A. WARTH.

MACHINE FOR CUTTING TEXTILE AND OTHER MATERIALS.

No. 188,702. Patented March 20, 1877.

Fig. 2.

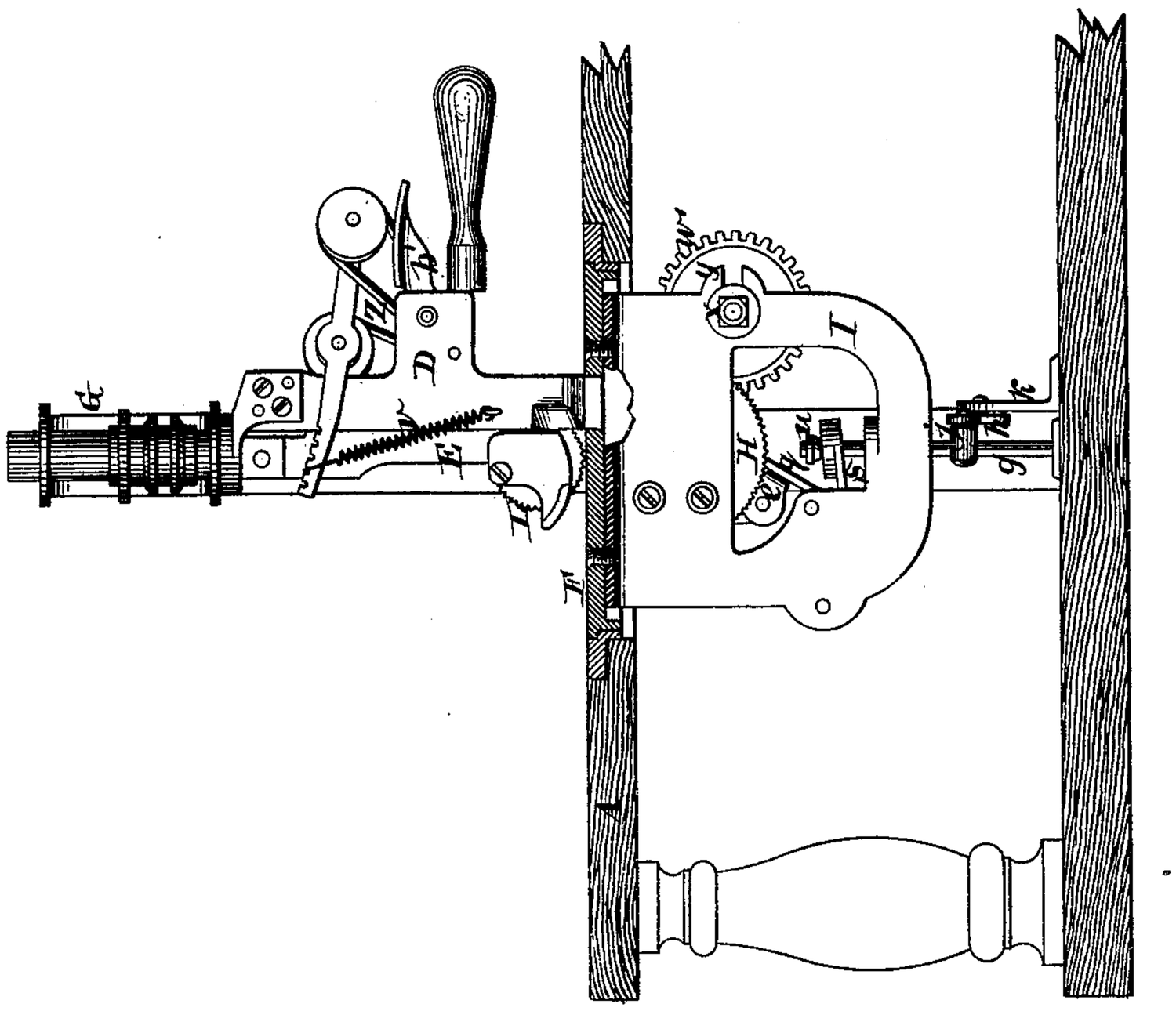
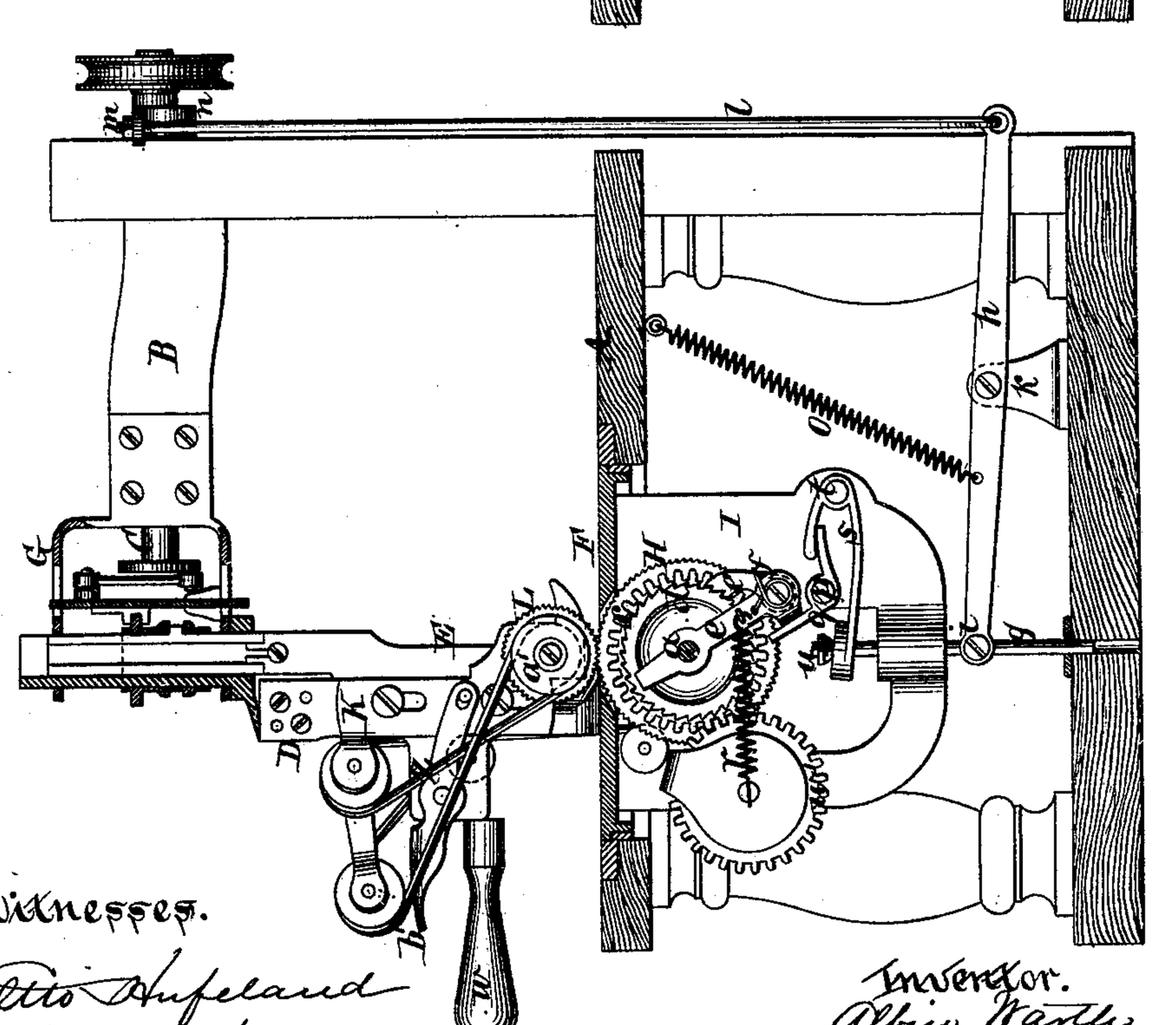


Fig. 1.



Witnesses.

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UNITED STATES PATENT OFFICE.

ALBIN WARTH, OF STAPLETON, NEW YORK.

IMPROVEMENT IN MACHINES FOR CUTTING TEXTILE AND OTHER MATERIALS.

Specification forming part of Letters Patent No. **188,702**, dated March 20, 1877; application filed February 1, 1877.

To all whom it may concern:

Be it known that I, ALBIN WARTH, of Stapleton, in the county of Richmond and State of New York, have invented a new and useful Improvement in Machines for Cutting Textile and other Materials, which improvement is fully set forth in the following specification, reference being had to the accompanying drawing, in which—

Figure 1 represents a sectional side view. Fig. 2 is a sectional front view.

Similar letters indicate corresponding parts.

The object of this invention is to combine the advantages of that class of machines for cutting textile and other materials which I have described in my Patents No. 106,101, dated August 2, 1870, and reissue No. 5,186, dated December 10, 1872; No. 112,752, dated March 14, 1871; Nos. 124,179 and 124,180, dated February 27, 1872, and No. 147,453, dated February 10, 1874, with such advantages as may be found in that class of machines described in the patent of John Harraday, No. 10,986, dated May 30, 1854.

My present improvement consists in the combination of a table for supporting the material to be cut, a rigid beam extending over the table, a driving-shaft, having its bearings in or on said beam, and serving to impart motion to the cutter, a post which carries the cutter, a bracket secured to the rigid beam, and forming the bearing for the upper part of said post, a foot-plate connected to the lower end of the post, and a handle secured to said post, so that by means of such handle the post, the cutter, and the foot-plate can be turned below the rigid beam, and as the material to be cut is fed toward the cutter, the post follows in the cut opened by the cutter, the driving-shaft being situated above the cutting mechanism, and retained in position by the rigid beam. With the elements above enumerated I have further combined an automatic feed mechanism, which receives motion by a cam on the driving-shaft, and by connections situated below the table.

In the drawing, the letter A designates a table, which is intended to support the material to be cut. Over this table is situated a rigid beam, B, which, in the example shown in the drawing, extends from a standard which is secured to the table A; but said beam may be supported in any suitable manner on one or both its ends. In or on this beam are the bearings for the shaft C, which imparts motion to the cutting mechanism. This cutting mechanism consists of a post, D, a knife or cutter, E, and a foot-plate, F. In the example shown in the drawing, the cutter E has a reciprocating motion, and it is guided in the post D; but instead of this reciprocating cutter, a rotating knife may be used without changing the spirit of my invention. The upper end of the post D is round, and it has its bearing in a bracket, G, which is secured to the beam B. The lower end of said post engages with the foot-plate F. In the example shown in the drawing, the foot-plate is made circular, and it is fitted into a corresponding recess in the table A, so that it can be freely turned in either direction, and its surface is flush with the surface of the table. The foot of the post forms a square or oblong tenon, which engages with a corresponding mortise in the foot-plate, so that by turning the post the foot-plate is compelled to turn with it.

By this arrangement the post, together with the cutter, can be readily taken off without disturbing the foot-plate. If desired, however, the foot-plate may be firmly secured to the lower end of the post, and said post may be suspended from the bracket G, so that it can be freely turned therein, and that the foot is situated close above or in a recess formed in the table A, without, however, being supported by the table. When a reciprocating knife is used, the means for transmitting motion to the same from the driving-shaft C are precisely like those represented in the drawing, and described in my Patent No. 151,456, dated may 26, 1874, and I do not repeat this description here. If a revolving knife is substituted for the reciprocating knife, the means for transmitting motion to the same may be such, for instance, as described in my patent dated January 23, 1877.

In the foot-plate is a knife-receiving socket, which co-operates with the knife in cutting. When a reciprocating knife is used this knife-receiving socket is open below to allow the knife-rod to pass through it; but when a revolving knife is used, the knife-receiving

socket may be closed below. A handle, *w*, which is secured to the post D, serves to turn the cutting mechanism, so that the knife will cut in the desired direction.

With the cutting mechanism and with the driving-shaft C, situated above the table A, I have combined an automatic feed mechanism, which receives its motion from the driving-shaft, as will be presently more fully explained.

In the example shown in the drawing the feed mechanism consists of a lower feed-wheel, H, which is loosely mounted on a stud, *a*, which has its bearing in a lug, *b*, secured to the under surface of the foot-plate F. With said feed-wheel is firmly connected a cog-wheel, *c*, and a ratchet-wheel, *d*, and on the stud swings a lever-pawl, *e*, which is held in gear with the ratchet-wheel *d* by a spring, *f*. To the under surface of the foot-plate is firmly secured a hanger, I, through the middle portion of which rises a pusher-bar, *g*, the axis of which is in line with the axis of the post D, so that when the hanger I is turned round with said post and with the foot-plate it revolves round the pusher-bar, which is guided in a socket in the floor or bed-plate supporting the table A. With said pusher-bar is connected a lever, *h*, the connection being made by a set-screw, *i*, and collar *j* below the hanger I. This lever has its fulcrum on a bracket, *k*, secured to the floor or bed-plate, and its outer end connects by a rod, *l*, with a lever, *m*, which bears upon a cam, *n*, mounted on the driving-shaft C, being held in contact with said cam by a spring, *o*, which acts on the lever *h*, and which has a tendency to raise the pusher-bar up. By the combined action of the cam *n* and spring *o*, therefore, an intermittent reciprocating motion is imparted to the pusher-bar. On the hanger is secured a stud, *p*, which forms the fulcrum for a lever, *q*, one arm of which bears against the lever-pawl *e*, said lever-pawl being held in contact therewith by a spring, *r*. The other arm of said lever *q* bears against the short arm of a curved lever, *s*, which has its fulcrum on a stud, *t*, secured in the hanger I, and the long arm of which straddles the pusher-bar, and bears against a button, *u*, fastened to the top of the same.

When the pusher bar is drawn down by the action of the cam *n* and lever *h* the lever-pawl *e* is pushed forward, and the feed-wheel is advanced, and as the pusher-bar rises up again the lever-pawl falls back by the action of the spring *r*, ready for the next forward motion. A friction-brake prevents the feed-wheel from being carried back by the return movement of the lever-pawl.

On the post D is secured a slide, K, which is depressed by a spring, *v*, and which carries the upper feed-wheel L, that also performs the office of a presser-foot. This upper feed-wheel co-operates with the lower feed-wheel H, and it receives a positive intermittent revolving motion corresponding to that of the lower feed-wheel by means of the cog-wheel *c* that is secured to the lower feed-wheel, and gears into a cog-wheel, *w'*, mounted loosely on a stud, *x*, which is secured in the hanger I. With the cog-wheel *w'* is firmly connected a pulley, *y*, from which extends a belt, *z*, over a series of guide-pulleys to a pulley, *a'*, which is secured to the upper feed-wheel. A lever, *b'*, serves to raise the presser-slide and the upper feed-wheel out of contact with the material to be cut.

By this arrangement the entire cutting mechanism, together with the foot-plate, is suspended from the beam B, and the cutting mechanism, together with the feed mechanism, can be turned in any desired direction, so that as the material is feed toward the knife the latter will follow the contours of the pattern which are to be cut out.

I disclaim distinctly in this application for a patent all the features shown and described in my patents above named, and in the patent of John Harraday, No. 10,986.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination of a table for supporting the material to be cut, a rigid beam extending over said table, a driving-shaft, having its bearings in or on said beam, and serving to impart motion to the cutter, a post which carries the cutter, a bracket secured to the rigid beam, and forming the bearing for the upper part of said post, a foot-plate directly connected to the lower end of the post, and a handle secured to said post, the whole being constructed and operating substantially as and for the purpose herein shown and described.

2. In combination with a table for supporting the material to be cut, a rigid beam extending over said table, a driving-shaft, having its bearings in or said beam, and serving to impart motion to the cutter, a post, which carries the cutter, a bracket, secured to the rigid beam, and forming the bearing for the upper part of said post, a foot-plate connected to the lower end of the post, and a handle, secured to said post.

3. A mechanical feed, receiving its motion from the driving-shaft, which has its bearings on or in the rigid beam by connections substantially such as herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 27th day of January, 1877.

ALBIN WARTH. [L. S.]

Witnesses:
W. HAUFF,
E. F. KASTENHUBER.