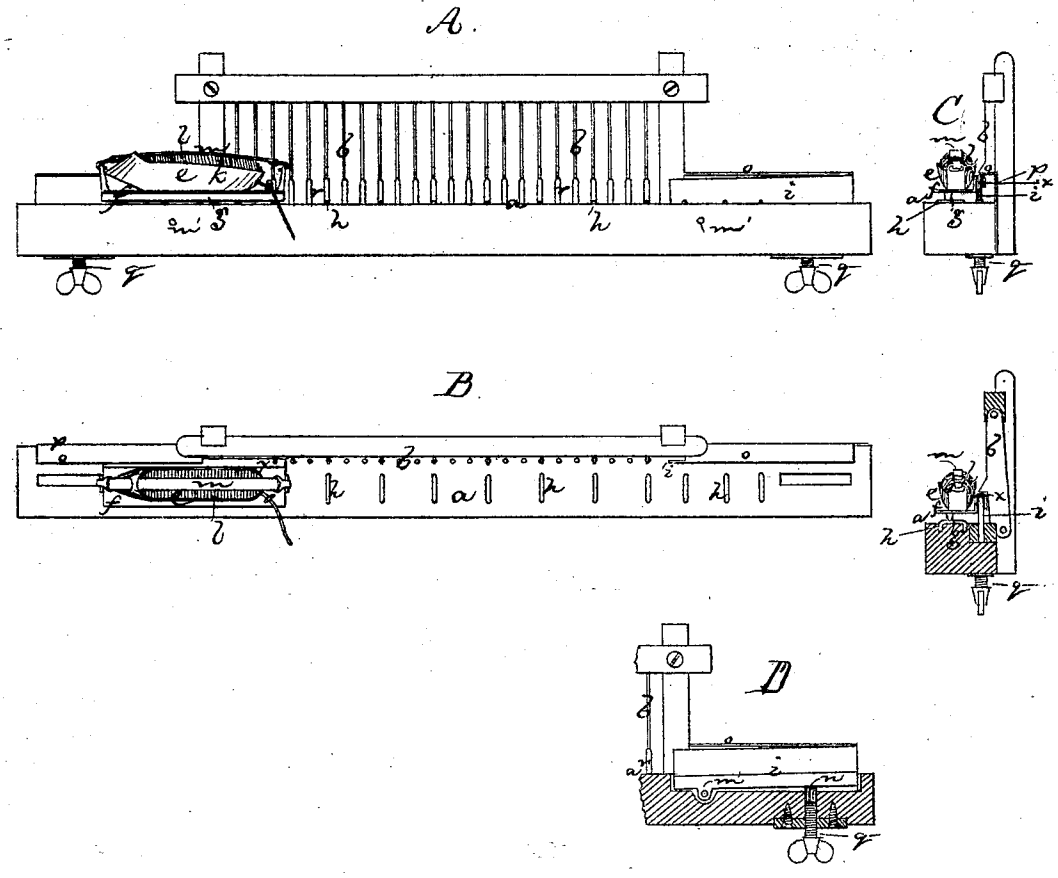
JOSEPH SMITH & P. McMAHON.

Improvement in Looms.

No. 123,647. Patented Feb. 13, 1872.



Witnesses.
M. M. Rothingham.
S. B. Kidder.

J. Smith.
P. McMahon.
By their Attys.
Crosby & Gould.

UNITED STATES PATENT OFFICE.

JOSEPH SMITH, OF SOMERVILLE, AND PHILIP McMAHON, OF CHARLESTOWN, ASSIGNORS TO JOSEPH SMITH, OF SOMERVILLE, AND HENRY W. JACKSON, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN LOOMS.

Specification forming part of Letters Patent No. 123,647, dated February 13, 1872.

To all whom it may concern:

Be it known that we, JOSEPH SMITH, of Somerville, and PHILIP McMAHON, of Charlestown, both in the county of Middlesex and State of Massachusetts, have invented certain Improvements in Looms for Weaving Gunny-Cloth; and we do hereby declare that the following, taken in connection with the drawing which accompanies and forms part of this specification, is a description of our invention sufficient to enable those skilled in the art to practice it.

Our invention relates particularly to certain details of construction of looms for weaving gunny-cloth, burlap, and similar heavy coarse goods, the improvements being designed to effect more perfectly movements and stoppage of the shuttle, and thereby produce better cloth. To produce the desired results we employ a peculiar shuttle-race or track and a peculiar shuttle-binder mechanism; and our invention consists, first, in a shuttle having no spindle, but having the yarn wound in a cop-shaped coil contained in a shell, (having somewhat the form of a boat in miniature, the cop of yarn being held down by an elastic strap or other device, which, while holding the cop in position, allows the yarn to freely render from it,) this shell being fixed to or forming part of a plate or shoe, which runs over the race, (it having beneath it a runner that glides over wires or projections which make up the race-way,) said plate or shoe having upon one side a grooved or hook-shaped piece or flange, which, when the shuttle is at either end of the race, slides over and rests upon a binder-plate. The invention also consists in a binder-plate, (one at each end of the lathe,) upon which the shuttle-flange or hook slides, this binder resting upon a suitable spring, and there being over it a lip or flange projecting from a stationary guard-plate fixed to the back of the lathe. Between the lip and the top edge of the binder the shuttle-flange slides, and the position of the binder and overhanging plate and the upward pressure upon the binder-plates are such that the motion of the shuttle is gradually stopped. The invention also consists in combining with the binder-plates and in front of the reed-dents vertical pins projecting from the top of the race, and placed in the plane of and between the ends of the two binder-plates, each pin standing in front of one of the reed-dents. These pins serve as a guide to the shuttle in its movements, keeping it in a straight path.

The drawing represents the top of a lathe embodying our improvements. A is a front view of the race and shuttle. B is a plan of them. C is an end view. D shows one of the binder-plates and its pivot and spring. E is a cross-section of the binder and adjacent parts.

a denotes the top of the shuttle-race; *b*, the dents through which the warp-yarns run, and in which the shed is opened for flight of the shuttle. *e* denotes the metal shuttle. Said shuttle has a bottom plate or shoe, *f*, under which is a runner or rib, *g*, which rests upon and slides over a series of track-wires, *h*, the runner *g* and wires *h* insuring a minimum of friction as the shuttle flies over the shuttle-race. At the inner edge of the shoe the shoe-plate bends so as to form a sort of a hook, which, when the shuttle is at rest or is approaching the end of its flight, rests upon or rides over the top of a binder-plate, *i*. The shuttle is made with a cop-containing metal shell or case, *k*, which is of a hollow form, and receives the cop *l*, said cop being held in place by the strap *m*, but permitting the yarn to render freely from the shuttle. Each binder-plate *i* is a vertical plate, pivoted at *m'*, and rests at its outer end on a spring, *n*, which spring is made adjustable in position by means of a set-screw, *q*. Over the top edge of each binder-plate is an overhanging lip, *o*, extending from a stationary guard-plate, *p*, fixed to the back of the lathe, and between this lip and the upper edge of the binder the flange *x* of the shuttle passes, and is caught at each completion of movement of the shuttle, the shuttle-flange binding between the two, and the shuttle being gradually arrested by the friction between them, and the friction being made greater or less by adjusting the spring *n*. In line with the binder-plates a series of short pins, *r*, extends up from the race *a* and placed in front of dents *b* of the lathe so as not to interfere with the free passage of the warp-yarns. Over these pins the shuttle-flange slides, the pins

keeping the shuttle upon the race and enabling it to run freely without an inclosing or guiding wall.

These improvements add greatly to the weaving capacity of a loom, and the shuttle is gradually stopped, as described, no matter with what speed it is thrown. For this reason the loom can be worked much faster, and yet the work produced by it is firmer or better woven, the yarn not being thrown from the shuttle in excess of what is required by the web.

Claims.

1. The shuttle made with the cop-receiving shell and with a sliding shoe or shoe-plate, substantially as shown and described.

2. The shuttle made with the flange *x* for sliding upon the pins *r* and between the binder and lip *o*, substantially as described.

3. The shuttle-shoe made with the runner *g* for sliding upon the track-wires *h*, substantially as described.

4. The binder-plates *i*, on the edge of which the hooked edge *n* of the shuttle rides, and guard-lips *o* for gradually arresting the shuttle, substantially as described.

5. The pins *r*, over which the shuttle-flange rides, substantially as described.

6. The track or race-wires *h*, upon which the shuttle-shoe travels, substantially as described.

JOSEPH SMITH.
PHILIP McMAHON.

Witnesses:
J. B. CROSBY,
FRANCIS GOULD.