

(No Model.)

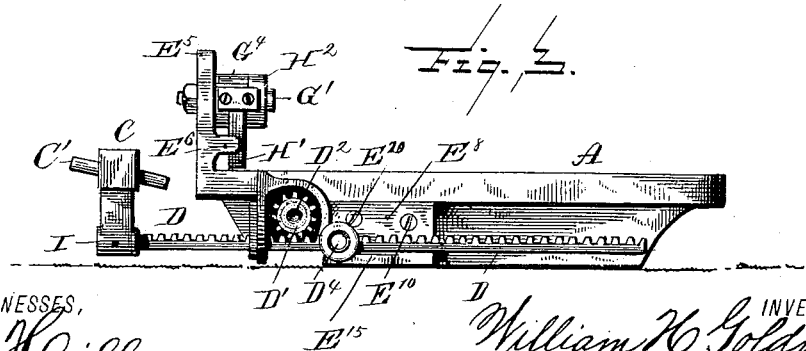
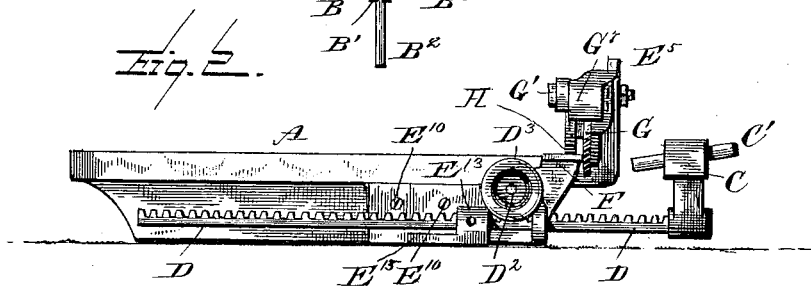
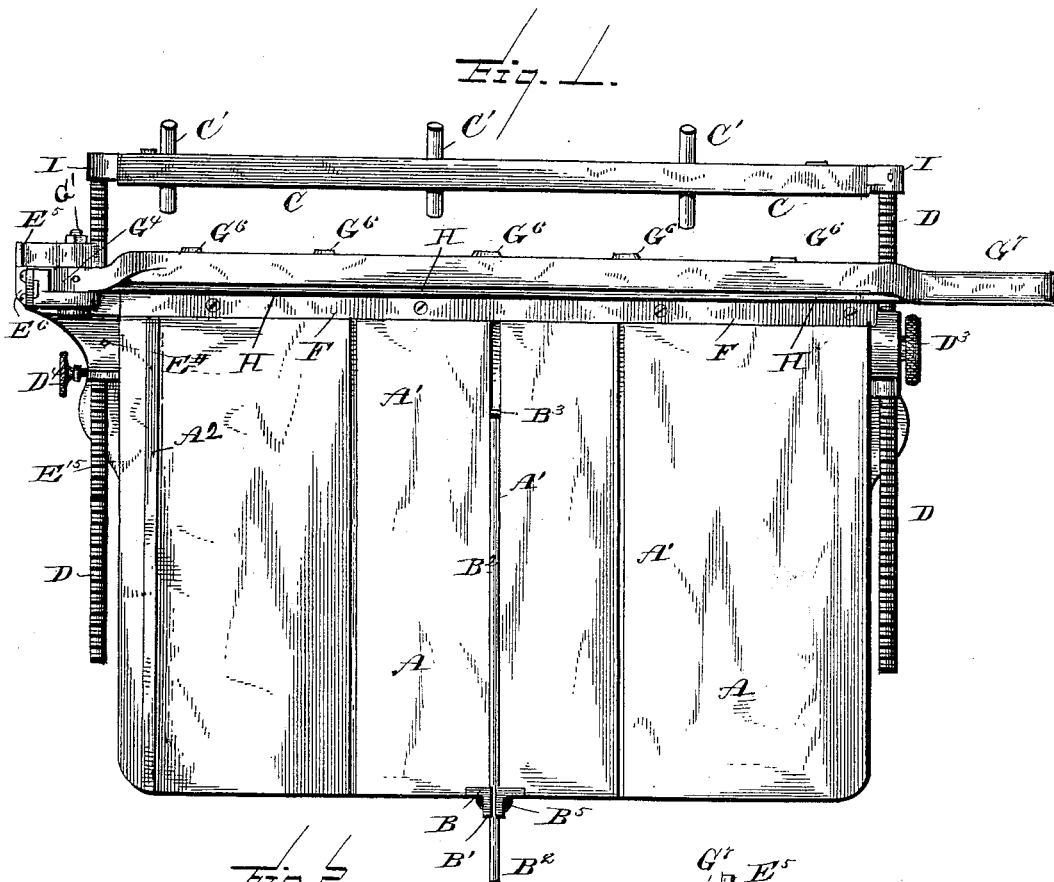
2 Sheets—Sheet 1

W. H. GOLDING.

PAPER CUTTER.

No. 385,803.

Patented July 10, 1888.



WITNESSES,
J. C. Hills,
W. A. Durall.

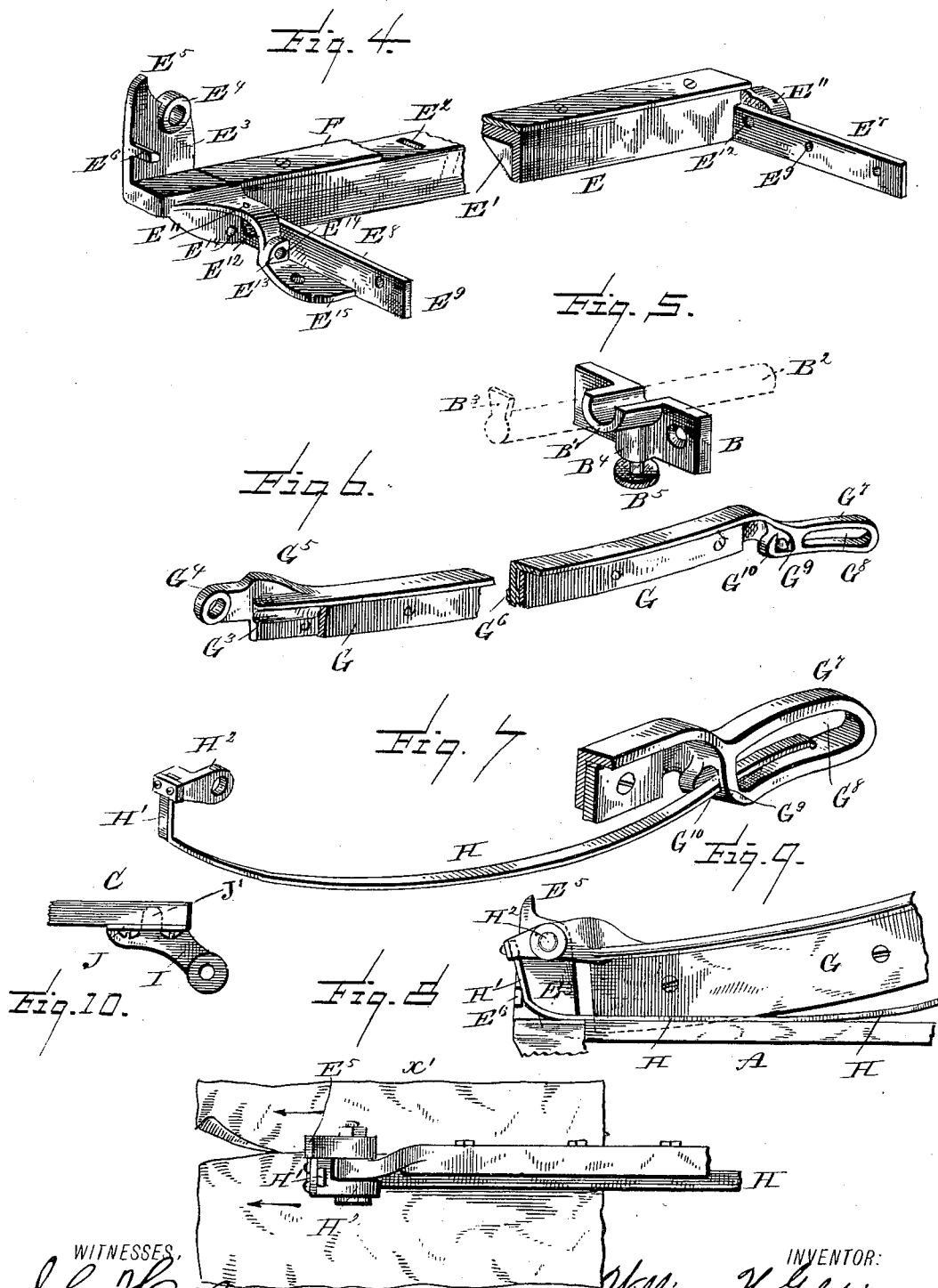
INVENTOR:
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UNITED STATES PATENT OFFICE.

WILLIAM H. GOLDING, OF BOSTON, MASSACHUSETTS.

PAPER-CUTTER.

SPECIFICATION forming part of Letters Patent No. 335,803, dated July 10, 1888.

Application filed December 4, 1886. Renewed December 15, 1887. Serial No. 357,955. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. GOLDING, a citizen of the United States, residing at Boston, in the county of Suffolk, State of Massachusetts, have invented certain new and useful Improvements in Paper-Cutters, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to paper-cutters of that class known as "card-cutters," and to that particular form of card-cutters which embody a pivoted blade, a coacting fixed blade, and a front gage, all arranged parallel with
15 and operatively connected to a bed provided with a side gage; and among the objects of the invention are to reduce the number of parts, the cost of manufacture, and the liability to get out of repair, and to increase the capacity
20 of the machine and the facility with which it can be used.

Other objects and advantages will appear in the following description, and the novel features of the invention will be particularly
25 pointed out in the claims.

Referring to the drawings, Figure 1 is a plan of a card-cutter constructed in accordance with my invention. Fig. 2 is a right and Fig. 3 a
30 left elevation of the same. Figs. 4 to 10 are details, hereinafter described.

Like letters indicate like parts in all the figures of the drawings.

A represents the bed or table of the machine, which may be constructed of wood or
35 iron, and which is provided with grooves A', extending from the rear to the front edge thereof, which grooves are intended for the reception of a strip, A², of wood or other material, which shall serve as a side guide by projecting above the upper surface of the bed or
40 table, and also for the reception of the gage-rod, hereinafter described, when inserted in a groove therein.

It is of course understood that the grooves
45 A' are arranged each at a right angle to the front edge of the table, so that after the first cut, strips having parallel edges may be cut from a sheet. Several grooves A' are provided, in order that a side guide may be placed
50 so as to bring narrow sheets nearer the free end of the knife, whereby shorter movements

thereof will be required to permit the insertion for cutting of paper between it and the fixed blade. At the rear edge of the bed or table I secure a casting, B, (see Figs. 1 and 5,) 55 which consists of a plate having formed thereon a grooved bracket, B', adapted to receive a cylindrical rod, B², having a lug, B³, projecting therefrom, and a screw-threaded lug, B⁴, for the reception of a set-screw, B⁵, the lug
60 being arranged with relation to the bracket so that the set-screw may be run into the bracket, so as to bear upon the rod B², whereby the latter may be forcibly held against longitudinal movement in the bracket, so that
65 the lug B³ of the rod may be adjustably held at a desired distance from the knife, and so that, also, said rod may be so adjustably held with the end thereof having the lug extended beyond the rear edge of the bed or table, as
70 indicated by dotted lines in Fig. 5.

It is understood that the rod, when used with the lug in front of the casting B, as well as in rear thereof, is arranged within one of the grooves A' of the bed or table. The lug
75 of the rod serves as a rear guide, and is used when making a continuous cut or series of cuts in material which is longer than the cutting devices employed in the machine, which purpose and object the machine is adapted to
80 accomplish by certain features of construction hereinafter described.

C represents the front gage, and it comprises the well-known bar arranged parallel with the knife and provided with inclined pegs C' and
85 supported in this instance by rack-bars D, operated by pinions D', (see Fig. 3,) mounted upon a shaft, D², extending under the bed and from one end to the other thereof. The pegs
90 C' are inclined to a point below the plane of the fixed knife, so as to reach under and guide the leading edge of a sheet, which naturally sags below said plane, to a line along the front gage, which is in the said plane, and thus render the measurements of the gage more accu-
95 rate.

Outside of one of the pinions there is mounted upon the end of the shaft D² a hand-wheel, D³, which serves the purpose of operating the pinions, whereby the rack-bars are moved forward and backward uniformly, so as to preserve parallelism between the knife and the

front guide. A set-screw, D', serves to retain the front guide in an adjusted position. The rack-bars are preferably formed of cylindrical rods, as bearings for the same can be provided at a minimum expense, and at the same time such bearings may be more accurately aligned parallel with each other, as will hereinafter more fully appear.

One of the important features of construction which I have devised is what I may term the "bed-plate" of the machine, and its importance rests in the facts that although it is but a single casting it serves several purposes and performs several important functions. This bed-plate is represented detached and in perspective in Fig. 4, in which figure also it is represented as broken transversely for convenience of illustrating certain features of its construction. Opposite ends of the same casting are shown in Figs. 2 and 3. The bed-plate E comprises a main bar extending from one end of the machine to the other, and is of angular form in cross-section and strengthened by brackets E', (one only of which is shown,) and is slotted through its upper surface or flange, as at E', for the adjustable attachment thereupon of the fixed blade F. At one end there is a standard, E', having a boss, E', through which the pivot G' of the movable blade G passes. The standard E' is also provided with a projection or stop E', which is arranged back of the boss E' and serves to retain the knife G in an elevated position. A lug, E', projects from the side of the standard E', for a purpose hereinafter specified.

At each end of the bed-plate there is formed a rearwardly-extending arm, E' and E', the latter being at the same end as the standard E'. Each of the arms is shaped interiorly, as at E', to form a plain surface at a right angle to the rear surface of the main portion of the bed-plate, so that when the bed or table A is completed with square ends and with a front edge at right angles thereto it may be placed within the arms E' and E' and against the rear surface of the bed-plate and secured in such position by means of screws or bolts E', passing through perforations in the arms of the bed-plate.

On the arms are formed housings E' for the pinions D', and through the housings and arms are bored bearings E' for the shaft on which the pinions are mounted. In rear of the housings are vertical lugs E', which, together with the vertical flange of the angular main portion of the bed-plate, are bored, as at E', to form bearings for the rack-bars D, and in rear of the lugs E' there are extended from the arms horizontal flanges E', which are bored vertically for the passage of bolts or screws to be used, if desired, to firmly secure the entire cutter to a bench, table, or other support. This bed-plate, though formed as a single casting, is of such a conformation as to be readily fitted and finished for use, and that almost entirely by machine-tools, in contradistinction to hand

labor. The position of the standard being at the front edge of the horizontal flange permits said flange to be planed by machinery to form a true bed for the fixed knife F, and with any ordinary drilling-machine the bearings E' and E' for the shaft and the rack-bar, respectively, may be formed in true alignment with each other. Among the important functions performed by this single casting are that it contains the bearings of several of those portions of a card-cutter which necessity requires to be strictly parallel with each other in their movements. The advantage of securing such parallelism by mounting all the movable parts in or upon a single casting is apparent, and one of the important features of my invention is a bed-plate formed in a single piece and of such configuration as to serve the several functions required.

The movable knife comprises, besides the usual steel blade, G, a handle or lever, G', which also is an embodiment of novel features of my invention. The handle or lever is a single casting having a vertical and a horizontal flange, the former being cast with a groove, G', running the entire length of the blade carrying portion thereof. At one end the lever terminates in a boss, G', which is perforated to fit the pivot bolt G'. The face of the boss E' of the bed-plate is finished off in line with the front edge of the fixed blade, and the boss G' of the lever is thrown to the rear by a curve, G', so that when finished its front face is also substantially in line with the front edge of the fixed knife, or so near thereto that when the knife G is secured to the lever the two knives operate to produce a shearing cut. On the side opposite the groove G' the lever G has formed thereon slight projections G', and at the end opposite the boss G' there is formed a hand-grip, G', which has a slot or opening, G', extending from near one end to near the other of the grip on one side and crossed by a bar, G', on the other side near one end. An opening, G', is formed near the bar, which opening communicates with the slot G', for a purpose hereinafter specified.

The object of the projections G' and the groove G' is to facilitate finishing the lever for its pivotal attachment to the standard E' of the bed-plate and for the attachment of the blade G to the lever. The casting, being comparatively long and slender, is strengthened by its angular form, and by first planing the projections G' a surface for support for further fitting is secured, and that without removing material all along the surface of the lever at which the projections are formed. This supporting surface having been secured, only the portion outside of the groove G' requires to be planed to form a surface for the knife G. The faces of the boss G' are also planed or otherwise finished with regard to a proper alignment with the surface upon which the fixed blade G is secured, so that when mounted upon a pivot the movable blade works true and

square with regard to the fixed blade of the cutter.

In cutting sheets into cards after all care has been exercised in properly aligning the movable and the fixed blades with each other, there is yet a tendency in the movable blade to spring or to be forced away from a shearing contact with the fixed blade by the action of the material being cut. This tendency is increased when the material is allowed to spring or curve upwardly and away from the fixed blade near its edge. To prevent any action of the material like that mentioned, as well as to supply a device for compressing several sheets of material snugly upon the fixed blade during the operation of cutting, is another important object of my invention, which also involves novel features thereof.

H represents a spring-compressor, which I arrange in connection with the movable blade in such a manner as to perform the functions indicated—that is to say, to prevent upward curvature of the material and to compress several sheets being cut, and this by a peculiar mode of operation, in that the compressing function precedes the cutting action of the blade as it progresses, and is automatically terminated in the act of lifting the knife for a new cut. The spring H terminates at one end in an angular projection, H', which is secured to a bracket, H², pivotally mounted on the bolt G'. The projection H' abuts (when the free end of the knife is down) against the lateral lug E⁶ of the standard E³, thereby preventing a pivotal action of the bracket H² at a time slightly before the knives begin to cut. A freedom of movement on the bolt G' of the bracket which carries the projection H' away from the lug E⁶ permits a movement of the spring H bodily with the handle or movable knife. The free end of the spring H is passed through the opening G¹⁰ and into the slot G⁸ of the grip, and said free end reciprocates within said slot during successive elevations and depressions of the handle or lever. In this manner the spring is raised and lowered with the lever, but lowered in advance of the blade and raised following the blade, so that its compressing action takes effect before the cutting and ceases after the same by reason of the greater curvature given to the spring as compared with that of the cutting edge of the movable knife.

Another important capability of a paper-cutter constructed in accordance with my invention is that of cutting material longer than the blade into continuous strips. This is accomplished by setting the standard at the front edge of the bed-plate instead of directly thereon and by placing no obstruction upon the bed-plate at the end where the blade is pivoted.

By reference to Fig. 8, X represents a sheet of paper from which a strip, X', is being cut, the main body of the sheet—that is, the front edge thereof—passing beneath the pivot and along

the bed-plate beyond the pivot, while the strip X' passes beneath the standard E³, as shown, and in the direction indicated by the arrows. It will be seen that successive cuts may be made, so as to cut material of indefinite length. In this operation the reversible back gage may be employed to determine widths of strips greater than can be indicated by the front gage of the cutter, in that the length of the rack-bars D are preferably limited to the width of the bed or table A of the cutter. In this operation the front gage, C, is not employed as a gage, though it may serve to hold up the sheet or web when it projects beyond the gage. The lug B³ in the position shown in Fig. 1 serves to prevent the sheet or web from creeping away from the front gage.

Fig. 10 is a detail in elevation of a portion of the front gage and of a casting, I, which is perforated for the reception of a rack-bar, D, and provided with a horizontal flange, J, through which screws are passed upwardly into the wooden bar or gage proper, C. A vertical flange, J', on the face of the gage is shown by dotted line. This connection of the gage with the rack-bars aids materially in preserving the parallelism required, and is far preferable to and more serviceable than the direct connection of a wooden gage to metal rack-bars.

I do not limit myself to the use or employment of all of the novel features of my invention in a single paper-cutter, as it is evident that one or more of them may be employed in connection with other features of construction than the remaining novel parts herein disclosed. For example, my bed-plate may be used in connection with other front or rear guides, and my compressing-spring or yielding automatic compressor may be employed in connection with another bed-plate or knife than those herein shown, and I may vary the details of construction of the several parts in any manner and to any extent within the skill of persons conversant with the construction of machines of this class.

Having described my invention and its operation, what I claim is—

1. In a paper-cutter, a bed-plate carrying a fixed knife and having a standard arranged substantially in line with the cutting-edge of said fixed knife, and provided with a lateral lug, in combination with a movable knife, and with a spring-compressor pivoted to said standard, substantially as specified.

2. In a paper-cutter, a bed-plate carrying a fixed knife and a standard provided with a lateral lug, in combination with a movable knife and a bracket pivoted to the standard, and with a spring-compressor secured to the pivoted bracket and having its free end loosely connected with the handle of the movable knife, substantially as specified.

3. The combination, with the movable blade of a paper-cutter, of a bracket loosely mounted on the pivot of the blade, and a spring attached

to the free end of the bracket and loosely connected with the free end of the movable blade, substantially as specified.

4. In a paper-cutter, the combination, with
5 a bed-plate carrying a fixed knife and having
a standard arranged with the side thereof substantially in line with the cutting-edge of said
fixed knife, of a movable blade secured to a
handle or lever curved at its pivoted end to
10 bear against the side of the standard, a bracket
mounted on the pivot of the movable blade,
and a spring secured to the bracket and extending parallel with the movable blade and
along over the fixed blade, substantially as
15 specified.

5. A movable blade having a slotted hand-grip and an opening communicating with the slot of the grip, in combination with a spring arranged parallel with the blade and with its
20 free end arranged within the slot of the grip, substantially as specified.

6. In a paper-cutter, a reversible rear gage

consisting of a cylindrical rod having a lug, and of a casting provided with a rod-receiving bracket, and an intersecting screw-threaded
25 lug and a set-screw mounted therein, substantially as specified.

7. The combination, with the grooved table, of the reversible rear gage, and devices, substantially as described, for securing the same
30 in an adjusted position, substantially as specified.

8. The combination of the front gage, C, having the inclined pegs C', with the rack-bars D, table A, and devices for securing the bars
35 in an adjusted position, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM H. GOLDING.

Witnesses:

MARY L. CUSHING,
WILLIAM G. EVERT.