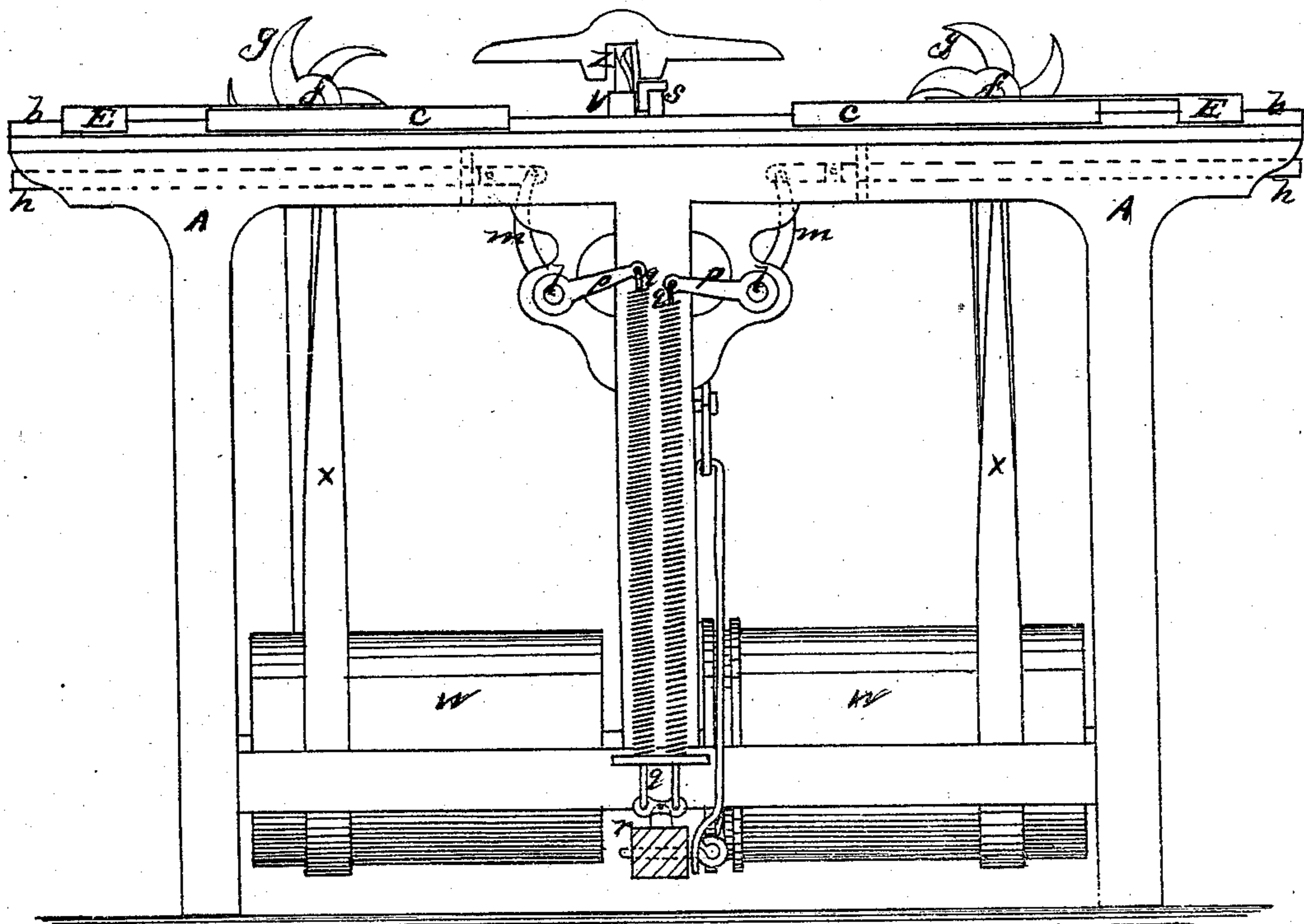
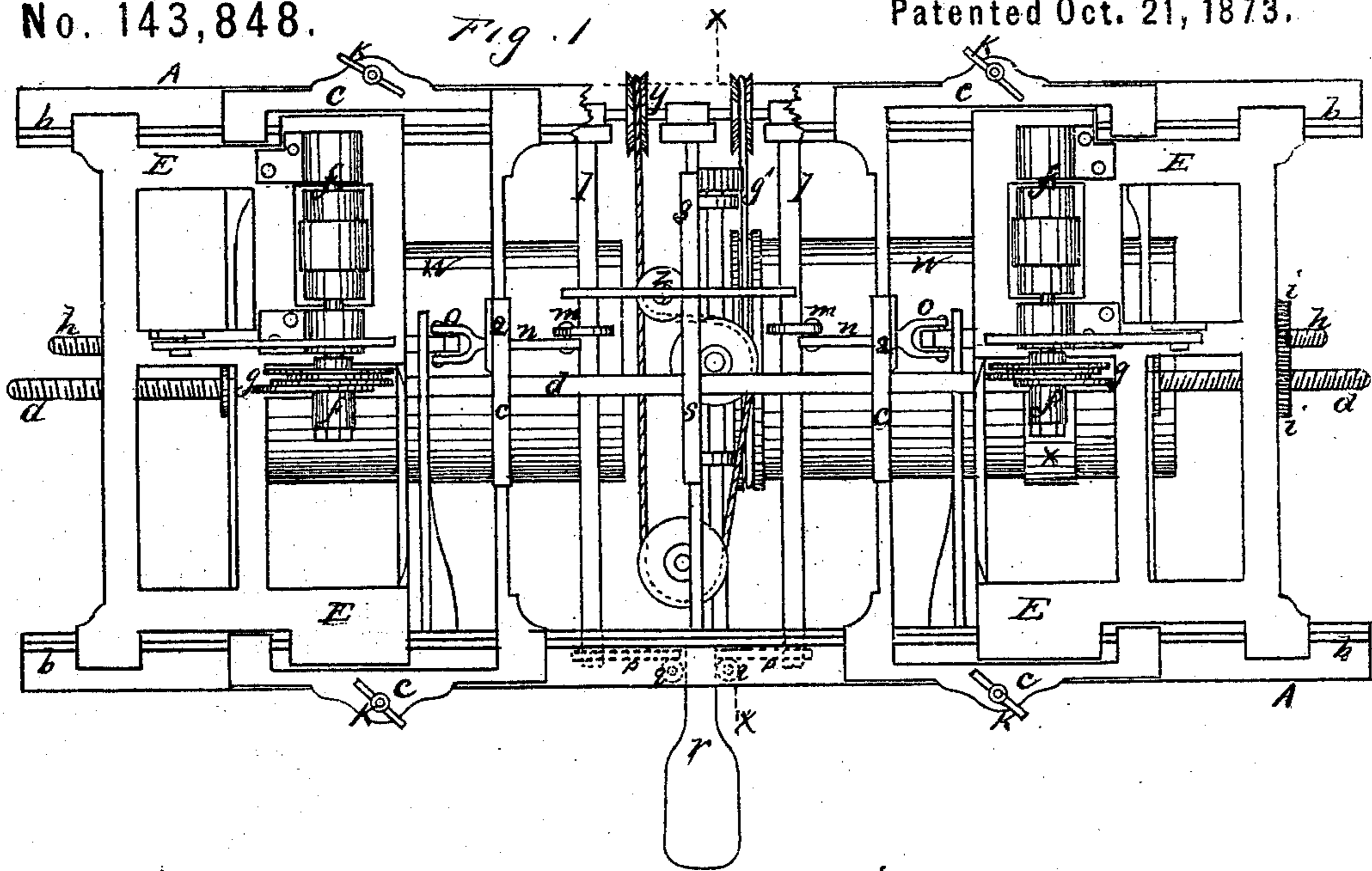


**W. M. SACK.**  
**Tenoning-Machines.**

No. 143,848.

Patented Oct. 21, 1873.



**Witnesses**

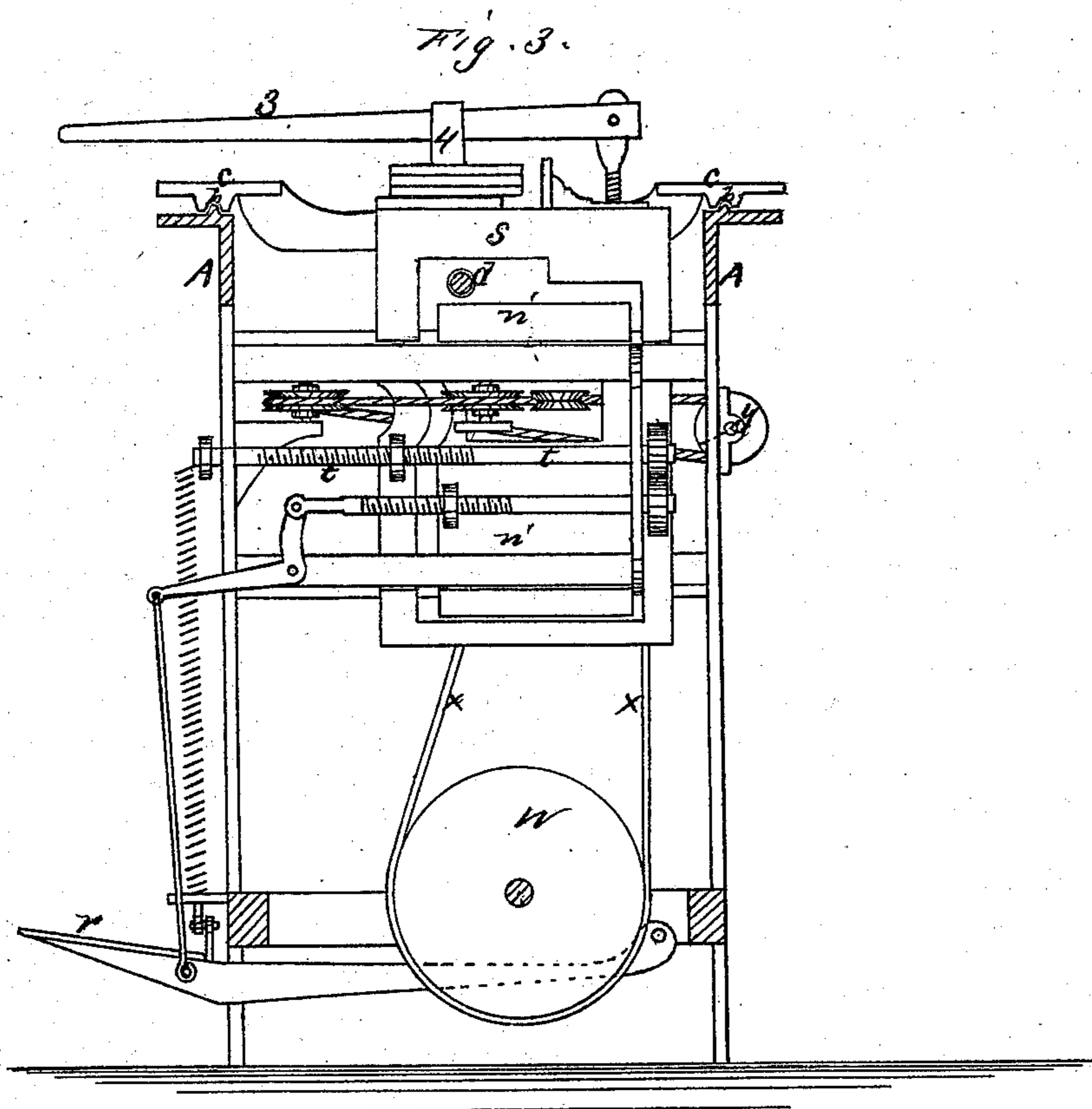
John L. Boone  
C. M. Richardson

William M. Sack  
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Attys

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Witnesses

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# UNITED STATES PATENT OFFICE.

WILLIAM M. SACK, OF OAKLAND, CALIFORNIA.

## IMPROVEMENT IN TENONING-MACHINES.

Specification forming part of Letters Patent No. 143,848, dated October 21, 1873; application filed January 24, 1873.

*To all whom it may concern:*

Be it known that I, WILLIAM M. SACK, of Oakland, Alameda county, State of California, have invented an Improvement in Tenoning-Machines; and I do hereby declare the following description and accompanying drawings are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention without further invention or experiment.

My invention relates to a machine for trimming the rails of window-blind frames, so as to separate the wide single tenon which is formed on their ends by the tenoning-machine into a double tenon, and at the same time boring out the groove or channel in which the rod which connects the blind-slats rests when the slats are closed.

In order to explain my invention so that others will be able to understand its construction and operation, reference is had to the accompanying drawings forming a part of this specification, in which—

Figure 1 is a top or plan view. Fig. 2 is a side elevation. Fig. 3 is a transverse section taken through Fig. 1.

A represents a frame having the two parallel track-rails *b b* secured to its upper side edges. Secured upon the tracks *b b* are two adjustable guide-frames, *c c*, one of which is placed at each end of the frame A. A rod, *d*, passes longitudinally through the frame A, midway between the tracks *b* and below the guide-frames *c c*, having a right-hand screw formed at one end and a left-hand screw on the opposite end. These screws pass through one of the outside pieces of the guide-frames *c c* at each end, so that by turning the rod in either direction the two frames *c c* will be moved simultaneously to or from the middle line of the frame A, according to the direction in which the rod is turned. Clamp-screws K serve to fix the guide-frames in place when they have been adjusted. A sliding frame, E, is arranged to move upon the tracks *b b*, inside of each of the guide-frames *c c*, and a short shaft, *f*, is supported in boxes at one side of the sliding frame. A cutter, *g*, which will be hereafter more fully described, is secured to the inner end of these shafts, and about midway between the tracks *b b*. A short screw-

rod, *h*, is supported at each end of the frame A, below the frames C E, and parallel with the rod *d*, and is revolved by small toothed wheels *i i* from the rod *d*. These screws pass through a pendant from the sliding frames E, so that the same operation that adjusts the guide-frames *c c* also adjusts the sliding frames E with them. Transverse shafts *l* pass across below the upper timbers of the frame A, and upon each side of its middle, being properly supported from the frame. Each of these shafts has a fixed arm, *m*, secured to it, opposite the end of the short screws *h*. A rod, *n*, connects the extremity of this arm with the end of the screw by means of a universal joint at *o*, so that when the shafts *l* are partly revolved by means of the crank *p*, rod *q*, and treadle *r* at the front side of the machine the arms *m* will draw the sliding frames E toward the middle of the frame A. Secured transversely across the middle of the frame A, and midway between the frames C E, is a vertical frame, S, which is also adjustable back and forth by means of a screw-rod, *t*. Inside of this frame is a sliding frame, *n'*, which is moved in a direction at right angles to the movement of the frames E by a bell-crank and rod connection with the treadle *r*. A vertical shaft, V, is supported in the sliding frame *n'*, which carries at its upper end an upright hollow screw-lipped auger, Z. W W are two drums upon a driving-shaft which passes longitudinally through the lower part of the frame A. The short shafts *f* are driven by means of a belt, X, from these drums, so as to give the cutters *g* the desired speed, and another belt, *g'*, drives a short horizontal shaft, *y*, at the rear of the machine, from which the vertical shaft V which carries the auger Z receives its motion. The cutters *g* each consist of two or more double cam-shaped cutters or chisels, which are arranged upon the same shaft close together, so that their cutting-points will be equidistant apart. The points of these cutters may be of any desired width, and by increasing their number the width of the cut may be increased as desired.

In arranging these cutters to cut more than two tenons a washer can be placed between each two or more series of the cutters. The end piece or rail of the blind-frame having had

its opposite ends formed into a single wide tenon by the ordinary tenoning-machine, it is laid with its middle upon the upper edge of the vertical frame S, and the guide-frames *c c* and sliding frames E E adjusted so that the shoulder of the tenon will be caught by the flange or upturned guides marked 2 on the inner cross-timber of the guide-frame. A stop-bar, marked 1, is secured to each of the sliding frames E by a bolt-and-slot fastening, so that the bar can be adjusted as desired. The opposite extremity of this bar serves to limit the movement of the frames E E coming in contact with the shoulder of the rail when the frames move toward each other, thus also regulating the depth of the part cut out by the cutters. The vertical frame S is then adjusted so that the hollow screw-lipped auger Z will make the proper depth of channel. The adjustment having been completed, a lever-clamp, 3, is placed so that the block 4 will bear upon the strip, when a slight pressure by the hand of the operator on the extremity of the lever will hold the rail in place. Everything being in motion the operator presses his weight upon the treadle *r*. The sliding frames E E move toward each other and cause the revolving cutters to remove a certain portion from the middle of the wide tenon, and thus form two narrow tenons while the hollow auger makes the proper channel at one side, at its middle. As soon as the pressure upon the treadle is removed springs properly applied will force the operating parts back to their original position ready to operate upon another rail.

By means of this machine the end rails of blind-frames can be trimmed with great rapidity, and much time and labor saved in finishing them.

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

1. The tracks *b b*, with their adjustable permanent frames *c c* and sliding frames E E, in combination with the rod *d*, with its right and left hand screws and screw-rod *h*, operated from the rod by means of the toothed wheels *i i*, substantially as and for the purpose above described.

2. The adjustable frames *c c*, in combination with the sliding frame E with its short shaft *f*, cutter *g*, and stop-bar 1, substantially as and for the purpose above described.

3. The operating crank-shaft *l*, with its fixed arm *m*, the extremity of which is connected with the screw-rod *h* and universal joint *o*, substantially as and for the purpose above described.

4. The transverse vertical frame S, with its sliding frame *n'*, carrying the vertical shaft V with its hollow screw-lipped auger Z and its operating mechanism, substantially as and for the purpose above described.

5. A machine for relishing the end rails of blind-frames, the same consisting of two adjustable sliding frames, E and C, carrying revolving cutters, and a vertical transversely-moving frame carrying a vertical side-cutting auger, all constructed, arranged, and operated substantially as and for the purpose above described.

In witness whereof I hereunto set my hand and seal.

WILLIAM M. SACK. [L. S.]

Witnesses:

JOHN L. BOONE,  
C. M. RICHARDSON.