(No Model.) 2 Sheets—Sheet 1.

C. A. WRIGHT.

MACHINE FOR CUTTING THE EDGES OF CARDS.

No. 454,554. Patented June 23, 1891.

FIG. 2

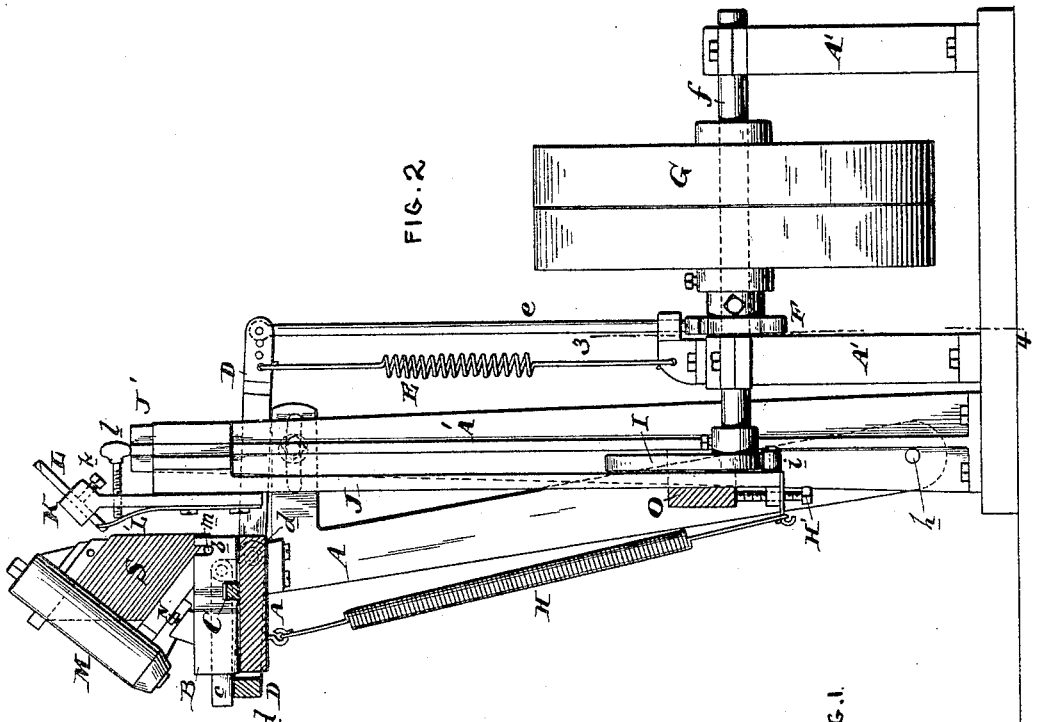
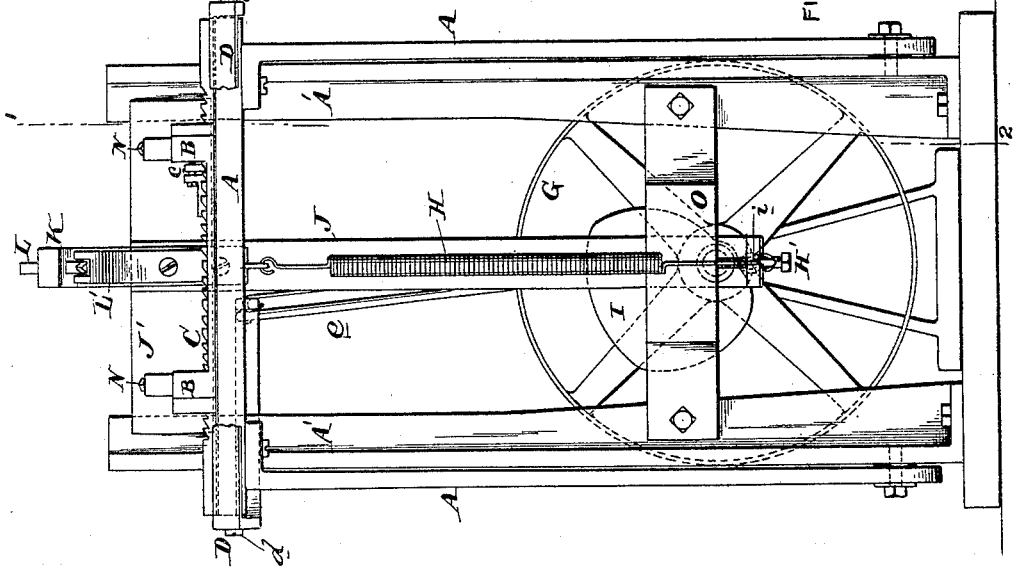


FIG. 1.



Witnesses:
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Inventor:
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By his atty
[illegible]

(No Model.) 2 Sheets—Sheet 2

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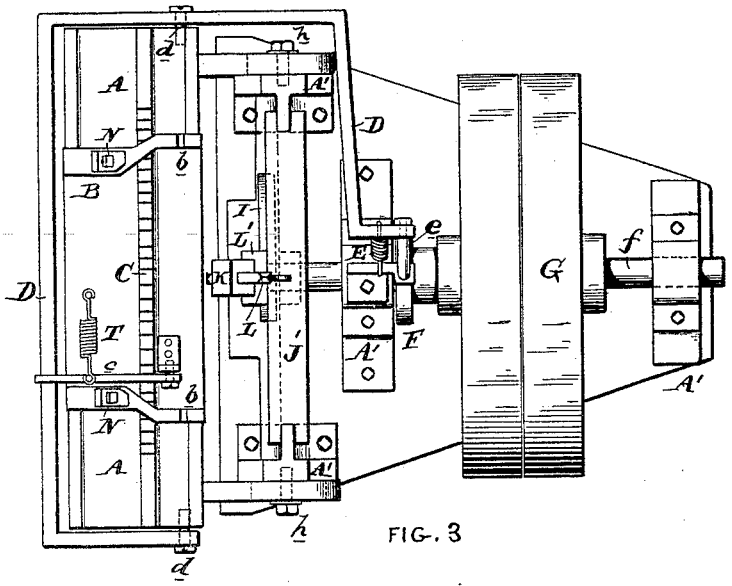

FIG. 3

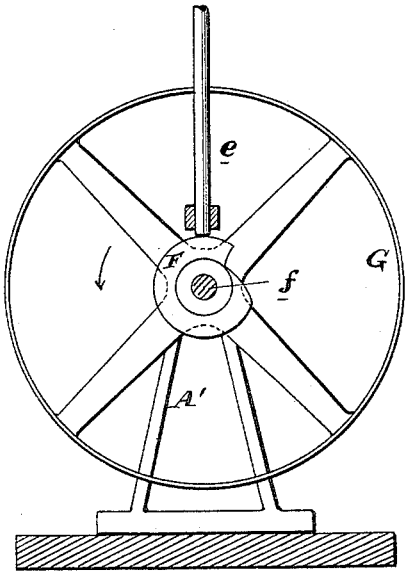

FIG. 4

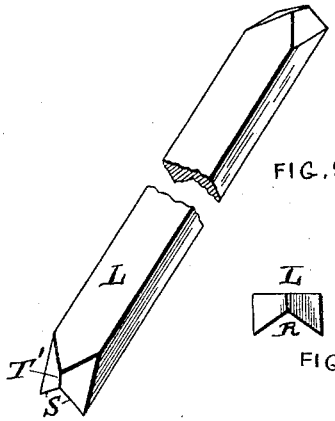

FIG. 5

FIG. 6

FIG. 7

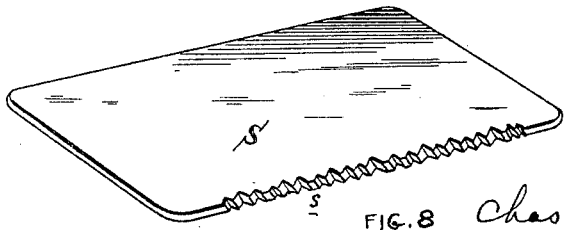

FIG. 8

Witnesses:
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UNITED STATES PATENT OFFICE.

CHARLES A. WRIGHT, OF PHILADELPHIA, PENNSYLVANIA.

MACHINE FOR CUTTING THE EDGES OF CARDS.

SPECIFICATION forming part of Letters Patent No. 454,554, dated June 23, 1891.

Application filed February 25, 1891. Serial No. 382,826. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. WRIGHT, of the city and county of Philadelphia, and State of Pennsylvania, have invented an Improvement in Machines for Cutting the Edges of Cards, of which the following is a specification.

My invention has reference to machines for cutting the edges of cards; and it consists of certain improvements, which are fully set forth in the following specification, and shown in the accompanying drawings, which form a part thereof.

In certain kind of cards for photography and other purposes wherein pictures or printed matter are secured or impressed thereon the edges of the cards have been beveled and serrated and subsequently gilded.

The object of my invention is to provide mechanical devices for properly and positively serrating the edges of the beveled-edge cards, and while it is not absolutely necessary that the cards to be serrated shall have beveled edges, yet in practice the serrations are usually formed upon such cards, and for that purpose my machine has been more especially designed.

In carrying out my invention I arrange the cards in a suitable clamp and support the said clamp with its cards in a laterally-movable carriage, which is permitted to be moved laterally by a step-by-step movement, the release of the carriage being controlled automatically by trip mechanism actuated by the mechanism which operates the cutter. Combined with the said carriage and its card-holding clamp is a reciprocating cutter and suitable operating devices therefor, so arranged that while the cutter is in the act of serrating the edges of the cards the carriage and card-clamp remain stationary.

The details of construction will be more fully understood by reference to the accompanying drawings, in which—

Figure 1 is a front elevation of my improved machine with a portion of the trip-bar broken away. Fig. 2 is a sectional plan view of Fig. 1 on line 1 2. Fig. 3 is a plan view of my improved machine. Fig. 4 is a sectional elevation on line 3 4 of Fig. 2. Fig. 5 is a perspective view of the cutter. Fig. 6 is an end view of same. Fig. 7 is a side elevation of same; and Fig. 8 is a perspective view of one of the cards, showing the serration upon one of its edges.

A′ is the main frame of the machine, and may be of any construction desired. Pivoted to this frame A′ at *h* is a frame A. The upper part of this frame A is formed like a table, and is provided with a transverse rack C and supports a transversely-movable carriage B.

c is a locking pawl or trip loosely pivoted to the carriage B, so that it may have vertical motion, as well as a given amount of lateral motion.

T is a spring connected at one end to the locking pawl or trip *c*, and at the other end to the carriage B, the object being to pull the pawl or trip *c* laterally to insure its snapping over into the next tooth of the rack when its rear end is raised by the trip-bar D. The trip-bar D is pivoted at *d*, and extends to the front portion of the machine, where it is connected with the main frame A′ by a spring E, which tends to throw the rear end upward to release the carriage whenever the forward end of the bar D is released and permitted to descend. The movement of the trip-bar D is controlled by a cam F and rod *e*, the latter resting at the bottom upon the cam F, and connected at the top with the trip-bar D.

The cam F is secured to the power-shaft *f*, journaled in the main frame A′, and provided with a drive-pulley G. The cam F is clearly shown in Fig. 4, from which it will be observed that the rod *e* is permitted to drop suddenly during the rotation of the cam, and then be quickly raised again and maintained in its raised position during the greater part of the revolution.

L is the cutter, which may be of any desired shape, and is clamped in a holder K by a clamp-screw *k*, and this holder K is secured to a vertically-reciprocating bar J, having a cross-head J′ moving in suitable guides upon the main frame A′, as clearly shown in Figs. 1 and 2. This reciprocating bar J is guided at its lower end in a transverse guide O, and is provided with a roller or pin *i*, working in contact with the under side of the cam I, secured upon the power-shaft *f*. The adjusting-screw H′, secured to the bottom of the recip-

rocating bar J and resting in its highest position against the transverse guide O, may be employed to limit the upward movement of the cutter. The spring H, secured at one end of the frame A and at the other end to the vertically-reciprocating cutter-bar J, insures the upward movement of the cutter-bar and cutter when permitted by the action of the cam I, which is arranged to positively draw down the cutter in the act of cutting the cards.

S are the cards, and are normally secured in a clamp M, which may be of any suitable construction—such, for instance, as is set out in Letters Patent No. 413,995, dated October 29, 1889. The lower part of this clamp is provided with laterally-projecting pins *m* for attachment to the endless chains of the card-gilding machine. When the clamp is placed in the serrating-machine, these laterally-projecting pins are received in notches or bearings *b* in the laterally-movable carriage B, and the rear end of the clamp is held upward in proper adjusted position by means of adjusting-screws N. The adjustment and support of the card-clamp is such that the edges of the bunch of cards are brought in a vertical plane, or a plane parallel to the movement of the cutter, so that in the downward movement of the cutter its cutting-edge acts upon all of the edges of the several cards to the same extent and for the same purpose. The guide-spring L′ regulates the depth of the cut. As the operator pushes frame, clamp, and all toward the cutter, so the guide-spring L′ determines the depth of the cut. This guide-spring may be adjusted by a thumb-screw *l*.

The cam I is preferably formed so that during two-fifths of the revolution of the shaft *f* it draws the cutter down, then allows the cutter to dwell in its downward position for a fifth of a revolution of the shaft, then permits it to rise to its original position during another fifth of the revolution, and then dwells in its elevated position during a fifth of the revolution. It will thus be seen that the cutter quickly returns and descends slowly, so as to insure a more careful cutting without loss of speed so far as the capacity of the machine is concerned.

In the operation of the machine the motions last above described are imparted to the cutter, and during its reciprocations the frame and carriage B are pushed forward by the operator and the carriage B is intermittently liberated and moved along, the said movements being controlled by the action of the locking pawl or trip *c*, the rack C and the trip-bar D. The carriage B may be moved along by the operator or by the action of a spring in the manner well known. By arranging the teeth of the rack C irregularly any desired irregularity in the serrations may be produced.

The preferred form of cutter is shown in Figs. 5, 6, and 7, and consists, essentially, of a bar having one of its faces made with a V groove R, and having its ends beveled to produce sharp cutting-edges S, as is clearly shown in Figs. 5 and 7. This beveling of the edges produces the oblique knife-edge T′ upon the back of the cutter, extending away from the V-shaped edges S, and corresponds to the angle of the front edges of the cards held in the clamps. This form of cutter, while giving great sharpness, embodies the necessary strength to prevent rapid wear or springing. The depth of the cut can be positively controlled by the adjustment of the spring L′ adjacent to the cutter.

I do not confine myself to the mere details of construction, as it is evident that they may be modified in various ways without departing from the principles of my invention.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a machine for cutting the edges of cards, the combination of a laterally-movable card-carrying carriage, trip mechanism for controlling its lateral movement in an intermittent manner, and a vertically-reciprocating cutter movable in front of the carriage to cut the edges of the cards supported thereby.

2. In a machine for cutting the edges of cards, the combination of a laterally-movable card-carrying carriage, trip mechanism for controlling its lateral movement in an intermittent manner, a vertically-reciprocating cutter movable in front of the carriage to cut the edges of the cards supported thereby, and connecting mechanism for operating the trip mechanism to liberate the carriage at a time when the cutter is out of operation.

3. In a machine for cutting the edges of cards, the combination of a laterally-movable carriage, trip mechanism for intermittently controlling the movement of said carriage, a detachable card-clamp supported by said carriage and movable therewith, and a reciprocating cutter movable transversely to the movement of the carriage and card-clamp.

4. In a machine for cutting the edges of cards, the combination of a laterally-movable carriage, trip mechanism for intermittently controlling the movement of said carriage, a detachable card-clamp supported by said carriage and movable therewith, a reciprocating cutter movable transversely to the movement of the carriage and card-clamp, and connecting mechanism for operating the cutter to cut the cards in the card-clamp and operate the trip for releasing the carriage alternately.

5. In a machine for cutting the edges of cards, the combination of a reciprocating cutter-holder, a cutter held thereby, power mechanism to reciprocate the said cutter at a slower speed when cutting than in its return movement, and laterally-movable card-holding devices adapted to hold the cards in the path of the cutter and move them laterally with respect thereto.

6. In a machine for cutting the edges of

cards, the combination of a reciprocating cutter-holder, a cutter held thereby, power mechanism to reciprocate said cutter at a slower speed when cutting than in its return movement, laterally-movable card-holding devices adapted to hold the cards in the path of the cutter and move them laterally with respect thereto, consisting of a laterally-movable carriage, a detachable clamp for holding the cards, carried by said carriage and movable with it, ratchet and trip devices for controlling the intermittent movement of the carriage, and trip-operating devices controlled by the movement of the cutter-operating mechanism, whereby the trip in releasing the carriage and the cutter in cutting the cards operate alternately.

7. In a machine for cutting the edges of cards, the combination of a laterally-movable carriage B, having bearings *b*, a clamp M, adapted to clamp beveled-edge cards and provided with laterally-extending pins or projections *m*, resting in said bearings, and a vertically-reciprocating cutter moving transversely to the carriage.

8. In a machine for cutting the edges of cards, the combination of a laterally-movable carriage B, having bearings *b*, and adjustable supports N, a clamp M, adapted to clamp the beveled-edge cards and provided with laterally-extending pins or projections *m*, resting in said bearings and supported by the adjustable supports N and a vertically-reciprocating cutter.

9. In a machine for treating cards, the combination of a card-clamp for holding beveled-edge cards, a laterally-movable carriage therefor, a vertically-reciprocating cutter-holder having an oblique cutter-support, and an obliquely-arranged cutter L, having a V-groove S and beveled edges, substantially as shown, for cutting the edges of the cards held in the clamps.

10. In a machine for cutting the edges of cards, the combination of a card-clamp for holding beveled-edge cards, a laterally-movable carriage therefor, a vertically-reciprocating cutter-holder having an oblique cutter-support, an obliquely-arranged cutter L, having a V-groove S and beveled edges, substantially as shown, for cutting the edges of the cards held in the clamps, and an adjustable spring-guide L′, arranged adjacent to the cutting-edge of the cutter to limit the depth of the cut.

In testimony of which invention I have hereunto set my hand.

CHARLES A. WRIGHT.

Witnesses:
ERNEST HOWARD HUNTER,
S. T. YERKES.