(No Model.)

J. M. DEEN.

LOOM SHUTTLE.

No. 490,010. Patented Jan. 17, 1893.

Fig. 1.

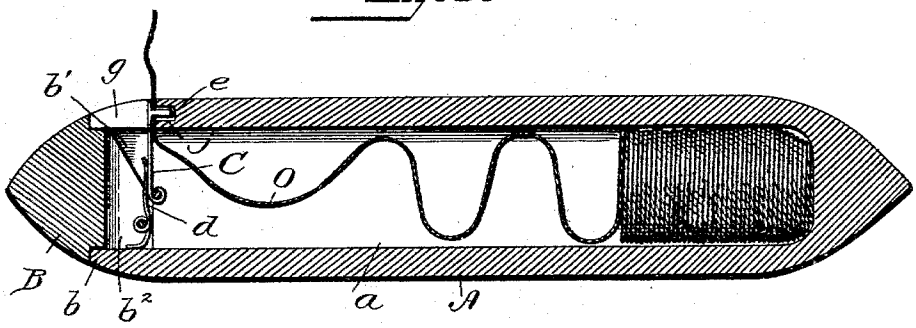


Fig. 2.

Fig. 5.

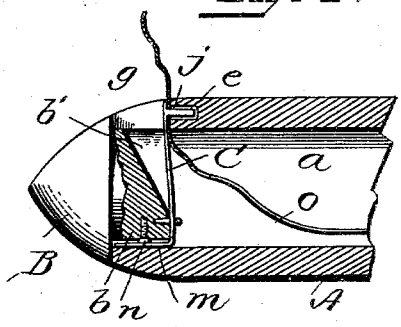


Fig. 3.

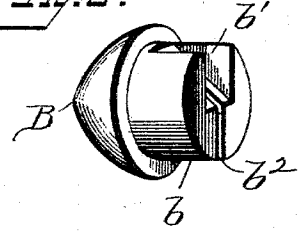
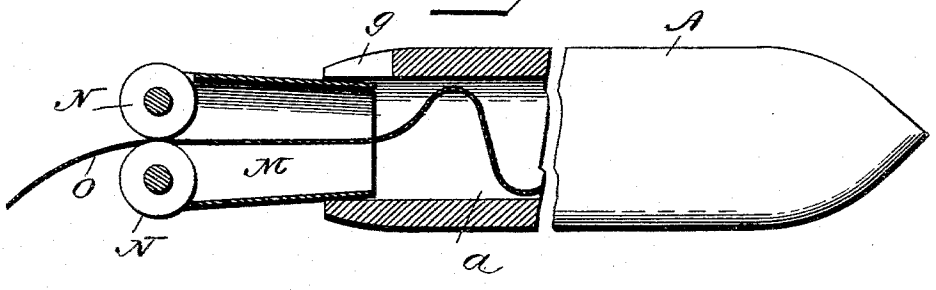


Fig. 4.



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UNITED STATES PATENT OFFICE.

JAMES MADISON DEEN, OF HARLAN, IOWA.

LOOM-SHUTTLE.

SPECIFICATION forming part of Letters Patent No. 490,010, dated January 17, 1893.

Application filed July 16, 1892. Serial No. 440,264. (No model.)

To all whom it may concern:

Be it known that I, JAMES MADISON DEEN, a citizen of the United States, residing at Harlan, in the county of Shelby and State of Iowa, have invented certain new and useful Improvements in Loom-Shuttles; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to shuttles which are especially designed to be used in looms for weaving fabric. In handling this class of devices as at present constructed, preparatory to weaving, much inconvenience is experienced in manipulating the cop or can used for receiving the weft. When either the cop or can is used it is necessary to detach it from the shuttle body and place in the filling machine, and when filled and ready to replace, the weft must be inserted through the shuttle eye, usually by tool called the shuttle hook.

The present invention obviates the inconveniences above specified by discarding the use of inside attachment, the shuttle body being a plain tube.

The improvement consists of the novel features and the peculiar construction and combination of the parts which will be hereinafter more fully described and claimed and which are shown in the annexed drawings in which;

Figure 1 is a central longitudinal section of a shuttle embodying my invention. Fig. 2 is a detail view of the tension bar. Fig. 3 is a detail view of the shuttle head detached; the tension bar and spring being removed to the better show the structural arrangement of the said shuttle head. Fig. 4 is a detail view showing the manner of filling the shuttle. Fig. 5 is a detail view showing a modified form of tension bar, and a set screw for regulating the same.

The shuttle is composed, essentially, of the shell or body portion A which is hollow or tubular, being provided with the bore *a*, and the cap B, the latter closing the open end of the bore *a* and carrying the tension device. The shell or body portion A may be of any desired form and size and is pointed at one end, the other end tapering slightly and being closed by the tapering head B. The shell or body portion A is hollow or provided with a bore *a*, the latter being closed at one end and open at the opposite end, the open end being provided with a depression or notch *g* in one side which is designed to receive the free end of the tension bar C. The head B for closing the open end of the shuttle body is made tapering, and is provided with a reduced portion *b* which is designed to enter the open end of the bore *a* and close the same and give stability to said head. The notch *b'* provided in the inner end of the reduced portion *b* is adapted to receive and permit of the free workings of the tension bar C, and the transverse groove or channel b^2, also provided in the reduced portions *b* is designed to receive the spring *d* which is pivotally supported between its ends, one end of said spring being adapted to press upon the tension bar C to create the desired tension, and the other end being constructed to obtain a bearing upon the inner side of the shuttle body A opposite the depression *g* so as to retain the spring in proper working position. The tension bar C is pivotally supported at one end at the inner end of the notch *b'* and its outer portion is adapted to work in said notch *b'* and the depression or notch *g*, and is preferably provided with parallel prongs *e* at its free end between which the weft thread is adapted to pass, said prongs preventing said weft thread from slipping from engagement with the free end of said tension bar C. These prongs *e* are adapted to enter suitable depressions *j* provided in the shuttle body. While it is preferred to make the tension bar C and spring *d* in separate pieces, manifestly the two parts C and *d* may be integrally formed, as most clearly shown in Fig. 5. The operation will be precisely the same as that described for the parts when constructed separately.

The shuttle may be filled in any desired manner but it is preferred to provide the means shown in Fig. 4 which consists of the tapering tube M the smaller end being constructed to enter the open end of the shuttle body, and the drawing rollers N which are adapted to receive the weft thread and force the same through the tube M into the shuttle body. The shuttle being filled in any desired manner, the end of the weft thread O is drawn across the depression *g* which practi-

cally forms the eye of the shuttle, and the cap B is placed in position, the free end of the tension bar C pressing upon the weft thread with sufficient force to create the desired tension. The tension bar shown in Fig. 5 has a portion *m* bent at right angles and extending along the side of the cap B for a short distance. A set screw *n* adapted to screw into the cap and press outwardly on the bent end *m*, serves to compensate for wear and maintain a tight fit between the cap B and the shuttle body A. This form of tension bar dispenses with a separate spring and embodies the same in its construction.

Having thus described my invention, what I claim, and desire to secure by Letters Patent is—

1. The combination with a hollow shuttle body open at one end, of a cap adapted to close said open end, a tension bar, and a spring serving to secure said cap to the shuttle body, and create a tension on the said tension bar substantially as set forth.

2. The combination with a hollow shuttle body opened at one end, and having depression *g*, of a cap adapted to close the open end of said shuttle body, and a tension bar carried by said cap and adapted to work in said depression *g* substantially as and for the purpose set forth.

3. The combination with a hollow shuttle body, and a cap for closing the opened end of said shuttle body, of a tension bar carried by one of the said parts and provided with approximately parallel prongs *b* to give proper direction to the weft thread and retain the same in proper position, substantially as described.

4. The combination with a hollow shuttle body having one end open and provided with depression *g*, of a cap having a reduced portion to enter the open end of said shuttle body and provided with notch *b'* and transverse channel b^2, a tension bar pivotally connected to the cap and adapted to work in the notch *b'* and depression *g* and a spring pivotally supported between its ends in the channel b^2 and adapted to press upon the tension bar and enter the said notch *b'*, substantially as described for the purpose specified.

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

JAMES MADISON DEEN.

Witnesses:
J. E. MILLER,
S. HENDERSON.