(Model.) 2 Sheets—Sheet 1.

S. BROWN.

Paper Cutting Machine.

No. 240,376. Patented April 19, 1881.

FIG. 1.

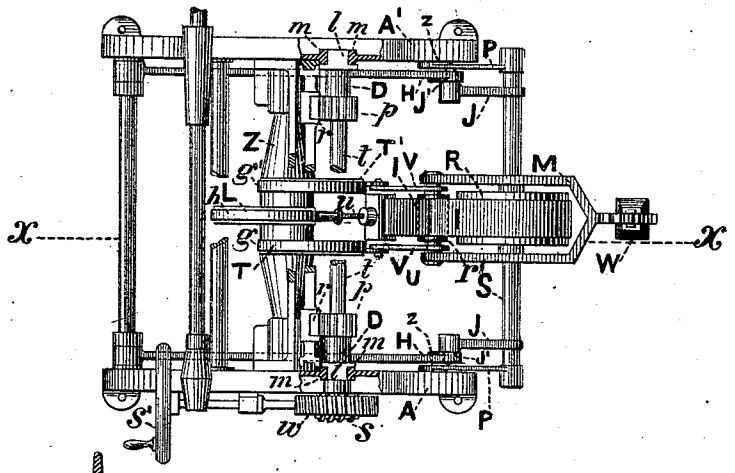


FIG. 2.

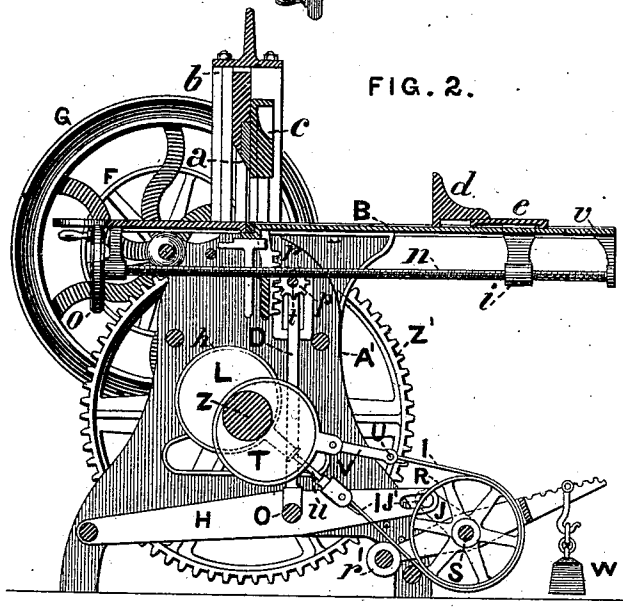
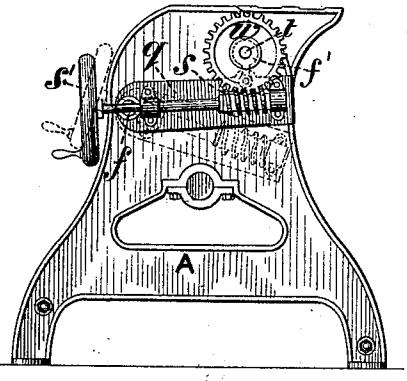


FIG. 3.



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(Model.) 2 Sheets—Sheet 2.

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FIG. 4.

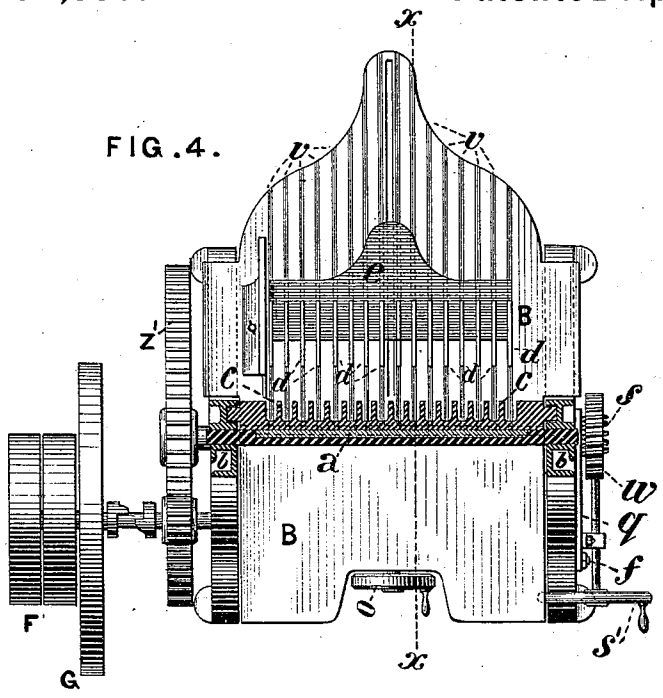
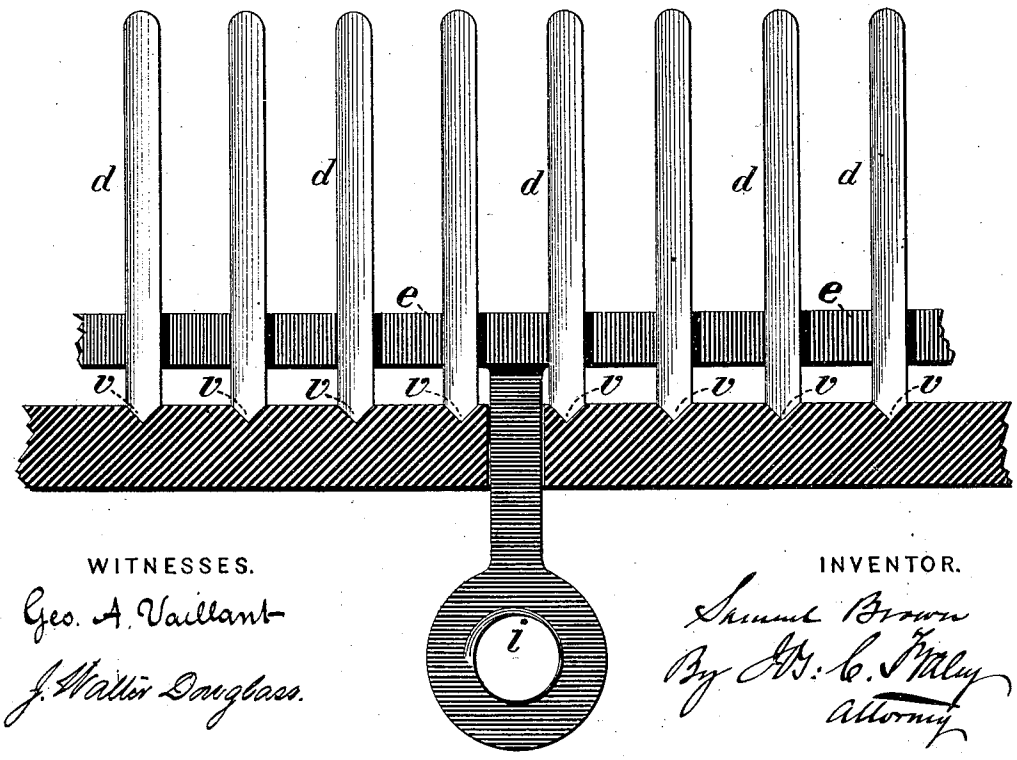


FIG. 5.



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UNITED STATES PATENT OFFICE.

SAMUEL BROWN, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO CEPHAS R. CARVER, OF SAME PLACE.

PAPER-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 240,376, dated April 19, 1881.

Application filed August 23, 1880. (Model.)

To all whom it may concern:

Be it known that I, SAMUEL BROWN, of the city and county of Philadelphia, and State of Pennsylvania, have invented certain new and useful Improvements in Paper-Cutting Machines, whereof the following is a specification, reference being had to the accompanying drawings, of which—

Figure 1 is a top or plan view of a machine embodying my improvements, with the table B, Fig. 2, removed. Fig. 2 is a sectional side elevation on the line *x x* of Fig. 1. Fig. 3 is a side elevation of the housing A, Fig. 1, showing the exterior mechanism. Fig. 4 is a plan view of the table and gage, showing, also, a horizontal cross-section through the cutting and clamping mechanism; and Fig. 5 is a vertical cross-section on an enlarged scale through the table, on a line with the face of gage *d*, Fig. 2.

The objects of my improvements are to provide an automatic method for actuating the clamp which holds the paper during the cut, and to insure the accurate working of the gage.

A A′ are the housings of the machine, preferably constructed of cast-iron, to which is bolted the table B. The latter is provided on top with longitudinal V-shaped grooves *v*, into which the ends of the gage-pieces *d* fit.

The back piece, *e*, to which the gage-pieces *d* are attached, is provided with a screw-nut, *i*, and by means of the hand-wheel *o* and screw *n* can be moved forward or backward on the table.

The knife *a*, sliding in the frame *b*, and driving mechanism F G, are of the usual form.

The clamp *c* is shown in longitudinal section in Fig. 2 and in horizontal cross-section in Fig. 4. It consists of a rigid bar having a series of feet or projections which correspond with the portions of the table between the grooves *v*, thus leaving openings (between the feet) opposite to the several grooves.

As heretofore constructed, the clamp has been raised and lowered by means of racks *r* and pinions *p*, the pinions being attached to the shaft *t* of a worm-wheel, *w*, which is operated by the worm *s* and hand-wheel *s′*. As in some instances it may be desirable still to use this method, I prefer to retain the mechanism, arranging it, however, in such a manner as to permit its combination with the automatic devices. With that view I construct the journal-boxes *l* of the shaft *t* so as to slide vertically between guides *m m* in the housings, and mount the worm-shaft *s* and its hand-wheel *s′* upon a movable piece, *q*, pivoted at *f*. A link, *f′*, (shown by the dotted lines in Fig. 3,) connects the piece *q* with the shaft *t*, and thus holds the worm *s* against the worm-wheel *w*. Connecting-rods D are attached to the pinion-shaft *t*, and pivoted at *o* to rocking beams H. The ends of the rocking beams are slotted to receive the pins J′ of arms J, rigidly fastened upon the shaft S of pulley R. The shaft S is journaled in brackets P, rigidly attached to the housings at *z*, and a rocking frame, M, with weight W and tightening-roller *r′*, is mounted upon the shaft S. The eccentrics L, T, and T′, the two latter being exactly similar, are mounted upon the shaft Z, revolved by the gear-wheel Z′. The straps *g g′* of the eccentrics T T′ are attached by rods V to a cross-head, U, to which one end of the band I is fastened, the other end of the band being fastened to the eccentric strap *h* of the middle eccentric, L, by the arm *u*. The tightening-roller *r′* presses against the band I.

The operation of the machine is as follows: The pile of paper to be cut is placed upon the table B and the gage *d* is moved toward the knife-frame until it is at the proper distance. The lower ends of the pieces *d*, sliding in the V-shaped grooves *v*, prevent any of the lower sheets from slipping back past the gage, thus obviating a defect of frequent occurrence in the old forms of gages. The openings between the feet of the clamp, being opposite to the grooves, not only permit the approach of the depressed feet *d* close to the knife, but relieve the paper from pressure at those points, and thus obviate the tendency to force it into the grooves. The driving-belt being then shifted upon the pulley G, the gear-wheel Z′ is revolved and the knife commences its descent. Before it reaches the paper, however, the revolution of the eccentrics T T′ has moved the band I and partly rotated the pulley R, thus lowering the rocking beam H and rod D. As the pinion *p* is locked by the intersection of the threads of the worm *s* between the teeth

of the worm-wheel *w* it cannot revolve, and hence draws down the rack *r* with it. This brings the clamp *c* down upon the paper and holds it there during the cut of the knife.

By the arrangement of the double outer eccentrics, T T′, with their rods V V′, connected by the cross-head U, the arm *u* of the middle eccentric, L, is permitted to rise between them and pass the cross-head until the revolution of the eccentrics reverses the motion of the band I and pulley R, when the rocking beam H rises and lifts the clamp *c*.

If at any time the operator desires to alter the stroke of the clamp *c* he can do so by turning the hand-wheel S′, which raises or lowers the rack *r*, and thus set the clamp at any height; or the clamping mechanism can be worked entirely by hand by throwing the eccentric shaft Z out of gear.

Having thus described the nature and objects of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the clamp, connecting-rods, and rocking arms with the eccentrics, through the medium of an oscillating pulley and band, substantially as described.

2. The combination of the clamp-rack with a worm-wheel pinion, worm-wheel, and screw, the shaft of said pinion and worm-wheel being mounted in sliding journals and attached to reciprocating arms, substantially as described.

3. The combination, in a paper-cutting machine, of a clamp having openings between its feet, a table provided with grooves which extend under said openings, and a gage having depressed feet which slide in the grooves, substantially as specified.

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Witnesses:
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