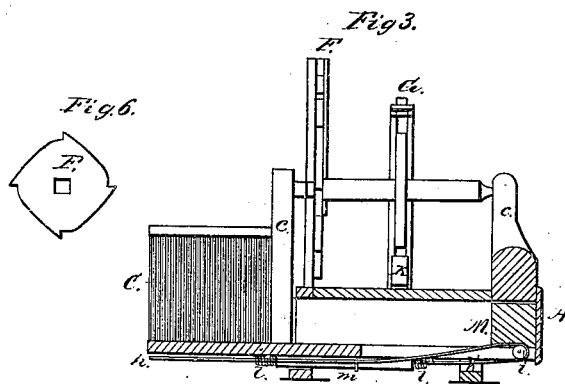
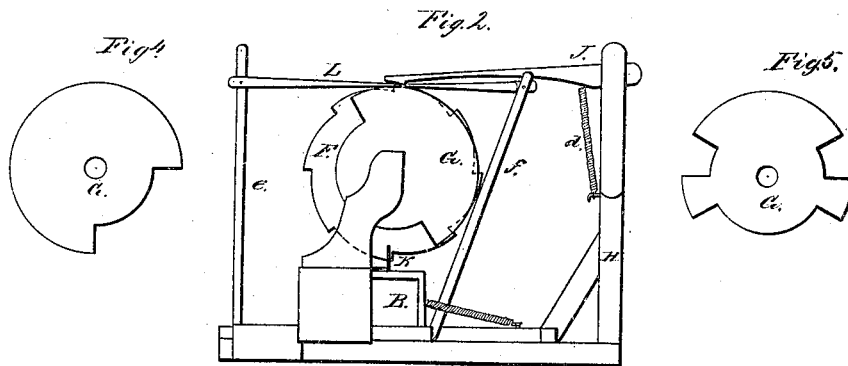
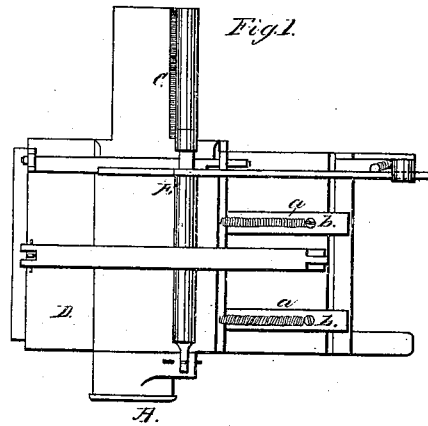


*I. Orndorff.*  
*Shuttle Box for Loom.*

*N<sup>o</sup> 53,858.*

*Patented Apr. 10, 1866.*



# UNITED STATES PATENT OFFICE.

IRA ORNDORFF, OF RUSSELLVILLE, KENTUCKY.

## IMPROVEMENT IN LOOMS.

Specification forming part of Letters Patent No. 53,858, dated April 10, 1866.

*To all whom it may concern:*

Be it known that I, IRA ORNDORFF, of Russellville, in the county of Logan and State of Kentucky, have invented a new and useful Improvement in Looms; and I do hereby declare that the following is a full, clear, and accurate description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a top view of a loom to which my improvement is attached. Fig. 2 is a side elevation thereof. Fig. 3 is a longitudinal section through the same; and Figs. 4, 5, and 6 are sections of change-cams and ratchet-wheels.

It is the object of my invention to operate the shuttle-boxes of looms horizontally on the ends of the lay and change them at pleasure by its vibration; and to this end my invention consists, first, in arranging the shuttle-boxes on the top of the ends of the lay in such a manner as that they shall be allowed a free horizontal motion to effect the required changes of shuttles without catching or being struck by the picker, and, second, in changing the shuttle-boxes by a pattern-cam and ratchet operated by and vibrating with the lay.

The simplicity of mechanism and the effective operation of my invention render it particularly adaptable to common looms, for it can with marked economy be applied even to hand-loom, and when so applied will much augment the quantity of work that one hand can produce in a given time, and also increase its capacity for producing fabrics of varying styles.

In the accompanying drawings I have only shown such parts as were proper to illustrate my invention, which may be applied to any loom having the requisite parts for plain weaving.

On the top of the end of the lay A, I arrange a series of horizontally-sliding shuttle-boxes, B, so as to let them pass at one end close to the reed C and to the picker at the other end, while their forward and back motion is over a smoothly-dressed-surface bed-plate, D, of any suitable material. Coiled springs *a a*, attached at one end to the projections *b b* of the bed-plate, serve to keep the series of shuttle-boxes drawn back, so as to keep the front one of the series in position to have its shuttle operated by the picker.

To change the shuttle-boxes and bring each

one in succession in position to have its shuttle operated by the picker, I arrange a shaft, E, supported on uprights *c c* on the lay in proper bearings, and on this shaft I secure the ratchet-wheel F and the pattern-cam G, the former carrying a number of teeth calculated to give the number of picks required for the latter to vary the check, as desired.

On an upright, H, attached to the frame of the loom I pivot a hook-pawl, J, that rests upon the top of the ratchet-wheel F, and is kept down upon it by a spring, *d*.

On the top of the frame of the shuttle-boxes I place an adjustable stud, K, directly beneath the pattern-cam G, and this stud must be high enough to be struck by the projections on the pattern-cam and to permit the depressed portion of the cam to pass over it without touching. A spring, L, is arranged on suitable supports *e* and *f* to rest upon the perimeter of the pattern-cam, so that it will yield sufficient friction on the cam to keep it in place while the front shuttle-box is in position, but when a rear box is to be used the spring need have no bearing on the cam. Now, as the vibrations of the lay pass the ratchet-wheel beneath the hook-pawl the ratchet-shaft is rotated, and the pattern-cam with it, the distance of one tooth at every forward movement of the lay, and as this motion progresses the pattern-cam strikes the stud on the shuttle-box frame and moves the second box into position to have its shuttle reciprocated by the picker as often as the pattern of the goods may require.

The design shown in the drawings is for weaving plain checks with an equal number of picks of two colors of filling, and requiring, of course, but two shuttle-boxes; but it is obvious that any desired number of shuttle-boxes may be used by merely changing the pattern-cam and the ratchet-wheel (of which examples are given in Figs. 4, 5, and 6) to correspond with each other, and to facilitate these changes the ratchet and pattern-cams may be slipped on and off the shaft by which they are rotated simply by removing it from its bearings. It will, of course, be understood that the position of the stud on the shuttle-box frame must always be such as to be struck by the cam at the proper moment, and this is only a matter of simple adjustment.

In order to let the shuttle-boxes move freely

back and forth without being obstructed by the picker, I form a recess in the end of the lay to receive the picker M and hold it clear of the line of movement of the shuttle-boxes, and to retain the picker in its recess, when not striking the shuttle, I arrange the picker strap or cord as follows: Attaching one end, *h*, of the strap to the picker-staff, I pass it around a friction-roller, *i*, fixed at the outer end of the lay, and secure the strap, by pins or screws *k*, to the picker. After passing round the roller the end *h'* of the strap or cord is attached to the end of a spring, *l*, that moves in shield *m* attached to the frame of the loom. Now when the picker strikes its blow it will pass freely into the shuttle-box, drawing the spring out of its shield; but the instant the blow is struck the picker-strap will be relaxed and the spring, on its retraction into the shield, will return the picker to its recess and keep it securely there, and thus prevent it from obstructing the horizontal motion of the shuttle-boxes.

It is obvious that springs of other forms and differently applied may be used to give the required friction on the pattern-cam and to return the picker to its recess, and therefore I do not in these particulars limit myself to the precise arrangement described.

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

1. The combination of the changing shuttle-boxes with the lay, arranged and operated substantially in the manner and for the purpose set forth.

2. Changing the shuttle-boxes of looms by a pattern-cam and ratchet, combined, arranged, and operating substantially in the manner and for the purpose described.

In testimony whereof I have hereunto subscribed my name.

IRA ORNDORFF.

Witnesses:

J. B. GRUBBS,  
S. W. SMITH.