

J. F. O'NEILL.

LOOM SHUTTLE.

APPLICATION FILED SEPT. 12, 1912.

1,064,245.

Patented June 10, 1913.

2 SHEETS—SHEET 1.

Fig. 1.

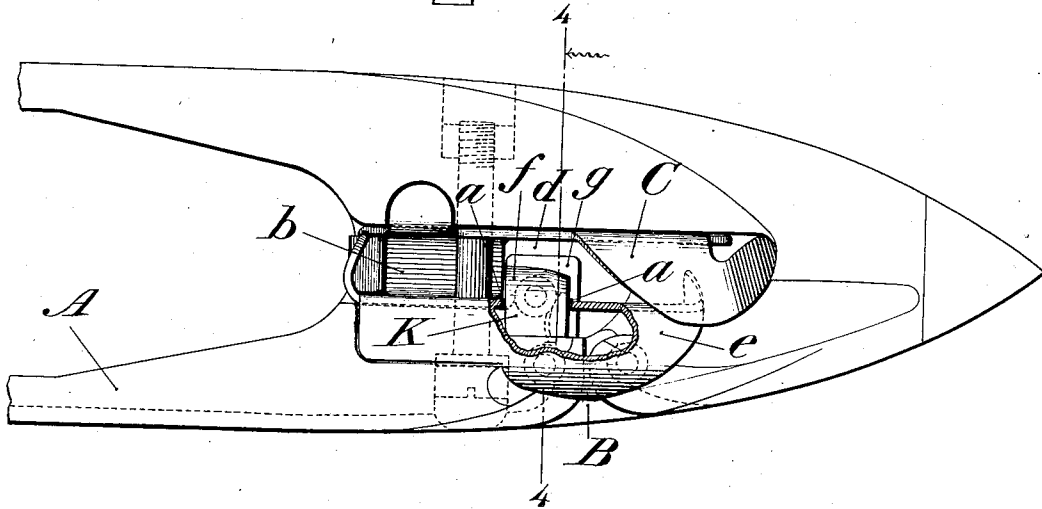


Fig. 2.

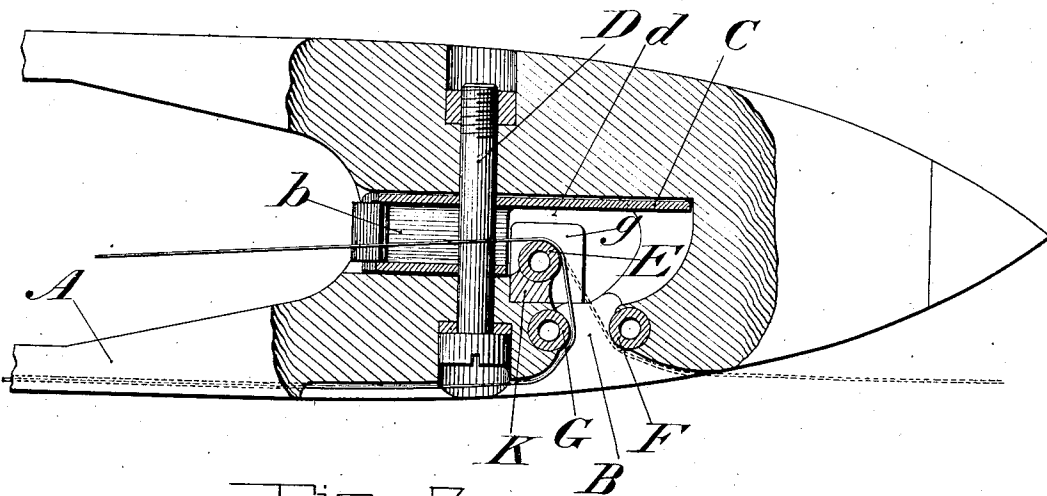
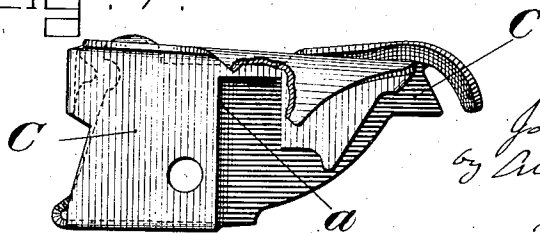


Fig. 7.



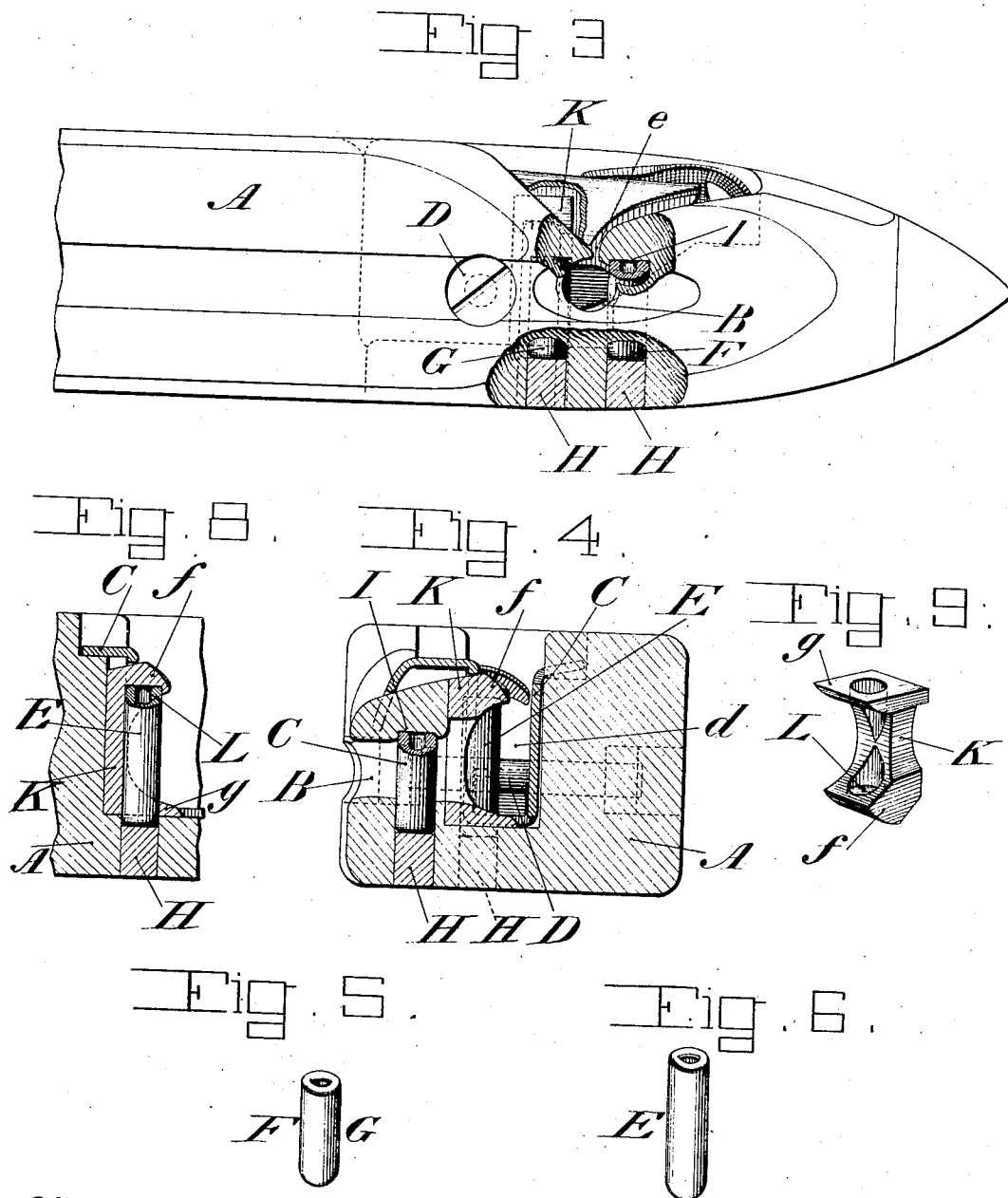
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UNITED STATES PATENT OFFICE.

JOHN F. O'NEILL, OF FARNUMSVILLE, MASSACHUSETTS, ASSIGNOR TO DRAPER COMPANY, OF HOPEDALE, MASSACHUSETTS, A CORPORATION OF MAINE.

LOOM-SHUTTLE.

1,064,245.

Specification of Letters Patent.

Patented June 10, 1913.

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To all whom it may concern:

Be it known that I, JOHN F. O'NEILL, of Farnumsville, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Loom-Shuttles, of which the following is a specification.

This invention relates to improvements in automatically threading loom shuttles such as are employed in weft-replenishing looms in which the weft-replenishment is accomplished by ejecting the spent weft-carrier from the shuttle and substituting a filled weft-carrier therefor. Such loom shuttles are provided with slotted eyes into which the weft thread automatically enters as a result of the flights of the shuttle through the shed.

In order to prevent the thread cutting into the wood of the shuttle it has been a common practice to guard the shuttle-eye by means of metal guides against which the thread runs. Such metallic guides are not effective in the case of worsted, woolen and other coarse yarns which rapidly cut into the metal which results in the frequent cutting and breaking of the threads.

In old-style shuttles used on common looms and provided with eyes having unbroken peripheries, it was customary to employ porcelain eyes with such threads through which the thread was drawn commonly by sucking it through. Such eyes are not capable of use in weft-replenishing looms of the type under consideration.

Various expedients have been suggested for curing the difficulties incident to metallic guides in automatically threading shuttles when worsted and similar rough yarns are employed. For example, it has been proposed to provide metallic guide rollers which rotate as the yarn is drawn over them, thus increasing the surface over which the yarn is drawn, as in the United States Letters Patent of Draper, No. 968,647, August 30, 1910, but this involves a necessarily expensive construction, careful work being necessary to enable the necessarily small rollers to rotate; and such rotating guide rollers simply postpone the cutting by the yarns and do not avoid it. It has also been proposed to equip the shuttle-eye with a slotted porcelain block, as in the United States Letters Patent of Stimpson, No. 1,017,065, February 13, 1912. In the prac-

tical manufacture and use of such porcelain blocks it has been found almost impossible to make a shape which will not be broken with the jar of the shuttle in the loom.

In accordance with the present invention, guide posts of vitreous material, preferably porcelain, are so constructed and mounted in the shuttle as to avoid the objections heretofore encountered with porcelain blocks, and the present improved porcelain guide posts wear indefinitely when worsted and similar yarns are employed.

The accompanying drawings illustrate the present improved vitreous guide posts applied to an automatically threading shuttle, having the automatic threading devices which are disclosed in the United States Letters Patent of Stimpson, No. 933,497, September 7, 1909.

In the drawings—Figure 1, is a plan view of the threading and eye-end of a shuttle equipped with the present improved vitreous guide posts, a portion of the sheet metal threading device being broken away to facilitate the illustration. Fig. 2, is a similar view of the shuttle but showing the threading and eye portion of the shuttle in horizontal section. Fig. 3, is a side view of the shuttle looking toward the eye, and parts being broken away and shown in vertical section. Fig. 4, is a transverse section in the plane indicated by the line 4-4, in Fig. 1. Figs. 5, and 6, are perspective views of the vitreous-guide posts. Fig. 7, is a side view of the sheet-metal threading device showing the adaptation thereof to receive one of the vitreous guide posts. Fig. 8, is a vertical transverse section through the inner guide post and the parts of the shuttle immediately associated therewith. Fig. 9, is a detail upside-down view of the wooden holder for the top of the inner guide post.

As shown in the drawings, A, is the shuttle having a slotted side-eye B, in one side, and C, is the sheet-metal threading device which is substantially like that shown in the aforesaid Stimpson Patent, No. 933,497, except that it is recessed vertically, as shown at *a*, in Figs. 1 and 7, at its side wall next to the eye B, for the purpose of accommodating the inner guide post and the holder thereof; and the bottom *b*, of the sheet-metal threading device is foreshortened for the same purpose, as shown, extending toward the eye B, only a short dis-

tance beyond the usual fastening bolt D, instead of extending substantially to the rear edge of the eye as in said Stimpson patent. The threading device has the usual longitudinal thread passage *d*, through which the thread passes on its way from the weft-carrier within the shuttle to the eye B.

Three vitreous guide posts, E, F, G, are employed and are located as shown in Fig. 2. Preferably they are made of porcelain and will be so referred to hereinafter. The inner guide post E, is located so that the yarn extending from the weft-carrier within the shuttle lengthwise of the longitudinal thread passage *d*, and thence laterally out through the eye B, will come in contact with its surface, as shown in Fig. 2. Otherwise stated, this inner guide post E, intercepts the path of the yarn as it passes from the weft-carrier within the shuttle to the eye. The other two outer porcelain posts F, G, guard the front and back of the eye B. When the shuttle is traveling forward, the yarn runs against the guide post G; and when the shuttle is traveling in the opposite direction the yarn runs against the guide post F.

The porcelain posts are preferably hollow cylinders, as illustrated in the drawings, since when so constructed they have been found less liable to break in use and they are more easily removed from the shuttle for repairs in case occasion should arise for replacing them with other porcelain posts. The two outer guide posts F, and G, are alike and hence both are illustrated by Fig. 5, and they are both inserted and held within the shuttle in the same way, the only difference being that they are located on opposite sides of the shuttle eye. The inner guide post E, is longer than the two outer guide posts, as shown in Figs. 4, and 6, and it is inserted in the shuttle and held at its bottom therein the same way as the two outer guide posts, but its upper end is secured by a special holder. The three porcelain guide posts are held snugly and securely in place so that there is no rotation or other movement thereof during the use of the shuttle.

For the reception of the three guide posts appropriate vertical holes are bored from the bottom of the shuttle in which the respective guide posts snugly fit. Each guide post is held in place by a wooden block H, which is glued into the bottom of the appropriate bore after its guide post has been inserted. The upper end of each outer guide post H, is retained in place by means of a socket I, formed in the body of the shuttle adjacent to where the threading slot *e*, communicates with the eye and where the wood of the shuttle body overhangs the eye. As shown in Fig. 2, the bores for the reception of outer posts F, and G, are so located

with respect to the sides of the shuttle eye B, that a sufficient portion of the periphery of the posts F, and G, is exposed for the yarn to run over, while the major portion of the periphery of these guide posts is within the bores so that they are protected by the wood of the shuttle body.

A special construction is employed for holding the upper end of the long inner porcelain post E. The holder K, for the upper end of the porcelain post E, is a separate piece of wood, glued into place to the body of the shuttle, being glued at its bottom and at its vertical walls where it is adjacent to the wooden body of the shuttle. This wooden holder has top and bottom flanges *f*, *g*, which are appropriately bored to receive the inner porcelain post E. The socket L, in the upper flange *f*, which receives the upper end of the porcelain post does not extend clear through said flange, and the upper face of said flange is beveled as shown in Figs. 4, 8, and 9, to aid in directing the yarn into the thread passage *d*. The automatically threading shuttle thus equipped with the hollow porcelain guide posts, firmly held in place in the shuttle, meets all the practical requirements where worsted and similar rough yarns are used.

I claim—

1. An automatically threading loom shuttle having the following characteristics, namely, a slotted eye; a sheet-metal threading device with a longitudinal thread passage and a slot in its wall on the eye side of the shuttle; independent hollow porcelain posts guarding the eye at front and back; a third hollow porcelain post at the juncture between the eye and the said longitudinal thread passage; the surfaces of all of said porcelain posts being exposed to the contact of the thread; all three posts being inserted through bores extending from the bottom of the shuttle and snugly held in such bores; a wooden block being in the bottom of each bore below the corresponding porcelain post; the wooden shuttle body being formed with sockets to receive the upper ends of the outer porcelain posts at the front and back of the slotted eye; and there being a holder for the top of the third and inner porcelain post, said holder being held in place within said slot in the wall of the threading device and being provided with top and bottom members socketed and apertured respectively to receive the inner post.

2. An automatically threading loom shuttle having the following characteristics, namely, a slotted eye; a threading device with a longitudinal thread passage; independent porcelain posts guarding the eye at front and back; a third porcelain post at the juncture between the eye and the said longitudinal thread passage; the surfaces of all of said porcelain posts being exposed to the

contact of the thread; all three posts being inserted through bores extending from the bottom of the shuttle and snugly held in such bores; a wooden block in the bottom of each bore below the corresponding porcelain post; the wooden shuttle body being formed with sockets to receive the upper ends of the outer porcelain posts at the front and back of the slotted eye; and a wooden holder for the top of the third and inner porcelain post, said holder being provided with top and bottom flanges socketed and apertured respectively to receive the inner post.

3. An automatically threading loom shuttle having the following characteristics, namely, a slotted eye; a threading device with a longitudinal thread passage; independent porcelain posts guarding the eye at front and back; a third porcelain post at the juncture between the eye and the said longitudinal thread passage; the surfaces of all of said porcelain posts being exposed to the contact of the thread; all three posts being inserted through bores extending from the bottom of the shuttle and snugly held in such bores; a wooden block in the bottom of each bore below the corresponding porcelain post; the wooden shuttle body being formed with sockets to receive the upper ends of the outer porcelain posts at the front and

back of the slotted eye; and a holder for the top of the third and inner porcelain post, said holder being provided with a top flange socketed to receive the inner post.

4. A loom shuttle having the following characteristics, namely, an eye; a threading device with a longitudinal thread passage; independent porcelain posts guarding the eye at front and back; a third porcelain post at the juncture between the eye and the said longitudinal thread passage; the surfaces of all of said porcelain posts being exposed to the contact of the thread; all three posts being inserted through bores extending from the bottom of the shuttle and snugly and fixedly held in such bores; a block in the bottom of each bore below the corresponding porcelain post; sockets to receive the upper ends of the outer porcelain posts at the front and back of the slotted eye; and a holder for the top of the third and inner porcelain post, said holder having a socket to receive the inner post.

In witness whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

JOHN F. O'NEILL

Witnesses:

FRANK J. DUTCHER,
H. H. DAW.