(No Model.)

S. M. HAMBLIN.

LOOM SHUTTLE.

No. 603,603. Patented May 3, 1898.

Fig. 1.

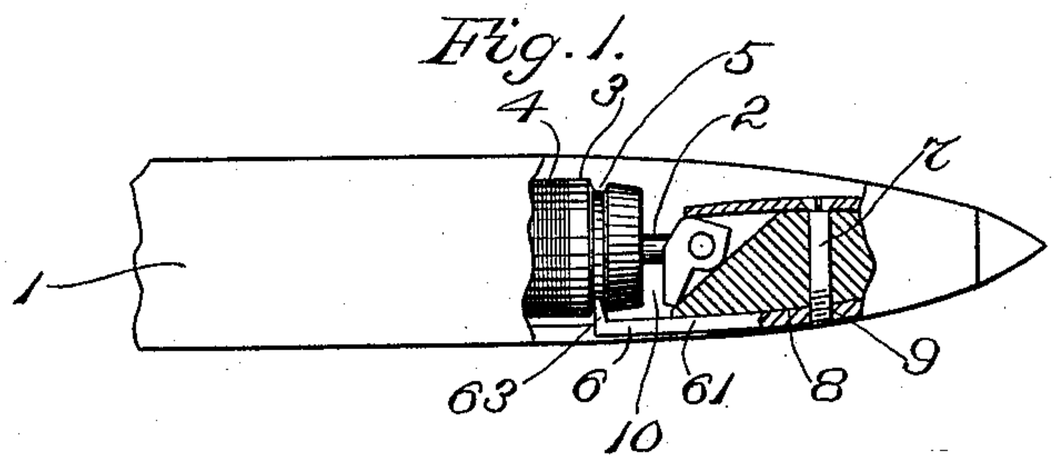


Fig. 2.

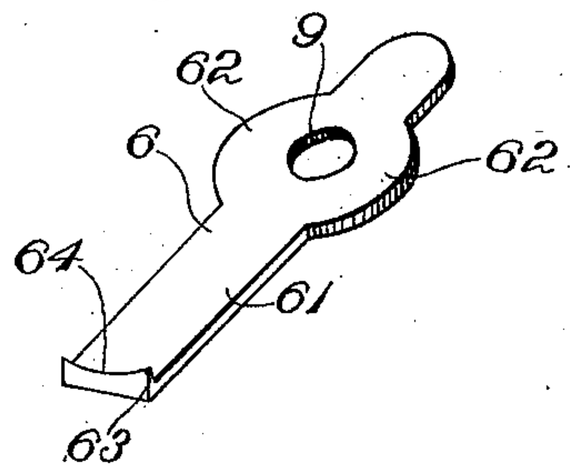


Fig. 3.

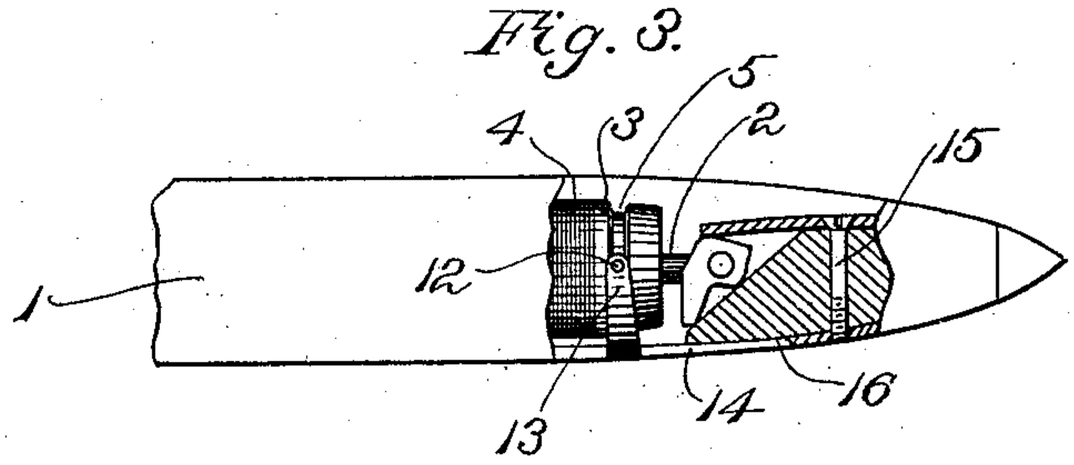
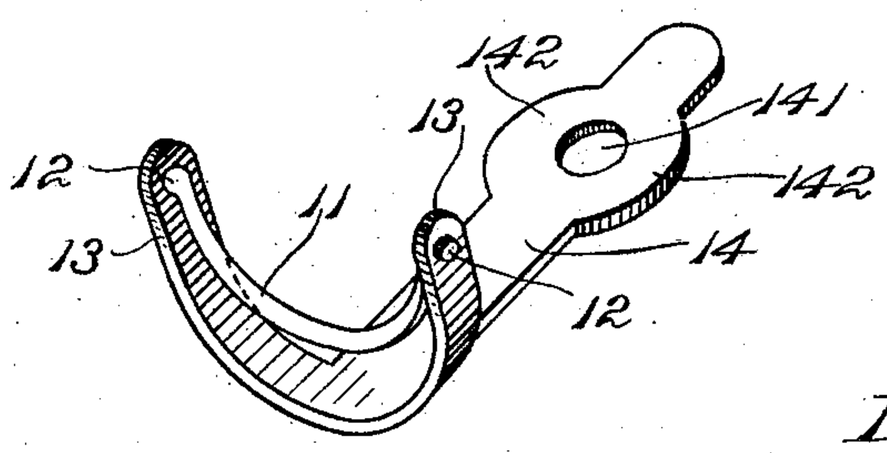


Fig. 4.



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UNITED STATES PATENT OFFICE.

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LOOM-SHUTTLE.

SPECIFICATION forming part of Letters Patent No. 603,603, dated May 3, 1898.

Application filed November 4, 1897. Serial No. 657,436. (No model.)

To all whom it may concern:

Be it known that I, STEPHEN M. HAMBLIN, a citizen of the United States, residing at Taunton, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Loom-Shuttles, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates to loom-shuttles, and more particularly to the devices which are employed in loom-shuttles for the purpose of retaining bobbins in place upon the spindles of the shuttles during the working of the latter.

The invention consists in a novel, improved, and useful bobbin-retainer and support therefor.

The invention will be described first with reference to the accompanying drawings, in which latter I have illustrated the best embodiment of the same which I yet have contrived, after which the distinguishing and characteristic features thereof will be particularly pointed out and distinctly defined in the claims at the close of this specification.

Figure 1 of the drawings shows, partly in side elevation and partly in vertical section, a portion of the length of a loom-shuttle having applied thereto an old form of bobbin-retainer which my invention is designed to replace. Fig. 2 is a perspective of the said old form of bobbin-retainer detached. Fig. 3 is a view similar in character to Fig. 1, showing my invention applied. Fig. 4 is a perspective of my improved bobbin-retainer and support therefor detached.

In the said drawings, 1, Figs. 1 and 3, designates the shuttle-body. 2, in the same figures, designates the spindle of the shuttle. 3, same figures, designates the bobbin, which, with its load of weft 4, is placed upon the spindle 2.

5 is the groove in the bobbin-head, into which enters the bobbin-retaining device.

Many devices have been contrived heretofore for the purpose of retaining bobbins in place upon the spindles of loom-shuttles while the latter are in use, and a variety of such devices is employed in practice at the present time. All thereof which I have met with in practice thus far are open to the objection that they occasion more or less injury to the head of the bobbin by bruising, chipping, or breaking the said head. The most common of these devices is shown in Figs. 1 and 2 at 6. It consists of a stiff strip of steel, as 61, that is held by a screw 7 within a shallow depression 8 in the material of the shuttle-body, the said depression being formed lengthwise of the shuttle-body and adjacent to one end thereof. The said screw 7 passes through a hole 9 in the strip 61, which latter is widened adjacent to said hole, as by substantially semicircular lateral enlargements 62 62. The depression 8 in the material of the shuttle-body opens at its inner end into the large cavity 10 of the shuttle, and the inner end of the strip 61 projects into the said cavity, the said end being formed or provided with a raised flange 63, having a concave edge 64 to enter the groove 5 in the bobbin-head. The bobbin having been slipped onto the upraised spindle, as the spindle and bobbin are lowered together into the cavity 10 of the shuttle-body the said flange enters the said groove. However, it happens frequently in practice that through some slight misplacement of the bobbin, or for other reasons, the bobbin-holding flange 63 does not enter fairly into the groove 5 in the bobbin-head, and hence instead of the said flange entering the groove it strikes more or less squarely against the enlarged head of the bobbin at one side of the groove, thereby injuring the said head. Sometimes the catch fits so tightly in the groove that as the bobbin is being raised for the purpose of being removed and replaced, or for some other reason, the catch bears against one side of the groove with sufficient force to break or splinter the head of the bobbin. This tendency to break or otherwise injure the head of the bobbin results in part from incapacity of the old forms of catches or bobbin-retaining devices to adjust or adapt themselves to the position of the bobbin-groove and in part also to the fact, which is

most clearly apparent in the case of the spring-catch that is shown in Figs. 1 and 2, that they practically are fixed absolutely, while in being raised or lowered the bobbin-head moves in a curved path through an arc of a greater or a less extent.

One object of the invention is to provide an efficient and satisfactory bobbin-retaining device which shall be free from all tendency to break or otherwise injure the heads of bobbins.

A second object of the invention is to provide for securing the bobbin-retaining device conveniently in place within the body of a loom-shuttle.

A third object of the invention is to facilitate the application of the improved form of bobbin-retaining device to loom-shuttles having the old form of spring-catch to which reference has been made in connection with Figs. 1 and 2, the said new form of bobbin-retaining device being made to replace the said spring-catch.

My improved bobbin-retaining device and support therefor, which I have contrived for the purpose of attaining the objects which have been just recited, are shown in Figs. 3 and 4 of the drawings. The improved bobbin-retainer is designated 11 in Fig. 4. It consists, as shown, of a bail or loop which is curved to correspond with the curvature of the head of the bobbin, and is shaped and proportioned to fit within the groove 5 of the bobbin-head. The said bail or loop is formed or provided with journals or pivots 12 12, by means of which it is connected pivotally with its support on opposite sides of the spindle and bobbin, the body of the bobbin-retainer hanging or depending freely from the said journals and being free to swing readily thereon, so as to render it self-adjusting and enable it thereby to conform to the position and movement of the portion of the bobbin-head with which it coacts.

In practice, a bobbin 3 having been placed on the spindle 2 and pressed fully home thereon, on lowering the spindle and bobbin together into the cavity of the shuttle-body the swinging bail 11 passes readily into the groove 5 in the bobbin-head. In consequence of being mounted to swing with freedom on its journals or pivots 12 12, the loop or bail 11 adapts itself at all times to the movement of the bobbin-head and to the position of the groove 5 thereof. In the descent of the bobbin into the shuttle-cavity the side positions of the bail or retainer at or adjacent to the journals 12 12 enter first into the groove 5 of the bobbin-head, and as they are received more fully into the said groove in the continued lowering of the spindle and bobbin into the shuttle-cavity the retainer adapts and accommodates itself completely to the position of the said groove as the bobbin swings downward, thus seating itself properly within the said groove. The bail or retainer 11 clasps and encircles the lower half of the head of the bobbin within the groove 5, and thus the extent of the engagement of the same with the bobbin-head is sufficiently great to insure adequate retention of the bobbin under all circumstances.

For the purpose of connecting the bobbin-retainer with the shuttle-body and supporting it in place therein I connect the loop or bail by means of its journals or pivots 12 12 with the upwardly-extending arms 13 13, which latter are formed at one end of a strip of metal 14. The said strip 14 is secured to the shuttle-body by means of a screw 15, as in the case of the catch 6 of Figs. 1 and 2, and as in the case of the said catch the strip 14 fits within a depression 16, which is provided or formed therefor in the material of the shuttle-body, the end of the said strip to which the bobbin-retainer is connected extending into the main cavity of the shuttle-body and sustaining the bobbin-retainer in proper position with relation to the spindle and the head of the bobbin, which is mounted upon the spindle, as indicated in Fig. 3. The screw 15 passes through a hole 141, which is made in the strip 14, and at the opposite sides of the said hole the strip preferably is formed with the approximately semicircular lateral enlargement 142 142. As will be perceived, I preferably give to the body of the strip 14 the same form and dimensions as are possessed by the strip 61 of Figs. 1 and 2, and I secure it to the shuttle-body in the same manner and by the same means as in the case of the latter. This enables me, if desired, to remove the catch 6 of Figs. 1 and 2 from loom-shuttles now in use or already in condition for use, and replace it by the bobbin-retainer 11 and support 14, which are represented separately in Fig. 4.

I do not claim, *per se*, the bobbin-retainer constituted of a swinging bail or loop, inasmuch as that is made the subject of claim in my application for United States Letters Patent, filed October 16, 1897, Serial No. 655,428.

I claim as my invention—

1. The improved bobbin-retaining device consisting of the depending bail or loop, combined with the support consisting of the strip fitted for application to a shuttle-body and provided with the opposite vertically-projecting arms to which the opposite ends of the said bail or loop are journaled or pivoted to render it self-adjusting and capable of conforming itself to the position and movement of the portion of the bobbin-head with which it coacts, substantially as described.

2. The improved bobbin-retaining device consisting of the depending bail or loop, combined with the support consisting of the strip fitted for application to a shuttle-body, provided with the opposite vertically-extending arms to which the opposite ends of the said

bail or loop are journaled or pivoted to remove the bail or loop self-adjusting and capable of conforming itself to the position and movement of the portion of the bobbin-head with which it coacts, the said strip having the hole therethrough for the passage of a securing-screw, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

STEPHEN M. HAMBLIN.

Witnesses:
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