A. WRIGHT.

LOOM-SHUTTLE.

No. 188,489. Patented March 20, 1877.

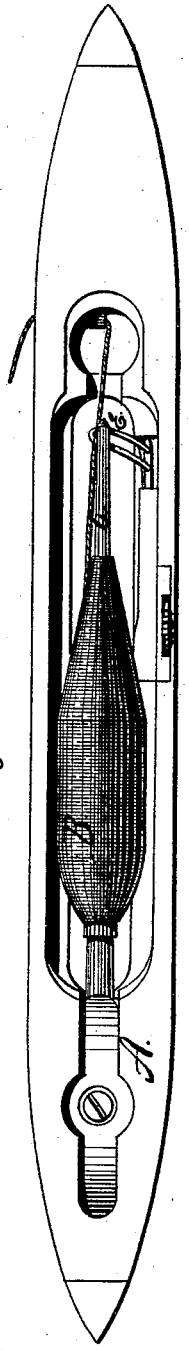

Fig. 1.

Fig. 2.

WITNESSES.

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IMPROVEMENT IN LOOM-SHUTTLES.

Specification forming part of Letters Patent No. **188,489**, dated March 20, 1877; application filed August 18, 1876.

To all whom it may concern:

Be it known that I, AUGUSTUS WRIGHT, of the city of Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Loom-Shuttles; and I do hereby declare that the following is a full, clear, and exact description thereof, which 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 of reference marked thereon, which form a part of this specification.

This invention has reference to improvements in loom-shuttles for weaving cloth; and consists in the peculiar arrangement of an arm provided with a hook or hooks, and operated by a peculiar double-acting escapement-lever secured to one side of the shuttle, so that any imperfections in the warp will operate the mechanism, and thus prevent the paying out of the filling-yarn and break the same, when the loom will be stopped by the usual loom stop-motion, and floats and other imperfections in the weaving of cloth will be prevented.

With shuttles of the ordinary construction imperfect cloth is often woven which has to be picked out by the weaver, and is technically called "floats," or the defect which results in the weaving of a piece of cloth when a shuttle, while being thrown, carries the weft either over or underneath any of the warps of a shed. This defect may be caused by the breakage of a warp-thread and getting between the other warps, thus preventing the proper crossing of any portion of them to make a shed for the passage of the shuttle; or such defect may be caused by waste or extraneous matter getting between the warps, so as to prevent them, when crossed by the harness, from forming a proper shed. In either of these cases the shuttle, while passing across the race-beam of the loom, will either cross over or go under the estopped warps. Scarcely a piece of cotton cloth is woven without more or less of such defects or faults. They cause much loss of time and labor to pick out the badly-woven weft or filling.

By the application of my invention to a loom-shuttle the filling or weft thread is stopped from flowing from the shuttle when, from the above-mentioned causes, the warp is not in the proper condition to make perfect cloth. The filling-thread, being stopped from flowing from the shuttle, is therefore broken by the momentum of the shuttle, or the draft on such thread by the shuttle, during its flight. The breaking of the weft or filling thread will cause an immediate stopping of the loom through the operation of the loom stop-motion, and the operator can at once detect and remedy the defects which caused the stopping of the loom, without picking out the imperfectly-woven filling or weft.

Attempts have been made before this invention to accomplish these results; but the mechanism heretofore used has not been sufficiently reliable to prevent the weaving of imperfect cloth, and required more attention from the weaver than looms using shuttles not provided with these detecters, and such mechanism has not come into general use.

In the drawings, Figure 1 is a top view of a loom-shuttle provided with my improved shuttle-detecter stop-motion. Fig. 2 is a longitudinal view of the shuttle, partly in section, showing the mechanism I employ in view.

A is the shuttle. B is the cop, and C the skewer. *a* is a hinged lever, provided at its forward end with a loop, hook, or projection, E, which, when raised, closes the space between the skewer and the side of the shuttle, and prevents the thread from being drawn off the cop, but which, in its normal condition, rests below the skewer, near the bottom of the shuttle, and allows the thread to pass freely from the shuttle; and, if a hook is used instead of the loop E, a guard may be provided to prevent the thread from engaging with the hook. The other end of the lever *a* is provided with the double cam *d*, consisting of two planes arranged at such an angle as will allow the escapement-lever *b* to depress this end of the lever *a* in both directions, sufficient to bring the loop, hook, or pin E against or close to the end of the skewer. *b* is a peculiar-shaped double-acting cam, provided with a serrated segmental projection at its upper end, the lower end being arranged to operate the lever *a*, as above described, when the serrated seg-

mental projection comes in contact with a loose warp-thread or other imperfection in the warp, or when the shed of the warp is not correctly formed.

The whole mechanism is very simple, strong, and efficient. The arm, being in the line of the shuttle, is not affected by the momentum of the same, while the cam *b* is evenly balanced, and cannot be affected by the velocity or throw of the shuttle. The peculiar shape of the cam *b* retains the arm *a* in the raised position when the serrated segment *c* has been in contact with the warp, and thus insures its prompt action.

While the entire shed of the warp is correctly formed, the shuttle, on being thrown, will go through the shed without there being any interruption to the free flowage of the weft from the shuttle, the loop, hook, or projecting wire being entirely out of the way; but should, from any of the causes before mentioned, a false shed be made in any part of the warp, the serrated segment *c* will come in contact with the same, the forward end of the arm *a* will be raised, and the projecting loop, hook, or wire will intercept the thread, and prevent it from unwinding from the cop, when the momentum of the shuttle will break the thread, and a stoppage of the loom through the action of the stop-motion will necessarily follow.

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

1. The combination of the hinged arm *a*, provided with a projecting loop, hook, or pin at its forward end, and with the double-inclined planes at its rear end, with the double cam *b*, substantially as described, and operated as and for the purpose specified.

2. In a loom-shuttle, the combination of the lever-arm *a*, having the loop, hook, or pin secured thereto, substantially as described, and the double cam *b*, as and for the purpose described.

In testimony that I claim the foregoing as my own invention I affix my signature in presence of two witnesses.

AUGUSTUS WRIGHT.

Witnesses:

JOSEPH A. MILLER,

G. B. BARROWS.