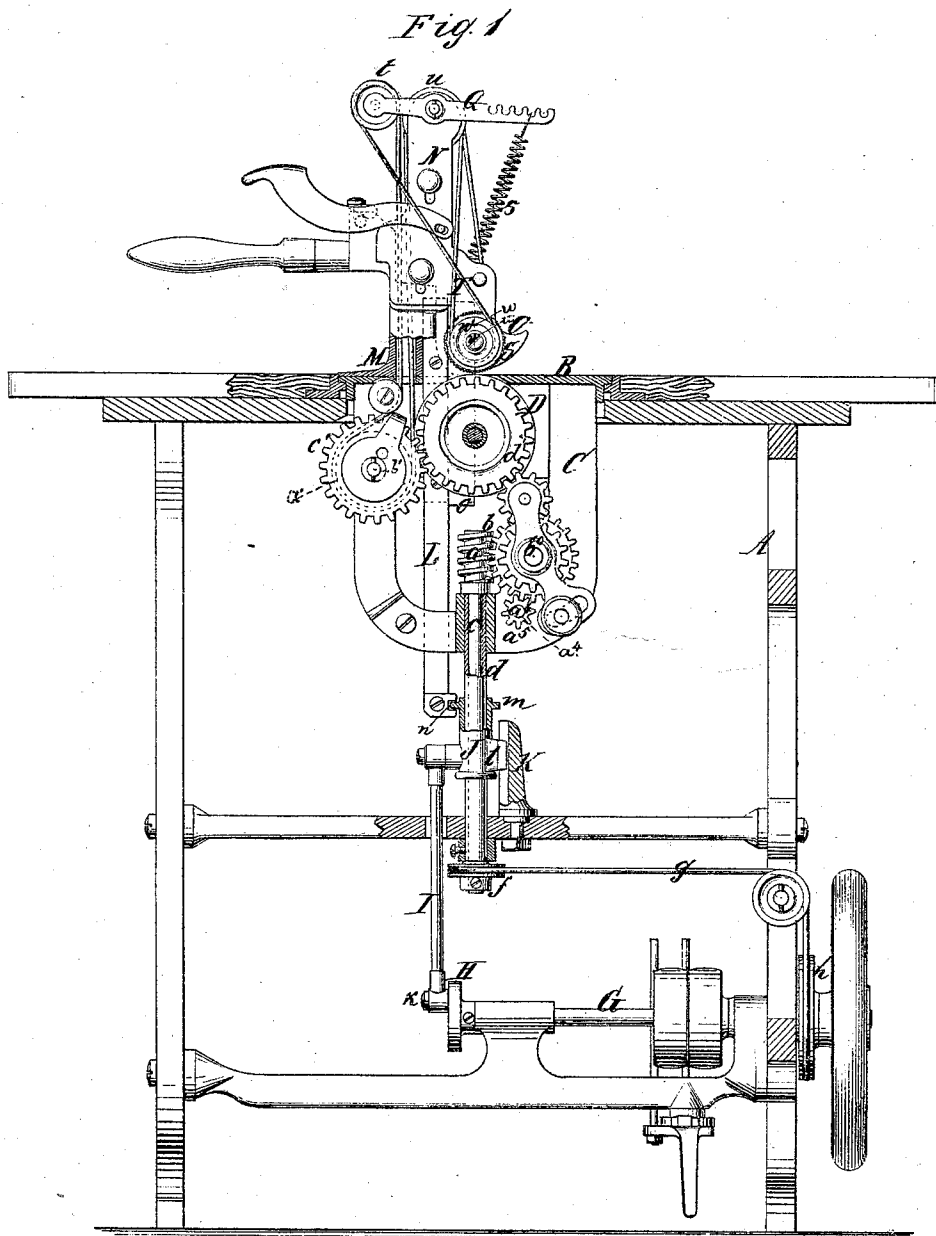


A. WARTH.
Cloth-Cutting Machines.

No. 147,453.

Patented Feb. 10, 1874.



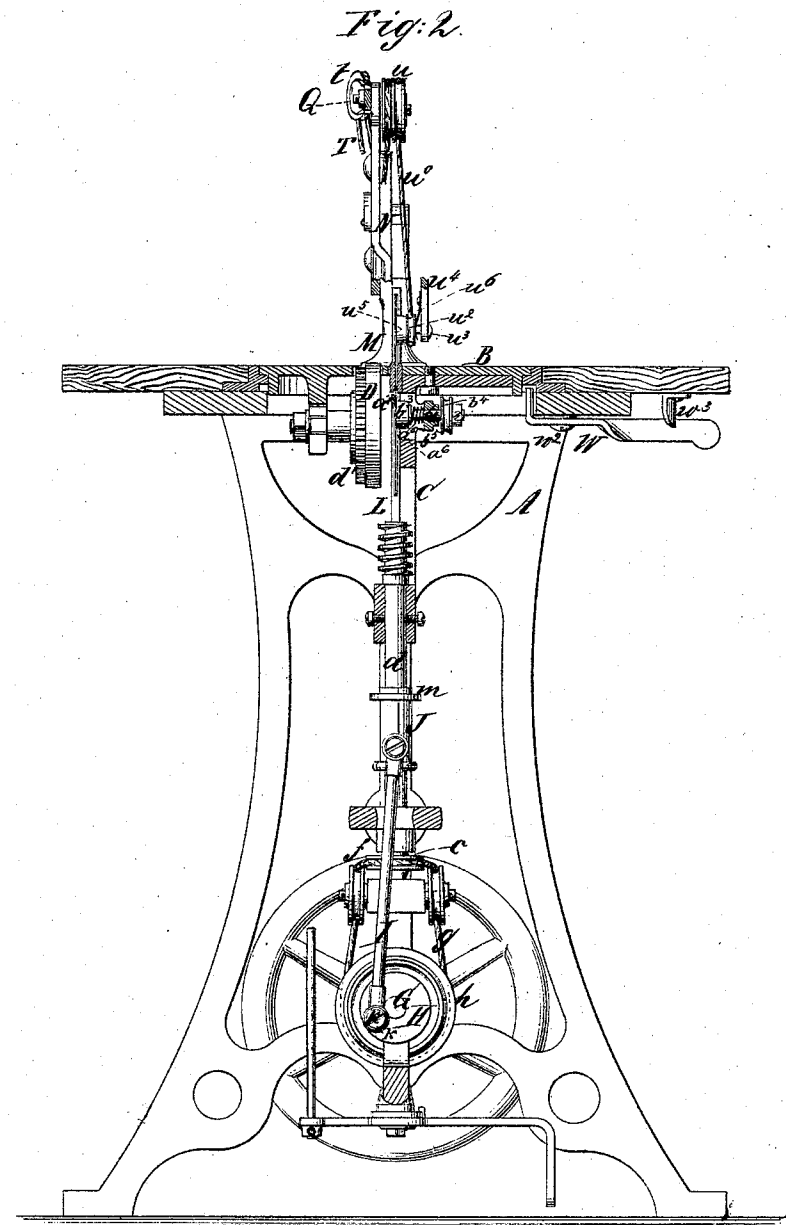
Witnesses:
Ernst Bilhuber.
Henry Centner.

Inventor:
Albin Warth.
By
Van Santvoord & Haup
Attors

A. WARTH.
Cloth-Cutting Machines.

No. 147,453.

Patented Feb. 10, 1874.



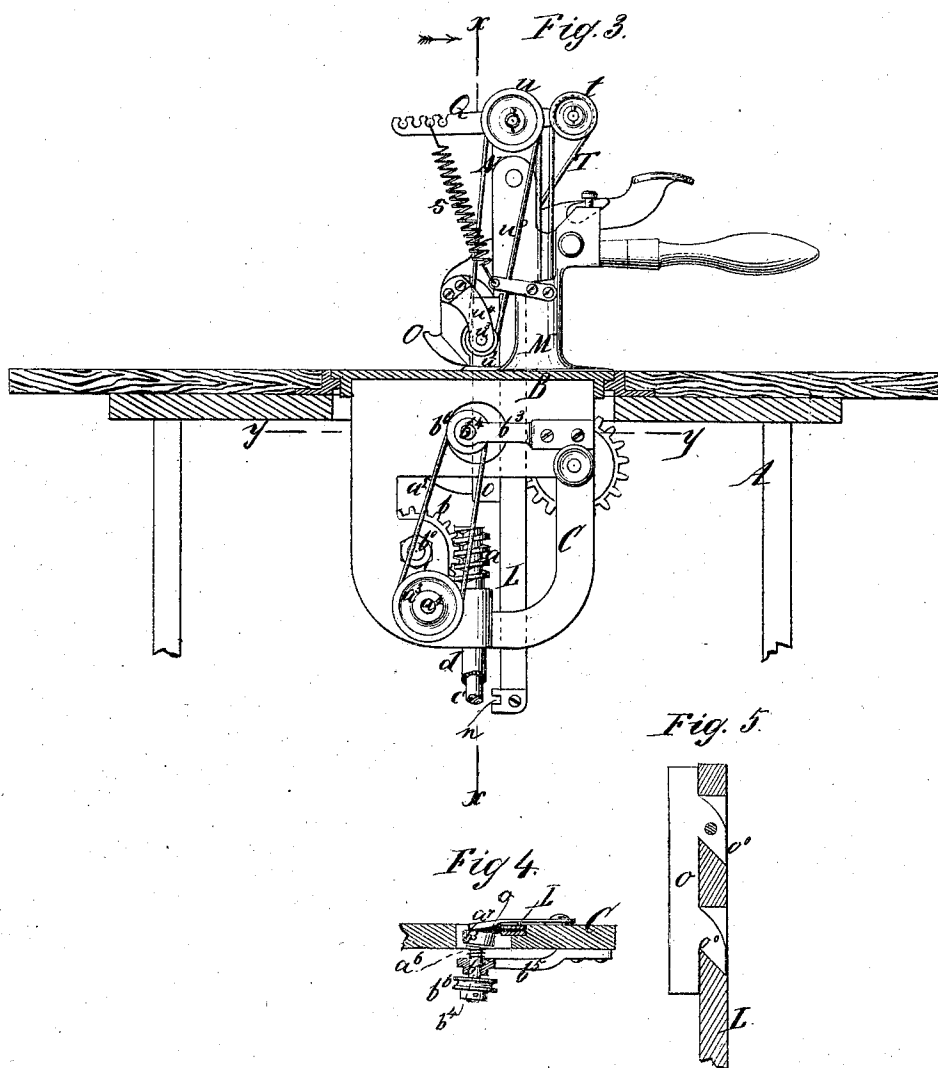
Witnesses:
Ernst Bilhuber.
Henry Gentner

Inventor.
Alwin Warth
V. S. Schmitt & Haupt
Dran

A. WARTH.
Cloth-Cutting Machines.

No. 147,453.

Patented Feb. 10, 1874.



Witnesses:
Ernst Bilpuler.
Henry Genter

Inventor:
Albin Warth
per
V. A. Santovred & Hand
attys

UNITED STATES PATENT OFFICE.

ALBIN WARTH, OF STAPLETON, NEW YORK.

IMPROVEMENT IN CLOTH-CUTTING MACHINES.

Specification forming part of Letters Patent No. 147,453, dated February 10, 1874; application filed November 10, 1873.

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; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which drawing—

Figure 1 represents a sectional front view of this invention. Fig. 2 is a transverse section of the same in the plane indicated by the line *x x* in Fig. 3, and looking in the direction of the arrow opposite to that line. Fig. 3 is a sectional rear view of the same. Fig. 4 is a horizontal section in the plane *yy*, Fig. 3. Fig. 5 is a detached view of the knife on a larger scale than the previous figures.

Similar letters indicate corresponding parts.

This invention relates to machines for cutting textile fabrics and other material, in which a reciprocating knife having a straight cutting-edge is used, the cutting-edge being kept sharp by two sharpening-stones, one above and the other below the platform or table which supports the material to be cut. The upper sharpening-stone is attached to the presser-slide, and its driving-belt passed over a pulley secured to a tightening-lever, so that when the presser-slide is raised the belt remains taut, and at the same time the sharpening-stone is raised clear above the material to be introduced in or removed from the machine. The continuous feed mechanism receives its motion by a shaft which extends up through a tubular rod (forming the guide for the slide) that imparts motion to the knife, said shaft being connected at one end by a belt and pulleys, or equivalent means, with the driving-shaft, while its opposite end is geared with the lower feed-wheel, in such a manner that a simple and compact mechanism is obtained for the purpose of imparting to the feed mechanism the required continuous motion. With the cloth-supporting platform is combined a brake, which serves to retain said platform in position whenever it is desired.

In the drawing, the letter A designates a

table, which is provided with a circular cavity to receive a platform, B, which supports the working parts of my machine, and which is so constructed that it can be freely turned round in its cavity in either direction. From the lower surface of this platform extends a U-shaped bracket, C, which forms the bearings for one end of the axle of the feed-wheel D, and for the parts connected with or acting on said feed-wheel, while the opposite end of the axle of the feed-wheel has its bearing in a separate bracket, which also extends down from the lower surface of the platform B. From the bottom end of the bracket C extends a hollow rod, *d*, which is secured at its lower end to the frame of the table A, and through this hollow rod extends a spindle, *e*, on the bottom end of which is mounted a pulley, *f*, that connects, by a belt, *g*, with a pulley, *h*, mounted on the driving-shaft G, so that when this driving-shaft is turned a continuous revolving motion is imparted to the spindle *e*. On the upper end of this spindle is mounted an endless screw or worm, *a*, which engages with a worm-wheel, *b*, mounted on a shaft, *b'*, that is geared with a cog-wheel, *d'*, secured to the side of the lower feed-wheel D, so that said feed-wheel receives a continuous revolving motion. On the end of the shaft G is mounted a disk, H, which carries an eccentric wrist-pin, *k*, that connects, by a pitman-rod, I, with a sleeve, J, moving up and down on the hollow extension *d* of the bracket C. To prevent this sleeve from turning round, it is provided with an arm, *l*, which engages with a grooved bracket, K, secured to the frame of the table, Fig. 1. The sleeve J terminates in a circular flange, *m*, which engages with a slot, *n*, in the lower end of the cutter-bar L, so that the rising and falling motion of said sleeve is transmitted to the cutter-bar, and at the same time the cutter-bar can be swiveled all round the sleeve J without being thrown out of gear with the driving-flange. Said cutter-bar extends up through a guide-slot provided for it in the lower part of the bracket C, and through another guide-slot in the platform B, and it carries the cutter-blade or knife *o*, which is secured to it by means of screws, or in any other desirable manner, preferably as shown in Fig. 5, the knife being provided with pro-

jections o' , which catch in recesses in the cutter-bar, so that only one screw is required to retain the same in position. This knife extends clear through the platform B, and it is provided with a cutting-edge in front, against which the material to be cut is forced by the action of the feed mechanism, as will be hereafter more fully explained. From the platform B rises a column, M, which is provided with a groove to receive the back of the cutter-bar, and to one side of this column M is secured the presser-slide N, from the outer edge of which extends the protector O. Said presser-slide is depressed by the action of a spring, s , one end of which is hitched to an arm projecting from the column M, Fig. 3, while its other end is attached to a lever, Q, which has its fulcrum in the top of the presser-slide, and which extends beyond its fulcrum, and carries a pulley, t , while to the upper end of the presser-slide is secured another pulley, u . On the lower end of the presser-slide is secured a pivot, v , which forms the bearing for the upper feed-wheel S, on the side of which is formed a grooved pulley, w , to receive a belt, T, which is crossed, one strand passing over the pulley u , and the other over the pulley t , whence both strands descend through a channel provided for this purpose in the column M, and beneath the platform B said belt embraces a pulley, a' , mounted on a pin, b' , which is secured in the bracket C, and on which is also mounted a pinion, c' , that is rigidly connected to the pulley a' , and engages with the cog-wheel d' of the lower feed-wheel D. By means of the belt T, therefore, the motion of the lower feed-wheel is transmitted to the upper feed-wheel, and the material to be cut is carried constantly up against the cutting-edge of the knife, and as the knife reciprocates the cutting is effected. By means of the lever Q and the pulley t , the spring s , which acts on the presser-slide, serves to keep the belt T taut, and, by the peculiar disposition of the pulleys w , u , and t , the presser-slide can be moved up or down without affecting the tension of the belt T. The pulley u is provided with two speeds, Fig. 2, and from one of these speeds extends a belt, w^0 , to a pulley, w^2 , which is mounted on an arbor, w^3 , that has its bearings in a bracket, w^4 , secured to the presser-slide, Figs. 2 and 3. On this arbor is also mounted a sharpening-wheel, w^5 , which is pressed up by a spring, w^6 , against the side of the knife, and, as the sharpening-wheel revolves while the knife moves up and down, the cutting-edge is kept sharp as the operation of cutting progresses. The sharpening-wheel w^5 rises and falls with the presser-slide, so that it does not interfere with the operation of introducing or removing the material to be cut. Another sharpening-wheel, b^3 , is mounted on a spindle, b^4 , which has its bearings in a bracket, b^5 , Figs. 3 and 4, beneath

the platform B. On this spindle is secured a pulley, b^6 , which connects, by a belt, a^2 , with a pulley, a^3 , mounted on a spindle, a^4 , that extends through the bracket C. On this spindle is secured a pinion, a^5 , which gears in the worm-wheel b , so that by the action of the worm a and worm-wheel b a continuous revolving motion is imparted to the sharpening-wheel b^3 . This wheel is pressed up against the side of the knife by a spring, a^6 , Fig. 4, and, by the combined action of the two sharpening-wheels, the cutting-edge is kept sharp throughout its whole extent.

It must be remarked that, instead of using revolving sharpening-wheels, other devices might be substituted, which may have an oscillating or a reciprocating motion, without materially changing the result.

Both sharpening-wheels act on the same side of the knife, and they are liable to raise a slight burr on the opposite side of the knife. This burr is removed by a scraper, a^7 , Figs. 2 and 4, which is made of hardened steel, and bears against the knife on the side opposite to the sharpening-wheels. With the platform B is combined a brake, W, Fig. 2, which turns on a pivot, w^2 , and is retained in position by a notched bar, w^3 . When this brake is turned on its pivot in the proper direction, it bears against the rim of the platform B, and retains the same in position, so that it will not turn in such cases where it is preferable to turn the material to be cut.

In this machine the knife is always guided in the platform B, and it is not liable to get bent in cutting round sharp corners; and, furthermore, a knife with a cutting-edge in front can be used with advantage for certain materials, such as leather, muslin, linen, &c., while it is difficult to cut such materials with knives of a different construction.

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

1. The combination of a sharpening device carried upon the presser-slide N with the reciprocating knife O, substantially in the manner shown and described.

2. The combination of a burr-removing scraper with a reciprocating knife, and with one or more sharpening devices, substantially in the manner set forth.

3. The revolving spindle c , carrying worm a , passing through the hollow rod d of the bracket C, when connected and combined with the feed-wheel D, the sleeve J, and reciprocating knife-bar L, substantially as described.

4. The combination of a brake mechanism with the platform B, and with a cutting mechanism, constructed and operating substantially as set forth.

ALBIN WARTH.

Witnesses:

W. HAUFF,

E. F. KASTENHUBER.