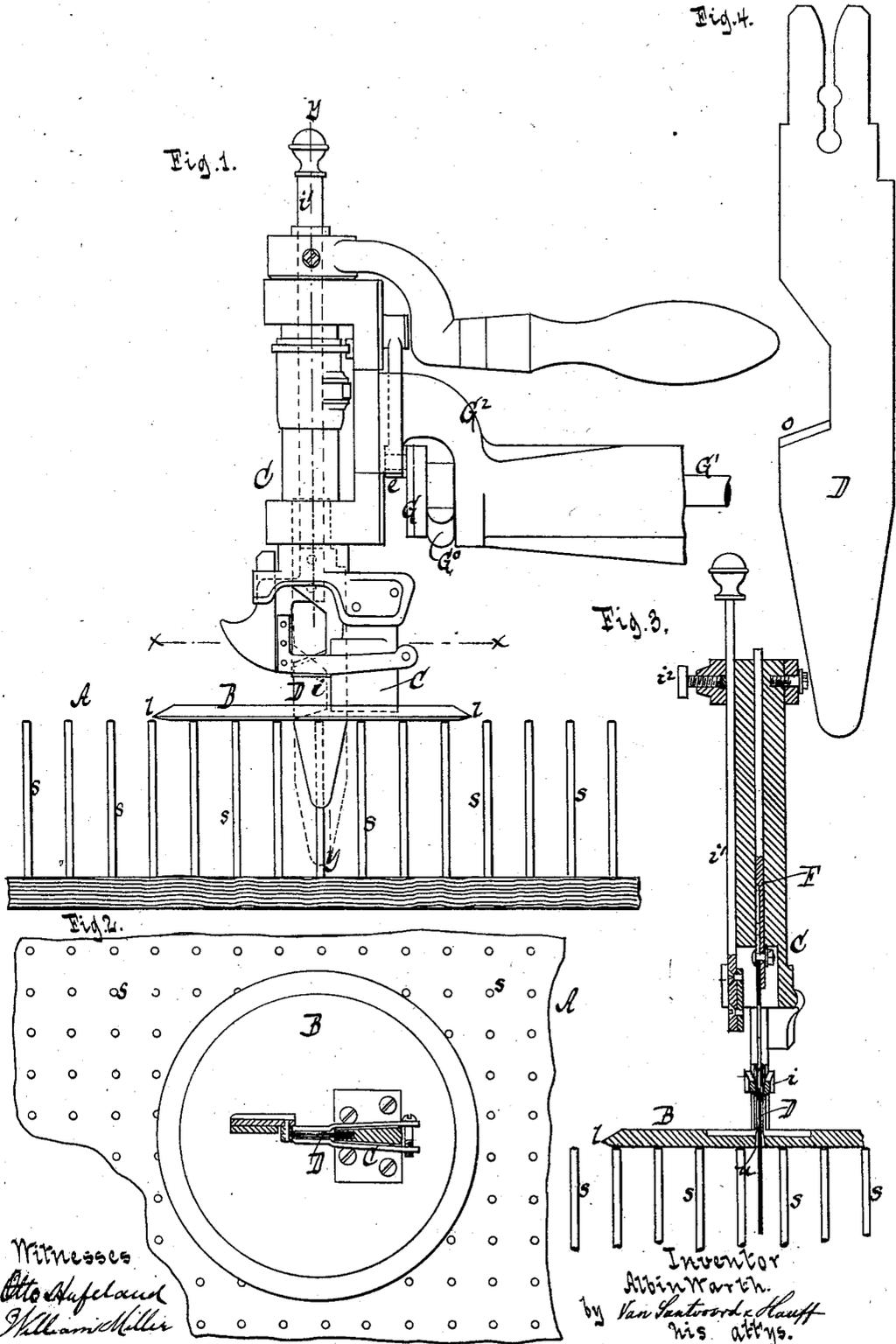


A. WARTH.
CUTTING MACHINE.

No. 255,358.

Patented Mar. 21, 1882.



Witnesses
Otto Aufeland
William Miller

Inventor
A. Warth.
by Van Santvoord & Clauff
his attys.

(No Model.)

2 Sheets—Sheet 2.

A. WARTH.
CUTTING MACHINE.

No. 255,358.

Patented Mar. 21, 1882.

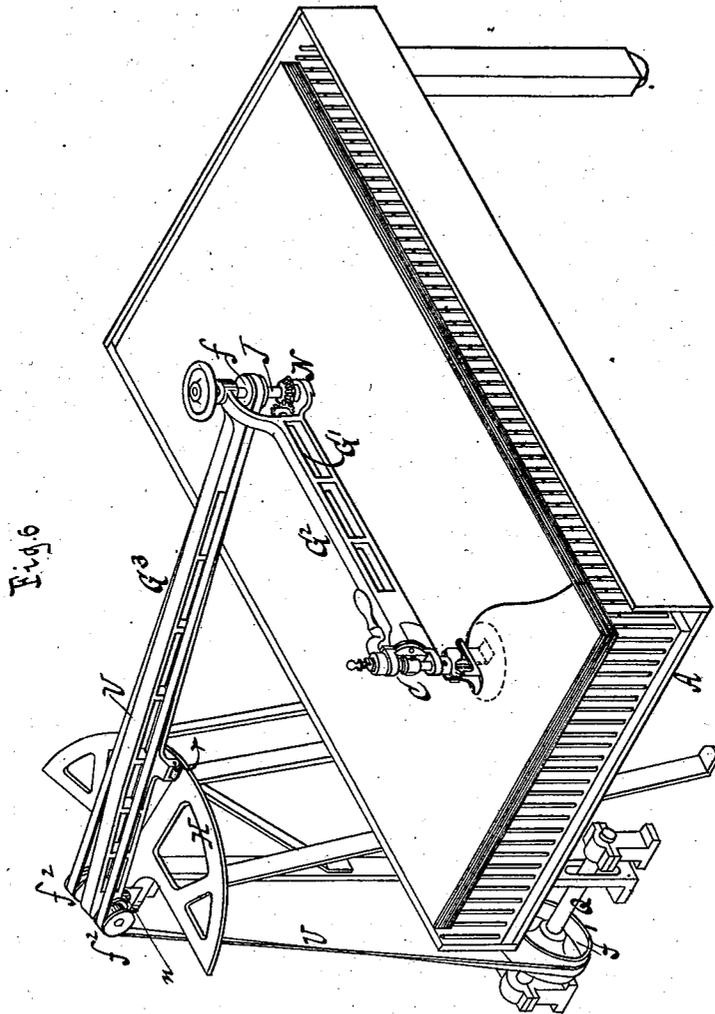


Fig. 6

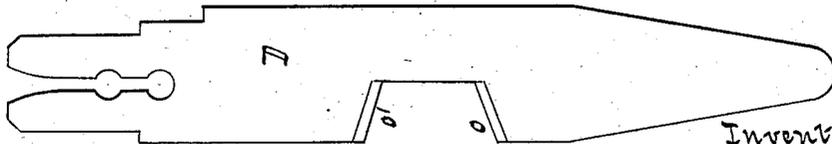


Fig. 5

Witnesses
Otto Schufeldt
William Miller

Inventor
Albin Warth
by Van Santwood & Kauf
his att'ys

UNITED STATES PATENT OFFICE.

ALBIN WARTH, OF STAPLETON, NEW YORK.

CUTTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 255,358, dated March 21, 1882.

Application filed February 10, 1882. (No model.)

To all whom it may concern:

Be it known that I, ALBIN WARTH, a citizen of the United States, residing at Stapleton, in the county of Richmond and State of New York, have invented new and useful Improvements in Cutting-Machines, of which the following is a specification.

This invention relates to the class of cutting-machines which embody a vertically-reciprocating knife whose cutting-edge is adapted to cut in an upward direction. In this class of machines the material to be cut has hitherto been entirely supported by the upper ends of vertical elastic pins or wires forming an open or penetrable bed; but this contrivance is objectionable because the material is liable to be caught by the pins, and especially the cut edges of the knife in following the pattern; also, because the pins have a tendency to prevent a movement of the material toward and past the knife, which movement is necessary in cutting small pieces of material; also, because when, as is usual, the pins are applied to a wooden base the bed formed thereby is liable to lose its true level by the warping of the wood.

To overcome these objections is the primary object of my invention, which consists in certain novel combinations of parts, hereinafter fully set forth, whereby while the greater part of the material is supported by pins a solid support is afforded to the portion of the material which is at or near the point at which it is cut.

This invention is illustrated in the accompanying drawings, in which Figure 1 represents a side view, partly in section. Fig. 2 is a horizontal section on the line $x x$, Fig. 1. Fig. 3 is a vertical cross section on the line $y y$, Fig. 1. Fig. 4 shows the knife detached. Fig. 5 illustrates a modification of the knife. Fig. 6 is a perspective view showing the driving mechanism.

Similar letters indicate corresponding parts. The letter A designates the cloth-supporting bed, consisting of upright pins or projections s , rising from a suitable base, such pins being preferably made of an elastic material—such as tempered steel. Upon this bed rests, when in use, the base B of my machine, com-

monly termed a "cloth-plate," which is preferably made circular, and from which rises a standard, C, in or upon which is arranged the knife or cutter D. This knife D is fixed to a bar, F, (see Fig. 3,) connecting with an eccentric wrist-pin, e , upon a revolving disk, G, whence the knife receives a vertically-reciprocating motion. The disk G is fixed to a shaft, G', having its bearings in an arm, G², swiveled to the cutter-standard C, and at a point opposite to the wrist-pin the disk is provided with a balance-weight, G³, for a full description of which I refer to United States Letters Patent No. 225,031, dated March 2, 1880. The cutting-edge of the knife D is inclined, it being formed by an offset or shoulder, o , (see Fig. 4,) which points in an upward direction.

In the base or cloth plate B is formed a slot, u , through which the knife D passes, and above the base is arranged a socket, i , with its mouth downward, in such a manner as to receive in it the cutting-edge o of the knife, this socket being applied to the standard C, and having at least one approximately sharp edge, and preferably two, adapting it to cooperate with the knife-edge. The socket i , moreover, is arranged at a sufficient distance above the base or cloth plate B to leave a space between the two for the passage of the material, and to permit of varying such space the socket is made adjustable relatively to the base, as hereinafter explained. The motion of the knife D is so gaged relatively to the position of its cutting-edge o thereon that on the upward stroke of the knife such edge rises from a point below the surface of the base or cloth plate B above it a sufficient distance to pass through and cut the material and enter the socket i , while on the downward stroke of the knife it passes below the upper surface of the base.

When the material is to be cut the edge of the base B is entered between the upper ends of the pins of the bed A and the material, so that the material passes over the base to the knife or cutter, which cuts it as the machine is shoved along over the pins. Hence, it will be seen, the material is furnished with a solid support at or near the point at which it is cut, while the knife has the proper motion to act on

the material in the required upward direction. The movement of the knife D below the base B is permitted by the openings or spaces due to the construction of the bed of the pins or wires *s*, such openings receiving the knife, and this construction of the bed, moreover, permits a movement of the cutter and its connections in any direction; but a solid bed or platform also can be used, the same being provided with a suitable opening for the descent of the knife, the material being in that event moved toward the knife in cutting.

When the machine is used upon the wire bed A the base B is preferably beveled upon its edge or edges, both in an upper and lower direction, to an approximately sharp edge, *l*, in order to facilitate the movement of the base beneath the material.

For the purpose of making the knife-receiving socket *i* adjustable, it is secured to a vertical rod, *i'*, (see Figs. 1 and 3,) arranged to slide in or upon the cutter-standard C, and the latter is provided with a set-screw, *i*², adapted to engage the slide-rod; but other means can be readily devised and used to effect this purpose.

The cutting operation is facilitated upon the wire bed A by relieving the bed of the weight of the machine, or, in other words, by arranging the base or cloth plate B to impinge against the upper ends of the wire *s* without bearing hard thereon, and this object is effected in the following manner: The swivel-arm G² is jointed to a secondary arm, G³, (see Fig. 6,) which swings in a horizontal plane upon a vertical pivot, *n*, and rests intermediate of its ends upon a track, H, of segmental form, by means of anti-friction rollers *r*, so that the weight of the secondary arm, together with the swivel-arm and the base B and its connections, is practically borne by the track. A vertical shaft, J, forms the joint between the arms G² G³, and such shaft is geared with the shaft G' by means of bevel-wheels N, while it is also geared or connected with a main shaft, Q, by means of a belt, U, passing over a pulley, *f*, upon the vertical shaft, a pulley, *f'*, upon the main shaft, and two pulleys, *f*², upon the pivot *n* of the secondary arm, the whole constituting a driving mechanism for the shaft G', adapted to permit the progressive movement of the cutting mechanism in cutting. Such driving mechanism, however, can be modified as circumstances or the views of the constructor may render expedient.

The inclination of the edge of the cutter to the upright line in which the cutter moves may be varied, and the edge may even be horizontal, provided it points upward, so as to cut while moving upward. The inclination of the cutting-edge shown in the drawings is, however, in my opinion the best for general use.

In Fig. 5 I have shown the knife D as being

provided with two cutting-edges, *o o'*, whereby it is adapted to cut both in an upward and downward direction.

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

1. The combination, substantially as before set forth, of the base of the machine, the cutter-standard, the cutter having an inclined cutting-edge arranged to cut in an upward direction, and the knife-receiving socket arranged above said base, with a space between the two for the passage of cloth.

2. The combination, substantially as before set forth, of the base of the machine, the cutter-standard, the cutter having an inclined cutting-edge arranged to cut in an upward direction, the knife-receiving socket, arranged with its mouth downward above said base, and the means of adjusting the relative position of said base and said knife-receiving socket.

3. The combination, substantially as hereinbefore set forth, of the base, the vertically-reciprocating knife, the knife-receiving socket, arranged with its mouth downward and above the cloth-plate to co-operate with the cutting-edge of the knife, and a bed for supporting the cloth-plate, having an opening to allow the movement of the knife.

4. The combination, substantially as hereinbefore set forth, of the bed composed of upright elastic projections, the base movable on such bed beneath the material to be cut, the standard rising from the base and following the cut produced in the material, the vertically-reciprocating knife having an inclined edge arranged to cut on its upward stroke, and the knife-receiving socket, arranged mouth downward above the base to co-operate with the cutting-edge of the knife.

5. The combination, substantially as hereinbefore set forth, of the base or cloth plate, the cutter-standard, the knife having an inclined cutting-edge adapted to cut in an upward direction, the knife-receiving socket, arranged above the base with its mouth downward, and the swivel-arm.

6. The combination, substantially as before set forth, of the base, the cutter-standard, the knife having an inclined cutting-edge adapted to cut in an upward direction, the knife-receiving socket, arranged above the base with its mouth downward, the swivel-arm, the secondary arm jointed to the swivel-arm, the track supporting the secondary arm, and the driving mechanism of the cutter.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

ALBIN WARTH. [L. S.]

Witnesses:

W. HAUFF,
CHAS. WAHLERS.