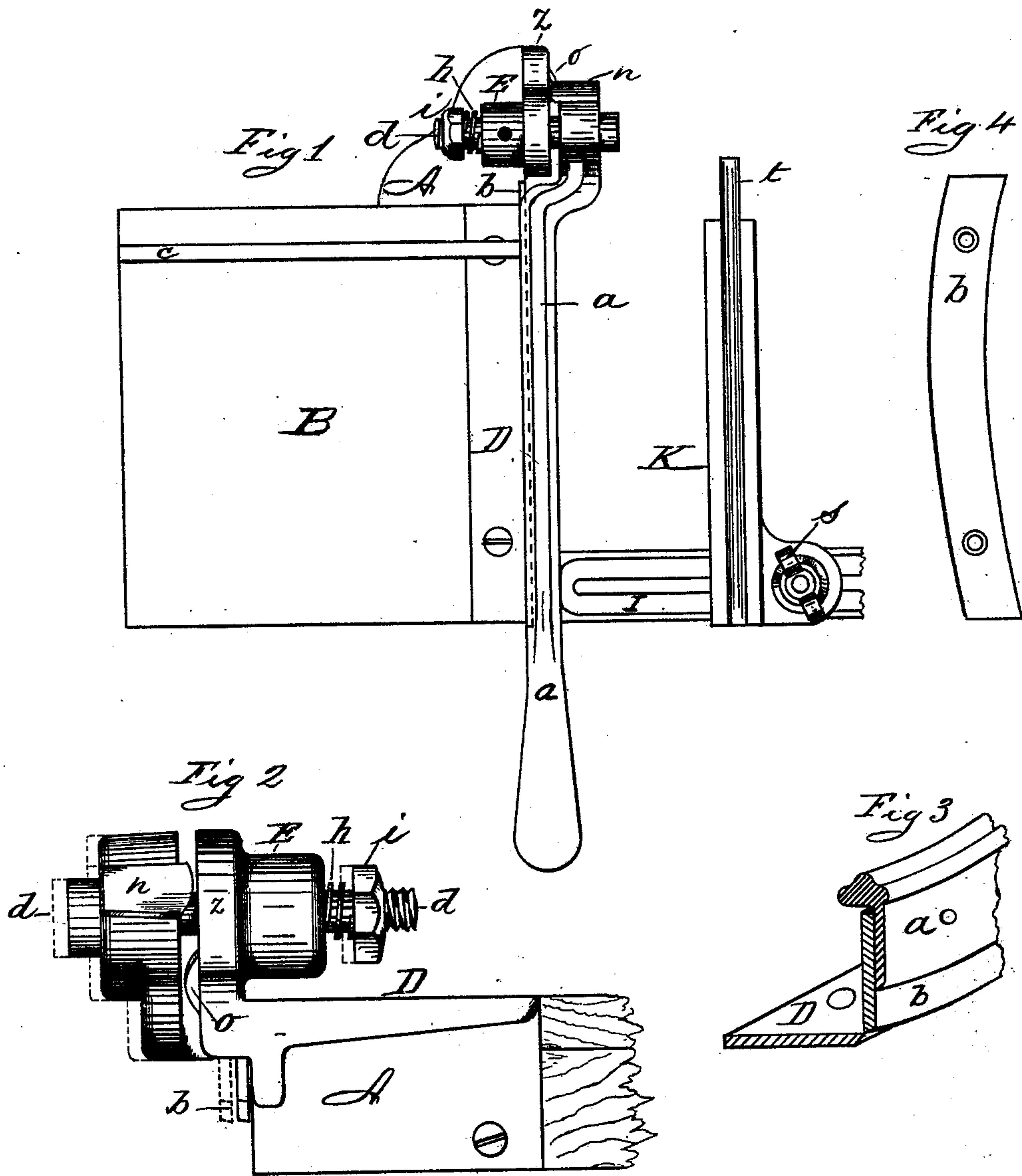


M. BRADLEY.
Paper-Cutting Machine.

No. 215,205.

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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN PAPER-CUTTING MACHINES.

Specification forming part of Letters Patent No. **215,205**, dated May 13, 1879; application filed December 16, 1878.

To all whom it may concern:

Be it known that I, MILTON BRADLEY, of Springfield, county of Hampden, and State of Massachusetts, have invented new and useful Improvements in Paper-Card Cutters, which improvements are fully set forth in the annexed specification and in the accompanying drawings.

My improvements relate to such card-cutters as are constructed with a suitable table and width-gage, and having hinged to said table a lever-cutter; and consists in a peculiar construction of the cutter-hinge, whereby the side of the latter next to the sheet of card-board being cut is set off from the line of the cutting-edges of the knives; also, in such a construction of the cutter-lever and its hinge-support as provides for a combined vertical and oblique movement as the heel of the cutter moves to or from the edge of the knife-plate on the table, and at the same time furnishes a convenient stop for holding the cutter-lever in an upright position while adjusting the card-board or the gage.

The object of my invention is to provide a card-board cutter which, though of small dimensions in itself, will be as well adapted for cutting long strips from card-board as would a much larger machine, thus meeting a want long felt by parties of moderate means for a machine that will cut strips longer than the knife of the cutter, but not of costly construction.

Cutters made for the uses for which mine is intended have heretofore been constructed with a knife long enough to cut a strip from a sheet of card-board clear across its end or side at one cut, thus making it necessary to make a knife as long as the width of the paper, and a table equally as wide; and as it is not the custom of the paper trade to furnish small sheets of card-board, persons having to cut it into cards are obliged to purchase a large and costly cutter, or get the work done by those who have such a machine. My cutter obviates this inconvenience, and presents other advantages, as hereinafter set forth.

Referring to the drawings, which consist of four figures, Figure 1 is a plan view of my cutter. Fig. 2 is a rear elevation of one corner, showing the rear end of the cutter-lever

and the cutter-lever hinge. Fig. 3 is a view of a section of a knife and cutter lever and shear-blade on the table. Fig. 4 is a view showing the shape of the knife in cutter-lever *a*.

In the drawings, A is an iron frame, extending from the back to the front side of the table, and to which the latter is secured, and on which the cutter-lever is hinged. B is the table. *c* is a gage-bar. D is the knife-plate, secured flatwise to frame A, between table B and the swinging knife. *a* is the cutter-lever. *b* is the knife, secured to lever *a*. *d* is a bolt firmly fixed in lever *a*. E is a hinge-support on frame A for lever *a*. *h* is a spring on bolt *d*, between support E and nut *i*. *n* is a cam-projection on lever *a*. *o* is a cam-projection on hinge-support E. I is a parallel guide-support secured to the under side of table B. K is a parallel gage-carriage, arranged to slide on support I, and is secured on the latter by a bolt and thumb-screw, *s*. *t* is a parallel gage, secured on carriage K.

I construct frame A with hinge-support E thereon, and of such form from rear to front as will permit of securing table B thereto, so that its upper face will be level with that portion of frame A under hinge-support E, and with the surface of knife-plate D, which is likewise secured to frame A, as shown.

Hinge-support E is cast on frame A, and is drilled out to receive freely bolt *d*, one end of which is threaded, which is firmly driven into a proper hole drilled through the rear end of lever *a*, and by it said lever is pivoted to said hinge-support. Hinge-support E projects out over a corner of the upper face of frame A parallel thereto, and from said upper face the base of said support rises vertically, and at right angles to said face, up to the under side of said support, and said vertical portion Z of said base is set off a little from the line of the cutting-edge of knife-plate D toward gage *t*. Nut *i* is screwed onto the end of said bolt, as shown in Fig. 2, but not up against hinge-support E, thus leaving a space between the latter and said nut for the reception of coiled spring *h*.

On both lever *a* and hinge-support E, I cast the cam-projections *n* and *o*. The faces of the circular portions of hinge-support E and lever *a*

surrounding bolt *d* are not permitted to come together, and partially across a space so formed between them project the said cam-projections *n* and *o*, but not opposite each other, when the two knives *b* and *D* are in juxtaposition, or in the act of cutting; but they then stand as shown in Fig. 2.

On the side of lever *a* is secured knife *b*, as shown in Figs. 1 and 3, its bottom edge beveled back in the usual form.

Gage-bar *c* is fitted into a groove in table *B* at right angles to the edge of knife-plate *D*, one end being cut away on its under side, so it may pass over the top face of knife-plate *D* up to its edge next to knife *b*.

Knife-plate *D* is secured to frame *A*, as shown in Fig. 1, with its cutting-edge parallel to the side of knife *b*, and the exposed faces of said two knives stand at right angles to each other when operating together to cut. The edge of knife *D* next to knife *b* is beveled off, as shown in Fig. 3.

Table *B* is made of wood, secured to proper under battens, and by the latter secured to frame *A*.

To table *B* and frame *A* is secured parallel gage-support *I*, cast with ways, on which parallel gage-carriage *K* is arranged to slide to and from table *B*; and said carriage, in the arm of which parallel gage *t* is secured, is retained at any desired distance from the table on support *I* by bolt and thumb-screw *s*, said bolt passing up through a slot in said support between said ways.

The operation of my cutter, when used for slitting card-board or cutting strips longer than the knife of the cutter, is as follows, viz.: I remove gage-bar *c*, adjust gage *t* through carriage *K* on support *I* at such a distance from knife *D* as the width of the strips to be cut requires, and secure it there by bolt and nut *s*, and, lifting up lever *a* and knife *b* by the projecting handles of the former, lay the sheet of card-board on table *B*, pushing one edge against gage-bar *t*, its back edge being about on a line with the groove in table *B*, in which gage-bar *c* is placed, or just forward of the meeting-point of the two knives when they begin to cut. Presuming that the above-mentioned sheet of card-board is wider than table *B*, or than from its junction with the knives when they begin to cut to the front edge of the table, it will be seen that one cut of the knives will not sever the strip from the board. Therefore, after having made one cut the operator pushes the sheet back toward hinge-support *E*. The end of the strip between the table and gage *t* drops down under the rear end of lever *a*, between the rear ends of the latter and gage *t*, and moves freely back, and the cut edge of the sheet follows the vertical portion *z* of hinge-support *E* between the latter and the flat portion of frame *A*, which side of frame *A* at that point is slightly set off from a line with the cutting-edge of the knife-plate *D*, and thus the whole sheet can freely slide back, so as to allow of successive cuts,

until the strip shall be entirely cut off, the position of hinge-support *E* relative to the cutting-line of the knives allowing the sheet of card-board to be moved back while cutting, with the slit portions of the card-board astride of the vertical portion *z* of said support.

In order to provide for an unobstructed movement of the cut end of a partly-cut strip backward between gage *t* and pivoted end of knife-lever *a*, I support gage *t* and its carriage *K* only at one end on support *I*.

When my cutter is used for cutting strips of board into cards, I place gage-bar *c* in its groove in table *B*, sliding it up against knife *b*. I then adjust gage *t* at such a distance from knife-plate *D* as will give the requisite length of cards, and placing said strip on the table by the side of the gage-bar *c*, under knife *b*, with one end against gage *t*, the cards are cut in the usual manner.

The functions of cam-projections *n* and *o* on lever *a* and hinge-support *E* are twofold—viz., the coiled spring *h* on bolt *d* operates to draw lever *a*, in which said bolt is fixed, sideways toward knife-plate *D*, and thus cause the face and cutting-edge of knife *b* on said lever to press against the upper sharp portion of the edge of plate *D*, and thus produce the requisite close contact of the cutting-edges of the two knives to make them operate to cut properly.

When lever *a* is lifted up in the act of cutting, knife *b* gradually leaves plate *D*; and when the heel or rear end of knife *b* lifts clear from plate *D*, the knife would suddenly spring over the face of plate *D*, if not prevented, and be out of position for the downward stroke of knife *b*, and, besides, the rear point of said knife and the cutting-edge of plate *D* would become injured by such unrestrained action of spring *h*. Therefore I place said cam-projections on the side parts, as shown, so that when lever *a* is elevated, as before described, causing the rear end of lever *a* and bolt *d* to rotate in hinge-support *E*, cam-projection *n* strikes projection *o* just before the heel of knife *b* rises above knife-plate *D*; and as the said two projections meet, the rear end of lever *a* is thereby moved away from support *E*, compressing spring *h*, and carrying said lever and knife *b* out to the dotted line at the left of Fig. 2, giving the heel of knife *b*, at this point in the upward course of the knife, an upwardly-oblique motion from the edge of plate *D*; and when the knife *b* descends it is carried with a reverse motion against the edge of plate *D*, guided by said cam-projections, so that the heel of knife *b* is moved downward and sidewise against the edge of plate *D* before it commences its cutting-stroke. A second function of said cam-projections is to hold lever *a* in an upright position, or nearly so, by turning projection *n* around under projection *o*, when spring *h*, drawing lever *a* toward hinge-support *E*, thus retains said lever in a lifted position.

What I claim as my invention is—

1. The combination, in a card-cutter, of the stationary knife D, pivoted knife *a*, and appliances, substantially as described, whereby the heel of the knife *a* is carried outward as the knife is raised, substantially as described.

2. The combination, with lever *a*, having thereon cam-projection *n*, of bolt *d*, spring *h*, and hinge-support E, having thereon cam-projection *o*, substantially as and for the purpose set forth.

3. The combination, in a paper-cutter, of the stationary knife D and a movable knife, *a*, pivoted to the standard or bracket at one side of the plane of the cutting-edges, thereby leaving said plane unobstructed, substantially as and for the purpose set forth.

MILTON BRADLEY.

In presence of—

H. A. CHAPIN,

J. A. BOLEN.