

(No Model.)

J. H. NOLAN.
LOOM SHUTTLE.

No. 323,438.

Patented Aug. 4, 1885.

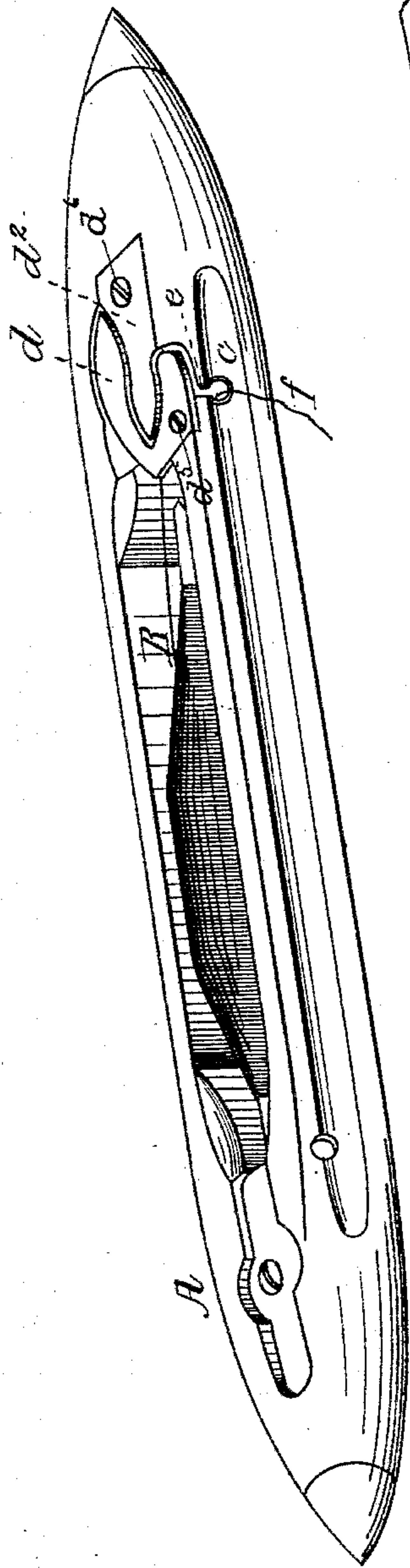


FIG-1-

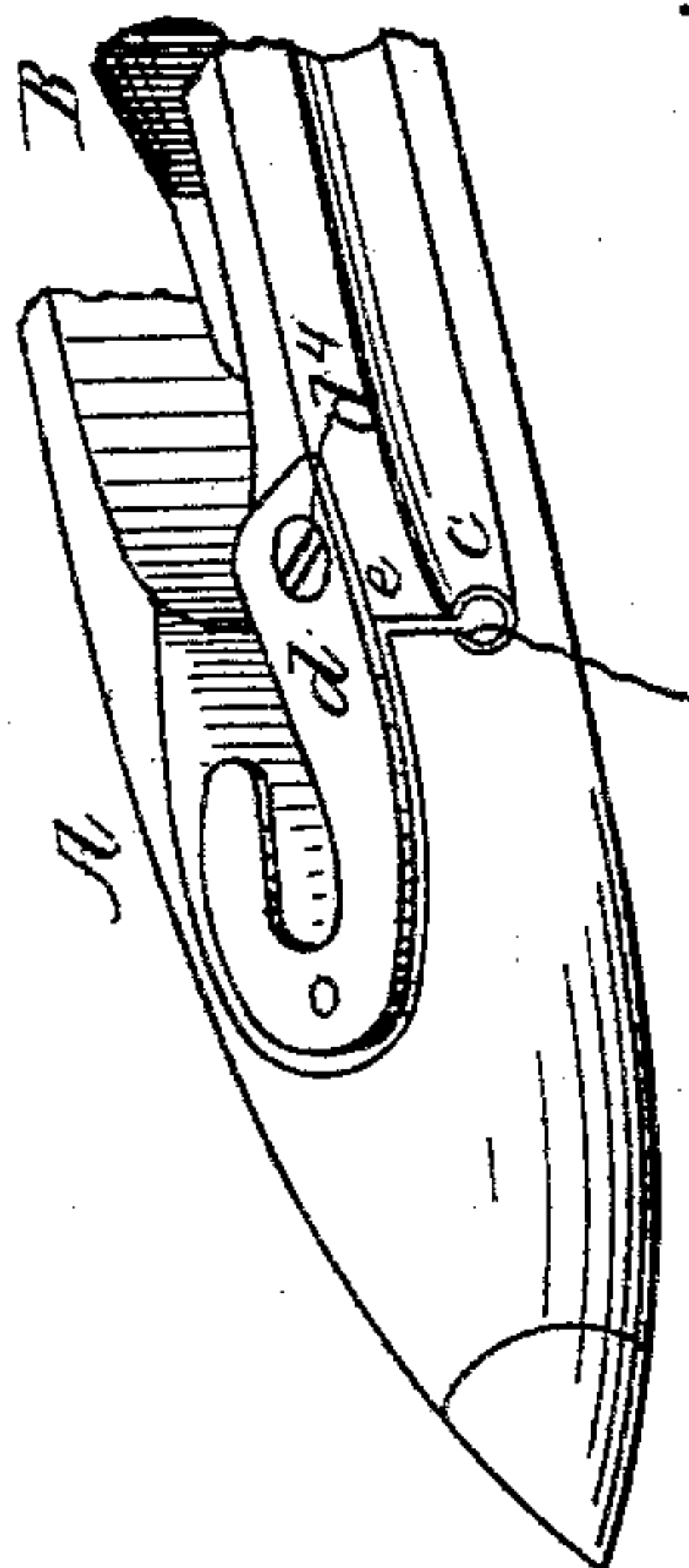


FIG-2-

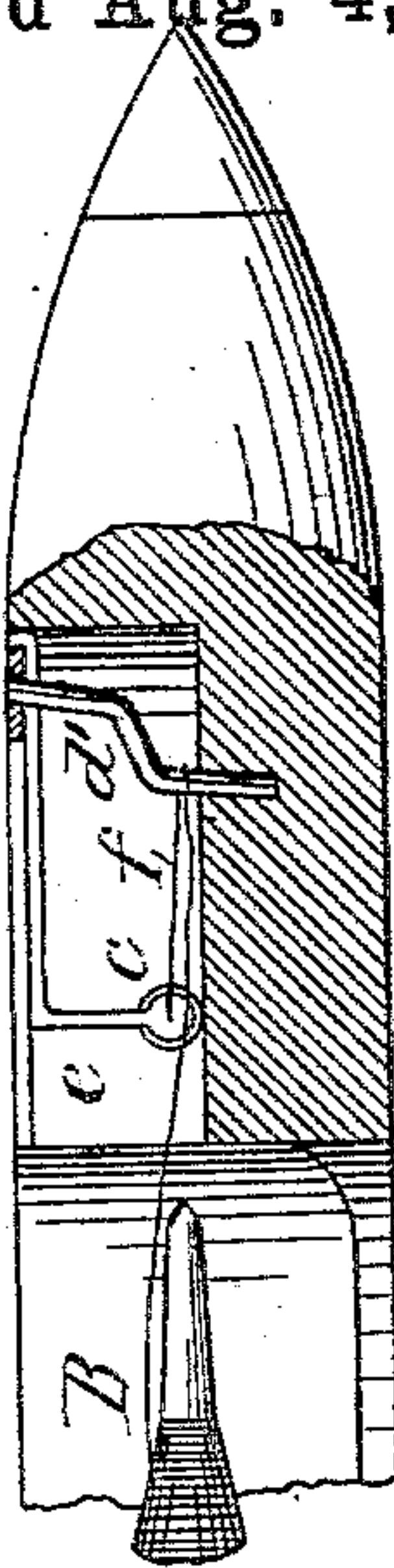


FIG-3-

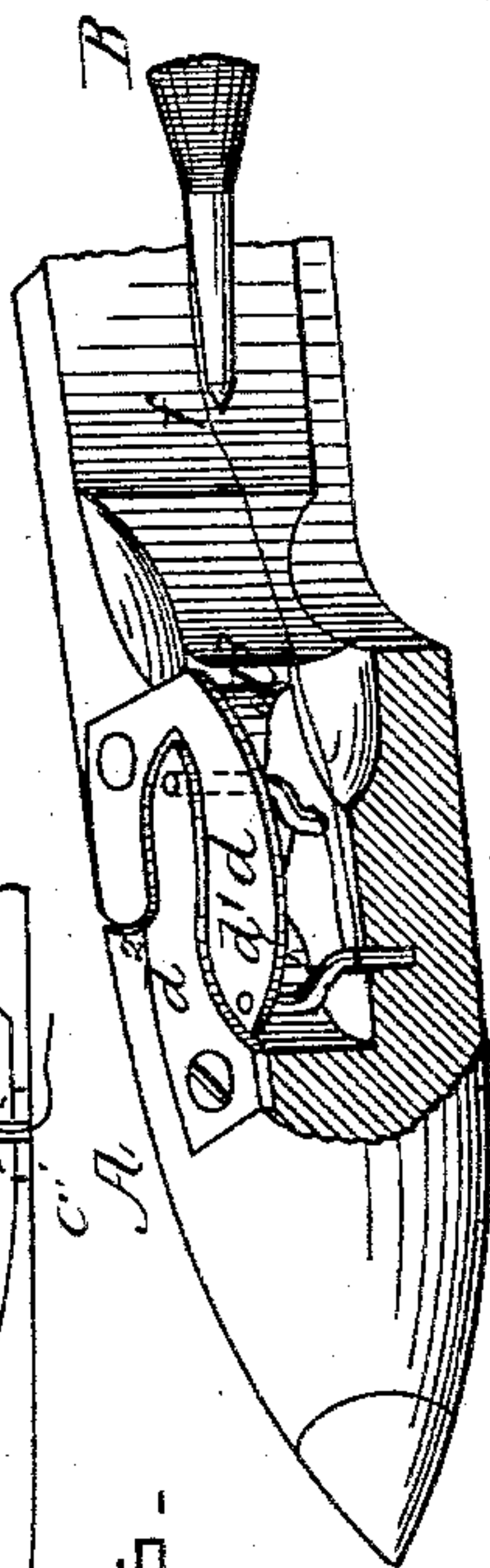


FIG-4-

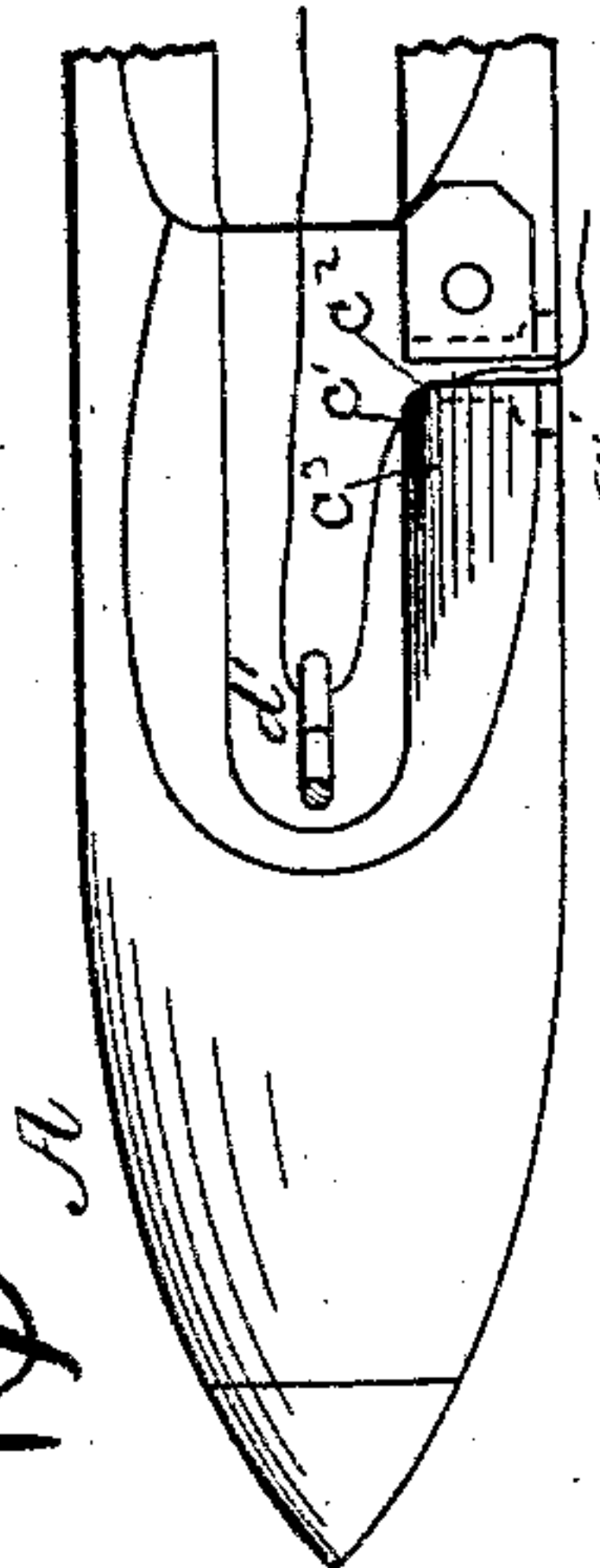


FIG-5-

WITNESSES

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LOOM-SHUTTLE.

SPECIFICATION forming part of Letters Patent No. 323,438, dated August 4, 1885.

Application filed August 29, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. NOLAN, of Boston, in the county of Suffolk and State of Massachusetts, a citizen of the United States, have invented a new and useful Improvement in Loom-Shuttles, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

Hitherto it has been usual to lead the filling-thread of a loom-shuttle through bushed holes in the wood of the shuttle, and to cause the thread to pass through these holes from the interior of the shuttle to the exterior by placing the slack or bight of the thread over the holes on the inside of the shuttle, and sucking it through by drawing in the breath, the mouth of the weaver being applied to the hole of the exterior of the shuttle. This method of threading the holes of the shuttle has been productive of various lung-diseases among the weavers, because particles of lint are by this means constantly sucked into the lungs. Various devices for threading the shuttle have from time to time been proposed, whereby this sucking process could be dispensed with; but for some reason or other they have not been generally adopted. The fundamental necessity of any such device is to have a slot leading from the hole in the side of the shuttle into its interior; but the edge of this slot needs to be protected, so that the warp-threads shall not be caught in it as the shuttle is thrown. The tension in the weaver's shuttle is given by causing the thread to pull around corners, and I do not propose to change this method, but to adapt it to a shuttle in which the thread goes to the exterior of the shuttle through the slotted hole.

In the drawings, Figure 1 is a view in perspective of a shuttle constructed in accordance with my invention, and provided with means for creating a strong degree of tension. Fig. 2 is a sectional view of the thread-delivery end of the shuttle shown in Fig. 1. Fig. 3 is a perspective view of the thread-delivery end of a shuttle, also constructed in accordance with my invention, and provided with means for creating a light degree of ten-

sion. Fig. 4 is a section of the modified device represented in Fig. 3. Fig. 5 illustrates in plan the front end of the shuttle shown in Figs. 3 and 4, with the covering-plate removed to show the slot through which the thread is passed to the eye, and also the post about which it is passed.

The cavity of the shuttle is made substantially the same as usual, and the bobbin is inserted in the same way.

In the drawings, A represents the body of the shuttle. B is the bobbin. C, Figs. 1, 3, 4, and 5, represents the hole in the side of the shuttle, through which the thread leads. It is provided with a bushing, and has a slot, *e*, leading up to the upper surface of the shuttle. A metallic plate is recessed into the wood of the shuttle at the flat end, as shown at *d*, Fig. 3, and this plate carries the post *d'* upon its lower side, as shown in Fig. 4. This post is slightly slanted in its upper part, next the plate *d*, from above downward toward the end of the spindle, and when near the bottom of the cavity is bent sharply toward the bobbin-cavity, and then bent vertically and tightly inserted into the body of the shuttle. There is room enough around the edge of the plate *d*, between it and the wood of the shuttle, into which is recessed, for the easy passage of the thread from the bobbin, and this room extends around the plate as far as the slot *e*, which leads to the hole C in the side of the shuttle. This hole C, which extends straight inward from the side of the shuttle, is smooth bushed, and is wider than the slot, so that when the thread is once placed in it it will not be likely to come out unless assisted by the hand of the operator; and the hole C is enlarged at its inner end, so that its front inner corner, *c'*, extends well under the portion of the shuttle-body above it, and forms, substantially, an extension of the hole forward toward the front post, *d'*, (see Fig. 5,) and a well-rounded shoulder, *c''*, extending almost to the center of the hole is provided.

The wood of the shuttle at the upper corner of the slot over the eye is beveled back and down, so that the thread will pass easily into the eye, as shown in Fig. 5.

The arrangement shown in Figs. 3 and 4

gives what may be called a "single degree" of tension.

If it is desired to have a double degree of tension, an additional plate, d^2 , (shown in Figs. 1 and 2,) is added, and the two plates are arranged as shown in Fig. 1, having a reverse curve between them. The plate d^2 has an additional tension-regulating post, d^3 , the bottom of which is embedded in the wood of the shuttle, and it is sloped in a direction opposite that of the post d' . The post d' is in front of the eye C, and the post d^3 is at the rear thereof.

In use the thread is passed around the post d' , then back about the post d^3 , and forward to the eye C of the shuttle.

It will be observed that the plate d , which is shown in Figs. 3 and 4 is fastened by a screw, d^4 , to the shuttle-body back of the slot e , and that it extends forward from that position toward the front end of the shuttle, its outer edge following, substantially, the line of the curvature of the shuttle, and then curving across the same to partially cover the cavity in the front part of the shuttle. The outer edge of this plate from its extreme end to the slot e serves as a guide for the placing of the thread in threading the shuttle, and this edge should bear such a relation to the edge of the cavity as to have a free uninterrupted space between it and the edge of the shuttle-body surrounding this cavity from the front of the plate to the slot e . The single-tension regulating-post d' is fastened to the front end of this plate, and the shape of the plate is well shown in Figs. 3 and 4.

The upper surface of the shuttle-body should be so prepared for the reception of the plate that the upper surface of the plate when in place shall be flush with the upper surface of the shuttle-body. The plates used for obtaining a double degree of tension, or for increasing the tension, are well shown in Figs. 1 and 2. The plate d is fastened by a screw, d^5 , to the shuttle-body at the rear of the slot e , and its front edge, which acts as a guide in connection with the plate d^2 , extends first backward and then forward again, and then backward, and the tension-regulating post d' is fastened to the forward end of this plate. The plate d^2 is fastened by a screw, d^6 , to the forward end of the shuttle-body, and it extends backward, as shown in Fig. 2, and its edge follows, substantially, the edge of the plate d to its forward point, there being a narrow space or channel between the two, whereby the thread is guided to the posts.

When modification shown in Figs. 1 and 2 is used, the shuttle is threaded by passing the thread around the foremost point of the plate d , and then through the slot e into the hole C, and, by means of the guiding-space between

the two plates, by the post d^3 , and then to the slot e and the eye C.

Different degrees of tension may be provided for in a shuttle by changing the position of the tension-regulating posts to each other and to the eye, bringing them together to lighten the degree of tension, and setting them farther apart to increase it, and will be readily understood by observing the course of the thread f in Figs. 1 and 2 of the drawings. This change in the position of the posts is effected by changing their points of attachment to their respective plates and to the shuttle wood or body.

Various attempts have been made to use a shuttle with a slotted eye, and among them may be noticed Letters Patent No. 79,490 to Metcalf, in which the slit leading to the eye was not protected by a covering-plate; also, patents to Damon and Whitaker, of July 7, 1868, Nos. 79,556 and 79,557, which are more complicated than the present device, and in which the eye of the shuttle was not well covered; also, patent to A. J. Laundray, dated October 3, 1882, No. 265,330, in which the tension-regulating device was comparatively imperfect; and I do not claim any of the contrivances shown and described in either of the said Letters Patent.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States—

1. The combination of the shuttle-body A, having a slotted eye, C, with the protecting-plate d , having the post d' fastened thereto and extending down therefrom into the body of the shuttle, the protecting-plate d^2 , having the post d^3 attached or fastened thereto and extending down into the body of the shuttle, the said plates being arranged in relation to each other to provide a guiding-passage between them, all substantially as and for the purposes set forth.

2. The combination of the shuttle-body having the eye C, extending straight inward from the side, and inclined at its inner end forward, so that its forward corner is well under the portion of the shuttle-body above it, and forms, substantially, an extension of the eye forward toward the front post, d' , with the protecting-plate d , shaped substantially as described, and secured to the top of the shuttle-body, as set forth, and the tension-regulating post d' , fastened at its top to the plate d and extending downward therefrom, then bent sharply toward the bobbin-cavity, and then again bent vertically and attached tightly to the body of the shuttle, all substantially as and for the purposes described.

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Witnesses:

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