, there is provided an abutment 27 on the hub 18, which abutment engages a pin 28 carried by a collar 29 adjustably fastened to the supporting rod 13 by means of a set screw 31.

The bobbin support 16 is divided into two sections 32 and 33 by means of a slot 35, and one of said sections is sprung away from the other so that the diameter of the bobbin support increases gradually towards its free end. A filling bobbin, indicated generally by the reference numeral 35, and comprising a yarn support 36 and a cross-wound yarn winding 37, is mounted centrally of the shuttle body 10 on the bobbin sup-

port 16 with its end abutting a flange 38 on said bobbin support, and with the sections 32 and 33 yieldably engaging the inside of yarn support 36 to hold the filling bobbin 35 in position. Yarn 39 is drawn from the filling bobbin 35 over the end thereof and passes successively through guide means such as a guide eye 41 positioned axially of said filling bobbin and then through a guide 42 positioned centrally of the ends of the shuttle.

The spring mounting of the bobbin support 16 permits said bobbin support to be moved to the position shown in dot-dash lines in Fig. 2 of the drawing for the replacement of the filling bobbin 35 when necessary.

While the shuttle of this invention has been described with particular reference to the weaving of narrow fabrics ranging from about 3 to 6 inches in width, to which it is especially adapted, it will be appreciated that it may also be employed for weaving narrower or wider fabrics.

It is to be understood that the foregoing detailed description is given merely by way of illustration and that many variations may be made therein without departing from the spirit of my invention.

Having described my invention, what I desire to secure by Letters Patent is:

1. A shuttle comprising in combination with a shuttle body having an aperture extending therethrough, a supporting rod positioned in said aperture, a bobbin support for carrying a filling bobbin pivotally engaged with said supporting rod, adjustable stop means carried by said supporting rod and cooperating with said bobbin support for holding said bobbin support parallel to an axis extending along the length of said shuttle body, guide means positioned centrally of the ends of said shuttle body for guiding the yarn as it leaves said shuttle, and means for

guiding the yarn over the end of said filling bobbin on its way to said centrally positioned guide means.

2. A shuttle comprising in combination with a shuttle body having a centrally located aperture extending therethrough of a supporting rod positioned at one side of said aperture, a bobbin support for carrying a filling bobbin centrally of said shuttle body pivotally engaged with said supporting rod, spring means encircling said supporting rod and yieldably holding said bobbin support in engagement with said supporting rod, adjustable stop means carried by said supporting rod and cooperating with said bobbin support for holding said bobbin support parallel to an axis extending along the length of said shuttle body, guide means positioned centrally of the end of said shuttle body for guiding the yarn as it leaves said shuttle, and means positioned axially of said filling bobbin for guiding the yarn over the end of said filling bobbin on its way to said centrally positioned guide means.

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REFERENCES CITED

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

UNITED STATES PATENTS

Number	Name	Date
126,119	Whitehill	Apr. 23, 1872
713,587	Auth	Nov. 18, 1902
904,538	Kendrick	Nov. 24, 1908
1,001,910	Wackerhagen	Aug. 29, 1911
1,941,317	Pavia	Dec. 26, 1933
2,334,675	Hudson	Nov. 16, 1943

FOREIGN PATENTS

Number	Country	Date
347,813	Italy	Apr. 23, 1937