2 Sheets--Sheet 1.

B. H. JENKS.

Shuttle-Box Motion.

No. 132,157. Patented Oct. 15, 1872.

Fig. 1

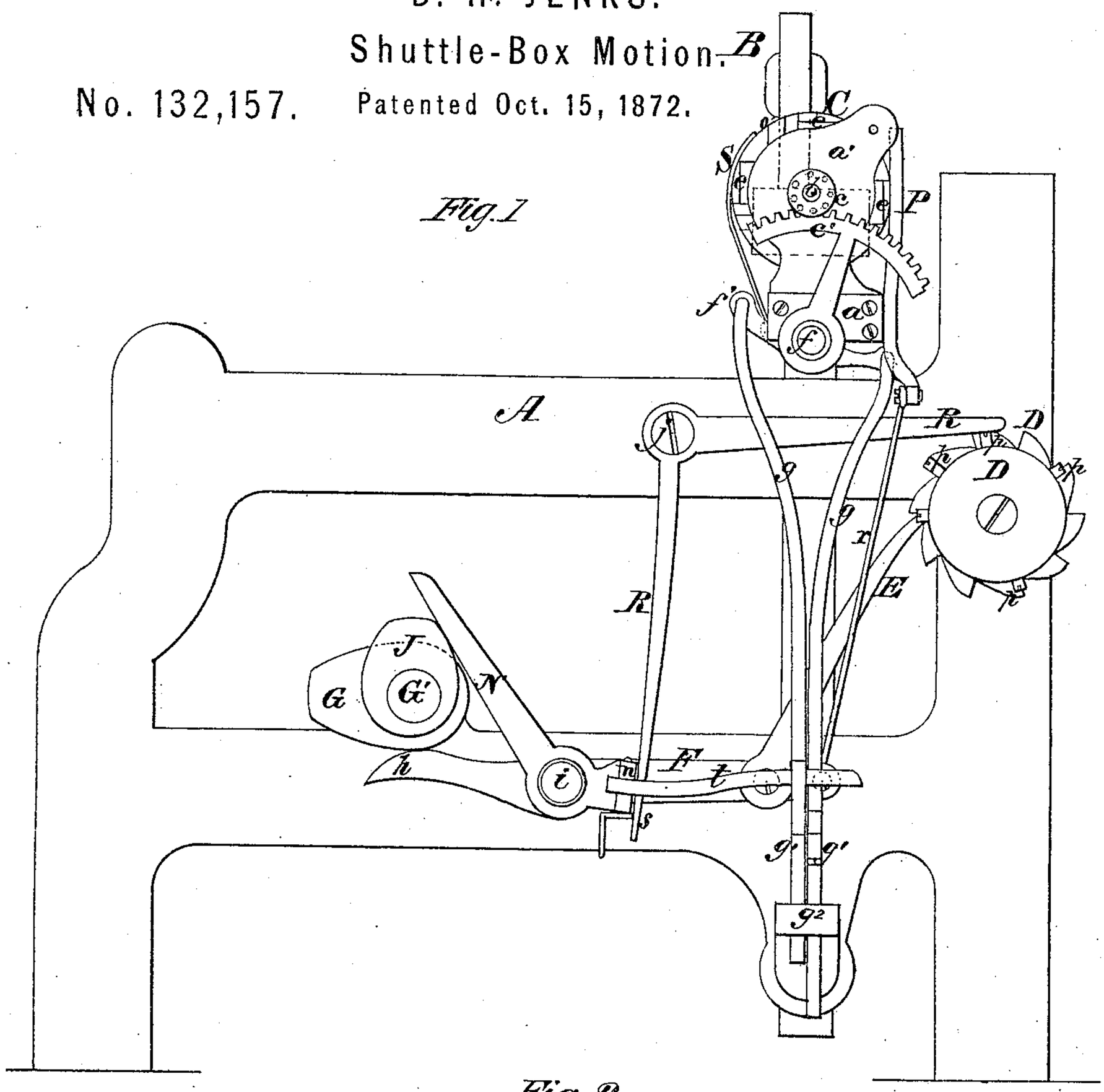
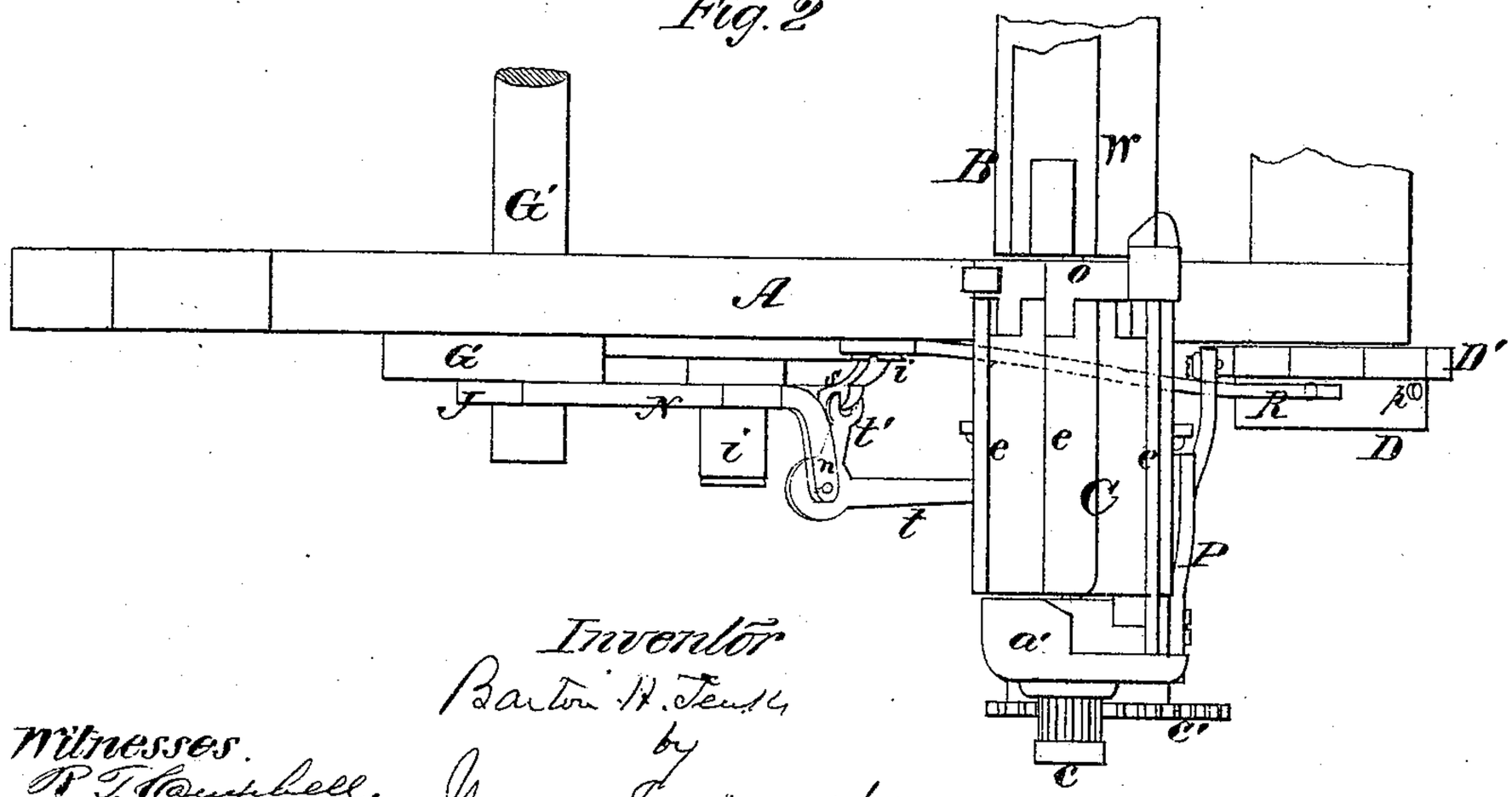


Fig. 2



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J. N. Campbell.

2 Sheets--Sheet 2.

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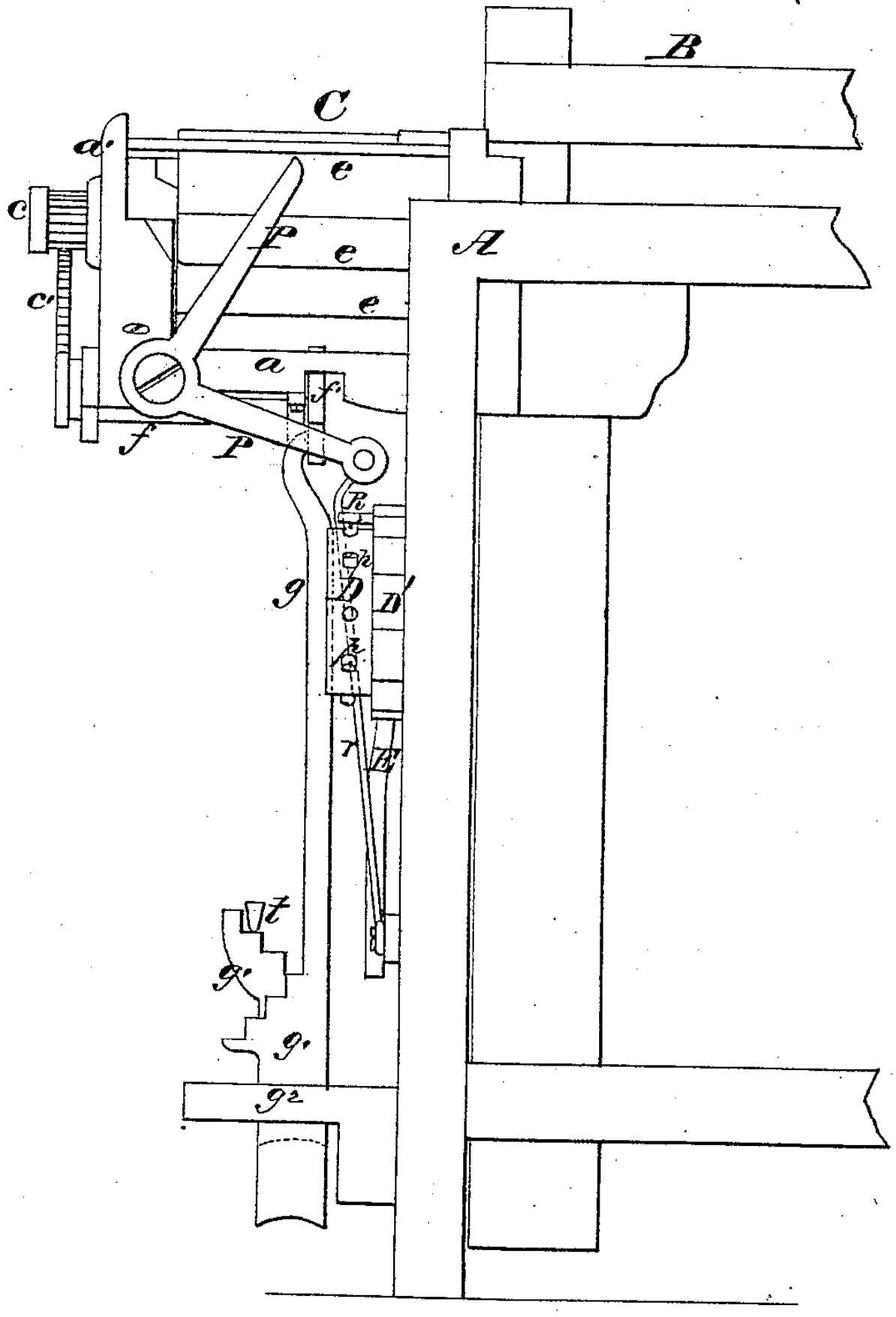
Fig. 3



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J. N. Campbell.

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UNITED STATES PATENT OFFICE.

BARTON H. JENKS, OF BRIDESBURG, PENNSYLVANIA.

IMPROVEMENT IN SHUTTLE-BOX MOTIONS.

Specification forming part of Letters Patent No. **132,157**, dated October 15, 1872.

To all whom it may concern:

Be it known that I, BARTON H. JENKS, of Bridesburg, in the county of Philadelphia and State of Pennsylvania, have invented a new and Improved Box-Motion for Looms; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing making part of this specification, in which—

Figure 1, Plate 1, is an elevation of one side of a loom-frame having the box-movement applied to it; Fig. 2, Plate 1, is a top view of the same parts; and Fig. 3, Plate 2, is a front view.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to an improved mechanism for operating shuttle-boxes of looms for weaving fancy fabrics, when such boxes, on either side of the loom, are arranged around a common center and brought into proper position by a forward or backward rotary motion.

In carrying out my invention I employ a studded pattern drum or chain, which receives intermittent rotary motions from the main driving-shaft through the medium of a cam, a pawl-lever, and pawl. I also employ a pair of vertically-moving stepped plates, the rods of which are connected to arms which radiate from a shaft carrying on one end a toothed sector, which latter engages with a pinion on one end of the shaft of the shuttle-box drum; and in combination therewith I also employ an angular vertically and laterally vibrating depressing-lever, which is pivoted to a lever that is acted on by a cam on the main driving-shaft. One arm of the depressing-lever plays over the steps of the stepped plates and at certain times depresses one or the other of these plates, while the other arm receives the flattened end of an angular lever which is acted on by the studs on the pattern-drum, thus giving lateral motion to the arm which lies over the aforesaid stepped surfaces.

The following description of my invention will enable others skilled in the art to understand it.

In the annexed drawing, A represents the frame of a power-loom, and B the vibrating lay. C represents a drum of shuttle-boxes *e*, which drum is mounted, by its shaft *b*, in one side of the vertical lay-beam, and in an external bearing, *a'*, which rises from the outer end of an extension, *a*, shown in Fig. 3. S represents a spring for holding the drum C by friction, and *c* represents a pinion spur-wheel, which is keyed on the outer end of the drum-shaft *b*, and which engages with the teeth of a vibrating segment, *c'*. This segment *c'* is keyed on the outer end of a shaft, *f*, which is arranged beneath the extension *a*, and which carries on its inner end two arms, *f'*, of equal length. To the extremities of arms *f'* are attached the upper diverging end of rods *g g*, which extend downward, become parallel to each other, and terminate in flat plates g^1 g^1, the upper edges of which are stepped, as shown in Fig. 3. The steps of the plates g^1 incline in opposite directions, and the plates themselves descend loosely through a slot made through a bracket, g^2. This bracket g^2 is fast on the lay-beam pivot so as to vibrate therewith. It will be seen that, by alternately depressing the stepped plates g^1 g^1, the box-drum C will receive an oscillating motion about its axis, and that, by depressing either one of said plates g^1 more or less, any one of the shuttle-boxes *e* may be brought into line with the raceway W. This is effected automatically by the following mechanism: D represents a pattern-drum, (it may be a pattern-chain,) which is provided on its periphery with studs *p*, varying in length and distance apart, according to the figure to be woven. D' is a ratchet-face on one side of the drum D, the teeth of which are engaged by a pawl, E, which is pivoted to the long arm of a vertically-vibrating lever, F, having its fulcrum on a stud, *i*, projecting from frame A. The shorter arm of this lever F lies beneath a single throw-cam, G, on a driving-shaft, G'; this cam raises the pawl E once every revolution of shaft G' and moves the pattern-drum D a distance equal to the length of one ratchet-tooth, D'. R represents an angular lever, which is pivoted at *j* to frame A. The uppermost arm of this lever lies upon the pattern-drum D, and is raised by the studs *p*. The lower flattened end *s* of lever R is received loosely in a notch in the short arm *t'* of an angular lever, *t*, the longest arm of which extends over the stepped surfaces of the plates g^1 g^1, and receives intermittent lateral movements from the lever R, the length of which movements vary according to the distance the studs *p* extend from the periphery of pattern-drum

D. The lever *t* is used to depress the stepped plates g^1 g^1, and to the accomplishment of this object it is pivoted to a short outwardly-projecting arm, *n*, of a lever, N, which has its fulcrum on stud *i* and lies over a single throw-cam, J, on shaft G′. When the lever *t* is moved over the proper step of one or the other plates g^1, the cam J depresses this lever *t*, and it, depressing the stepped plate, moves the required shuttle-box into position for throwing a shuttle. P is an angular lever, one arm of which is connected by a rod, *r*, to lever F, the other arm of which rises on one side of the shuttle-box drum, and is for the purpose of pushing the picker beyond the outer end of this drum with certainty, so that the drum will revolve when desired, and not be liable to break or derange the parts.

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

1. In combination with the lifting stepped rods *g g*, the lever N, its arm *t* having a lateral and vertical vibration, the lever R operated by the pattern-cylinder and moving the arm *t*, the combination being and operating as described.

2. The levers R *t* N and stepped rods *g g*, arranged and operating substantially as described, in combination with a nest of revolving shuttle-boxes and pattern-studs of different lengths, substantially as described.

3. The levers N and R, in combination with the arm *t*, having a horizontal and vertical vibration, as and for the purpose set forth.

4. The staff-lever P, arranged as described, and connected by a rod, *r*, to lever F, as and for the purposes described.

BARTON H. JENKS.

Witnesses:
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O. J. KINSLEY.