

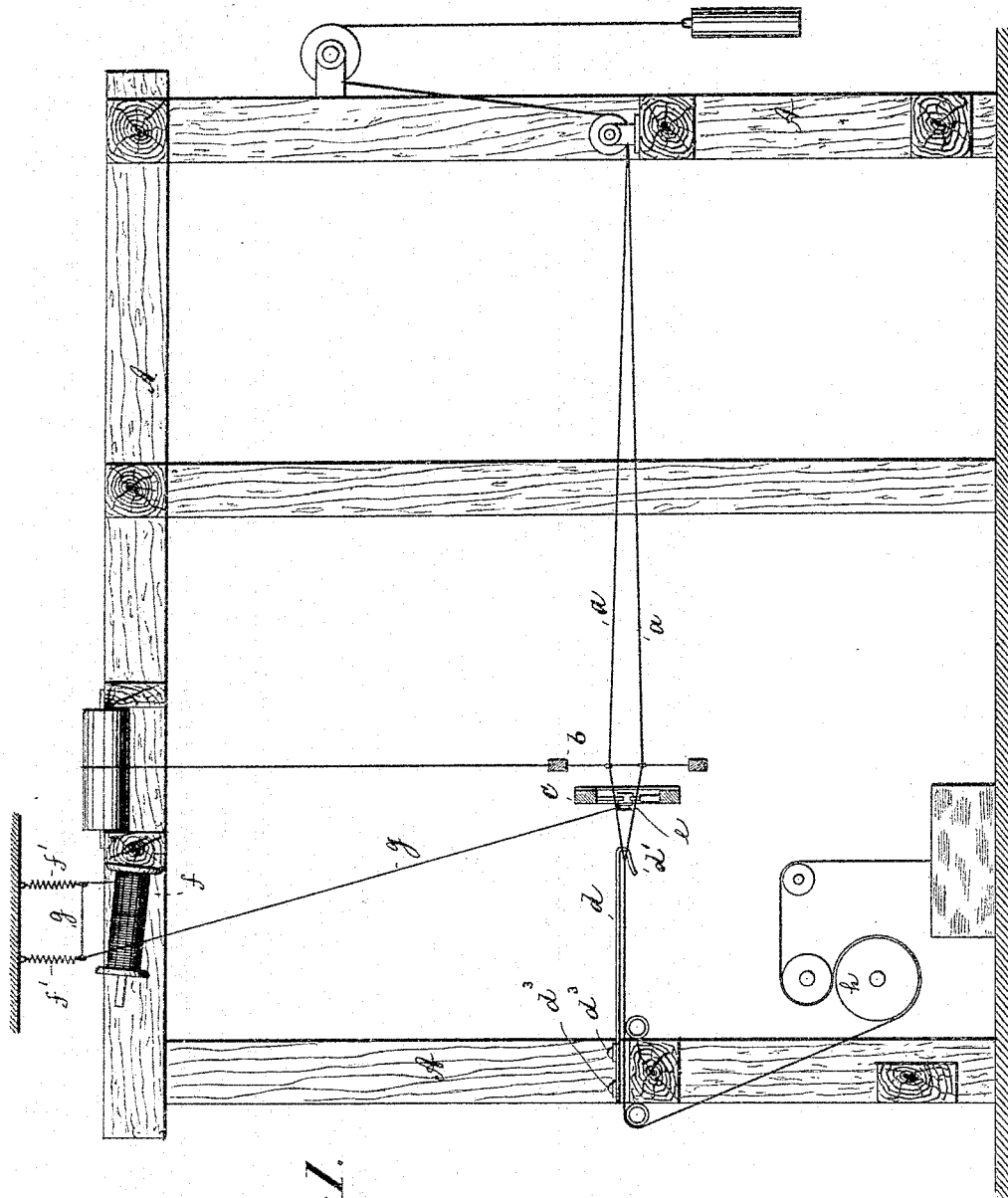
(No Model.)

2 Sheets—Sheet 1.

K. ENGSBERG.  
FRINGE ATTACHMENT FOR LOOMS.

No. 491,305.

Patented Feb. 7, 1893.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

KARL ENGSBERG, OF NEW YORK, N. Y.

## FRINGE ATTACHMENT FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 491,305, dated February 7, 1893.

Application filed March 7, 1892. Serial No. 423,998. (No model.)

*To all whom it may concern:*

Be it known that I, KARL ENGSBERG, of New York city, New York, have invented an Improved Fringe Attachment for Looms, of which the following is a specification.

This invention relates to an improved fringe attachment for looms, designed for manufacturing cut fringes.

It consists in the various features of improvement more fully pointed out in the claims.

In the accompanying drawings: Figure 1 is a cross section through a loom provided with my improvement. Figs. 2 and 3 are detail top views of the operating mechanism showing consecutive positions of the shuttle. Fig. 4 is a face view and Fig. 5 an end view of the shuttle. Figs. 6 and 7 are corresponding views of the hook and Fig. 8 a cross section on line *x, x*, Fig. 6.

The letter *A*, represents the frame of a loom. *a*, are the warp threads, *b*, the harness and *c*, the lay. In front of the lay there is attached to the frame *A*, an inwardly extending hook *d*. This hook is provided with a head *d'*, that is bent sidewise and downward and is adapted to engage the weft. The hook is attached preferably by means of screws *d''*, engaging the bent forward end of the hook shank. This shank is also provided with a laterally projecting knife blade or cutter *d'''*, for automatically cutting the fringe.

*e*, is the shuttle of the loom. This shuttle does not carry any spool, but it is provided with two empty rollers or pulleys *e'*, between which the weft thread *g*, passes from a spool *f*, carried by the frame *A*, itself. To hold the thread upon the shuttle and prevent it from slipping off, I employ a wire guide *e''*.

The operation of the machine will be readily understood. The weft thread *g*, passing

from spool *f*, and tension device *f'*, between the pulleys *e'*, of the shuttle *e*, is by such shuttle thrown to the right through the warp *a*. The lay with the shuttle then moves forward and backward to lay the weft into the hook *d'*, (Fig. 2.) Next the shuttle is thrown to the left to form loop *g'*, and to recross the warp. Then again the lay moves forward and backward to push the loops forward along the hook shank and to cut them open by the knife *d'''*. Thus the fingers are completed when received by reel *h*. During the motion of the shuttle, the left hand roller *e'*, carries the weft through the warp from left to right (Fig. 2) while the right hand roller carries it through from the right to the left (Fig. 3).

It will be seen that my machine works automatically, rapidly, and is of simple construction.

What I claim is:

1. A loom for weaving fringes provided with a weft spool *f*, and with a shuttle having a pair of rollers between which the weft thread passes, substantially as specified.
2. The combination in a loom for weaving fringes, of weft spool *f*, with the shuttle *e*, having a pair of guide rollers *e'*, and a guard *e''*, substantially as specified.
3. In a loom for weaving fringes, a hooked rod having a bent shank for the reception of attaching screws, a knife edge section *d'''*, and a bent head adapted to engage the weft, substantially as specified.
4. The combination in a loom for weaving fringes of weft spool *f*, with shuttle *e* having guide rollers *e'*, and guard *e''*, and with the hook *d*, substantially as specified.

KARL ENGSBERG.

Witnesses:

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