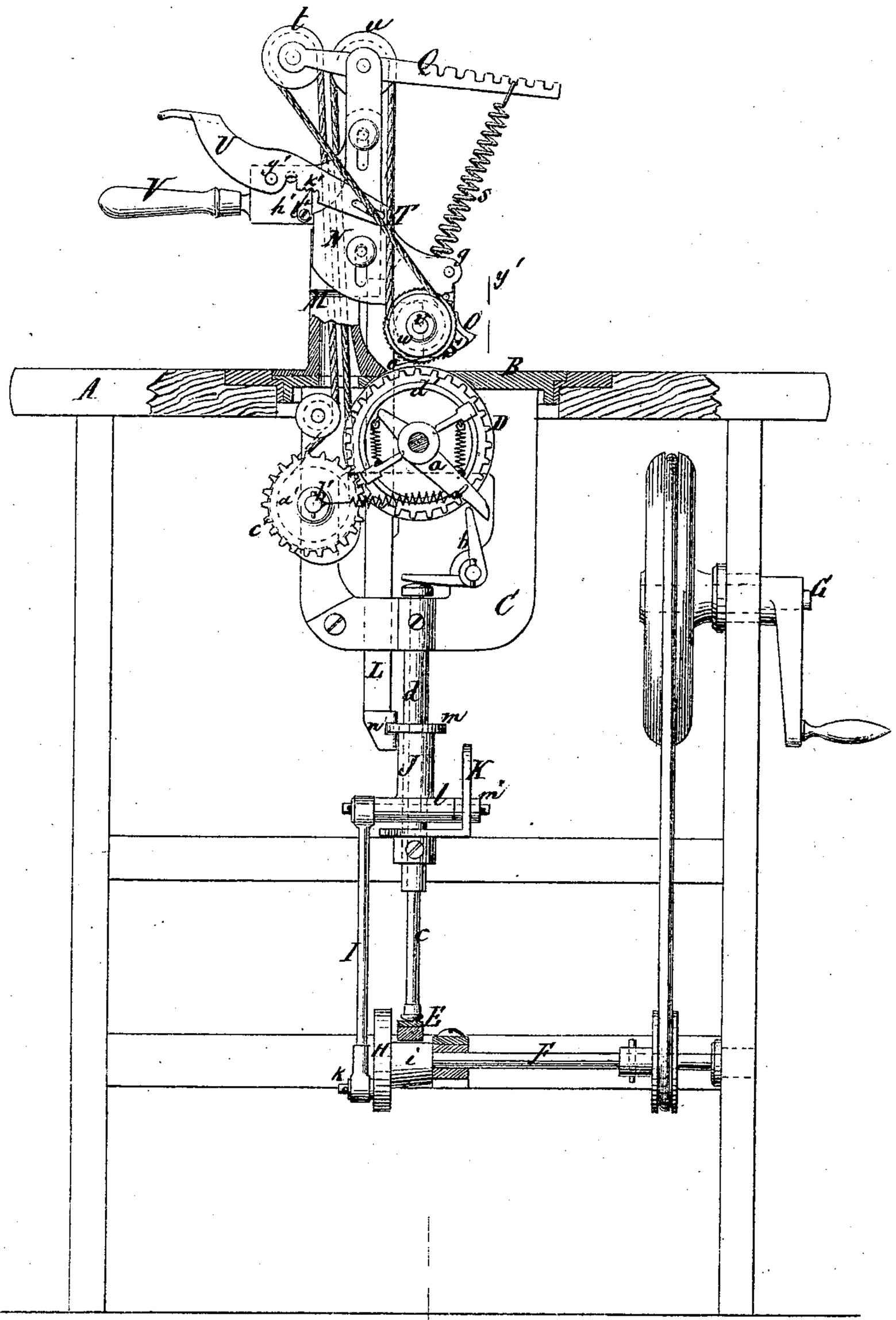
2 Sheets--Sheet 1.

ALBIN WARTH.

Machines for Cutting Textile Fabrics.

No. 124,180. Patented Feb. 27, 1872.

Fig 1.



Witnesses.

Ernst Bilhuber.

E. G. Kastenhuber

Inventor.

Albin Warth

by

Van Santvoord & Hauff

Attys

ALBIN WARTH.

2 Sheets--Sheet 2.

Machines for Cutting Textile Fabrics.

No. 124,180.

Patented Feb. 27, 1872.

Fig. 2.

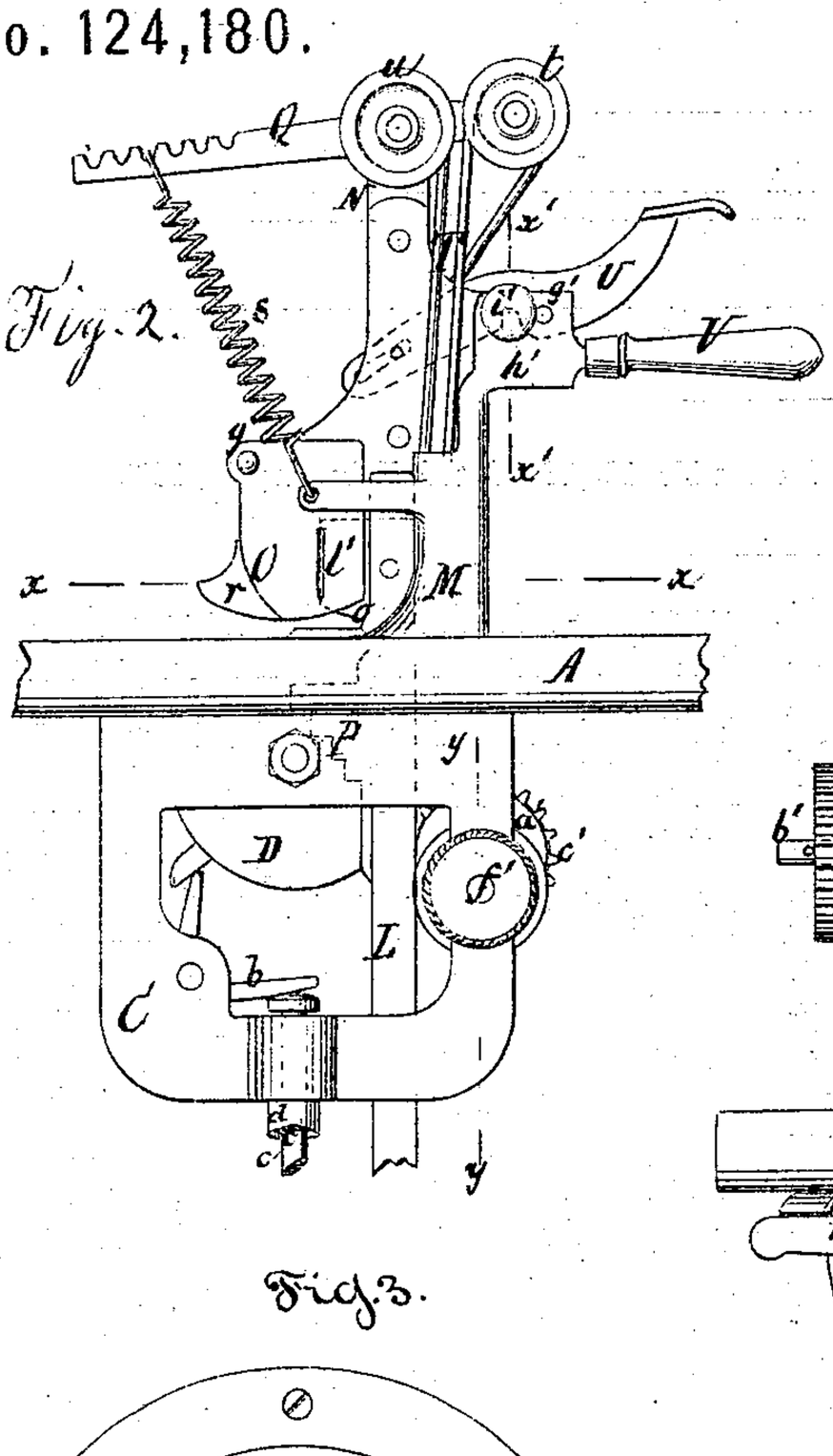


Fig. 6.

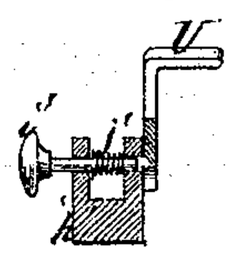


Fig. 7.

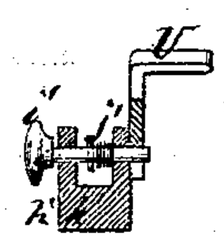


Fig. 4.

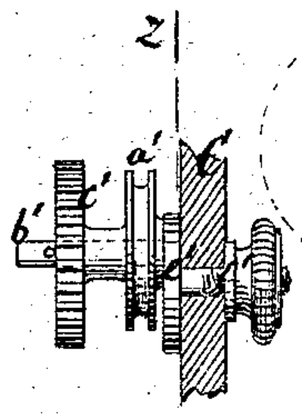


Fig. 5.

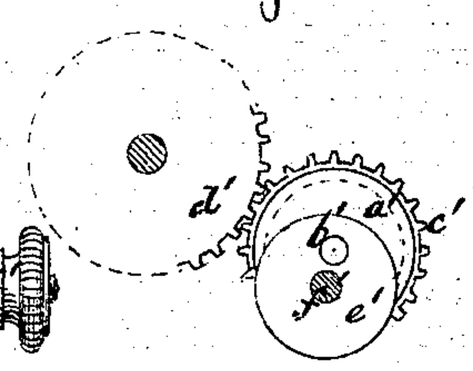


Fig. 3.

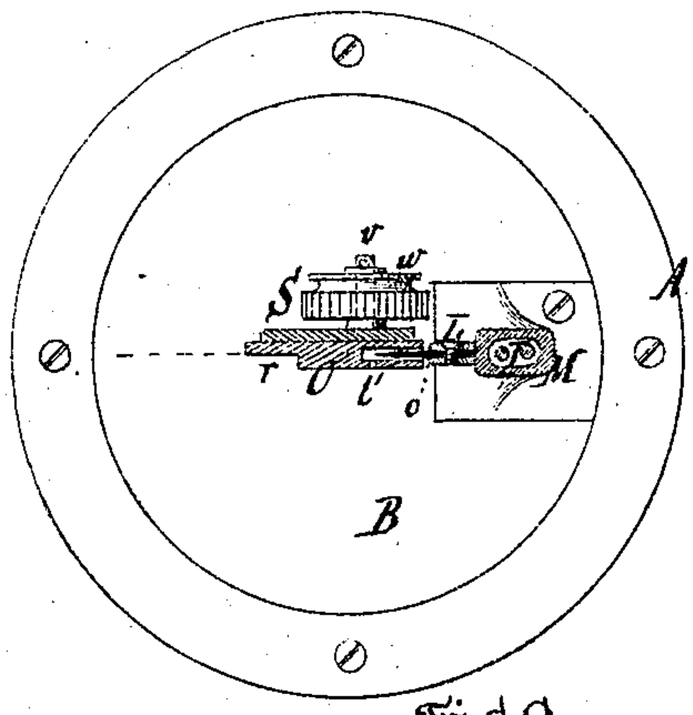


Fig. 8.

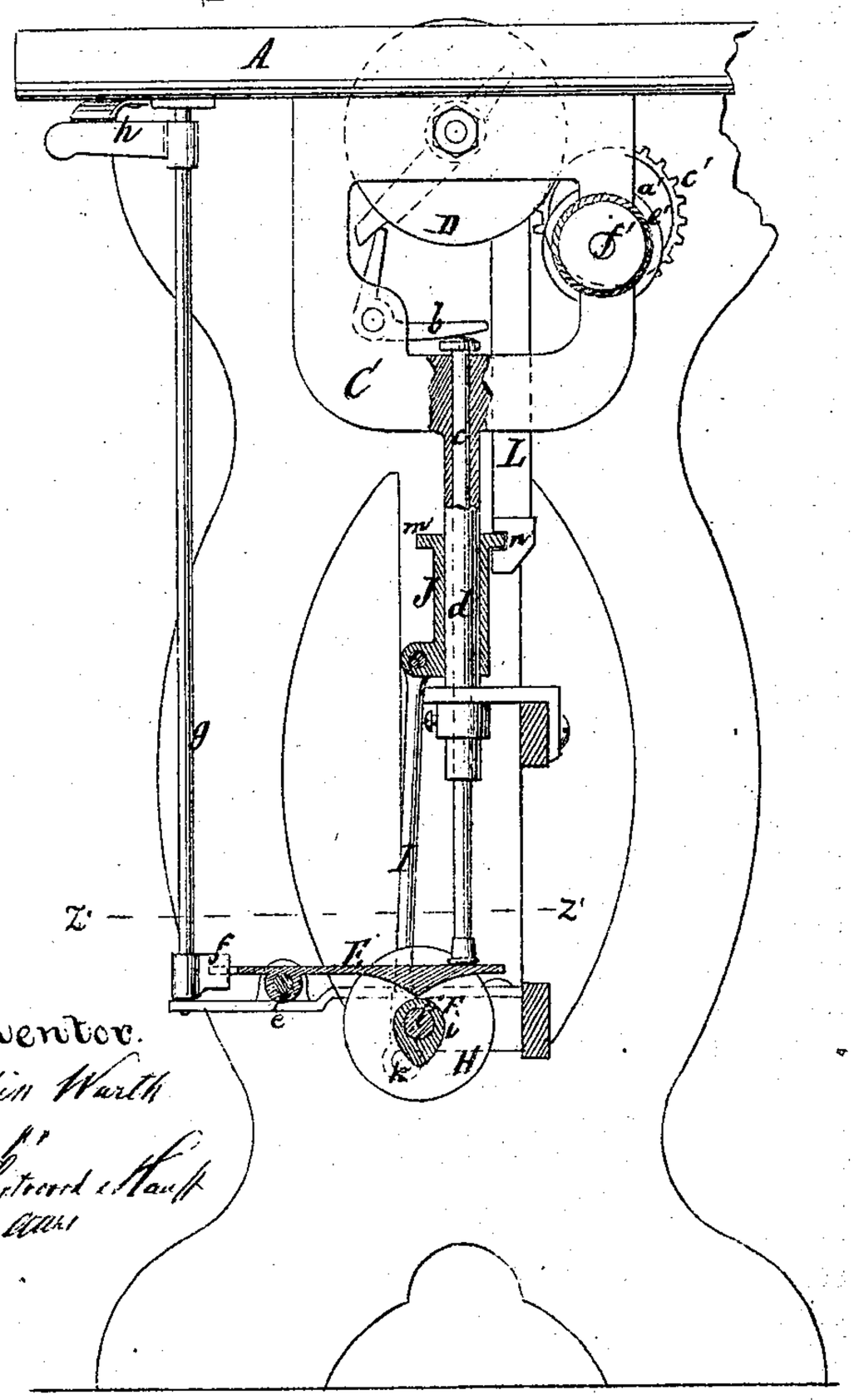
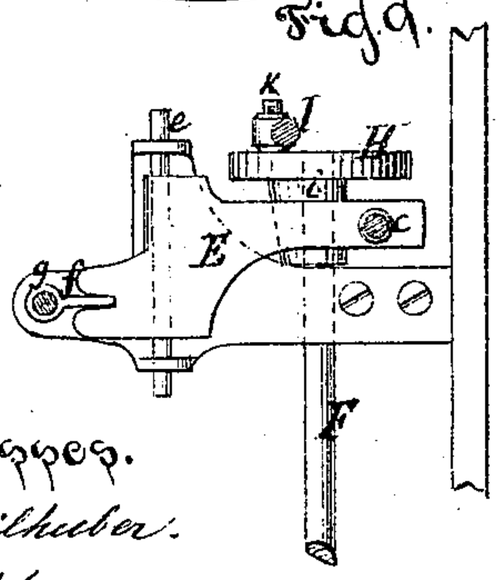


Fig. 9.



Witnesses.

Ernst Bilhuber.

E. G. Kastenhuber

Inventor.

Albin Warth

by Van Santvoord & Hauff

Attys

UNITED STATES PATENT OFFICE.

ALBIN WARTH, OF STAPLETON, NEW YORK.

IMPROVEMENT IN MACHINES FOR CUTTING TEXTILE FABRICS.

Specification forming part of Letters Patent No. 124,180, dated February 27, 1872.

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 Fabrics 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 my invention. Fig. 2 is a similar view of the same when the cutting mechanism is reversed. Fig. 3 is a horizontal section of the same in the plane *x x*, Fig. 2. Fig. 4 is a detached section of the eccentric bearing of the cog-wheel which forms a part of the feed-mechanism, the plane of section being indicated by the line *y y*, Fig. 2. Fig. 5 is a sectional front view of the same, the line *z z*, Fig. 4, indicating the plane of section. Fig. 6 is a transverse section of the spring-stop for the presser-slide in the plane *x' x'*, Fig. 2, when said spring-stop is thrown back. Fig. 7 is a similar section of the same when the spring-stop is thrown forward. Fig. 8 is a transverse section of the lower portion of my machine in the plane *y' y'*, Fig. 1. Fig. 9 is a horizontal section of the same, in the plane *z' z'*, Fig. 8.

Similar letters indicate corresponding parts.

This invention relates to certain improvements on that class of machines for cutting textile fabrics on which a patent was granted to me August 2, 1870, No. 106,101. These improvements consist in the arrangement of a spring-stop in combination with the lifter of the presser-slide, in such a manner that when the presser-slide is raised and the spring-stop is forced in, and the lifter of the presser-slide is released, the downward pressure of the lifter retains the stop against the action of the spring, and by slightly raising the lifter the spring-stop is released automatically, and the presser-slide can be brought in its working position by the aid of one hand. Also, in the arrangement of a protector covering the knife, having an index-slot or point to indicate the position and course of the knife, said protector forming a guard to prevent the workman from cutting his finger. Also, in the arrangement of a graduated stop under the lifter of the presser-slide, to regulate the distance between the upper and lower feed-wheel, and to prevent the upper feed-wheel from striking against the surface of the lower feed-wheel. Also, in the arrangement of an eccentric-pin, forming the bearing for the pinion which gears in the cog-wheel attached to the feed-wheel, so that if the feed-wheel is adjusted up or down the position of the pinion can be regulated accordingly, simply by turning the eccentric-bearing. Further, in the arrangement of a rod extending up through the hollow guide-bar of the sleeve which transmits motion to the cutter-bar, said rod being acted on by an eccentric or cam, and serving to impart motion to the feed-wheel. Also, in the arrangement of a cam-lever sliding in the direction of the length of the conical feed-cam, and acting on the feed-bar, so that by moving said cam-lever the feed-motion can be regulated. Further, in the arrangement of a sleeve moving up and down on a guide-rod projecting from the bracket which supports the bearings of the feed-wheel and other parts connected therewith, said sleeve being provided with a circular flange, which engages with a notch in the cutter-bar in such a manner that the cutter-bar can be swiveled all around said driving-sleeve without being thrown out of gear with the same.

In the drawing, the letter A designates a table, which is provided with a circular cavity to receive the platform B, which supports the working parts of my machine. From the lower surface of this platform extends a U-shaped bracket, C, which forms the bearings for the axle of the feed-wheel D, and for the parts connected with or acting on said feed-wheel. Said feed-wheel is driven by a dog, *a*, which turns freely on the shaft of the feed-wheel, which is acted upon by a bell-crank lever, *b*, to which the required motion is imparted by a tappet-rod *c*. 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 the tappet-rod *c*, the foot of which rests upon a lever, E, (best seen in Figs. 8 and 9.) This lever slides on its fulcrum-pin, *e*, and its outer end is bifurcated, and made to straddle an arm, *f*, which is mounted on a vertical rock-shaft, *g*, to which an oscillating motion can be

imparted by a handle, *h*, (see Fig. 8.) By turning this handle the lever E is caused to slide on its fulcrum-pin. The bottom surface of the lever E is cam-shaped, (see Fig. 8,) and it bears on a tapering cam, *i*, (see Figs. 1, 8, and 9,) mounted on a shaft, F, which receives a revolving motion from the driving-shaft G. As the shaft F revolves, the cam *i* imparts to the lever E and to the tappet-rod *c* a rising-and-falling motion, whereby the feed-wheel is actuated, and the amount of motion is regulated by moving the lever E toward the thick or toward the thin end of the tapering cam *i*. On the end of the shaft F 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 rod *d* extending from the bracket C. To prevent this sleeve from turning round it is provided with an arm, *l*, which engages with a slotted bracket, K, secured to the frame of the table, (see Fig. 1,) said arm being protected by a friction-roller, *m**, so as to reduce the friction between it and the slotted bracket. 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 imparted to 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 its 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 cutting-blade or knife *o*, which is secured to it by means of a screw or in any other desirable manner. From the platform B rises a column, M, (see Figs. 1, 2, and 3,) against which the the back of the cutter-bar rests, and to one side of this column is secured the presser-slide N, (see Fig. 1,) the outer end of which forms the bearing for a pivot, *q*, supporting the protector O. When this protector is turned down to the position shown in Figs. 2 and 3, it covers the knife, and it prevents persons from bringing their fingers in unpleasant contact with said knife, but when said protector is turned upon its pivot free access can be had to the knife. The protector rises and falls with the presser-slide, according to the thickness of the pile or layer to be cut. The outer end of the protector is provided with a recess, *r*, (see Figs. 2 and 3,) so that the face of said outer end is in line with the cutting-edge of the knife, (see Fig. 3,) and, consequently, the protector forms a guide by which the direction in which the knife cuts can be observed and directed. The protector also prevents the material, while being cut, from being raised by the action of the knife. On the protector is provided an index, l^1, (see Fig. 2,) to enable the workman to observe the end of the knife, and to cut precisely to a certain point. Said index may consist of a slot, as shown, or it may be an index-hand marked on the protector. On the cutter-bar, below the knife, is secured a serrated clearer, P, (see Fig. 2,) to prevent the socket in which the knife works from becoming choked with fibers and threads disengaged from the fabric to be cut during the operation of cutting. The presser-slide N is depressed by the action of a spring, *s*, one end of which is hitched to an arm projecting from the column M, 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 other 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, (see Fig. 1,) one strand passing over the pulley *u*, and the other over the pulley *t*, whence both strands descend through a hole provided for this purpose in the column M, (see Figs. 1 and 3;) and beneath the platform B said belt embraces a pulley, a', mounted on a pin, b', (see Figs. 4 and 5,) which is secured on the bracket C, and on which is also mounted a pinion, c', that is rigidly connected with the pulley a', and engages with a cog-wheel, d', secured to the side 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 two feed-wheels act on the fabric to be cut in the same manner as drawing-rollers, so that I am enabled to make the working-faces of one or both feed-wheels smooth without reducing their effect. In practice I prefer to make the face of the lower feed-wheel smooth, and to change that of the upper feed-wheel according to the nature of the material to be cut, and, in order to keep the working surface of the lower feed-wheel smooth I am obliged to form on its side the cog-wheel d' for the purpose of transmitting its motion to the upper feed-wheel, as previously described. The connection between the pin d' and the bracket C, (see Fig. 4,) is not direct, but said pin is secured eccentrically in a disk, e', (see Fig. 5,) which is mounted on a clamping-screw f', passing through the bracket C. By releasing this disk, and turning it around, the pinion c' can be adjusted to engage properly with the cog-wheel d' on the feed-wheel D, and, since the feed-wheel has to be adjusted up or down according to the goods to be cut, the adjustment of the pinion c' is indispensable. By means of the lever Q and pulley *t* the spring *s*, which acts on the presser-slide, also 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 lever Q is provided with a series of notches, so that the action of the spring on the tension of the belt can be regulated by moving the spring *s* closer to or further from the fulcrum of said lever. The presser-slide is raised against the action of its spring by means of a lifter, U, which has its fulcrum on a pivot, g', secured in an arm, h',

extending from the column M, and which extends over the handle V that serves to rotate the platform B, so that said lifter can be operated conveniently with the same hand which holds the handle V. Through the arm *h'* extends the stop *i'*, (see Figs. 6 and 7,) and said arm is recessed to make room for a spring, *j'*, which has a tendency to drive the stop back to the position shown in Fig. 6. When the lifter is depressed so as to raise the presser-slide the stop *i'* can be readily forced in so as to catch beneath the lifter by the same hand which operates the lifter, and if the lifter is permitted to bear down upon the stop the spring *s* of the presser-slide retains said stop against the action of its spring *j'*, (see Fig. 7.) By slightly depressing the rear end of the lifter the spring-stop *i'* is released, and allowed to recede to the position shown in Fig. 6, and the presser-slide can be lowered with one hand, and without requiring the aid of the other hand for the purpose of withdrawing the stop. In the lifter is a notch, *k'*, (see Fig. 1,) which, when the presser-slide is allowed to descend, catches over a knife-edged rest, *l'*, whereby the teeth of the upper feed-wheel are preserved against injury from striking against the face of the lower feed-wheel. The notch *k'* is stair-shaped, and the rest *l'* can be adjusted so as to engage with either of the steps of the notch, and to retain the upper feed-wheel at a greater or smaller elevation above the lower feed-wheel according to the thickness of the pile or layer of cloth or other material to be cut. The knife is also sharpened on its front edge, so that it passes easily up and down through the material to be cut.

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

1. The spring-stop *i'*, in combination with the lifter U of the presser-slide, and with the handle V, which serves to operate the platform B, substantially in the manner set forth.

2. The protector O, provided with an index-slot or point to indicate the position and course of the knife, substantially as described.

3. The rest *l'* and stair-shaped notch *k'*, in combination with the lifter U and feed-wheels D and S, substantially as set forth.

4. The eccentric pin *b'*, disk *e'*, and screw *f'*, in combination with pinion *c'*, cog-wheel *d'*, and feed-wheel D, substantially as set forth.

5. The tappet-rod *c*, passing through the hollow guide-rod *d* extending from the bracket C, in combination with the lever E, cam *i*, bell-crank *b*, dog *a*, and feed-wheel D, substantially as described.

6. The lever E, having a transverse motion on its pivot *e*, in combination with the tapering cam *i*, tappet-rod *c*, bell-crank *b*, dog *a*, and feed-wheel D, substantially as set forth.

7. The sleeve J, provided with a circular flange, and connected to the eccentric pin *k* by pitman I, in combination with the notched cutter-bar L, substantially as described.

ALBIN WARTH.

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