

W. Breitenstein.

Loom.

Patented Jan 24, 1865.

No 45,969.

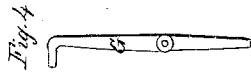


Fig. 4

Fig. 1

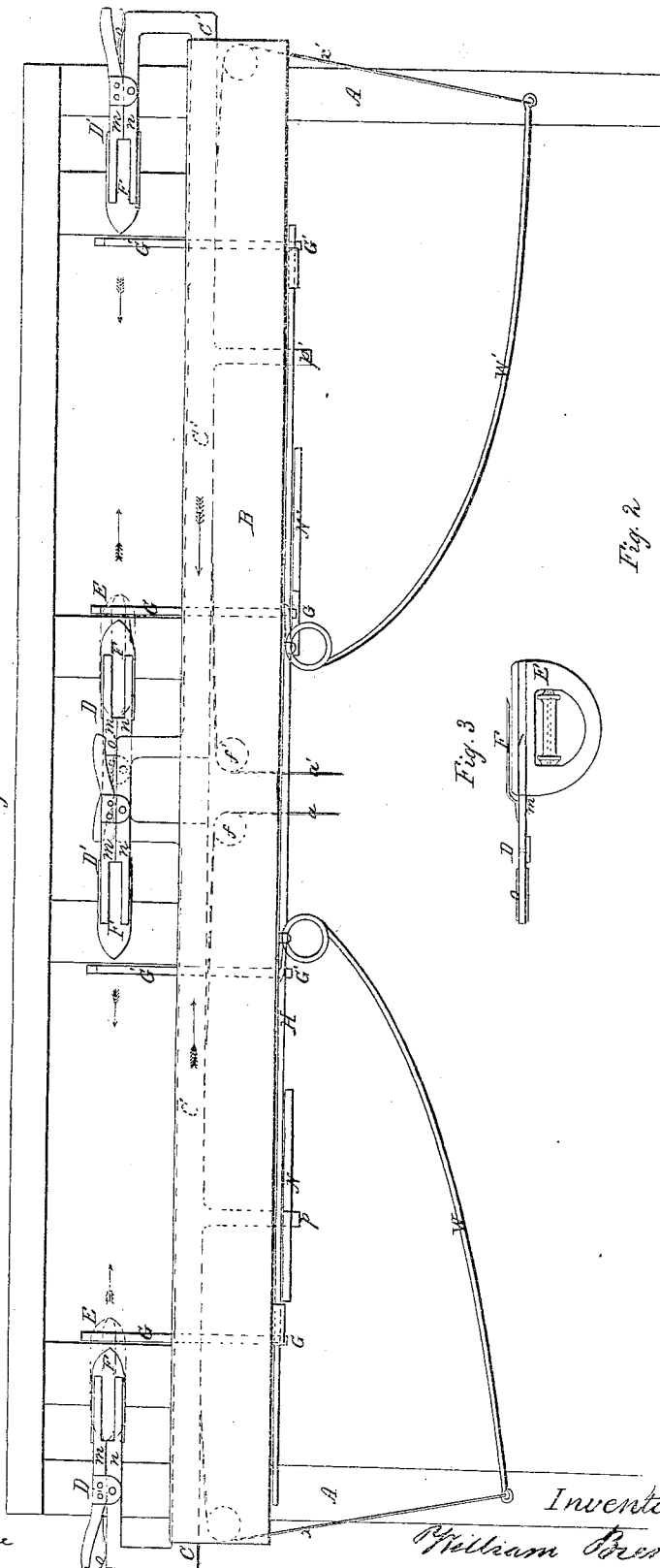


Fig. 2

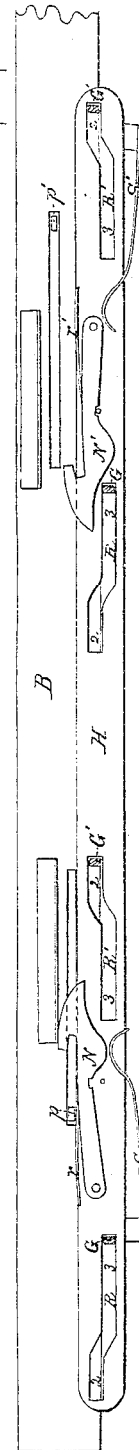
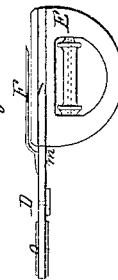


Fig. 3



Witnesses
 Bury & Roubin
 Torrance & Hare

Inventor
 William Breitenstein.

UNITED STATES PATENT OFFICE.

WILLIAM BREITENSTEIN, OF NEW YORK, N. Y.

IMPROVEMENT IN LOOMS.

Specification forming part of Letters Patent No. 45,969, dated January 24, 1865.

To all whom it may concern:

Be it known that I, WILLIAM BREITENSTEIN, of New York, in the county and State of New York, have invented a new and useful Improvement in Weaving-Looms; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

The nature of my invention consists in the arrangement and construction of shuttle-holders, which are made to move at the same time through the warp from opposite sides, meeting at or near the center of the warp, where the shuttle, which has through the one-half of the warp been carried by one holder is taken hold of by the other holder and carried through the other half of said warp by this other shuttle-holder during its receding motion.

In the accompanying drawings, Figure I represents a front view of my improved shuttle arrangement on a loom constructed to weave two pieces of fabric at one time. The other figures represent detail parts and will be hereinafter referred to.

Similar figures represent similar parts.

In the accompanying drawings, A A are the two side standards. B is the breast-beam. In this breast-beam two sliding bars, C C', (shown in dotted lines,) are arranged, capable of sliding past each other, to which strong cords *a a'* are attached, running over suitable guide-rollers, *f f'*, and connected with an arm or lever, generally called the "peg-arm," in the usual manner, to give the required motion to said bars. Near the other ends of said bars C C' cords *x x'* are attached, the lower ends of which are connected to springs W W' to bring the said bars C C' back again to their original position as soon as relieved by the action of the cords *a a'*. To these bars C C' the shuttle-holders D D and D' D' are attached. These shuttle-holders are made of a lower arm, *n*, firmly attached to the sliding bar or forming a part thereof. To this arm *n* an upper arm, *m*, is hinged similar to shears or scissors. The forward part of the fixed arm *n* and movable arm *m*, forming the shears, are shaped so as to receive the shuttle E between them. (See Figs. I and III.) The after

end of the arm *m* is bent slightly upward and has a spring, *o*, attached, acting against the after part of the fixed lower arm, *n*, so as to press the forward ends of said arms *n* and *m* together to keep the shuttle E firmly between them. At the back of the breast-beam B levers G G' G' G' are fixed, provided with suitable projections at their upper ends, (see Figs. I and IV,) which, at the proper time, are made to act upon the ends of the arms *m*, so as to counteract the spring *o*, and, at the same time, open the shears to liberate their hold upon the shuttle, as will be hereinafter described.

By operating the cords *a a'* the bars C C' will be moved as indicated by the arrows, and consequently the shuttle-holders D and D' will move toward each other. As represented in the drawings, the shuttle-holders D have hold of the shuttle E, and will consequently bring said shuttles, by the above described motion, into the warp between the warp-yarns. At the same time the shuttle-holders D' will enter the warp between the warp-yarns from the opposite direction, and meeting the former, which has hold of the shuttle near or at the center of the warp, and cause the shuttle to enter likewise between the arms *n m* of the shuttle-holder D'. At the same time the levers G G' are moved so that their projections shall act upon the after end of bent arm *m* of the shuttle-holders D, relieving thereby the pressure of the forward end of the said arm *m* upon the shuttle E, while the arm *m* of the shuttle-holder D' is acted upon by its spring *o*, so as to press the arms *n* and *m* tightly together to hold the shuttle E firmly between them. The pressure or power on the cords *a a'* is then taken off, when the bars C C' will be forced back again by the action of the springs W W' acting through the cords *x x'* upon said bars C C', and consequently the shuttle-holders D D and D' D' will be moved out of the warp again, and, as above described, the lever G has acted and is still acting upon the end of the arm *m* of the shuttle-holder D, so as to relieve the shuttle E of the pressure of said arm, whereby said shuttle E was held firmly in said shuttle-holder D, and as this shuttle E has been forced between the arms *n* and *m* of the shuttle-

holder D, in which the arm *m* is acted upon by its spring O, so as to hold thereby the shuttle E firmly between the arms *n* and *m* of said shuttle-holder D', said shuttle-holder D' will, by the above-mentioned return-motion of the bars C C', carry the shuttle E past the second half of the warp and out of the same. The next motion communicated to the bars C C' will cause the shuttle E to be taken between the warp-yarns, fast to the shuttle-holder D', until the same is met in the center of the warp by the shuttle-holder D, when the lever G' will operate the arm *m* of the shuttle-holder D' so as to relieve its hold upon the shuttle E, which, having been forced between the arms *n m* of the shuttle-holder D, will then be taken out of the warp-yarns by said shuttle-holder D and brought back into its original position, as represented in Fig. I, where the shuttle E is shown in red ink.

To operate the levers G G' G' a sliding bar, H, (see Figs. I and II,) is arranged on the under side of the breast-beam B, provided with suitable slots, R R' R', into which the lower ends of the levers G G' G' work, and through which said levers are operated, so as to be brought clear of the projecting part of the arms *m* of the shuttle-holders, or to act upon the same in the manner and for the purpose and at the required time, as above specified. This sliding bar H is provided with two hook-levers, N N', acted upon by springs *r r'*, respectively, fastened to the sliding bar H, and acting upon said hook-levers so as to press the same inward. *s* and *s'* are two springs fast to the breast-beam B, but stronger than the springs *r r'*, and acting against the hook-levers N or N' in the opposite direction to the action of the springs *r r'*, when said hook-levers are, in connection with the bar H, moved past said springs *s s'*. *p p'* are arms fast to the shuttle-holder bars C C', projecting downward through the beam B and below the sliding bar H and the hook-levers N or N', so as to operate the said sliding bar H.

In the position of the bar H, Fig. II, (shown in the drawings, and which corresponds to the position of the shuttle-holders, &c., as shown in Fig. I,) the hook-lever N is opposite the spring *s*, and acted upon by said spring, which being, as before mentioned, more powerful than the spring *r*, has moved said hook-lever outward in such a position that by the motion of the bars C C' the arm *p* of the bar C will come into the hook at the end of the lever N, and thereby move the sliding bar H at the right time forward. The hook-lever N', which in this position is away from the action of the spring *s'*, is acted upon by its spring *r'*, and thereby pressed inward so as to allow the arm *p'* of the bar C' to pass the same during this motion. By this motion of the bar H, communicated to the same from the connection of the arm *p* with the hook-lever N, the levers G G' are made to pass

from part 3 into part 2 in the slots R R', whereby the upper or projecting ends of said levers are thrown over the arms *m* of the shuttle-holders D, and act upon said arms in the manner and for the purpose above specified. At the same time the ends of the levers G' G' are moved from part 2 into part 3 in the slots R' R', whereby the upper ends of said levers are brought clear of the shuttle-holders D, allowing thereby the full action of the spring *o* for the purpose of forcing the arms *n* and *m* together to hold tight the shuttle E between them. During the return-motion of the bars C C', the sliding bar H remains where the arm *p* has moved the same, as above described, but the hook-lever N has thereby been moved away from the spring *S*, in consequence of which the spring *r* acts now upon said lever N and forces the same inward again, while the hook-lever N' is now in a position to be acted upon by the spring *S'*, and is by the same forced outward, so that by the next motion of the bars C C', the arm *p'* of the bar C' will catch into the hook at the end of the lever N', and move thereby this sliding bar H back again. By this back-motion of the bar H. The lower ends of the levers G' G' pass from part 3 to part 2 in the slots R', and throw thereby the upper ends of said lever so as to operate the arms *m* of the shuttle-holders D', while the lower ends of the levers G pass from part 2 to part 3 in the slots R, and move thereby their upper ends clear of the shuttle-holders D.

At the back side of the shuttle-holders a shield-plate, F, is attached, securely fastened to the lower and fixed arm, *n*, of said shuttle-holders, and made sufficiently wide to project a little above and below the two arms *n* and *m*, forming the shuttle-holder. This shield-plate F is pointed at its forward end, wedge-shaped. This shield prevents any of the threads of the warp from coming into and between the arms *n* and *m* of the shuttle-holders, while the same passes between the warp-yarns empty, as this wedge-shaped end of said shield-plate F will either separate the yarns or cause the same to pass either above or below the shuttle-holder.

I do not claim, broadly, passing the shuttle by a shuttle-holder through one-half the distance of the warp, where a second shuttle-holder takes hold of said shuttle and passes the same through the remaining other half of the warp during its receding motion; but

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The arrangement and construction of the sliding bars C C', provided with suitable arms at their ends, forming the shuttle-holders, and operated in the manner and for the purpose substantially as set forth and described.

2. The construction of the shuttle-holders and the arrangement of the arm *m*, operated by a spring, *o*, and acted upon by the lever

G or G', in the manner and for the purpose described.

3. The arrangement and combination, with a shuttle-holder, of the shield-plate F, in the manner and for the purpose set forth.

4. The sliding bar H, in combination with the levers G G' G' G', constructed and operating in the manner and for the purpose specified.

5. The arrangement of the hook-levers N N' with their springs r r', attached to sliding

bar H, in combination with springs s s', attached to the breast-beam B, and acted upon by the arms p p' of the sliding bars C C', for the purpose of operating said sliding bar H, in the manner substantially as set forth and described.

WILLIAM BREITENSTEIN.

Witnesses:

HENRY E. ROEDER,

TERENCE O'HARA.