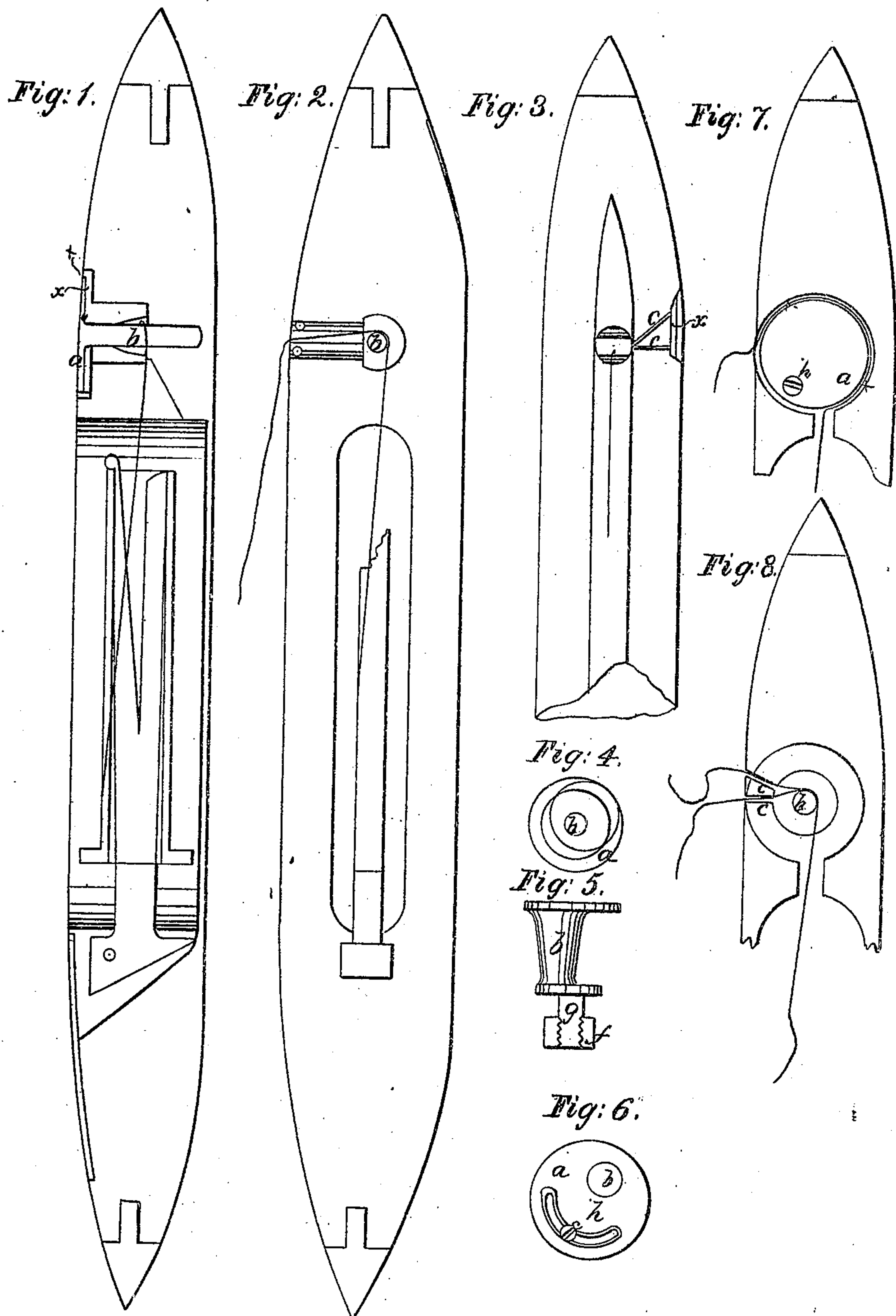


Daman & Whitaker. Shuttle for Loom.

N^o 79,557.

Patented Jul. 7, 1868.



Witnesses:
John E. Crane.
O. H. Moulton.

Inventors:
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ALEXANDER M. DAMON AND JAMES WHITAKER, OF LOWELL, MASSACHUSETTS, ASSIGNORS TO EATON & AYER, OF NASHUA, NEW HAMPSHIRE.

Letters Patent No. 79,557, dated July 7, 1868.

IMPROVEMENT IN SHUTTLES FOR LOOMS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that we, ALEXANDER M. DAMON and JAMES WHITAKER, both of Lowell, in the county of Middlesex, and State of Massachusetts, have invented certain new and useful Improvements in Shuttle-Threaders, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of the specification, in which—

Figure 1 is a longitudinal vertical section.

Figure 2, a horizontal plane section, the plane of the section passing through the centre.

Figure 3, a front side elevation of one end of the shuttle.

Figure 4, a bottom end, and

Figure 5 a side of an eccentric-stud and plate, *a*.

Figure 6, a top view of the plate *a*.

Figures 7 and 8 are top views of part of a shuttle, the latter with the plate *a* removed.

This invention consists—

First, in the combination, with guide-pins at each side of the eye of the shuttle, of the concentric plate-supporting stud *b* and plate *a* which covers the slot *c* in the side of the shuttle, as clearly shown in the drawings.

Second, this invention consists of the plate *a* and eccentric supporting-stud *b*, when arranged and combined with the slotted-eyed shuttle, for the purpose and substantially as shown, and as hereinafter described.

Third, this invention consists of the combination, with the slotted-eyed shuttle, of a plate, *a*, the plate being arranged over and serving as a cover for the slot, substantially as shown in the drawings.

In our said invention that end of the shuttle to which the spindle is connected, and which carries the bobbin, may be made in the usual form, as well as the middle portion of the shuttle, but in the delivery-end of the shuttle we first form an annular cavity down about half way through the wood or other substance

In the bottom of this cavity a hole is made, or a nut set to receive the end of one of the studs *b*.

The top of the shuttle around the cavity is countersunk or counterbored from one-eighth to one-fourth of an inch in depth to receive the plate *a*, but is enough larger than said plate to allow the filling-thread to pass readily downward between the edge of the plate *a* and the surrounding substance, and under the edge of the plate, which is raised, leaving a space for the filling to pass beneath it, and to and around the stud *b*.

When changes in the tension on the filling are required, (as in weaving different kinds of cloth on the same loom with the same shuttle, but at different times,) the eccentric-stud *b* and its plate *a* are intended to be used, and when applied to the shuttle the plate *a* should be slotted on a curve, as shown in the drawings, and this curved slotted plate and the eccentric-stud connected may be turned round on the screw *h*, a greater or less part of a revolution, and by the eccentricity of the stud change the line of draught, and increase or diminish the tension on the filling.

The eccentric-stud should have a concentric guide-pin or pintle, *g*, to enter the hole in the bottom of the cavity, or to enter or screw into a nut, *f*, set therein. Such pintle serves, in connection with the screw *h*, to keep the plate *a* and stud *b* in position, and to prevent the same getting moved, loosened, or broken by the sudden blows of the shuttle at the extremities of the lay.

When the tension on the filling is required to be the same at all times, the concentric-stud is used, and this concentric-stud supplies the place of the eccentric-stud in either case above described; and in the use of such studs and plates, the plate *a* covers the slot *c*, and protects it from the action of the warp-threads, which would otherwise get into the slot and do great injury.

When the filling passes out at the eye of the shuttle, it is drawn first in one direction, then in the other, as

the shuttle passes through the web in weaving, and it is quite important that both sides of the eye should be uniform, even, and smooth, so as to maintain even tension on the filling, in whichever direction the shuttle is thrown.

This uniformity and smoothness in the sides of the eye is obtained or provided for by inserting a round metal guide-pin in the substance of the shuttle, at each side of the eye, and partly within and crossing it.

These guide-pins not only make both sides of the eye even, smooth, and uniform, but they materially strengthen the sides of the shuttle at each side of the slot *c*, and, in connection with either of the studs *b*, aid materially in preserving and maintaining the same even tension on the filling.

Securing the plate *a* to the shuttle, and retaining it firmly in position by means of the pintle *g* inserted in the wood, or screwed into a nut, *f*, and by the screw *h*, which gets a good bearing in the solid substance of the shuttle, we find of great importance, since the plate *a* and either of the studs must be firmly secured, in order to be retained in their operative positions against the violent action of the shuttle when it strikes the pickers at the extremities or ends of the lay.

The slot *c*, unprotected by a plate, or an equivalent, would not be available and operative for a useful purpose, but when combined with and covered by a plate, *a*, as clearly shown and described, the slot *c* serves admirably the purpose of a thread-passage from the under side of the plate to the eye of the shuttle.

The direction of the filling, in passing around the plate *a* and down to beneath the said plate, is clearly shown in fig. 7, and the filling drawn from the bobbin, around the stud *b* and out at the eye of the shuttle, is shown in fig. 8.

Between the annular cavity and the counterbored space, which contains the plate *a*, and the cavity in which the bobbin is supported, an opening is made to allow the free passage of the filling-thread from the bobbin to and around the stud *b*, and out at the eye of the shuttle.

In threading this shuttle, the filling-thread is drawn around and under the plate *a*, between the outer edge of the plate and the surrounding substance to the slot *c*, and through it into the eye, which completes the threading operation.

One object of this invention is to prevent the necessity of sucking the filling through the eye of the shuttle, (a common practice,) and thereby inhaling dust and linty fibre, so injurious to the person thus threading the shuttle.

Other objects are, to provide some means for regulating the tension on the filling, and devices which are easily adjustable and removable; devices which are substantial, reliable, and operative for useful purposes, and which are secured to the shuttle by means which cannot fail to insure their successful operation; devices which combine with and cover the slot *c*, and insure the safest action of the shuttle, and render the slot available and operative for a useful purpose; to provide easily-removable, adjustable, and changeable plate-supporting devices, which not only combine with and support the slot-protecting plate, for a new and useful purpose, and in a manner not shown in any other similar invention, but which guide the filling-thread from the bobbin to the eye of the shuttle, on any line of draught desired, and vary the tension on the filling.

And in combination with the guide-pins, at each side of the eye of the shuttle, these plate-supporting studs, whether concentric or eccentric, aid in securing and maintaining the same even tension on the filling, whichever way or in whichever direction the shuttle is thrown; and no greater amount of friction or tension will be raised on the filling, when the shuttle is thrown in one direction, than when it is thrown in the opposite direction, which we consider of great importance in order to weave even cloth.

Whereas, in the use of a shuttle, which has a guide-wire to guide the filling from the bobbin, and where the sides of the eye of the shuttle are unequal, (as where the eye is made on an angle, or obliquely and horizontally through the side of the shuttle,) the filling will be drawn tighter and the tension on the filling will be greater when the shuttle is thrown in one direction than when it is thrown in the opposite direction, and the consequence will be that the filling will be drawn tighter at one edge of the cloth than at the other edge, and if the tightly drawn threads at one side of the cloth do not so draw the selvedge-edge in as to sever the selvedge-threads, by the action of the reed, regardless of the action of the temples to hold the selvedge-edge out, such tightly-drawn filling at one side will not produce such even and uniform cloth as though the filling-threads were all equally drawn.

In the use of a shuttle which has no guiding-device for guiding the filling to the eye, but where the filling leads from the bobbin to the eye of the shuttle, the eye of such a shuttle may be made more or less obliquely through the side of the shuttle, and the tension on the filling in such a shuttle will be very nearly or quite equal in either direction; for in its passage through an oblique eye or thread-passage only, the filling cannot change its line of draught in the eye, so as to materially affect the tension on the same.

We are aware that a shuttle was invented by J. M. Kelsey, in 1855, which contained a thread-guide, to insure the line of draught from the bobbin, and an unprotected slot in the side of the shuttle, as a passage for the thread to the eye; we are also aware that this shuttle was capable of being threaded by passing the thread leading from the bobbin over or through the thread-guide, and by drawing the thread, which is beyond the guide, along against the top edge of the shuttle towards and to the slot, and through it into the eye; and therefore we wish it to be distinctly understood that we disclaim having invented the equivalent, in principle or operation of, that which was invented by said J. M. Kelsey; but

What we do claim as new, and desire to secure by Letters Patent, is—

1. In combination with the guide-pins at the sides of the eye of the shuttle, the concentric plate, supporting-stud *b*, and plate *a*, which covers the slot *c* in the side of the shuttle, in the manner and for the purpose described.

2. The plate a and eccentric supporting-stud b , when arranged and combined with the slotted-eyed shuttle, for the purpose and substantially as described.

3. The combination, with the slotted-eyed shuttle, of the plate a , the plate being arranged over and serving as a cover for the slot.

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