

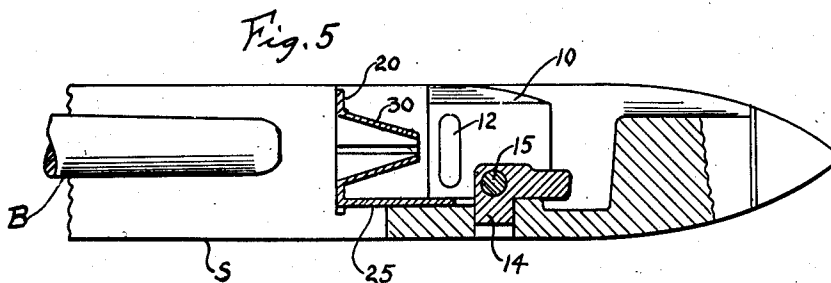
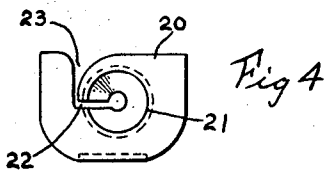
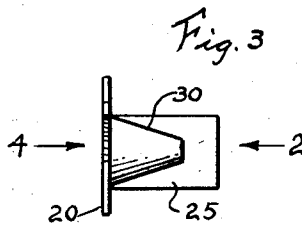
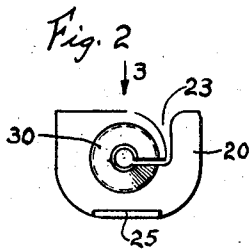
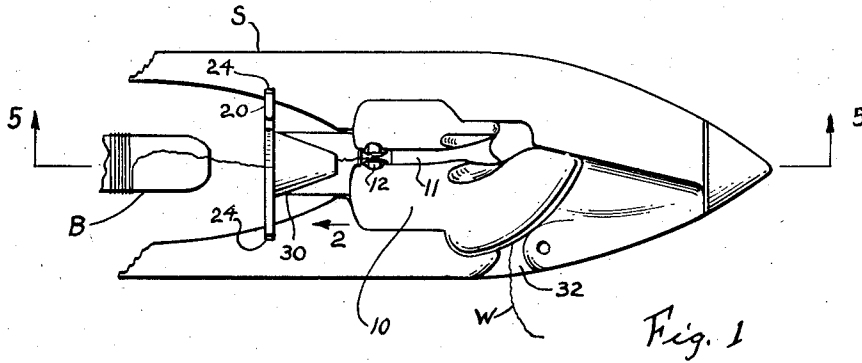
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H. E. GOFF ET AL

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LOOM SHUTTLE

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LOOM SHUTTLE

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4 Claims. (Cl. 139-223)

This invention relates to a shuttle of the self-threading type designed for use in automatic looms. In the use of such shuttles, difficulty has been occasioned by the throwing-off of loose turns or loops of thread from the end of the bobbin, which turns or loops frequently encircle some fixed part of the shuttle eye, with resultant weft breakage. This procedure has come to be known as "ballooning" and is most frequently encountered in looms using silk or rayon weft.

It is the general object of our invention to provide an improved construction in a self-threading shuttle by which ballooning and resultant breaking of weft threads may be substantially avoided.

To the attainment of this object, we provide an anti-ballooning plate and associated funnel, the plate being positioned close to the tip of the bobbin and the funnel extending close to the threading eye in the shuttle. We also provide an improved construction by which the shuttle eye itself retains the anti-ballooning attachment securely in operative position in the shuttle.

Our invention further relates to arrangements and combinations of parts which will be hereinafter described and more particularly pointed out in the appended claims.

A preferred form of the invention is shown in the drawing, in which

Fig. 1 is a partial plan view of a self-threading shuttle embodying our improvements;

Fig. 2 is an end elevation of the anti-ballooning device, looking in the direction of the arrow 2 in Fig. 1;

Fig. 3 is a plan view, looking in the direction of the arrow 3 in Fig. 2;

Fig. 4 is an end elevation, looking in the direction of the arrow 4 in Fig. 3; and

Fig. 5 is a partial sectional side elevation of a shuttle embodying our improvements.

Referring to the drawing, we have shown a portion of a shuttle S having a self-threading eye 10 which is in general of a usual or commercial type and which is provided with a thread passage 11 and with a pair of vertically-disposed friction plates 12 near the rear end thereof. A lug 14 and screw 15 (Fig. 5) secure the eye 10 in the shuttle.

Our anti-ballooning device comprises a plate 20 (Fig. 4) having a relatively large circular opening 21, a short horizontal slot 22 and an upwardly enlarged vertical slot 23. The side walls of the shuttle S are slotted as indicated at 24 to receive the edges of the plate 20.

The plate 20 has an offset projection 25 (Fig. 3) extending forward under the rear edge of the shuttle eye 10 (Fig. 5) and has a slotted funnel 30 secured to its forward surface. The circular opening 21 in the plate 20 and the axis of the funnel 30 are both in substantial alignment with the tip of the bobbin B, which extends quite closely adjacent to the plate 20. The slot in the funnel is aligned with the slot 22 in the plate 20. The front end of the funnel 30 is also quite closely adjacent to the rear surface of the eye 10.

When a fresh bobbin is inserted in the shuttle and the weft is drawn forward on the picking of the shuttle, the weft successively enters the slots 23 and 22 and at the same time is drawn between the friction plates 12 and along the threading slot 11. On the return movement of the shuttle, the weft enters the side delivery passage 32 (Fig. 1) and the shuttle is thus completely threaded.

The placing of the plate 20 closely adjacent the tip of the bobbin B and the extending of the funnel 30 to a point closely adjacent the shuttle eye 10 and also adjacent the friction plates 12 is found to effectively prevent the occurrence and disadvantages of ballooning, even when using silk or rayon or other relatively stiff weft. The provision of the extension 25 on the plate 20 permits our anti-ballooning device to be firmly held in the shuttle without requiring any additional fastening devices.

Having thus described our invention and the advantages thereof, we do not wish to be limited to the details herein disclosed, otherwise than as set forth in the claims, but what we claim is:

1. In a loom shuttle, a self-threading shuttle eye having a longitudinal thread passage, an anti-ballooning plate vertically positioned in grooves in the sides of the shuttle body and substantially rearward of said eye and adjacent the tip of a bobbin mounted in the shuttle, said plate having a center opening and having a downwardly converging entrance passage communicating therewith, and a funnel mounted on said plate in alignment with said center opening and extending forwardly therefrom toward said eye and slotted to communicate with said entrance passage.

2. In a loom shuttle, a self-threading shuttle eye having a longitudinal thread passage and having vertically disposed friction plates adjacent the rear end of said passage, an anti-ballooning plate vertically positioned in grooves in

the sides of the shuttle body and substantially rearward of said eye and adjacent the tip of a bobbin mounted in the shuttle, said plate having a center opening and having a downwardly converging and horizontally offset entrance passage communicating therewith, and a funnel mounted on said plate in alignment with said center opening and extending forwardly therefrom toward said eye and slotted to communicate with the horizontally offset portion of said entrance passage, and the front and smaller end of said funnel being positioned adjacent the rear surface of the threading eye.

3. In a loom shuttle, a self-threading shuttle eye having a longitudinal thread passage, means to secure said eye in the shuttle, an anti-ballooning plate vertically positioned in grooves in the sides of the shuttle body and substantially rearward of said eye and adjacent the tip of a bobbin mounted in the shuttle, said plate having a center opening and having a downwardly converging entrance passage communicating therewith, a funnel mounted on said plate in alignment with said center opening and extend-

ing forwardly therefrom and slotted to communicate with said entrance passage, the front and smaller end of said funnel being positioned adjacent the rear surface of the threading eye, and means to prevent upward displacement of said plate in said vertical grooves.

4. In a loom shuttle, a self-threading shuttle eye having a longitudinal thread passage, means to secure said eye in the shuttle, an anti-ballooning plate vertically positioned in grooves in the sides of the shuttle body and substantially rearward of said eye, said plate having a center opening and having a downwardly converging entrance passage communicating therewith, a funnel mounted on said plate in alignment with said center opening and extending forwardly therefrom and slotted to communicate with said entrance passage, and said plate having a forwardly extending projection underlying the rear portion of said threading eye and effective to prevent upward displacement of said plate in said vertical grooves.

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