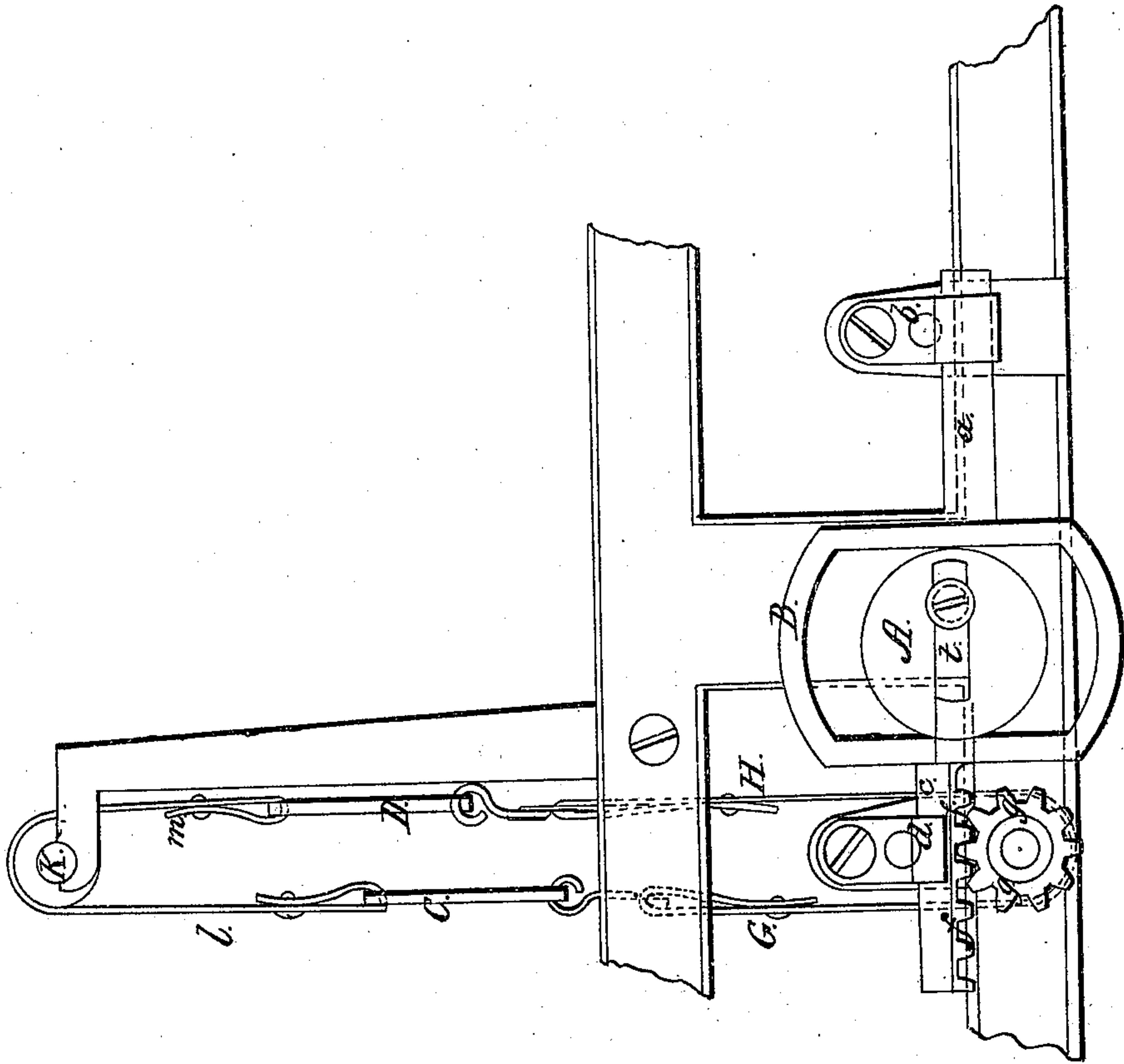


R. Collins.

Loom.

N^o 54,058.

Patented Apr 17, 1866.



Witnesses.
John W Morris
W. D. Stevens.

Inventor.
Richard Collins.

UNITED STATES PATENT OFFICE.

RICHARD COLLINS, OF CHICOPEE, MASSACHUSETTS, ASSIGNOR TO HIMSELF,
GILBERT A. SMITH, AND JOHN T. ROCKWOOD.

IMPROVEMENT IN HARNESS-MOTIONS FOR LOOMS.

Specification forming part of Letters Patent No. 54,058, dated April 17, 1866.

To all whom it may concern:

Be it known that I, RICHARD COLLINS, of Chicopee, Hampden county, Commonwealth of Massachusetts, have invented certain new and useful Improvements in Power-Looms; and I do hereby declare that the following is a full and exact description of the construction and operation of the same.

I will now describe the construction and operation of my improved harness-motion shown in the drawing.

This is more particularly an improvement on my loom patented October, 1847, but may also be applied to other similar looms.

In construction, it consists of a cam, A, of peculiar form, working inside of a frame, B. This frame has the part *a* projecting from it on one side and working in the guide *b*. The part *c* on the other side also works in a guide, *d*, and on its under surface is formed into a rack, *f*. This rack runs the pinion *g*, which is attached to a shaft running through the frame of the machine. To this shaft the straps G H are attached, which are at the other end fastened to the harnesses C D. These straps are passed around the shaft in such a manner as that when the shaft is turned in one way the harness C is allowed to move up and the harness D is pulled down.

Above the harnesses, at K, is another shaft, to which the straps *l m* are fastened in a similar manner to the method of fastening the straps G H to the lower shaft, so that when the lower shaft is turned so as to wind up the strap G and unwind the strap H the upper shaft is moved by means of the strap *l*, so as to let off this strap *l* and wind up the strap *m*.

The construction of the cam A, I will now describe.

It is necessary for the more successful operation of a loom that the harness shall remain stationary while the shuttle is being thrown.

This cannot be accomplished by an ordinary eccentric. And it is also necessary that the length of stroke may be varied in order that the shed or movement of the harnesses may be varied. These two things I accomplish in this improvement, first, by the form of the cam A, which works inside of the frame B. This is formed of various curves, so as to give the required motion, as before mentioned. Another peculiarity of the shape of this cam is, that although it is formed of six different curves, it is in every part of the same diameter—that is, it calibers the same in every direction that it is turned. Second, I vary the length of stroke by means of the slot *t*, for by slipping this along the screw, so that the center of the screw may more nearly correspond with the center of the cam, I can obtain any length of stroke, and consequently give any depth of shed to the harnesses.

Some of the advantages of this motion are as follows: The motion is very easy on the warp, and there is no jerking on the warp or harnesses, as there is on cam-looms, and there is less liability of breaking the warps, as they are held equally tight and even. The cloth is very smooth, and the harnesses must wear very much longer than on the cam-loom.

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

The described devices for operating the harness, the same consisting of the peculiar-shaped cam A, slotted as described, frame B, rack *f*, and pinion *g*, the whole being used to operate, and in combination with the harnesses C D, in the manner herein set forth.

RICHARD COLLINS.

Witnesses:

W. D. STEVENS,
JOHN W. MORRIS.