

(No Model.)

A. BOISSONNEAULT.

LOOM SHUTTLE.

No. 322,892.

Patented July 28, 1885.

Fig. 1.

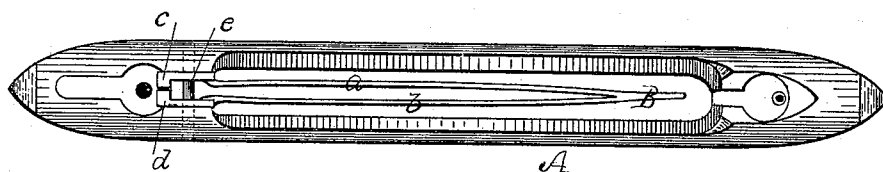


Fig. 2.

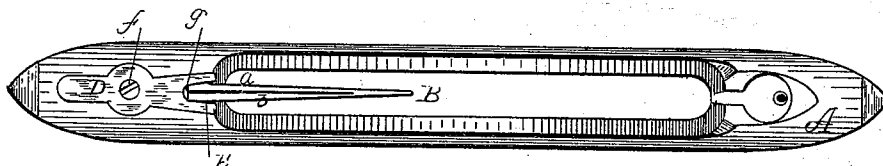
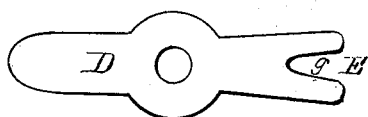


Fig. 3.



full size.

Witnesses.

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LOOM-SHUTTLE.

SPECIFICATION forming part of Letters Patent No. 322,892, dated July 28, 1885.

Application filed May 22, 1884. (No model.)

To all whom it may concern:

Be it known that I, ANDRÉ BOISSONNEAULT, a subject of the Queen of Great Britain, residing at Lawrence, in the county of Essex and State of Massachusetts, 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, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention relates, especially, to that class of shuttles in which the filling employed is wound upon "cop-tubes," so called, the latter being placed upon a split spring-spindle contained in an opening formed in the body of the shuttle; and the object of the invention is to enable the operator to apply the cops more readily than heretofore to a spindle, and with less danger of snarling or disturbing the filling, and also prevent the splitting of the cop-tube in the attempt to place it upon the spindle, as has hitherto often occurred. To accomplish this result I split the heel or pivot portion of the spindle into two parts, and form in the front portion of the spring-plate, now generally employed in shuttles of this class to hold the spindle in its upright and closed positions, a V-shaped notch, into which the lower portion of the spindle enters when raised. This notch tends to compress and hold tightly together the two spring portions of the spindle when the latter is raised in position to apply cops; hence the empty cop-tube can readily be taken off and the full one easily substituted therefor, and without any effort being employed to adjust it. When the spindle is thrown into its normal horizontal position, it is disengaged from the V-notch, when the elasticity of the two portions of the spindle operates to separate them, the requisite opening or spread between the same being preserved by two projections or lugs formed on the adjacent sides of the said portions, and effectually hold the cop in position until the filling is entirely removed and the cop-tube empty.

The drawings accompanying this specification represent in Figure 1 a plan, with the

spring-plate removed, of a shuttle containing my invention. Fig. 2 is a plan with the spindle in its raised position, and Fig. 3 is a plan of the spring-plate as I propose to construct it.

In these drawings A represents the body of a shuttle belonging to the class before premised, and B the spindle thereof, which in general shape is the same as that usually employed, and is split, forming two elastic or yielding portions, *a b*, so shaped that in their normal position they shall stand a slight distance apart and resist any tendency to compression, in order that when the bobbin or cop is placed upon the spindle these portions shall hold it tightly in place. These pieces composing the spindle are united at the nose of the latter, while at the heel or pivoted portion of the spindle they remain apart or split, the requisite opening or spread between the portions being preserved by two projections or lugs, *c d*, formed on the adjacent sides of the portions *a b*. Each portion *a b* of the spindle is slightly bowed outward, as shown in Fig. 1. The pivot upon which the spindle turns is shown at *e*, and at D is represented the spring-plate, which bears upon the heel of the spindle to maintain the spindle, with the cop, in a fixed horizontal position while the shuttle is in active operation. This plate, contrary to its usual form, I have constructed with a V-shaped notch at that part where the spindle usually rests when raised into an upright position, to permit a change of cops, and it is secured in position upon the shuttle-body A by the usual screw, *f*.

Hitherto there has been much waste of filling upon cops used in shuttles provided with spindles, from the fact that generally a split spring-spindle has been used whose parts have to be pressed upon each other in order to place the cop upon it in its proper position. The operative has generally compressed the spindle with one hand and pushed and twisted the cop down with the other, the result being that the shape of the cop is disturbed, the filling entangled, and much waste ensues; moreover, the cop-tube is very often broken or split, and the whole must be discarded; while, from forcing it so violently upon the spindle, if it is not broken, it is very much enlarged, and hence when the filling is partly used the tube becomes loosened from the shocks inci-

dental to the throw of the shuttle, and moves with every pass of the latter. The operative is then obliged to remove the cop before all the filling is consumed, and a second loss is consequent. To obviate these disadvantages above stated in effecting a change of cops, I have so constructed a shuttle and spindle that when the spindle is thrown into the raised position required in order to remove an empty cop-tube and substitute a full one, said spindle shall enter the mouth *g* of the notch *E*, and as it is pushed back the parts *a b* are crowded together more and more as the spindle advances toward the apex of the *V*, when the said parts are crowded tightly together upon each other. The empty cop-tube is now removed, and the full one substituted very easily and readily, without force being applied, as it is understood that the diameter of the spindle when closed is such as to loosely fit the interior of the cop-tube or bobbin, whichever may be used. After placing a full cop upon the spindle the operative pushes the latter down to its horizontal position, and it is retained there by the spring-plate *D*. This act disengages the portions *a b* from the *V*-slot, and they at once spread and enlarge the diameter of the spindle *B*, thereby tightly and firmly holding the cop until the spindle is again raised and the fingers closed upon each other, when the empty cop-tube is free to be removed.

The application of fresh cop-tubes to a spindle so constructed is attended with no effort upon the part of the operative, as the closing or contraction in the diameter of the spindle is coincident with the raising of the spindle; moreover, the device is very simple, efficacious, and easily adapted to other shuttles of a similar class without much expense.

I am aware that a shuttle has been used having a spindle split along the body and

through its heel, and having the ends of its heel portions adapted to enter between walls of a socket which cramps together such end portions and spreads the body of the spindle when the spindle is closed into the shuttle-body, the inner sides of said heel portions being beveled off from the spindle-pivot outwardly. In this construction when the spindle is lifted out in order to place a bobbin upon it the split portions come together of their own accord, and when the spindle is pressed down into its proper position the beveled surfaces of the sectional heel portions, in connection with the walls of the socket, operate to spread out the middle of the spindle. A spindle has also been used, partly flat and partly rounded, having lateral flat springs attached to the same where the rounding begins, and extending at a slight angle nearly to the end of the flat portion, the springs being compressed, when the spindle is raised in order to place the bobbin thereon, by contact with the converging walls of a slot in the shuttle-body, and being allowed to spread apart when the spindle is lowered. These constructions I do not claim; but.

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

The combination, with the shuttle-body *A* and the fixed plate *D*, having a *V*-shaped notch, of the spindle *B*, constructed with the parts *a b* and projections *c d*, substantially as described.

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

ANDRÉ BOISSONNEAULT.

Witnesses:

H. E. LODGE,

A. F. HAYDEN.