

G. J. Wardwell,

Shuttle Motion & Looms.

No. 8278.

Patented Aug. 5. 1851.

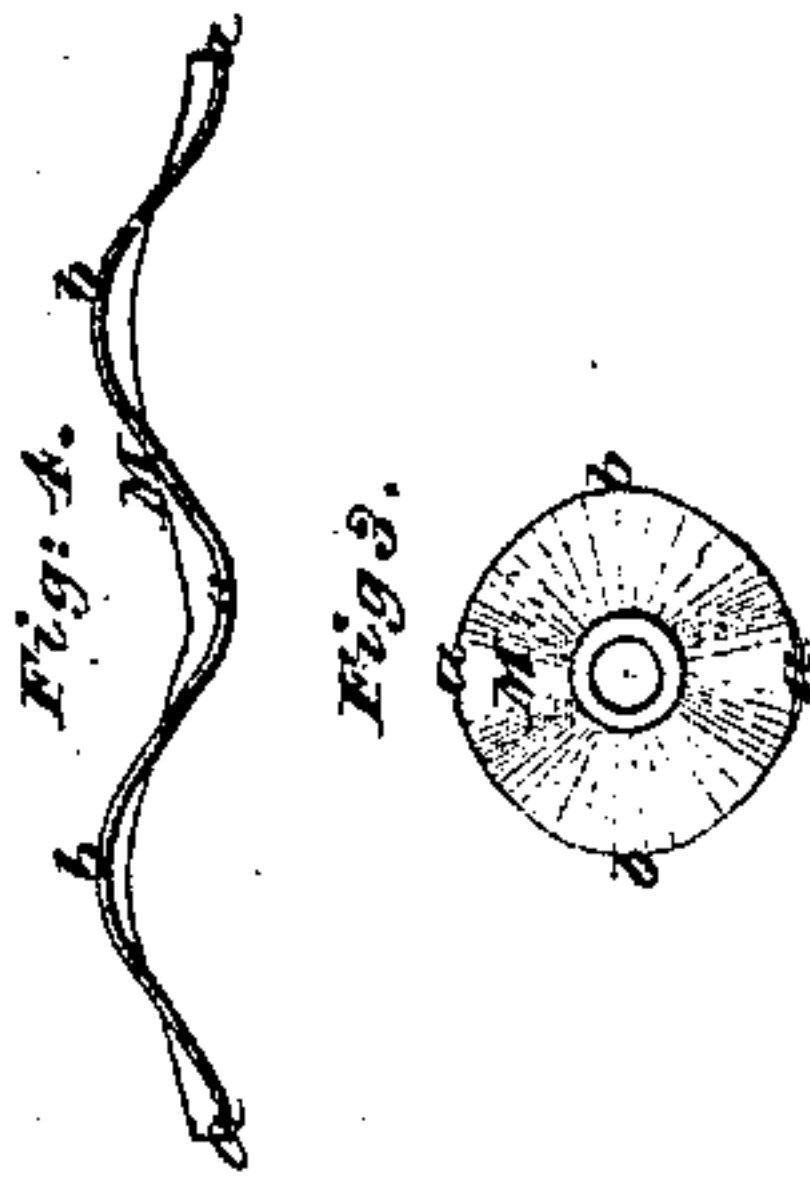


Fig. 2.

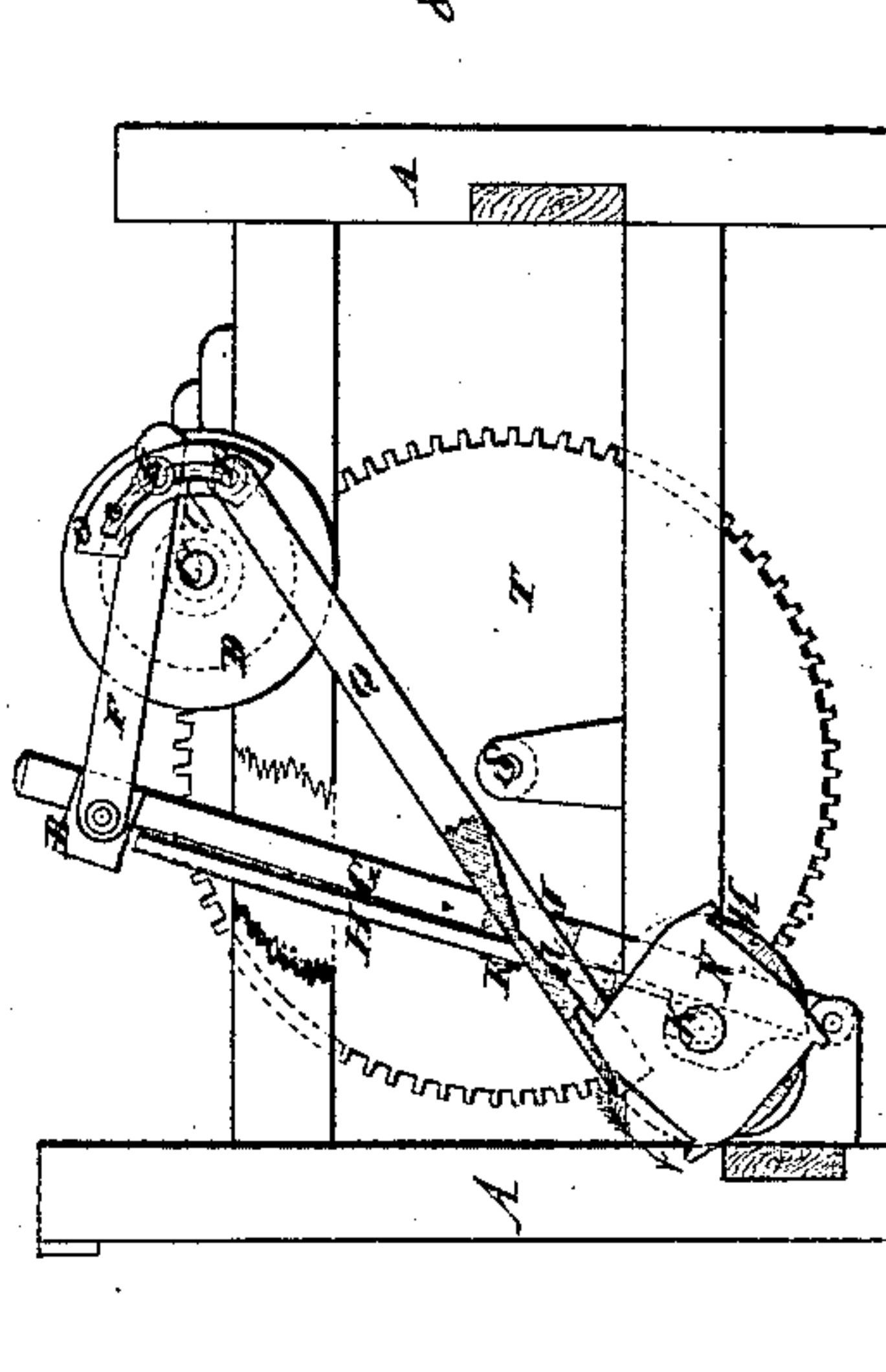
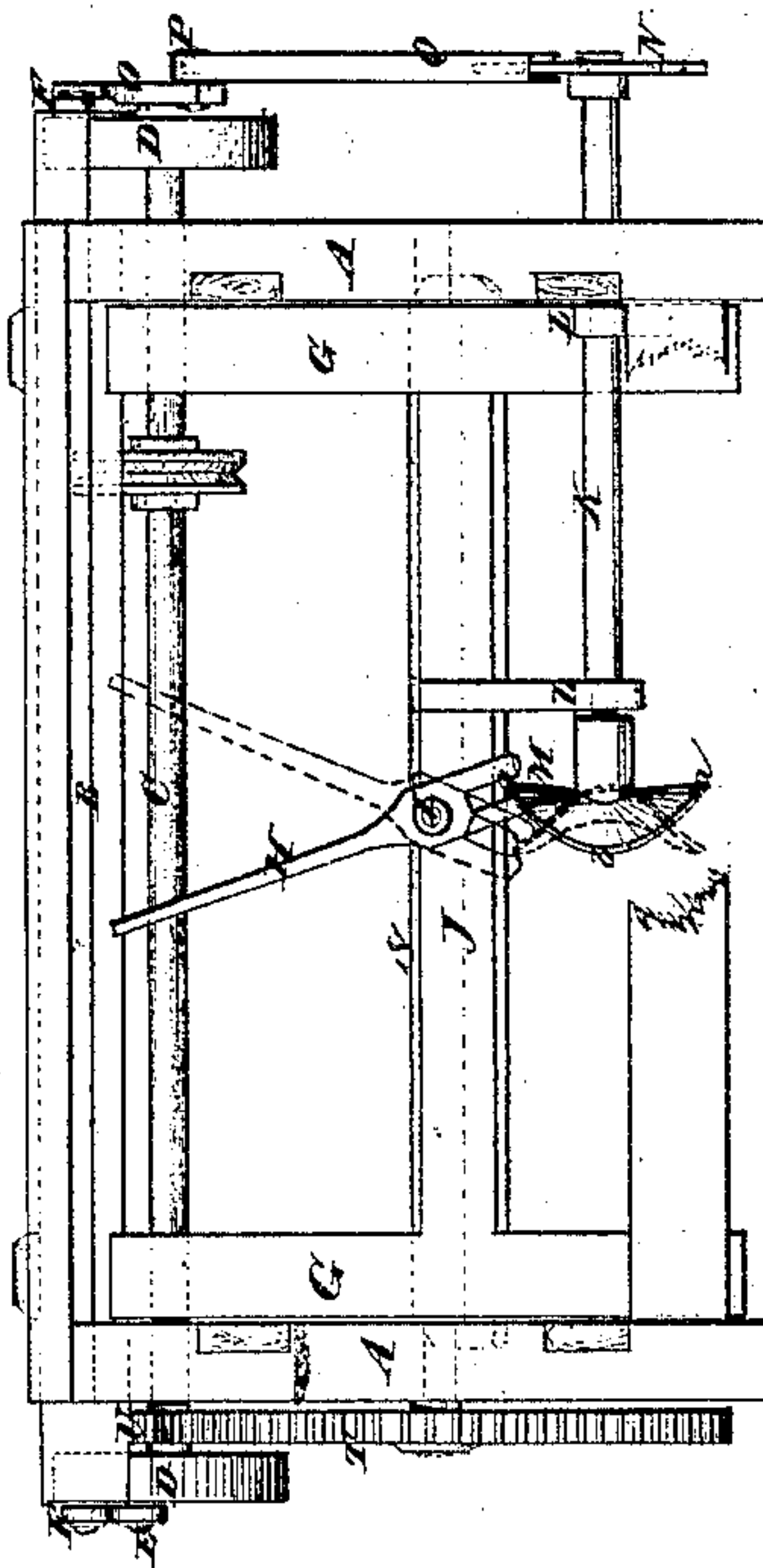


Fig. 1.



UNITED STATES PATENT OFFICE.

GEO. J. WARDWELL, OF HANOVER, MAINE.

SHUTTLE-MOTION OF LOOMS.

Specification of Letters Patent No. 8,278, dated August 5, 1851.

To all whom it may concern:

Be it known that I, GEORGE J. WARDWELL, of Hanover, in the county of Oxford and State of Maine, have invented a new and Improved Shuttle-Motion for Looms; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1, is a front elevation of a loom having my improved motion attached. Fig. 2, is a side elevation of the same. Fig. 3, is a face view of the cam which actuates the picker staff. Fig. 4, is a projection of the same.

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

My invention consists in giving the necessary motion to the picker staff or staves, for throwing the shuttle, by means of a cam or cams, on a shaft hung in bearings attached to the lay and swinging with it. The edge of the cam works in a fork at the lower end of the picker staff which is hung on a pin in front of the lay; and its shaft carries a ratchet wheel having as many projections or teeth as there are curves or waves in the edge of the cam. This ratchet wheel is made to receive part of a revolution equal to the distance between two teeth at every beat of the lay, by an arm attached to a crank or eccentric pin on the main or lay shaft which causes the cam or cams to give the required throw to the staff or staves.

To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation.

A, represents the frame of the loom B, the lay supported on swords G, hung in the usual manner C, is the main or lay shaft, carrying at each end a pulley D, in which there is a pin E, serving as a crank to communicate motion to the lay through the rods F.

H, is one of the picker staves hung on a pin I, in a bar J, placed across the swords of the lay; below this pin it is forked or slit.

K, is the cam shaft hung in bearings L, in front of the lay near the bottom where the vibration is very slight.

M, is one of the cams for operating the picker staves; its periphery is nearly cir-

cular but its edge which runs between the prongs of the fork on the picker staff has four waves or curves, two *a, a*, and two *h, h*, inclining at equidistant points in opposite directions.

N, is a ratchet wheel having four teeth, it is secured on the end of the shaft K, outside the frame of the loom.

O, is a segment in which there is a slot *c*, it is secured by the pin E, or otherwise to one of the wheels D.

P, is a pin secured in the slot *c*.

Q, is an arm hung on the pin P, and having a suitable notch *d*, in its lower end to catch the teeth of the ratchet wheel on which it rests.

S, is the tappet shaft for operating the harness, it is driven by a toothed wheel T, receiving its motion from a pinion U, on the main shaft C.

The shuttle is not represented in the drawing but it may be connected with the picker staff or staves in any convenient way.

The operation is as follows: The revolution of the wheel D, carrying the pin P, causes the lower end of the arm Q, to move back and forth; during its backward motion it slides over the teeth of the ratchet wheel N, but during its forward motion it catches a tooth, and gives it and its shaft K, and cam or cams M, a quarter of a revolution; the cam or cams M, are thereby caused to move so as to change their position from that shown in black lines in Fig. 1, to that shown in red or vice versa once at every beat of the lay giving a rapid motion to the picker staff or staves.

By means of the slot *c*, in the segment in which the pin P, is adjustable, the said pin can be set so as to give motion to the picker staves and throw the shuttle at the proper moment.

The number of waves or curves in the cam is not necessarily confined to four, as any other number may be employed with the same result, provided there are the same number of teeth in the ratchet, and the pin P, is properly adjusted in relation to that *c*.

The advantage gained by this motion consists in simplifying the construction of the loom, as the cam shaft and gearing together with the picker pulley and treadles now employed are dispensed with, and replaced by the simple arrangement shown.

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

Operating the picker staff or staves H, by a cam or cams M, upon a shaft K, hung in
5 bearings L, attached to the lay, and carrying a ratchet wheel N, which receives motion at suitable intervals through an arm Q,

worked by the same motion which operates the lay, substantially in the manner herein described.

GEO. J. WARDWELL.

Witnesses:

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B. C. ABBOTT.