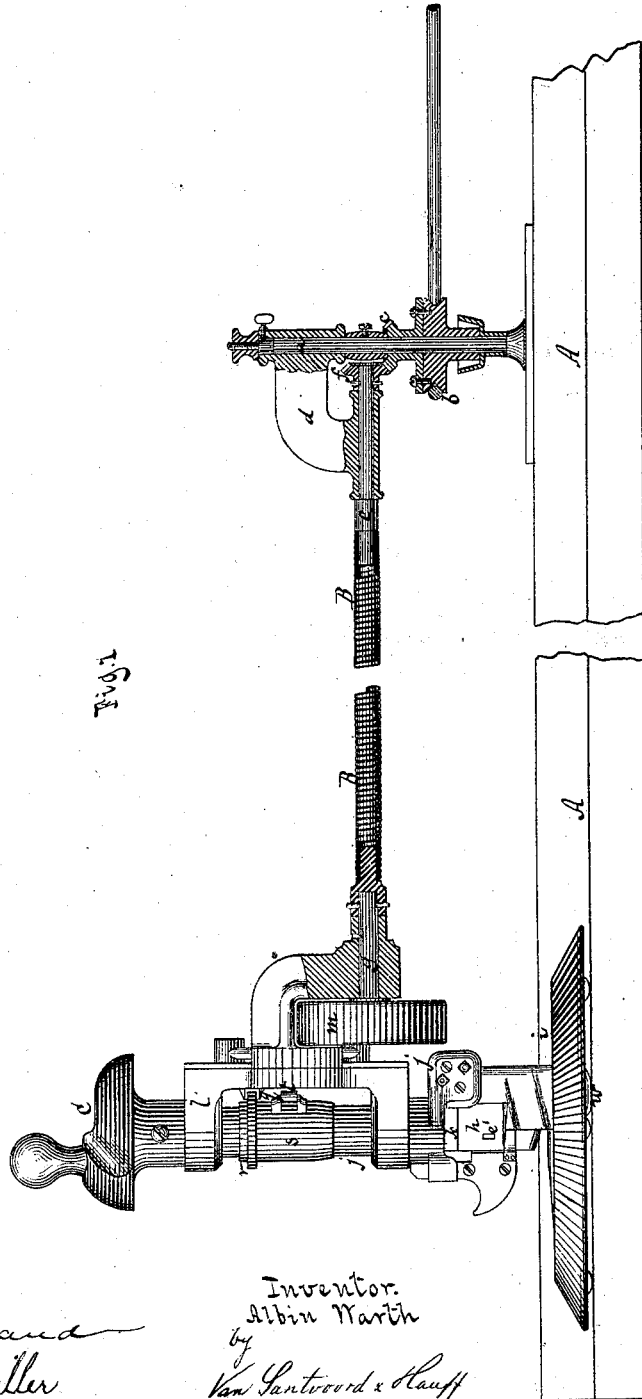


A. WARTH.
Cloth-Cutting Machine.

No. 216,245.

Patented June 3, 1879.



Witnesses.
Otto Shufeldt
William Miller

Inventor.
Albin Warth
by
Van Santvoord & Hauff
his attys

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Fig. 2.

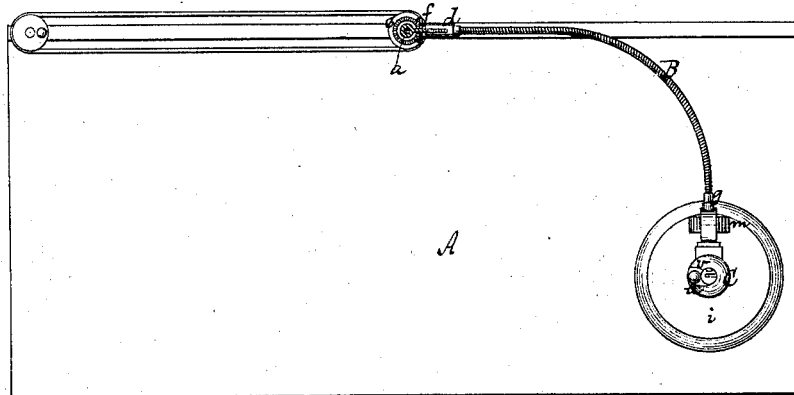
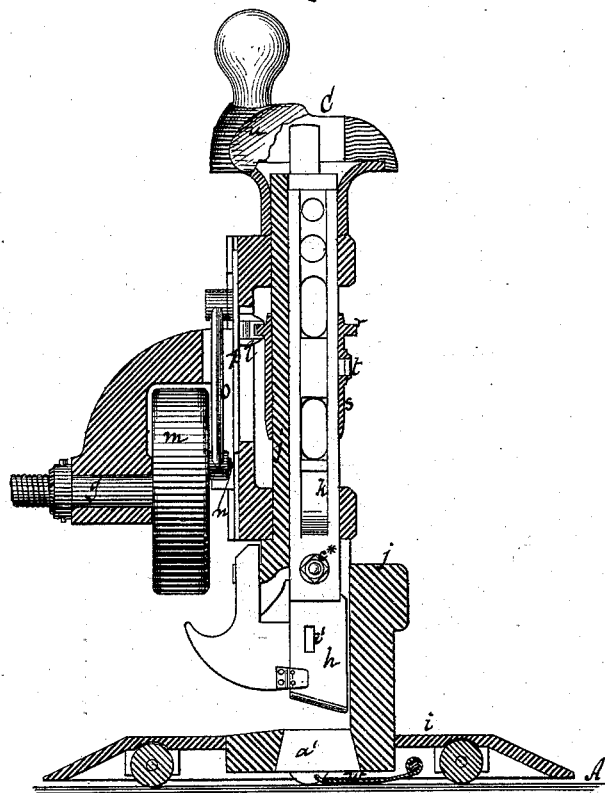


Fig. 3.



Witnesses.
Otto Stapeland
William Miller

Fig. 4.

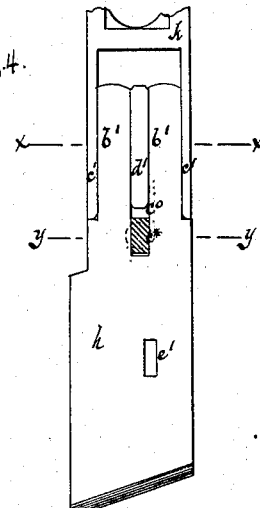


Fig. 5.



Fig. 6.



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UNITED STATES PATENT OFFICE.

ALBIN WARTH, OF STAPLETON, NEW YORK.

IMPROVEMENT IN CLOTH-CUTTING MACHINES.

Specification forming part of Letters Patent No. **216,245**, dated June 3, 1879; application filed April 2, 1879.

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 drawings, in which—

Figure 1 represents a sectional side view. Fig. 2 is a plan or top view. Fig. 3 is a detached vertical section of the cutter-head on a larger scale than the previous figures. Fig. 4 is a face view of the knife and the lower end of the knife-rod. Fig. 5 is a transverse section of the same in the plane *x x*, Fig. 4. Fig. 6 is a similar section in the plane *y y*, Fig. 4.

Similar letters indicate corresponding parts.

This invention consists in the combination, in a machine for cutting textile and other materials, of a table supporting the cutter-head, a vertical arbor rising from said table, a pulley and bevel-wheel revolving loosely on said arbor, a swivel-bracket fitted to said arbor, a horizontal arbor, which has its bearing in said swivel-bracket, and carries a bevel-wheel, gearing into the bevel-wheel on the vertical arbor, and a flexible shaft, which is firmly connected at one end to the horizontal arbor supported by the swivel-bracket, and at the opposite end to the shaft which imparts motion to the knife in the cutter-head, so that said cutter-head can be freely moved over the table in any desired direction without interrupting the motion of the knife; also, in the combination, in a machine for cutting textile and other materials, of a table, a cloth-lifting foot-plate resting on said table, a standard rising from said foot-plate, a reciprocating knife attached to said standard, a swivel-bracket fitted to said standard and adapted to turn on it or to allow the standard to turn in it, a shaft which has its bearing in said swivel-bracket and transmits motion to the knife-rod, a fly-wheel mounted on said shaft, and a flexible shaft, which extends from the shaft in the swivel-bracket to an arbor, to which revolving motion is imparted by any suitable source of power, so that a uniform reciprocating motion can be given to the knife, while the cloth-lifting foot-

plate is free to be turned on or moved over the table in any desired direction; further, in the combination, with the reciprocating knife, the cloth-lifting foot-plate, the knife-receiving socket in said foot-plate, and with the table supporting the same, of a knife-guard attached to the under surface of the foot-plate and extending beneath the knife-receiving socket, for the purpose of preventing the knife from injuring the table in case said knife should work loose, or from some cause extend down too far; also, in the combination, with the cloth-lifting foot-plate, the table supporting the same, the standard rising from it, and the knife or cutter attached to or carried by said standard, of a disk fitted to the top of said standard and provided with recesses, one for the thumb and the other for the first finger, while the surface of said disk forms a support for the palm of the hand, so that the cutting mechanism can be conveniently turned on or moved over the table supporting the same, and at the same time a downward pressure can be exerted on it to prevent it from jumping up; further, in a knife for machinery for cutting textile and other materials, said knife being provided with a two-pronged shank, the inner and outer edges of the prongs being made V-shaped and adapted to engage with corresponding guides on the knife-rod, so that if the knife is secured to the knife-rod its prongs are not liable to bend outward, and a single screw is quite sufficient to retain said knife firmly in position; also, in the combination of a knife having a shank composed of two prongs, the edges of which are V-shaped, with a central guide, said central guide being adapted to engage with the inner edges of said prongs and two edge-guides formed on the knife-rod, and with a clamping-screw, the edge-guides to engage with the outer edges of said prongs, so that when the clamping-screw is drawn up tight the prongs of the knife-shank lie flat against the knife-rod, and the knife is not liable to work loose.

In the drawings, the letter A designates the table which supports the cutting mechanism. From this table rises a vertical arbor, *a*, on which revolves loosely a pulley, *b*, to which is firmly attached a bevel-wheel, *c*. On the upper end of the arbor *a* is fitted a swivel-bracket,

d, the horizontal arm of which forms the bearing for an arbor, *e*, that carries a bevel-wheel, *f*, which gears into the bevel-wheel *c*. To the end of the horizontal arbor *e* is firmly connected one end of a flexible shaft, *B*, the other end of which is secured to a shaft, *g*, that serves to impart motion to the cutter or knife *h*.

In the example shown in the drawings the cutting mechanism consists of a foot-plate, *i*, from which rises a standard, *j*, that forms the guide for the knife-rod *k*, to the lower end of which is secured the knife *h*, as will be presently more fully described. The upper portion of the standard *j* is cylindrical, and on it is fitted a bracket, *l*, which is free to swivel on said standard, and which forms the bearing for the shaft *g*. On the inner end of this shaft is mounted a fly-wheel, *m*, in the face of which is secured an eccentric wrist-pin, *n*, that connects by a rod, *o*, with a slide, *p*, fitted into suitable guides in the bracket *l*. This slide carries a fork, *q*, that engages with a circular flange, *r*, projecting from a sleeve, *s*, which fits the standard *j*, and is adapted to slide thereon, and which engages with a stud, *t*, Fig. 3, projecting from the knife-rod.

By this arrangement a rapid reciprocating motion can be imparted to the knife-rod, while the cutting mechanism can be freely turned in the bracket *l*, and at the same time the foot-plate, together with the parts supported by it, can be moved over the table *A* in any desired direction; and by mounting the fly-wheel *m* on the solid shaft *g* close to the slide *p*, the reciprocating motion of the knife-rod is rendered uniform.

If desired, however, a circular revolving knife may be mounted in the standard *j*, and in this case the fly-wheel can be dispensed with.

On the upper end of the standard *j* is firmly secured a disk, *C*, Figs. 2 and 3, the surface of which forms a convenient support for the palm of the hand, and which is provided with two recesses, *u v*, one of which is intended to receive the thumb and the other the first finger of the hand, so that the standard *j* can be conveniently turned, and the cutting mechanism can be moved over the table in any direction, while at the same time a downward pressure is exerted on the disk *C*, so as to prevent the cutting mechanism from jumping up and down, and to give to the operator complete control over the motions of the cutting mechanism.

In the cutting-machines which I have described in my former patents a simple handle is secured to the standard, projecting from one side of the same; and I have found that it happens sometimes, particularly if the motion of the knife is very rapid, that the operator loses the control over the movements of the cutting mechanism, and that the latter begins to jump or is thrown over completely. This defect I have remedied by the disk *C*, with its finger-recesses *u v*.

To the under surface of the foot-plate, Fig. 3, is secured a knife-guard, *w*, which extends

beneath the knife-receiving socket *a'*, so that if the knife should work loose or extend down too far the table is protected against injury. Said knife-guard is hinged to the foot-plate, so that it can be swung back in case it is desired to get access to the knife-receiving socket from below.

The shank of the knife *h* is provided with two wings or prongs, *b' b'*, which are separated from each other by a slot, *c'*, and the edges of which are beveled off and adapted to engage with the V-shaped edges of guides *c' c' d'*, formed on the knife-rod *k*. (See Figs. 4 and 5.) The knife is adjusted on the knife-rod in the required position by a clamping-screw, *c**, and by the V-shaped edges of the guides *c' c' d'* the shank of the knife is compelled to lie flat against the knife-rod, and the prongs *b' b'* are prevented from springing out. I am therefore enabled to secure the knife firmly in position by a single clamping-screw, and I can adjust it in such a position that when the knife-rod is clear down the cutting-edge of said knife projects but a very short distance into the knife-receiving socket, and consequently the throw of the eccentric, which imparts to the knife-rod a reciprocating motion, can be reduced without diminishing the capacity of the machine.

In the body of the knife is formed a hole or slot, *e'*, which prevents the operator from grinding said knife down beyond said point. In the absence of this slot the operator is liable to grind the knife down too far, so that its shank loses the proper support on the knife-rod, allowing the knife to work loose and to cause injury to the cutting mechanism.

The slot *e'* renders it absolutely impossible to use the knife after it has been ground down to its limit.

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

1. The combination, in a machine for cutting textile and other materials, of a table supporting the cutter-head, a vertical arbor rising from said table, a pulley and bevel-wheel revolving loosely on said arbor, a swivel-bracket fitted to said arbor, a horizontal arbor, which has its bearing in said swivel-bracket and carries a bevel-wheel gearing into the bevel-wheel of the vertical arbor, and a flexible shaft, which is firmly connected at one end to the horizontal arbor supported by the swivel-bracket, and at the opposite end to the shaft which imparts motion to the knife in the cutter-head, all constructed and adapted to operate substantially as and for the purpose set forth.

2. The combination, in a machine for cutting textile and other materials, of a table, a cloth-lifting foot-plate resting on said table, a standard rising from said foot-plate, a reciprocating knife attached to said standard, a swivel-bracket fitted to said standard, and adapted to turn on it or to allow the standard to turn in it, a shaft which has its bearing in said swivel-bracket and transmits motion to the

knife-rod, a fly-wheel mounted on said shaft, and a flexible shaft which extends from the shaft in the swivel-bracket to an arbor, to which a revolving motion is imparted by any suitable source of power, all combined, constructed, and adapted to operate substantially as shown and described.

3. The combination, with the reciprocating knife, the cloth-lifting foot-plate, the knife-receiving socket in said foot-plate, and with the table supporting the same, of a knife-guard attached to the under surface of the foot-plate, and extending beneath the knife-receiving socket, substantially as and for the purpose set forth.

4. The combination, with the cloth-lifting foot-plate, the table supporting the same, the standard rising from it, and the knife or cutter attached to or carried by said standard, of a disk fitted to the top of said standard, and provided with recesses, one for the thumb and the other for the first finger, substantially as and for the purpose shown and described.

5. As a new manufacture, a knife for cut-

ting textile and other materials, provided with a two-pronged shank, the inner and outer edges of the prongs being beveled or V-shaped, and adapted to engage with corresponding guides on the knife-rod, substantially as set forth.

6. The combination, in a machine for cutting textile and other materials, of a knife having a shank composed of two prongs, the edges of which are beveled or V-shaped with a central guide and two edge-guides formed on the knife-rod, and with a clamping-screw, said central guide being adapted to engage with the inner and the edge-guides with the outer edges of said prongs, substantially as and for the purpose described.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 1st day of April, 1879.

ALBIN WARTH. [L. S.]

Witnesses:

W. HAUFF,

E. F. KASTENHUBER.