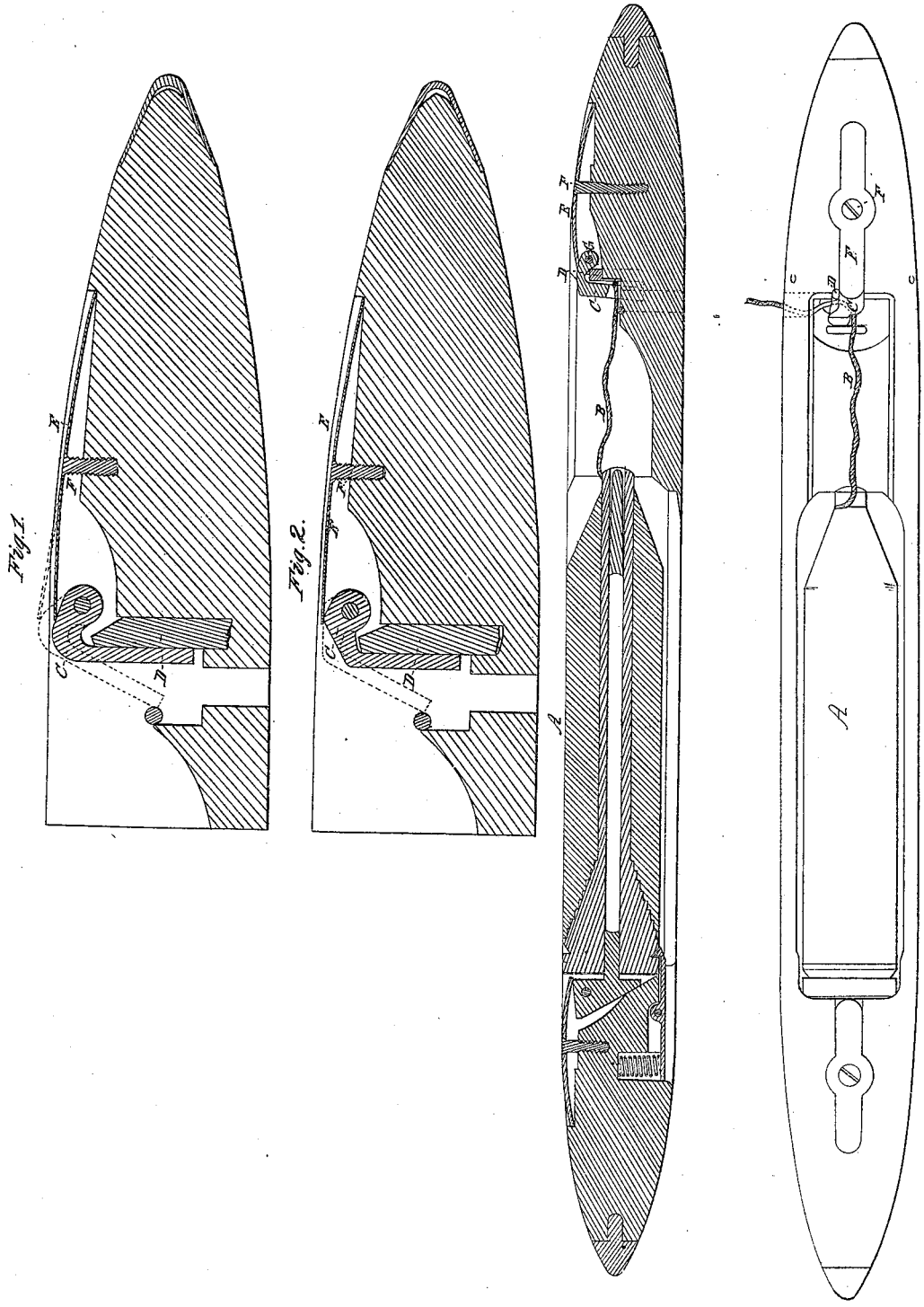
Markland & Milnes.

Shuttle.

No. 7,687. Patented Oct. 1, 1850.



UNITED STATES PATENT OFFICE.

WILLIAM MARKLAND AND JOSEPH MILNES, OF LOWELL, MASSACHUSETTS.

WEAVER'S SHUTTLE.

Specification of Letters Patent No. 7,687, dated October 1, 1850.

To all whom it may concern:

Be it known that we, WILLIAM MARKLAND and JOSEPH MILNES, both of Lowell, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Weavers' Shuttles; and we do hereby declare the following to be a full and exact description of the same and the principle or character which distinguishes them from all other things before known or used, reference being had to accompanying drawings, making a part of this specification, in which—

Figure 1, is a longitudinal section through the shuttle and Fig. 2, a plan of the shuttle as it is usually introduced between the warps.

The same letters indicate the same part in each of the figures.

In our improved shuttle, we employ the spindle its hinge spring &c. to support and secure the bobbin, such as are common in shuttles. The yarn passes from the bobbin toward one end of the shuttle between two metal surfaces which are compressed toward each other by a spring and thereby cause friction between themselves and the yarn, which friction acts to detain and retard the yarn from passing; then out at a proper opening in the side of the shuttle to be delivered to the cloth.

The first part of our invention consists in the arrangement and position of the lever forming one of the friction surfaces, by which arrangement the irregular strain upon the yarn caused in ordinary shuttles is to a great degree avoided.

The second part of our invention consists in the construction and peculiar combination of the spring which compresses the metallic friction surfaces upon the yarn.

In the accompanying drawings (A) represents the full bobbin of yarn. The yarn (B) proceeding from it, passes around the friction lever (C) between which and the friction post (D) it is compressed. The lever (C) vibrates upon the fulcrum pin (G) which is so placed that the vibrations of the lever (C) are toward and from the bobbin and is forced upon the yarn by the spring (E). From between these friction surfaces the yarn passes out through a hole in the side of the shuttle to be delivered to the cloth.

We are aware that friction caused by the compression of metallic and other surfaces upon the yarn by springs has been before used and that certain constructions have been before patented—but in no one of these constructions has the friction lever been arranged to vibrate from and toward the bobbin of yarn. In the shuttles having a lever which vibrates in any other direction than from and toward the bobbin the friction upon the yarn between the surfaces always remains the same, and if the yarn is by any means caught upon the bobbin or hindered in any way from an even delivery, the strain upon the yarn becomes greater than it should be. But in our improved shuttle if the yarn is detained upon the bobbin or in any way caught in its passage from the bobbin to the friction lever the direction of the yarn (B) and the movement of the lever (C) are such that the lever (C) will be lifted from its seat by the yarn and the friction of the yarn caused by compression between the friction lever (C) and the friction post (D) will cease to exist. Thereby giving, by their combined action, a compensating apparatus, in which, if the yarn comes from the bobbin freely, then a sufficient amount of friction is given by the compression between the lever (C) and the friction post (D) to deliver the yarn to the web at a proper tension. If the yarn does not come from the bobbin freely, then the friction by compression ceases, as the requisite amount of tension already exists.

The spring (E) is made of thin steel and has one end resting upon the shuttle and the other end resting upon the lever (C), between its fulcrum and its friction surface. A screw F passes through the middle of the spring (E) and is supported by the wood forming the end of the shuttle, by this screw the amount of friction is adjusted. That part of the friction lever upon which the spring rests is made by its form to act like a cam, as it turns upon its fulcrum, and in the present drawings is shown as made so that when the lever is lifted a short distance from its seat, the end of the spring is allowed to fall, and the power exerted upon the lever is less than when it is fully down. This is so arranged, in order that, when the lever is once lifted it may be more easily retained. In case of using yarns of unequal size in its different parts, and it was required to draw the yarn tighter, when the largest parts were delivered to the cloth: The cam part of the lever upon which the

spring rests should be made to raise the spring and thereby produce by it a greater effect, as the lever is lifted from its seat. These operations may be seen by reference to drawings on Sheet 2, which show two forms of levers. Fig. 1, being that in which, as the friction lever C, is raised from its seat the spring gives more effect upon the yarn. The position of the lever and spring when the lever is raised, is shown in red lines, and it is apparent that the spring E, will press more effectually than when the lever is down upon the friction post D.

In Fig. 2 the part of the lever C, upon which the spring rests is of such form, as may be seen from the two positions shown, that the effect of the spring is no more when the lever is raised to its highest point than when it is upon the friction post.

Having thus fully described our invention, what we claim and wish to secure by Letters Patent is—

1. The combination and arrangement of friction levers in weavers shuttles in such a manner that the lever shall be allowed to vibrate toward and form the bobbin for the purpose of producing a more even tension, substantially as herein described.

2. The combination and arrangement of a spring and cam surface upon the friction lever, in order that as the friction lever is raised from its seat the compression may be made more or less as desired, substantially as herein described.

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Witnesses:
THOMAS A. BEARD,
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