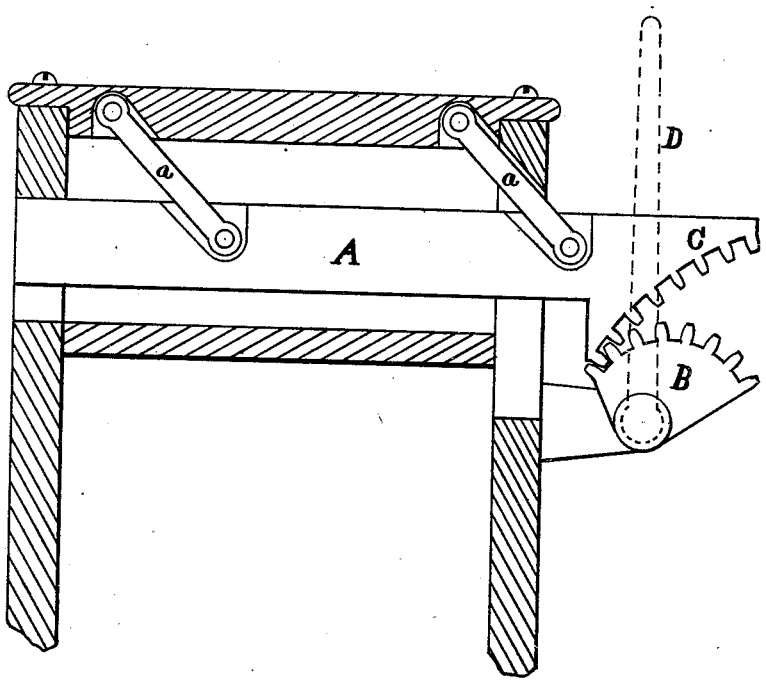
E. ALLEN.

MACHINE FOR CUTTING PAPER, CLOTH, &c.

No. 186,190. Patented Jan. 16, 1877.



WITNESSES.

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EDWIN ALLEN, OF NORWICH, CONNECTICUT, ASSIGNOR TO WILLIAM G. ELY, OF SAME PLACE.

IMPROVEMENT IN MACHINES FOR CUTTING PAPER, CLOTH, &c.

Specification forming part of Letters Patent No. **186,190**, dated January 16, 1877; application filed April 19, 1876.

To all whom it may concern:

Be it known that I, EDWIN ALLEN, of Norwich, in the State of Connecticut, have invented certain Improvements in Machines for Cutting Paper, Cloth, &c., of which the following is a specification:

The object of my invention is to construct a simple, cheap, and quick-working cutting-machine, operated by a lever, and intended for miscellaneous use, for cutting paper, cloth, or other materials; and it consists in the combination, with the ordinary knife-bar suspended upon its two links, of an eccentric gear set at one end of the knife-bar, with a rack made firm upon the end of the bar, and so curved as to mesh into the eccentric gear during the whole movement of the knife.

The accompanying drawing is a front view of that part of the cutting-machine which exhibits my invention.

A represents the knife-bar, which is suspended by the links *a a* in the ordinary manner. B is the sector of an eccentric gear, which is secured firmly upon its shaft, and is operated by the hand-lever D. C is a curved rack, made in the end of the bar, and having such a curvature as to mesh into the eccentric gear through its whole movement. This gear B should be made sufficiently eccentric, so that when it has been turned back, and the knife-bar raised to its highest position, and the material to be cut having been placed under it, while the knife is cutting down the fastest, in the first part of its movement, the gear shall be working on its shortest radius; but, as the connecting-links become nearer upright, and consequently the knife descends and cuts much slower, this gear shall be working on its longest radius, and therefore the force necessary to operate this machine may be equalized throughout the whole cut of the knife.

It is evident that with this improvement a good cutting-machine for all ordinary purposes is made, which is very simple and compact, and which may be worked very rapidly.

I am aware that plain gears and pinions meshing into racks of various forms have been used by different parties, as shown in several patents, and, therefore, I do not wish to claim the use of a simple rack and pinion mechanism for operating the knife-bar; but, I do claim that several important advantages are gained by the use of my eccentric and curved rack fitting it, which I have described, for, as I have stated above, greater power is necessary to force down the knife when it first begins to cut, in consequence of the links *a a* being swung back from their lowest vertical position, so that the knife-bar, which swings about the center of the links *a a*, moves downward in a curve, which becomes tangent to the bed of the machine, when the links assume a vertical position; and, again, when the knife has been raised up, and first begins to cut, the hand-lever D must necessarily be nearly upright, in which position it is not easy for the operator to apply as much force to the lever as when it has been brought down nearer level; and, again, by this change of leverage, more travel may be given to the knife-bar, with a given amount of force at the beginning of the cut.

What I claim as my invention is—

The combination, in a hand-lever cutting-machine, of the curved rack C, made solid upon the knife-bar, swinging by the links *a a*, with the eccentric gear B, operated by the hand-lever D, substantially as herein described.

EDWIN ALLEN.

Witnesses:

WEBSTER PARK,

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