O. Plummer,

Mechanical Movement.

No. 97,959. Patented Dec. 14, 1869.

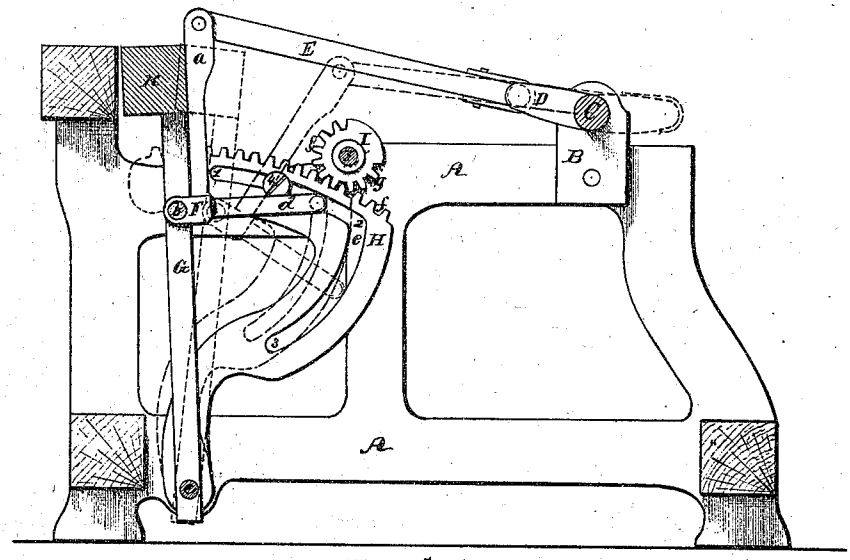


Fig. 1

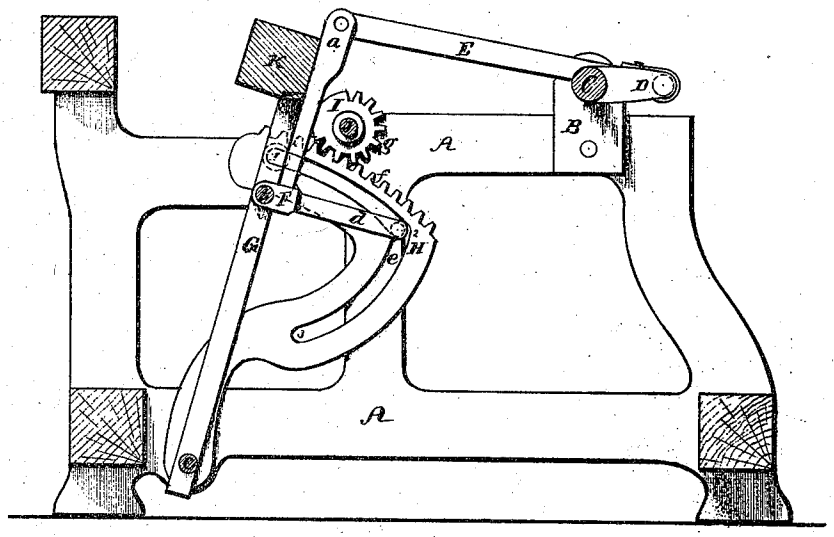


Fig. 2

Witnesses

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*Letters Patent No.* 97,959, *dated December* 14, 1869.

## MECHANICAL MOVEMENT.

The Schedule referred to in these Letters Patent and making part of the same.

*To all whom it may concern:*

Be it known that I, OSGOOD PLUMMER, of the city and county of Worcester, and Commonwealth of Massachusetts, have invented a certain new and useful Mechanical Movement; 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 a part of this specification, in which—

Figure 1 represents a vertical section of the machine to which the mechanical movement is attached in this case.

Figure 2 represents a similar view, showing the movement in a different position.

To enable those skilled in the art to which my invention belongs, to make and use the same, I will proceed to describe it more in detail.

The nature of my invention consists in a new mechanical movement, as hereafter explained.

To the frame A are attached bearings, B, which support a crank-shaft, C, the crank D of which is connected to the upper end of the arm *a*, of the bell-crank F, by the hinge-connection or pitman E.

The bell-crank F is hinged at *b* to the piece G, which, in turn, is hinged at *c* to the frame A.

The horizontal arm *d*, of the bell-crank F, is provided with a stud or wrist, which is fitted to work in the groove *e* of the rack-piece H, which is hinged upon the same journal, *c*, as the piece G.

The slotted rack-piece H is provided with small cogs, *f*, which mesh with the cogs *g*, of the wheel I, secured to a journal, J, which is properly supported by and turns in bearings fastened to the frame A, whereby the slotted rack-piece H can be swung on its fulcrum *c*, so as to occupy different positions, as indicated in the drawings.

The groove *e*, from the point 1 to 2, is formed in the arc of a circle, of which the journal *c* is the centre, while that part of the slot from 2 to 3 is formed in the arc of a circle, of which the pivot or journal *b* is the centre.

From the foregoing description it will be seen that when the slotted rack-piece H is turned back, as shown in fig. 2, so that the point 2 will not be passed by the stud or wrist in the end of the arm *d*, when the crank D is at its extreme point of throw on the right, the hinged upright piece G, together with the piece K, fastened to its upper end, will be vibrated back and forth upon the journal *c*, with the same extent of motion as would be the case if the arm *a* were rigidly fastened to the pieces G and K; while, if the rack-piece H is moved forward, so as to allow the stud or wrist in the end of the arm *d* to pass down in the slot *e*, below the point 2, the motion of the pieces G and K will stop as soon as the stud or pin passes the point 2, and said pieces will remain at rest and stationary, until the wrist is thrown back above the point 2, by the action of the crank D and the connection or pitman E.

An illustration of the above is shown in full and dotted lines in fig. 1.

The pieces G K and bell-crank F are shown in full lines, as they appear when crank D is moved to its extreme point of motion on the left, while the parts G K are shown in dotted lines at the point where they stop, until the bell-crank F has been rocked forward on its fulcrum *b*, and back to the position which it occupied when the stud or wrist, in the end of the arm *d*, passed below the point 2.

If the rack-piece H is moved so far forward that the wrist or pin in the end of the arm *d* does not rise in the slot *e* above the point 2, the parts G and K will not be moved or vibrated at all; (the bell-crank F simply rocks on the journal *b*;) but as soon as the rack-piece H is moved back sufficiently to throw the stud or wrist, in the end of arm *d*, above the point 2, then motion will be imparted to the piece G, and said motion will be increased as the rack-piece is moved back, until the entire motion of crank D is imparted to the piece G.

It will be seen that by the use of my new mechanical movement, the entire, or any part of the motion of a crank can be used, and that, too, without stopping the crank, while at the same time the parts which stop or remain at rest during the time the crank is completing its motion are held rigidly in place.

My new mechanical movement may be applied to a great many different purposes, and therefore I do not limit myself to the application thereof to any particular purpose.

It can be applied to a good advantage in the operation of the lay of a loom, as illustrated in the drawings, K being the lay supported by pieces or legs G, journaled to the sides of the loom-frame at *c*.

In this application, the device shown in the drawings should be applied at each side of the loom-frame, the shaft J extending from side to side, so that both of the rack-pieces H can be operated simultaneously.

As thus applied, it will be seen that a dwell of the lay, of any desired length, can be obtained during the back sweep of the crank D, thus rendering my mechanical movement of great utility in broad looms especially, as will be understood by those skilled in the art of weaving.

The rack-pieces H may be retained in any desired adjusted position by set-screws or bolts 4, or in any other suitable manner.

The slot *e* may be so varied as to give any desired

motion, and which can be produced by making the slot *e* eccentric to the centres *b* and *c*.

Having described my device for transmitting motion,

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

The mechanical movement, substantially as above described.

Also, the combination of the slotted rack-piece H, in combination with the bell-crank piece F, substantially as described.

OSGOOD PLUMMER.

Witnesses:

THOS. H. DODGE,

ALBERT E. PEIRCE.