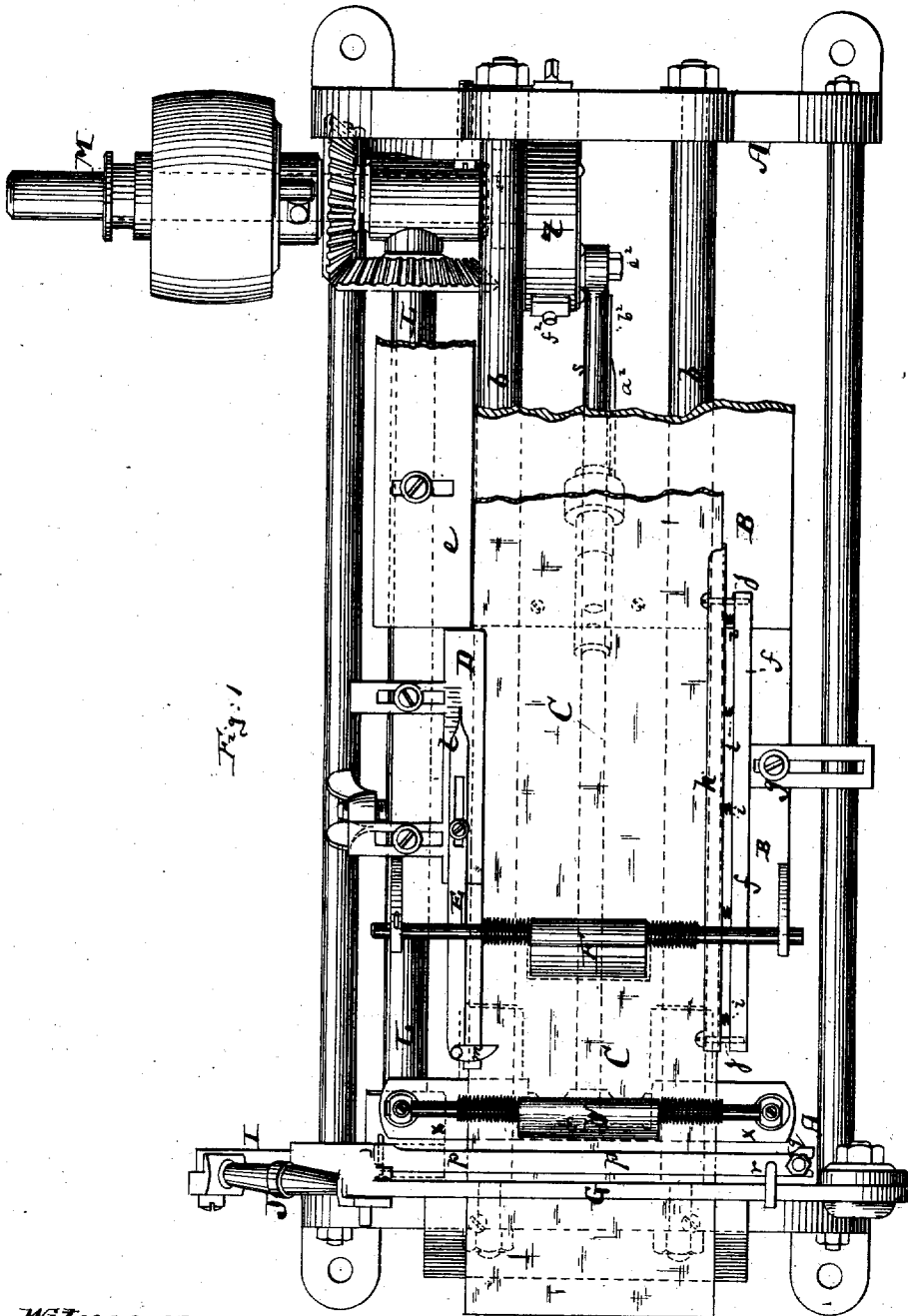


(No Model.)

3 Sheets—Sheet 1.

P. HAKE.
Card Board Cutting Machine.
No. 243,068. Patented June 21, 1881.



Witnesses.
Henry R. Parker.
John C. Turnbridge.

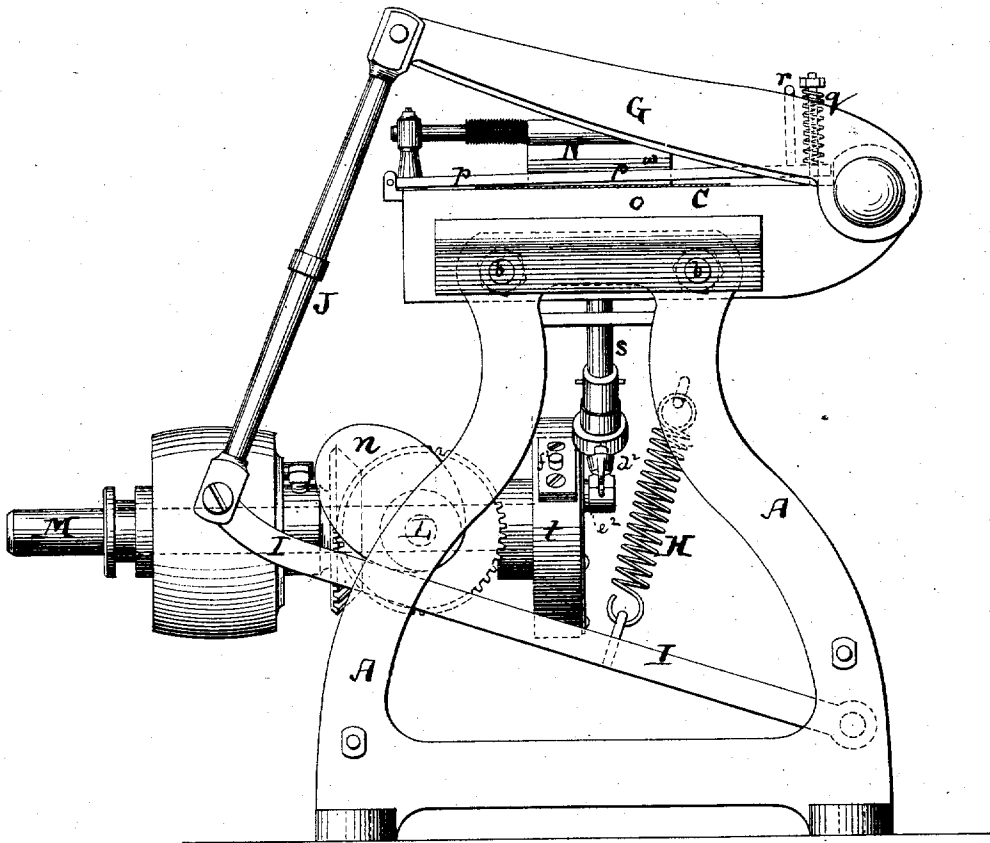
Inventor.
Philipp Hake
by his attorney
A. B. Briesen

(No Model.)

3 Sheets—Sheet 2.

P. HAKE.
Card Board Cutting Machine.
No. 243,068. Patented June 21, 1881.

Fig: 2



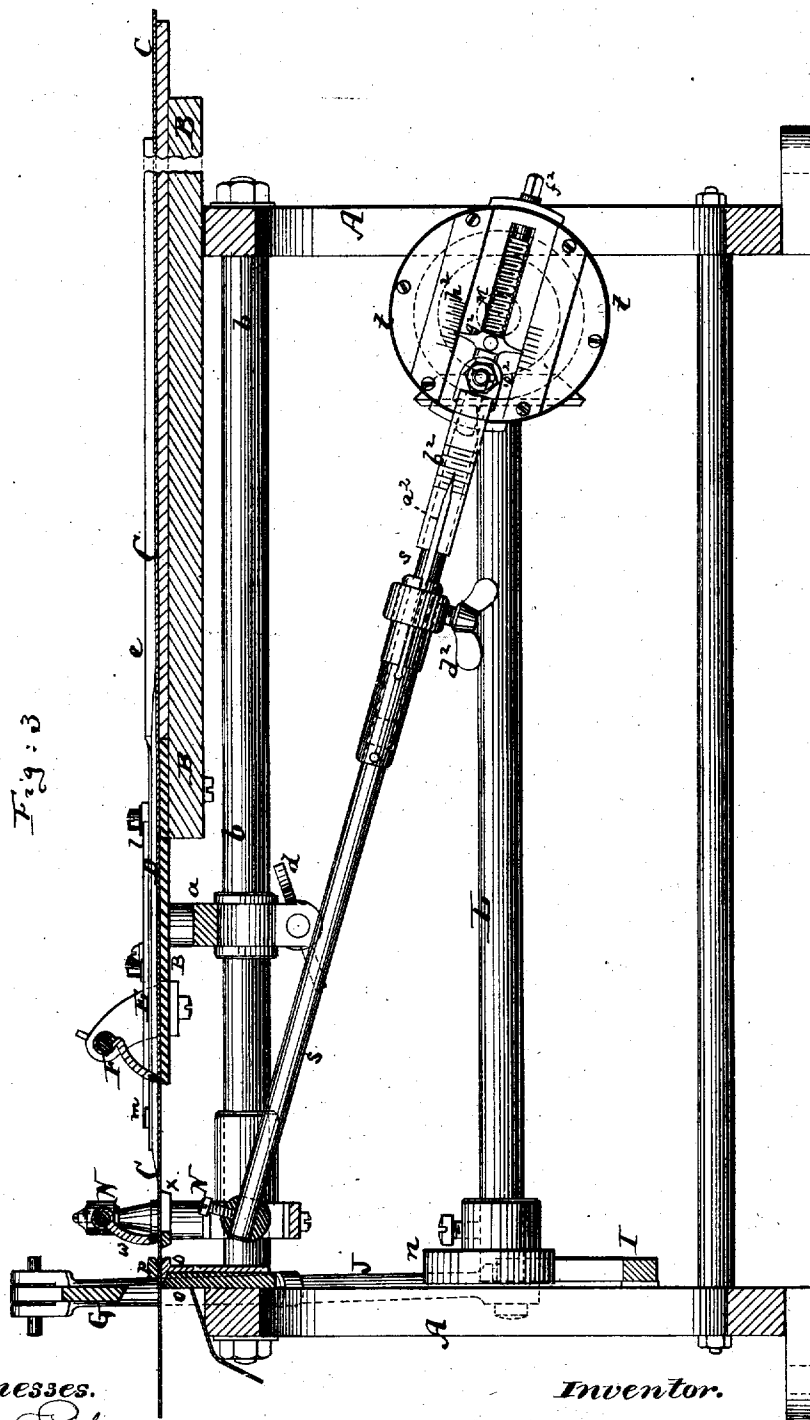
Witnesses.
Henry R. Parker.
John C. Tunbridge.

Inventor.
Philip Hake
by his attorney
A. Briesen

(No Model.)

3 Sheets—Sheet 3.

P. HAKE.
Card Board Cutting Machine.
No. 243,068.
Patented June 21, 1881.



Witnesses.
Henry F. Parker.
John C. Turnbridge

Inventor.
Philip Hake
by his attorney
A. Briesen

UNITED STATES PATENT OFFICE.

PHILIPP HAKE, OF HOBOKEN, NEW JERSEY.

CARD-BOARD-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 243,068, dated June 21, 1881.

Application filed January 29, 1881. (No model.)

To all whom it may concern :

Be it known that I, PHILIPP HAKE, of the city of Hoboken, county of Hudson, and State of New Jersey, have invented an Improved Card-Cutting Machine, of which the following is a specification.

Figure 1 is a plan or top view of my improved card-cutting machine. Fig. 2 is an end view of the same, and Fig. 3 is a longitudinal vertical section thereof.

This invention relates to a new machine for cutting visiting-cards and the like from strips of bristol-board or card-board, and has for its object to make the feeding of the paper and the actuating of all the mechanism as nearly automatic as possible, also to insure the cutting of the cards at the proper places, and to prevent unnecessary waste.

The boards from which cards are usually cut come from the mills in certain lengths, and are then cut up into strips, each strip having the length of the card-board. In cutting from the strip cards of certain sizes there is always a little waste. There is more or less waste, according to the different sizes of the cards cut from the strip; and one feature of my invention consists in the employment of a gage, which is adjustable, and by means of which the necessary waste and no more is cut from the strip, whereas without such a gage much greater waste is frequently occasioned.

My invention consists, also, in new mechanism for feeding the strip of card-board, in new adjusting mechanism for regulating the stroke of the feeding mechanism, and in the new combination of all the parts with each other, all as hereinafter more fully described.

In the accompanying drawings, the letter A represents the frame of my machine. This frame supports a table, B, upon which the strip of card-board to be cut into cards is placed. The table B may be rigidly fastened upon the frame A; but I prefer to make it adjustable lengthwise, so as to regulate its position in accordance with the length of card to be cut; and to this end the table is provided with downwardly-projecting loops *a*, which embrace longitudinal horizontal rails *b* of the frame A, and which can be clamped fast each by means of a suitable set-screw, *d*. The table A, which is shown in top view in Fig. 1, has on one side,

on top, a guiding gage-piece, *e*, which can be laterally adjusted, and opposite the outer part of the same, also on top, another laterally-adjustable gage-piece, *f*. The gage *f*, which can be set at the proper distance from the gage *e* by means of a set-screw, *g*, has a spring face-piece, *h*, which is the gage proper for the strip C of card-board. This face-piece *h* is grooved, by preference, to receive the edge of the strip C, and is held against the strip by little springs *i*, which will yield in case the strip C should not be of equal width throughout, and still hold the gage parallel to the edge of the sheet and opposite gage; for it frequently happens that in machinery for cutting the card-board into strips the latter are not made with precisely straight edges, and to guard against interruption of the work in case of a slight unevenness of edge this spring-gage *h* has been devised. It slides on pins *j*, that project from the main bar *f* of said gage.

Directly opposite to the inner part of the gage *f* is another laterally-adjustable grooved gage, D, which carries on its face the longitudinally-adjustable gage-piece E. The gage-piece E has pointer portion *l*, which can be moved over a scale on the gage D, as shown in Fig. 1. The outer end of the gage E has a hook or marked portion, *m*, which, by its position, determines the extent of the first introduction of the strip to be cut into cards in the machine. In other words, when the strip is first introduced its outer or front edge or end is brought in line with the marked portion *m* of the longitudinally-adjustable gage E, the said gage being first set with reference to the scale, so as to be in a position which will allow that strip of particular length to be most profitably divided into cards of the desired extent without causing any more waste than is absolutely necessary—that is to say, without causing any single card to be wasted in the strip. The table B also carries a spring-clamp, F, which presses upon the strip C, allowing it to be moved forward or pulled outward toward the knife, but preventing it from being pulled backward.

The front end of the machine carries the swinging knife G, which is held up by means of a powerful spring, H, that connects with a rod, I, which is joined by a link, J, to the knife

G, as clearly shown in Fig. 2. At the proper period a cam, *n*, on a shaft, L, pressing upon the rod I, causes the knife to descend and to cut a card off the strip C of card-board. The knife G moves along a plate, *o*, which is rigid on the frame A, and, together with said knife, constitutes a species of shears by which the card is cut; but above the transverse plate *o* is a cross-bar, *p*, which, with *o*, constitutes the front clamp for the strip. This cross-bar *p*, whenever the knife is down, is pressed down upon the strip C by means of a spring, *q*, of less power than the spring H; but when the knife G is raised, as in Fig. 2, its blade strikes a projecting hook, *r*, of the cross-bar *p*, and lifts the cross-bar, so as to release the front end of the strip C and allow it to be fed forward while the knife is up. As soon as the knife descends and moves away from the hook *r* the spring *q* reasserts its power and presses the bar *p* tightly upon the strip C, so as to render the latter immovable during the actual process of cutting.

Between the parts just described—that is to say, between the clamp *o p* and the front end of the table—is the sliding feed-piece N, which is a slide carried on the rods *b* by means of a pitman, *s*, and crank-wheel *t*. The wheel *t* is attached to a shaft, M, to which rotary motion is imparted by suitable mechanism, and which also gears into the shaft L, that has been heretofore mentioned. As the shaft M is revolved, and with it the wheel *t*, the pitman *s* moves the slide N back and forth on the rails *b*. The slide N carries a spring-clamp, *w*, above a supporting-plate, *x*, as shown. When the slide N is moved backward toward the table this clamp *w* is loose on the strip C, which passes between it and the plate *x*; but when it is moved forward toward the knife it takes hold of the strip C and moves it along through the then open clamp *o p*. When the feed-piece N, with its clamp, reaches the clamp *o p*, which is the extreme forward position of N, the knife descends, allows the clamp *o p* to close, and detaches the card. The clamp-feed N now moves backward loose on the strip C, while the clamp *o p* holds the strip fast until the backward stroke of the feed-piece N has been reached, when the knife reascends and opens the clamp *o p*, allowing the next forward stroke of the feed-piece N to move another given portion of the strip C through the clamp *o p*, &c. It will thus be seen that the feed-piece N, by moving from the clamp F, with which it may come into almost positive contact, to the clamp *o p*, with which it may also come into almost positive contact, is enabled to feed the very last remnant of the strip C to the cutting apparatus. If desired, the clamp F may be omitted; but in this case the mechanism for moving the slide N and for raising the knife G should be so carefully gaged that the clamp *o p* will not be opened until the full backward stroke of the feed-piece N has been attained, whereas with the additional clamp F the strip C will be pre-

vented from moving backward, even if the clamp *o p* should be open during part of the backward stroke of the feed-piece. The position of the feed-piece during the throw, which is controlled by the crank, can be regulated by making the pitman or rod *s* extensible—i. e., in two parts, as shown—and allowing it to be lengthened or shortened at will. To this end, for actual use, I also prefer to apply a pointer, *a*², to one portion and a scale, *b*², to the other portion of this extensible rod *s*, as indicated in Fig. 3, so that the requisite length of rod can be instantly found by reference to the scale for any given size of card. A set-screw, *d*², serves to clamp the two parts of the rod *s* together in the desired position. For regulating the stroke of the feed-piece the crank *e*² of the wheel *t* is adjustable in a slot of said wheel, the crank-pin being attached to a nut, which can be controlled by means of a screw, *f*². By turning this screw the crank-pin is set nearer to or farther away from the center of the wheel *t*, and the degree of stroke consequently regulated; and here, also, I prefer to form a pointer on the adjustable crank-piece, as shown at *g*² in Fig. 3, and cause the same to move over a scale, *h*², which is attached to the wheel *t*.

For operation the gages *e*, *f*, and D are first set according to the width of the strip to be cut, and the strip is then introduced into the machine until its front end is in line with the marked portion *m* of the adjustable gage E, said gage E having first been properly set with reference to the length of the strip and to the size of cards to be cut therefrom. The machine is then set in operation, and the first piece detached will be part of the waste piece necessarily lost from the strip, and from that time on the strip will be divided into cards of the given size, one just like the other, the last piece cut being again a waste piece, so that each card is cut by the machine on two of its sides. Whenever a change of size in the length of strip to be cut or of card to be made therefrom is occasioned, the parts are first adjusted correspondingly. Thus from a strip measuring twenty-two inches in length can be cut eleven cards, each measuring one and seven-eighths, leaving a waste of one and three-eighths inch for each strip.

I claim—

1. In a machine for cutting cards, the longitudinally-adjustable table B, which is stationary when the machine is in operation, combined with the reciprocating feed-piece N, having clamp *w*, and traveling in front of the table, and with the knife G, substantially as described.

2. The knife G, combined with the rod J, lever I, spring H, and with the clamp *o p*, weaker spring *q*, and projection *r*, and with operating-shaft L and cam *n*, all arranged so that the knife G is moved in one direction by the cam, and in the opposite direction by the spring H, substantially as specified.

3. The combination, in a machine for cutting cards, of the clamp F on immovable table B,

with the reciprocating feed-piece N, having clamp *w*, and traveling in front of the table, and with the knife G, substantially as and for the purpose specified.

5 4. In a machine for cutting cards, the combination of the clamp F on table B, with the reciprocating clamp *w*, traveling in front of the table, front clamp, *o p*, and with the knife G, which is in front of clamp *o p*, substantially
10 as specified.

5 5. The adjustable crank *e*², in combination with the longitudinally-adjustable rod *s* and horizontally-reciprocating feed N, for regulating the stroke and the position of said feed N,
15 substantially as herein shown and described.

6. In a machine for cutting cards, having reciprocating feed-piece N and knife G, the longitudinally-adjustable gage E, arranged on the table or frame, but not on the feed-piece of the
20 machine, for the purpose of determining the extent to which the sheet is to be placed nearer

to or farther from the knife when it is first placed on the machine, and regulating the waste to be cut off the sheet, substantially as specified.

7. The combination of the table B with the 25 gage D on one side and with the double spring-gage *f h* on the other side, the springs *i* being placed between the parts *f* and *h*, substantially as herein shown and described.

8. The combination of the laterally-adjust- 30 able gage D with the longitudinally-adjustable gage E, and with the pointer *l* and scale, substantially as and for the purpose stated.

9. The combination of the gage E and table B with the blank-feed N, extensible operating- 35 rod *s*, and with the adjustable pointer *a*² on said extensible rod, for the purpose substantially as herein shown and described.

PH. HAKE.

Witnesses:

WILLIAM H. C. SMITH,
WILLY G. E. SCHULTZ.