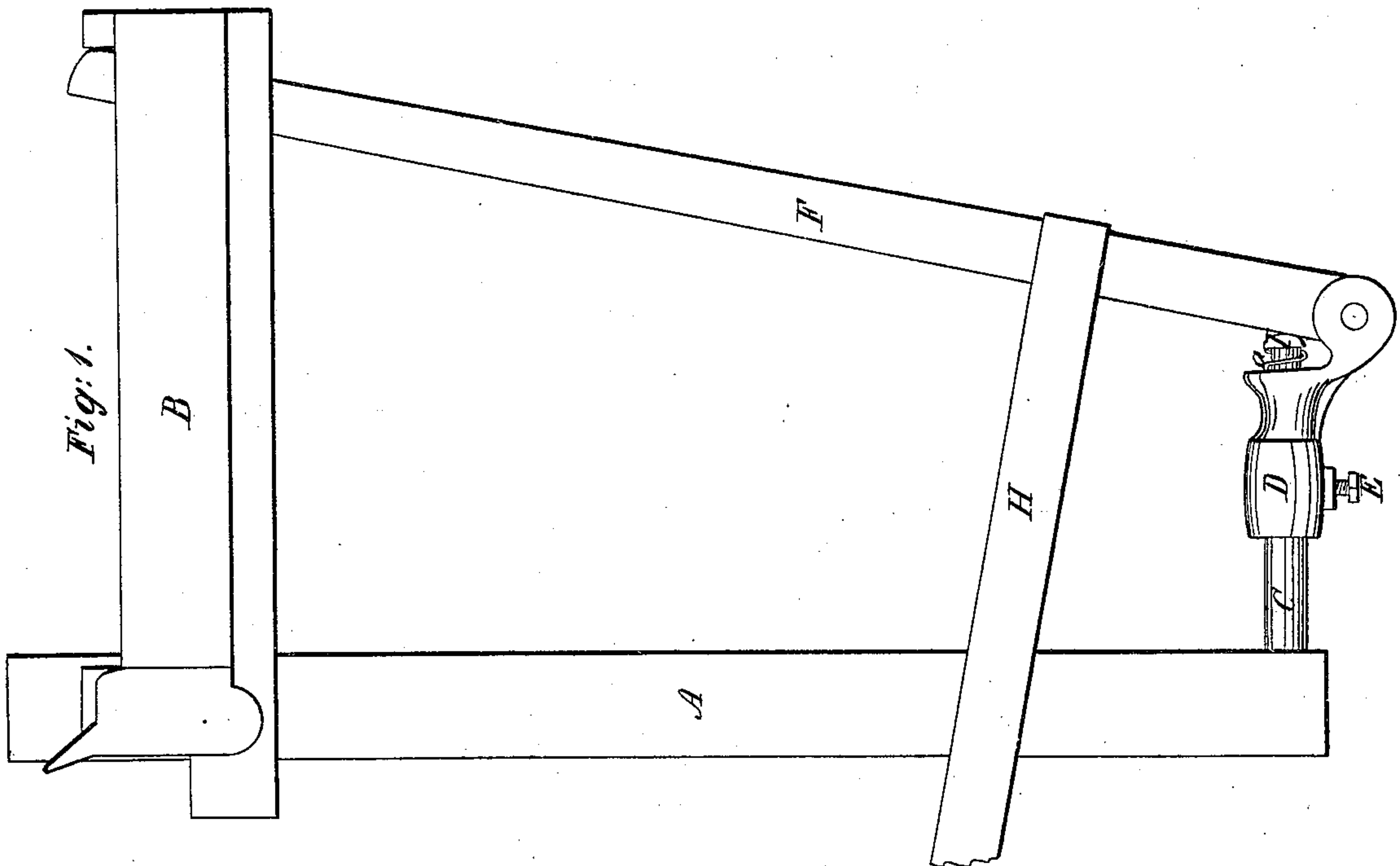
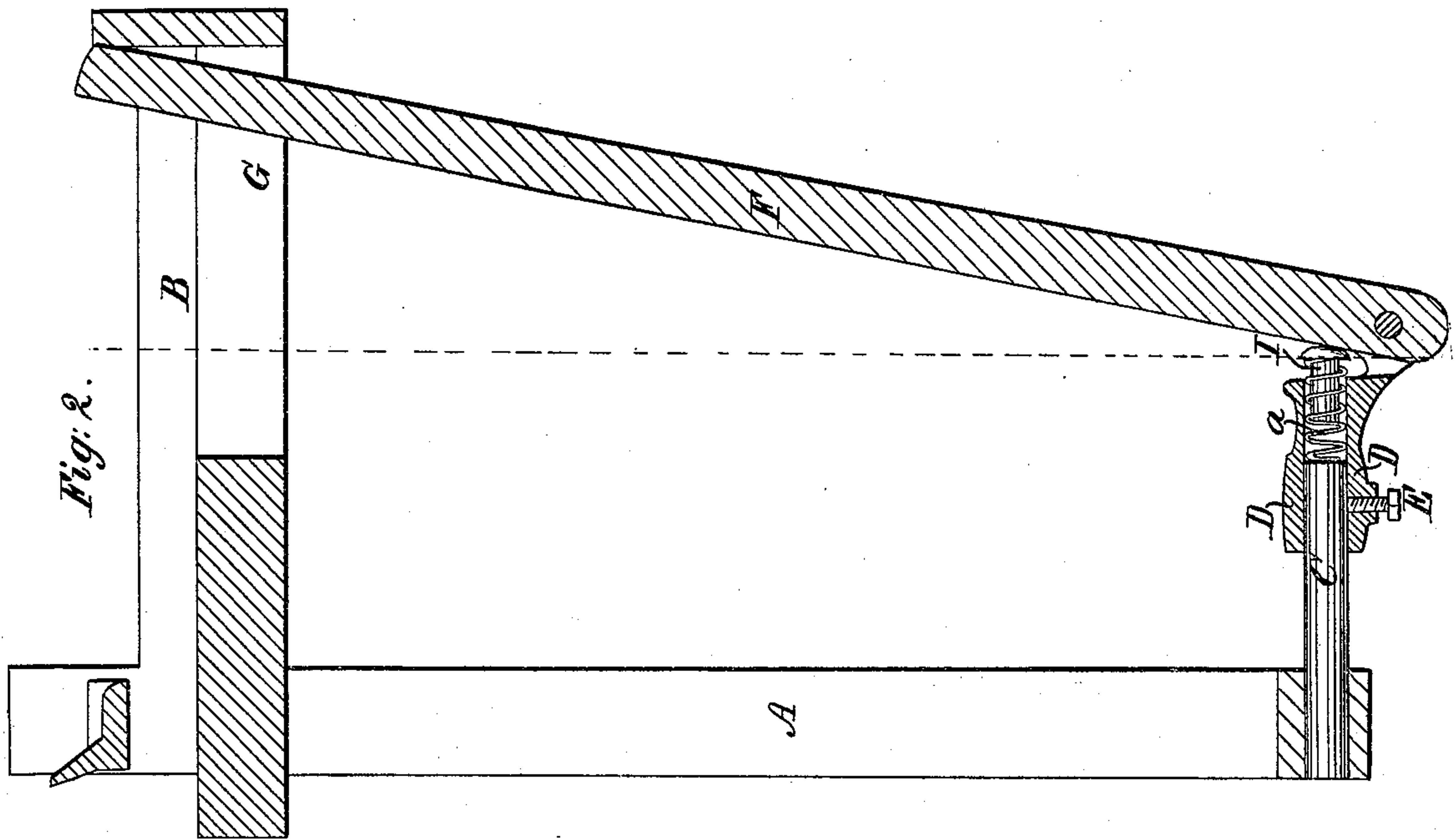


J. Avery.
Shuttle Motion.

N^o 12,941.

Patented May 29, 1855.



UNITED STATES PATENT OFFICE.

JOHN AVERY, OF LOWELL, MASSACHUSETTS.

SHUTTLE-MOTION FOR LOOMS.

Specification of Letters Patent No. 12,941, dated May 29, 1855.

To all whom it may concern:

Be it known that I, JOHN AVERY, of Lowell, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in the Manner of Throwing the Shuttle in Looms; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part thereof, in which—

Figure 1, represents a side view of one end of a loom, with my improvement attached, and Fig. 2, represents a vertical section through the same.

Similar letters where they occur in both the figures denote like parts.

It has been hitherto supposed that, a shuttle when driven from the shuttle box, must preserve a nearly horizontal position, to prevent it from flying out of the web; and to accomplish this a picker sliding upon a rod has been most generally used, which picker was impelled by a string or picker-staff. To obviate the use of a sliding picker resort has been had to a means of so hanging the picker staff as to give it a rectilinear motion, or a motion parallel to the shuttle, by means of one or more pivoted arms, or by connecting a rocker to it, which gives it a variable fulcrum.

My object is to avoid the use of all these devices. I have found that the picker-staff confined at the lower end by a pin in the usual way for driving the sliding picker, will act equally well directly upon the shuttle, provided, it does not pass a perpendicular point.

In carrying out my plan I place the bottom of the staff as near the side of the loom as possible, so that when it stands perpendicular it is nearly at the end of the shuttle box. My improvement therefore is simply in using a picker staff to drive the shuttle, hung in the usual way, but so that its action on the shuttle shall cease, when it has reached a perpendicular position. If the picker staff passed over a larger portion of the arc of a circle, than above mentioned, it would, as soon as it passed a perpendicular line, begin to depress the heel of the shuttle, and elevate its forward end, so as to cause it to shoot out of the loom. But during the first part of its progress the tendency of the staff is to raise the heel, and depress the forward part of the shuttle, which is desirable in weaving, inasmuch as when a

picker is used it is set somewhat "rising" or inclined, to point the shuttle slightly downward. I therefore preserve all the desirable action of the shuttle, while I remove several pieces from the loom, and thus cheapen and simplify it without effecting in the least its capacity.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

A represents the frame of the loom, and B, the shuttle box (one side only of a loom being shown).

C, is a shaft attached to the frame of the loom near its lower part, and on said shaft is a sleeve or boss D, which can be adjusted on the shaft and held by a set screw E. In the extreme outer end of this sleeve or boss D, which is provided with lugs for that purpose is pivoted the picker staff F, the upper point of which projects through a slot G, in the shuttle box B, and through which slot it vibrates.

H, is a strap by which the picker staff is vibrated.

In the end of the sleeve D, is placed a pin I, which rests against a coiled spring *a*, which holds said pin out far enough to catch the picker staff when it arrives at a point perpendicular to its pivoted point, as represented by the dotted line in Fig. 2. The pin eases off the blow of the staff, and causes it to recoil slightly, while the shuttle which has up to this point acquired the momentum necessary to drive it through the web passes into the opposite shuttle box, to be returned by a precisely similar operation on the other end of the loom.

It will be perceived that I do not use a rectilinear or parallel motion, though the shuttle leaves the staff, when they are at right angles to each other, and I thus have all the advantages of a rectilinear motion, without the connections necessary to produce it. My staff moves in the arc of a circle, and is simply pivoted at its lower end in the usual simple manner; and by means of the sleeve and adjusting screw the very nicest adjustment of the point, at which the staff should be stopped, is had. By using a rectilinear motion to the staff, the dip of the shuttle, which is desirable, is lost; by my arrangement I preserve it, and yet as before stated have all the benefit of such a motion, without multiplying pieces or mechanism to produce it.

I have mentioned the function of the spring *a*, to be for easing off the blow of the staff, but it also throws back the staff, so as to allow the shuttle on its return to enter the
5 shuttle box.

It has been found in practice that, when the staff is hung to arms, said arms become loose at their pivoted points by wearing, and that they must be oiled to prevent friction. I avoid both these serious objections
10 by dispensing with the arms altogether.

Having thus fully described the nature of

my invention what I claim therein as new and desire to secure by Letters Patent, in contradistinction from the operating of
15 shuttles by a staff having a rectilinear motion however produced, is—

The hanging of the staff upon a fixed pin or center, and so vibrating it in regard to the shuttle.

JOHN AVERY.

Witnesses:

D. G. LANG,

C. BURNHAM.