

No. 610,711.

Patented Sept. 13, 1898.

J. KILLARS.  
KNIFE SLED MOTION FOR PLUSH OR VELVET LOOMS.

(Application filed Apr. 2, 1898.)

(No Model.)

2 Sheets—Sheet 1.

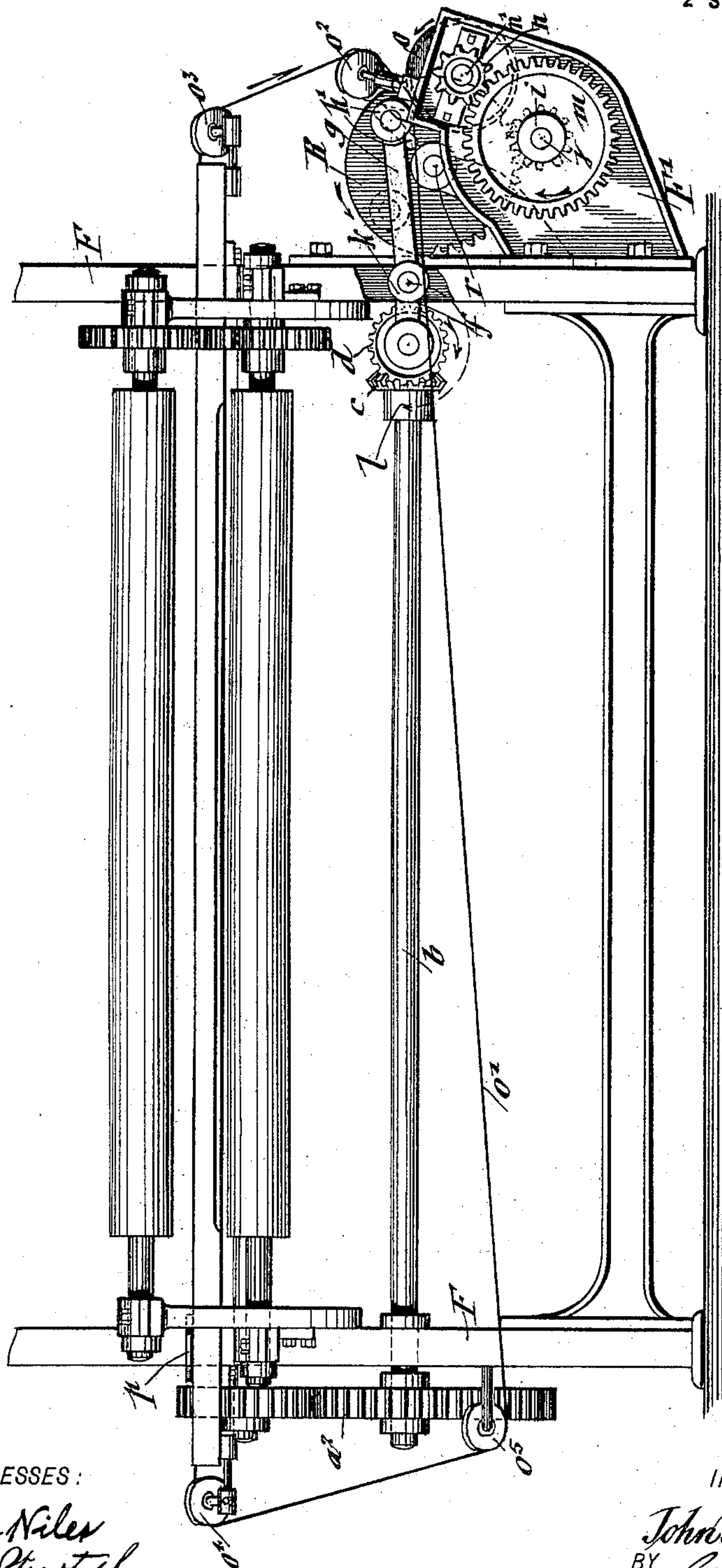


Fig. 1.

WITNESSES:

J. H. Niles  
M. H. Christy

INVENTOR

John Killars  
BY  
G. A. R. R. R.  
ATTORNEYS.

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FIG. 3.

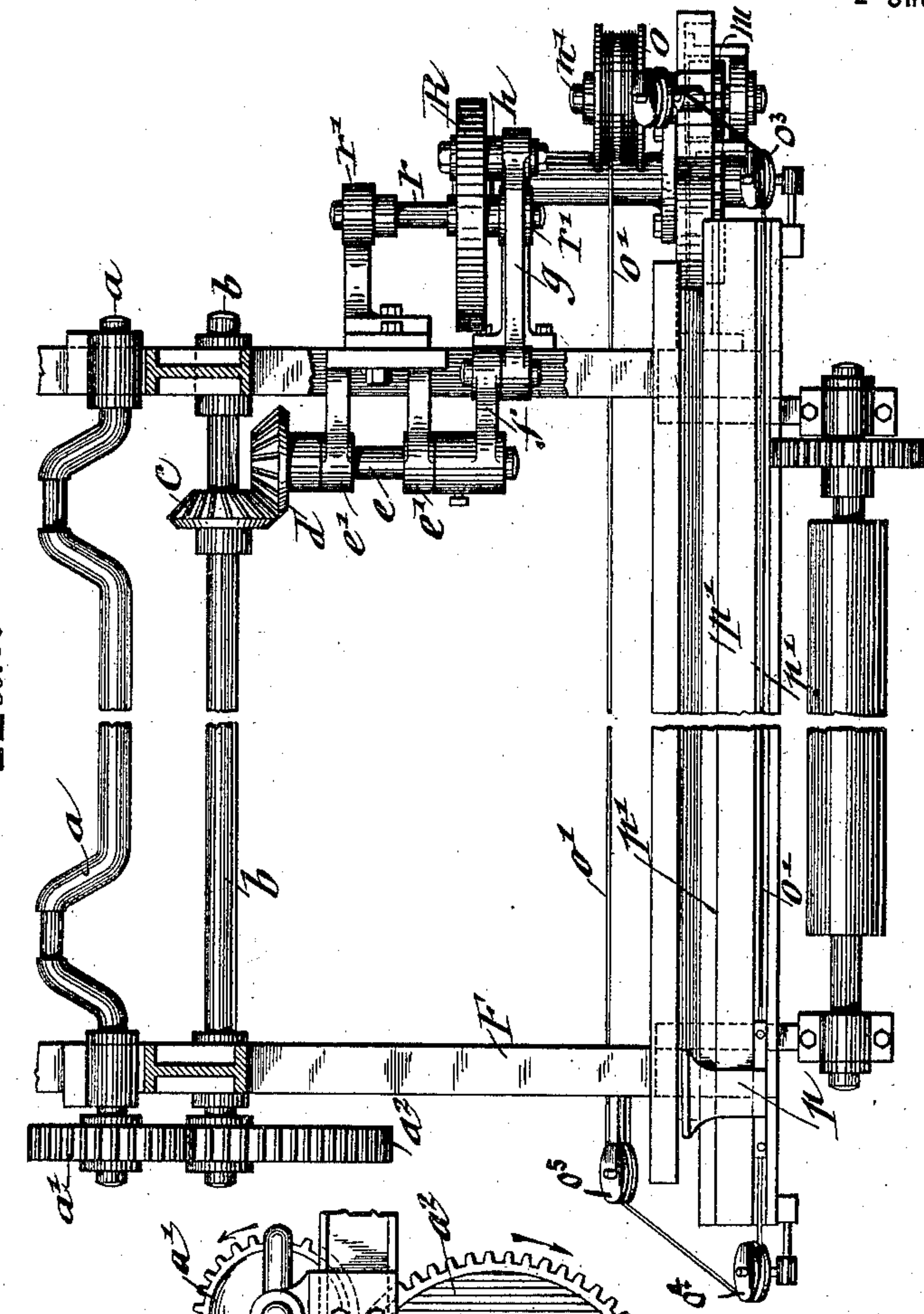
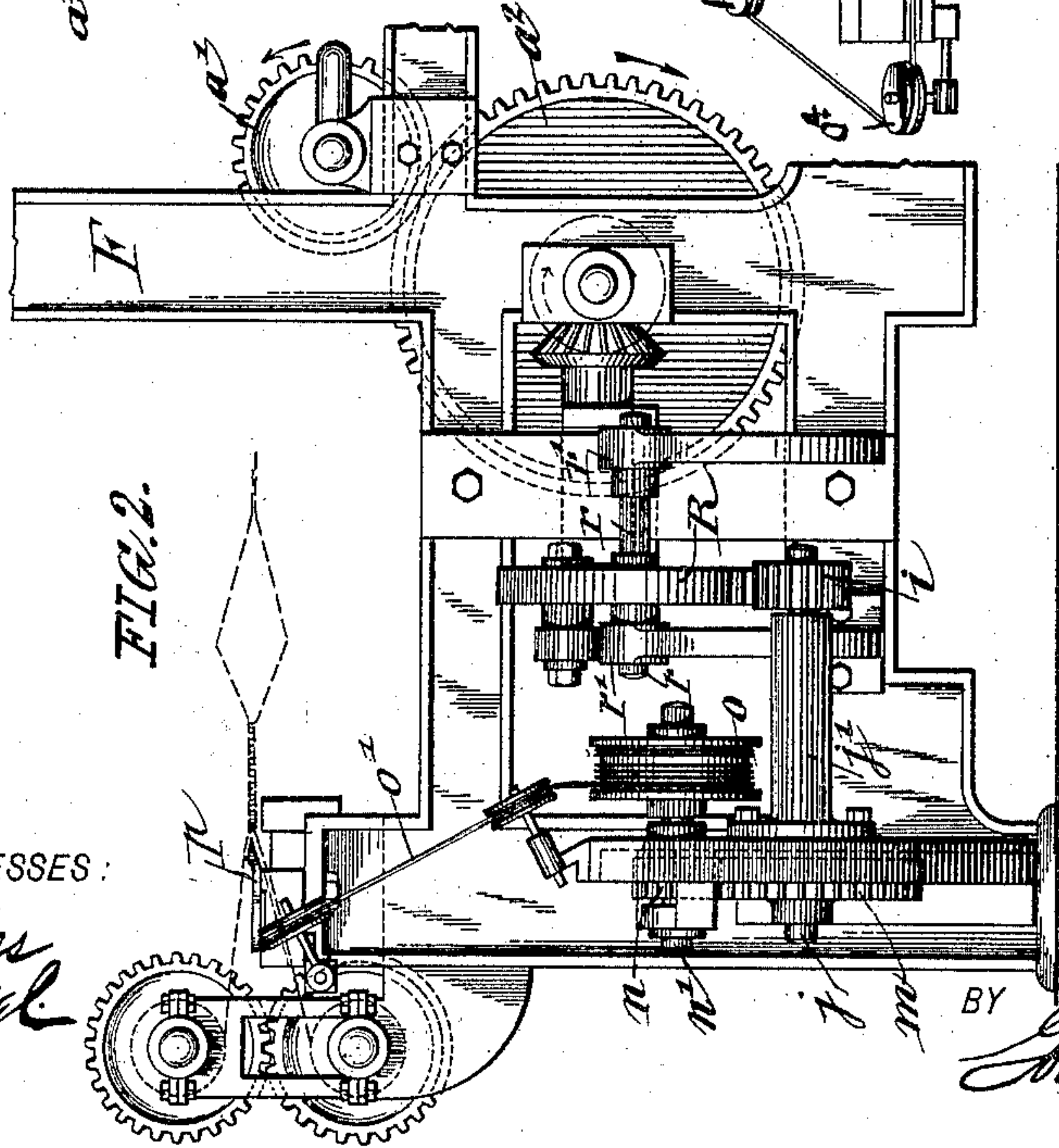


FIG. 2.



WITNESSES:

J. H. Niles  
M. H. Hartzel

INVENTOR

John Killars

BY

John H. Hagerman

ATTORNEYS.



# UNITED STATES PATENT OFFICE.

JOHN KILLARS, OF STONINGTON, CONNECTICUT.

## KNIFE-SLED MOTION FOR PLUSH OR VELVET LOOMS.

SPECIFICATION forming part of Letters Patent No. 610,711, dated September 13, 1898.

Application filed April 2, 1898. Serial No. 676,165. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN KILLARS, a citizen of the United States, residing at Stonington, in the county of New London and State of Connecticut, have invented certain new and useful Improvements in Knife-Sled Motions for Plush or Velvet Looms, of which the following is a specification.

This invention relates to an improved motion for the knife-sled of plush and velvet looms by which a positive and steady motion is imparted to the knife-sled, and thereby the reliable and even cutting of the pile fabrics made on this class of looms obtained.

The invention consists of an improved knife-sled motion for plush and velvet looms, which will be hereinafter fully described in detail and finally pointed out in the claims.

In the accompanying drawings, Figure 1 represents a sectional front elevation of a portion of a plush or velvet loom, showing my improved knife-sled motion. Fig. 2 is a side elevation of the knife-sled motion, and Fig. 3 is a plan view of the same.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, *a* represents a crank-shaft which receives motion in the direction indicated by the arrow in Fig. 2 from the driving-shaft of the plush or velvet loom. The crank-shaft *a* transmits rotary motion by the gear-wheels *a'* *a''* to a shaft *b*, which is located below and somewhat in front of the crank-shaft *a* and supported in bearings of the supporting-frame *F* of the loom. The teeth of the gear-wheels *a'* *a''* are so proportioned that while the crank-shaft *a* makes two rotations in looms making two picks the shaft *b* makes one rotation. To the shaft *b* is keyed a bevel-wheel *c*, which meshes with a bevel-wheel *d*, that is keyed to a short shaft *e*, which is supported at right angles to shaft *b* in suitable bracket-bearings *e'* at the inside of the frame *F*. To the opposite end of the shaft is applied a crank *f*, which is connected by a connecting-rod *g* with a wrist-pin *h* on a segmentally-toothed wheel *R*. The wheel *R* is keyed to a shaft *r*, turning in bracket-bearings *r'*, at the outside of the frame *F*. The wheel *R* is toothed at its lower part and placed in mesh with a pinion *i*, which is keyed to a second shaft *j*, that is supported in a

sleeve-shaped bearing *j'*. On the front end of the shaft *j* is mounted a gear-wheel *m*, which meshes with a pinion *n*, to the shaft *n'* of which is applied a cord-pulley *o*. The shaft *n'* and the bearing *j'* of shaft *j* are supported on a laterally-extending bracket *F'* of frame *F*. Around the cord-pulley *o* is wound a cord *o'* by which the knife-sled *p* is operated in its guideways *p'* from one side of the loom to the other, according to the reciprocating motion imparted to the same by the motion-transmitting cranks and gear-wheels. The cord *o'* is guided from the cord-pulley *o* over pulleys *o''* *o'''* at one end of the guideways of the knife-sled *p* and over pulleys *o''* and *o'''* at the opposite end of the guideways and from the pulley *o'''* across the loom back to the cord-pulley *o*, to which the ends of the cord are attached in any approved manner.

During one rotation of the crank-shaft *a*, which takes place with the first pick of the loom, the crank-shaft *f* makes one-half of a rotation, moving from the point *k* in the direction of the arrow to the point *l* in Fig. 1. This motion imparts to the segmentally-toothed wheel *R* one-fourth of a rotation in one direction and brings the wrist-pin *h* into the position shown in dotted lines in Fig. 1. This motion is sufficient to impart to the shaft *j* sufficient motion, so as to turn the cord-pulley *o* by the intermediate gear-wheel transmission *m n* sufficiently so as to move the knife-sled over to the right-hand side of the loom.

The return motion to the knife-sled is produced by the second rotation of the crank-shaft *a*, which takes place with the second pick of the loom. The second rotation of the crank-shaft *a* imparts half a rotation to the crank-shaft *f*, so that it moves from the point *l* to the point *k*, which completes thereby its full rotation and brings by the connecting-rod *g* the segmentally-toothed wheel *R* back into its former position, imparting rotary reciprocating motion to the same. This motion moves by the intermediate gear-wheels *m n* the cord-pulley *o*, the cord *o'*, and the knife-sled *p* in opposite direction to its former motion, and brings thereby the knife-sled back to the left-hand side of the loom. The motion of the knife-sled may be adjusted to any width of loom by the wrist-pin *h* in a radial



slot  $h'$  of the segmentally-toothed wheel R, setting it nearer to or farther from the center of the same, or by changing the proportions of the gear-wheel  $m$  and pinion  $n$  and the size of the cord-pulley  $o$  in a manner well known to mechanics, so that the required reciprocating motion of the knife-sled is produced.

By the knife-sled motion described a reliable and positive motion is imparted to the knife across the loom, so that a steady and reliable cutting action is exerted on the piles of the plush or velvet fabrics woven in the loom.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with a knife-sled and its actuating-cord, of a knife-sled motion, comprising an intermediate shaft, means for rotating it at one-half the speed of the motion-transmitting crank-shaft, an intermediate crank-shaft, a bevel-gear transmission between it and said intermediate shaft, a segmental toothed wheel, a connecting-rod between said crank-shaft and wheel, a cord-pulley, to which the knife-sled-actuating cord is applied and intermediate gear-wheel transmissions between the segmental toothed wheel

and the cord-pulley, whereby reciprocating motion is imparted to the latter and thereby the knife-sled moved across the loom to the other side and back again, substantially as set forth.

2. The combination, with a knife-sled and its actuating-cord, of a knife-sled motion, consisting of an intermediate rotary shaft, means for rotating it at one-half the speed of the motion-transmitting crank-shaft, an intermediate crank-shaft, a bevel-gear transmission between it and said intermediate shaft, a segmental toothed wheel, a connecting-rod between the crank-shaft and the segmental toothed wheel by which rotary reciprocating motion is imparted to said wheel, a pinion meshing with said toothed wheel, an intermediate gear-wheel transmission, a cord-pulley driven thereby and guide-pulleys for the cord at opposite ends of the ways for the knife-sled, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of subscribing witnesses.

JOHN KILLARS.

Witnesses:

JOHN H. RYAN,  
ELIAS B. HINCKLEY,  
CHAS. A. WIMPFHEIANE.