No. 714,408. Patented Nov. 25, 1902.

E. E. SHELTERS.

SHUTTLE FOR LOOMS.

(Application filed July 14, 1902.)

(No Model.)

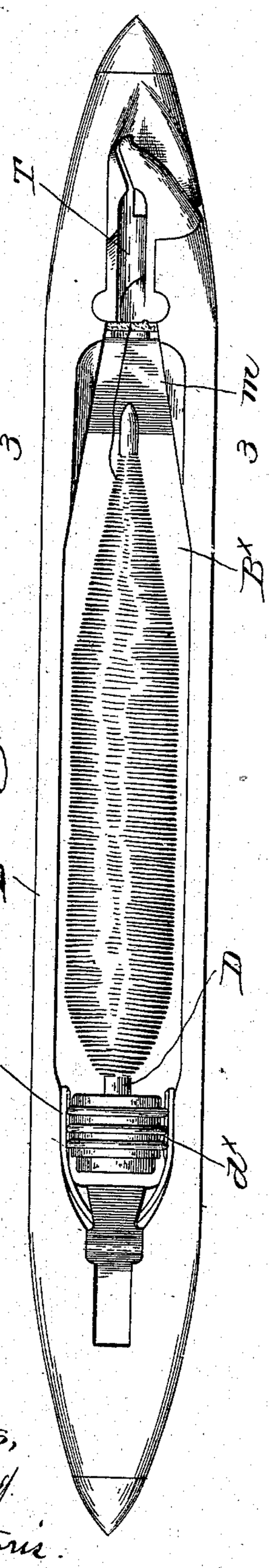

Fig. 1.

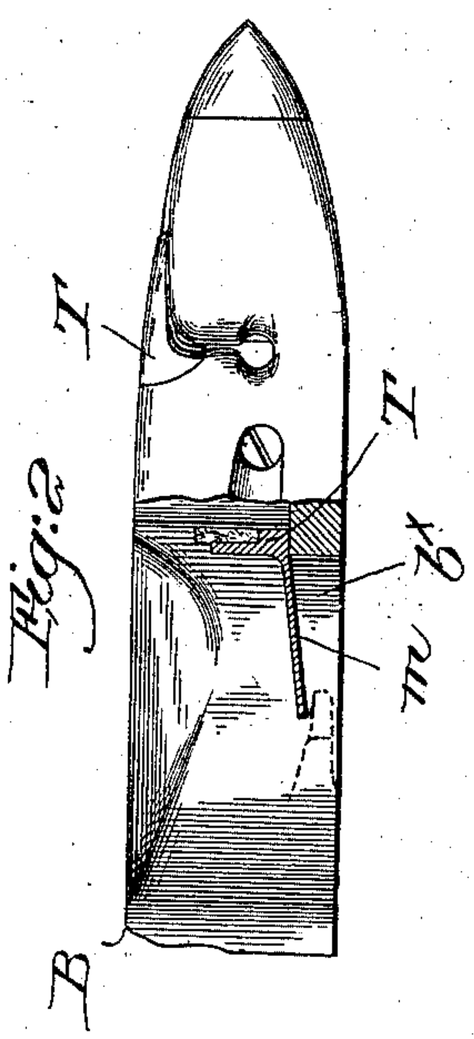

Fig. 2.

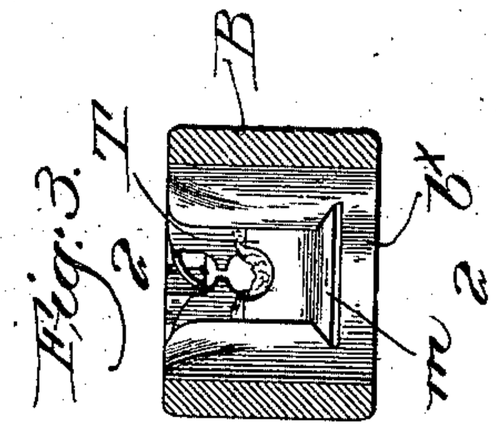

Fig. 3.

Witnesses,
W. C. Linsford.
H. J. Sartoris.

Inventor,
Ernest E. Shelters,
by Bradley Gregory.
Atty's.

UNITED STATES PATENT OFFICE.

ERNEST E. SHELTERS, OF LOWELL, MASSACHUSETTS, ASSIGNOR TO DRAPER COMPANY, OF HOPEDALE, MASSACHUSETTS, A CORPORATION OF MAINE.

SHUTTLE FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 714,408, dated November 25, 1902.

Application filed July 14, 1902. Serial No. 115,402. (No model.)

To all whom it may concern:

Be it known that I, ERNEST E. SHELTERS, a citizen of the United States, and a resident of Lowell, in the county of Middlesex and Commonwealth of Massachusetts, have invented an Improvement in Shuttles for Looms, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention relates more particularly to shuttles for looms provided with mechanism for automatically inserting a filling-carrier into the running shuttle when the weft fails to be properly laid in the shed, such a loom being shown in United States Patent No. 529,940, dated November 27, 1894. Such shuttles have a longitudinal opening therein to receive the filling-carrier, and jaws are provided at one end of the opening to receive and frictionally engage the head of the inserted filling-carrier, the latter acting to force out or eject the preceding filling-carrier through the opening. Sometimes the tip of the filling-carrier will be unduly depressed as it is inserted in the shuttle, and so too the tip of the ejected filling-carrier will sometimes deviate from its proper course and interfere with the proper operation of the apparatus.

In United States Patent No. 630,793, dated August 8, 1899, the shuttle is provided with a support or stop to always insure the discharge of the filling-carrier head downward, the tip-support being made by recessing the shuttle-body at the tip end of the longitudinal opening from the top downward, leaving a comparatively thick bottom. For the objects designed to be attained this construction is satisfactory; but it sometimes happens that when the filling-carrier is being inserted it will engage the jaws in such manner that the tip will be thrown down below the support, and when finally the jaws take hold of the head of the filling-carrier the tip will project below the bottom of the shuttle, being so held by the support or stop. On the first shot of the shuttle thereafter the warps will not be damaged usually; but on the return shot the tip strikes them head on and breaks them in quantities, so that at the very least much time is lost in piecing up, to say nothing of damage to the cloth.

I have in my present invention retained the tip-support or stop; but I have so arranged it that a recess or space is provided beneath it of sufficient depth to receive and house or protect the tip of the filling-carrier in case it passes beneath the support, as just described. The tip being thus housed and above the bottom of the shuttle, it will not contact with the warps, and damage thereto is prevented.

Figure 1 is a top or plan view of a shuttle with one embodiment of my invention shown in connection therewith. Fig. 2 is a partial longitudinal sectional detail on the line 2 2, Fig. 3; and Fig. 3 is a transverse section on the line 3 3, Fig. 1, looking toward the right.

The shuttle B, provided with the longitudinal opening $B^{\times}$, extending therethrough from top to bottom, the holding-jaws C, notched or grooved at their inner sides to be entered by ribs or projections $d^{\times}$ on the head d of the filling-carrier D, (shown as a cop-skewer,) and the automatically self-threading device T may be and are all of well-known or usual construction.

I have herein shown the tip-support or stop as a thin, preferably metallic, shelf m, fitted into the end of the opening $B^{\times}$ at the end adjacent the threading device T and extended transversely from one to the other side of the opening, and this support is conveniently secured to or forms a part of the threading device at its inner end, as shown in the drawings.

Referring to Figs. 2 and 3, it will be seen that there is quite a recess or space $b^{\times}$ beneath the tip-support.

When a filling-carrier is inserted in the shuttle, its tip extends above the support m, Fig. 1, the jaws C holding the head d of the filling-carrier, if the latter is properly positioned. Should the filling-carrier be so presented to the jaws, however, that its tip passes below the support and then moves slightly forward as the jaws take hold, (see dotted lines, Fig. 2,) the tip will enter the recess $b^{\times}$ beneath the support m and will be thereby housed or protected, so that it will not project below the bottom of the shuttle. No

damage to the warps can be thereby effected, as the shuttle traverses the shed, and a fresh filling-carrier will be inserted by or through the breakage of the filling in the manner well known to those familiar with the operation of automatic filling-replenishing looms.

The tip-support performs the function of the corresponding device shown in United States Patent No. 630,793, hereinbefore referred to, under ordinary conditions; but by the construction and arrangement herein shown and described the housing or protection of the tip of the filling-carrier under certain conditions is additionally provided for.

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

1. A shuttle-body having a longitudinal opening and provided at one end thereof with jaws to receive and frictionally engage the head of a removable filling-carrier and permit it to be discharged therefrom at the side opposite that at which it enters the jaws, and a tip-support at the opposite end of the longitudinal opening, the said tip-support being arranged to leave a recess beneath it of sufficient depth to receive and house the tip of the filling-carrier should the same pass beneath the support when inserted in the shuttle-body.

2. An automatically self-threading shuttle for filling-replenishing looms, provided with a longitudinal opening and having holding-jaws at one end thereof, to frictionally engage and hold the head of a removable filling-carrier when inserted in the shuttle, and a thin tip-support at the opposite end of said opening between the top and bottom of the shuttle-body, the space beneath said support being of sufficient depth to receive the tip of the filling-carrier if improperly positioned in the jaws and prevent the tip from projecting below the bottom of the shuttle.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ERNEST E. SHELTERS.

Witnesses:

JOHN J. PICKMAN,

C. BURTON KENDALL.