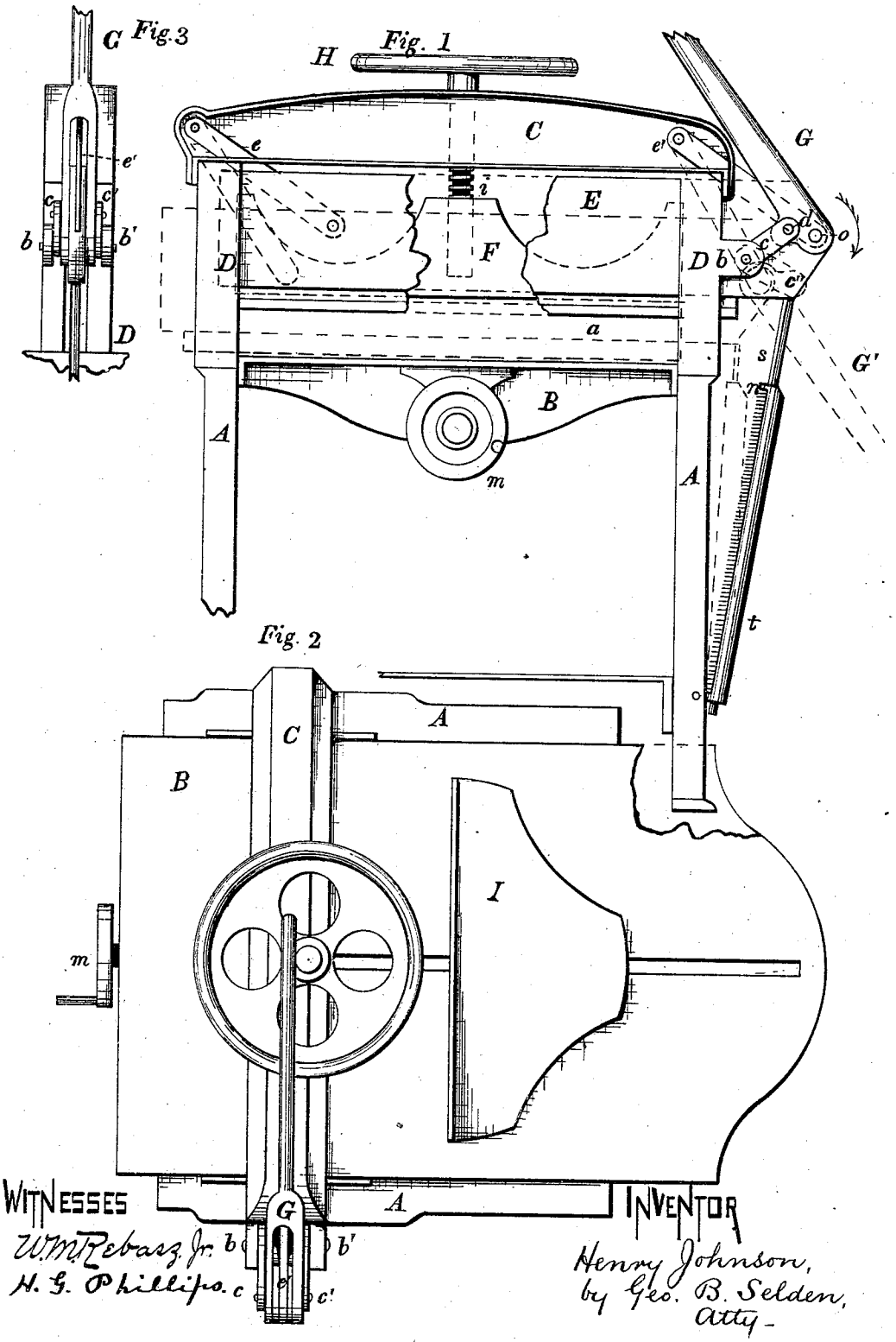
(No Model.)

2 Sheets—Sheet 1.

H. JOHNSON.

PAPER CUTTING MACHINE.

No. 273,285. Patented Mar. 6, 1883.



(No Model.)

2 Sheets—Sheet 2.

H. JOHNSON.

PAPER CUTTING MACHINE.

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Fig. 4

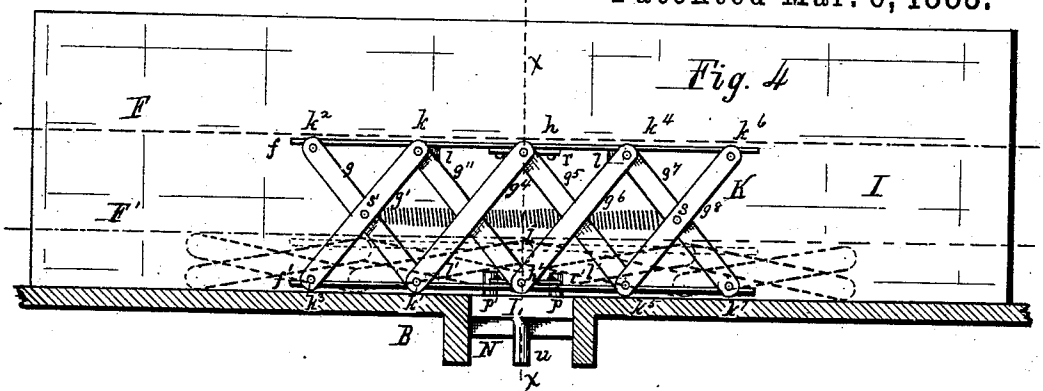


Fig. 5

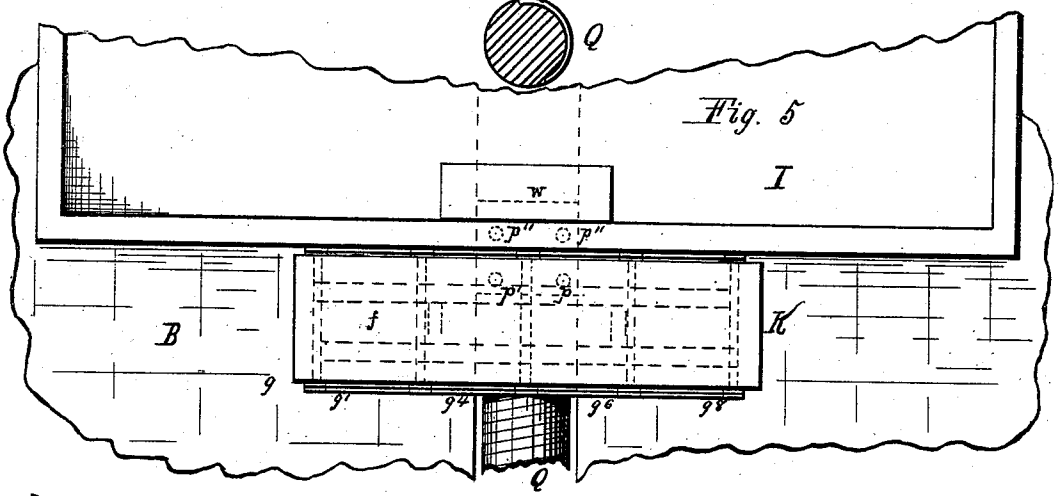


Fig. 6

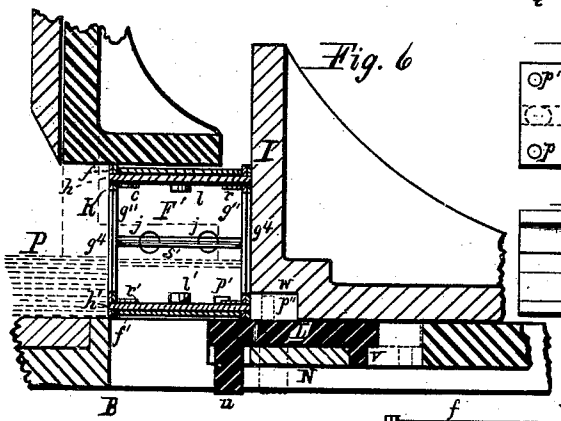


Fig. 7

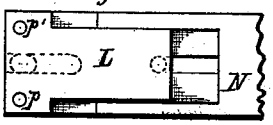


Fig. 8

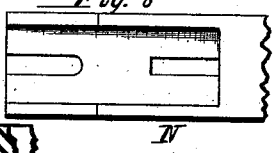


Fig. 9

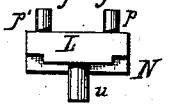


Fig. 10

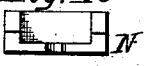
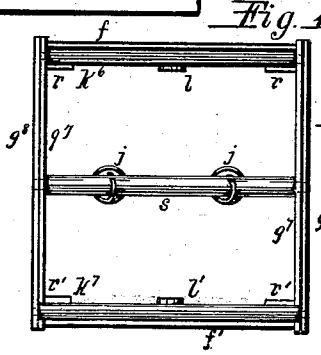


Fig. 11



Witnesses:
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H. G. Phillips.

Inventor:
Henry Johnson,
by G. B. Selden,
atty.

UNITED STATES PATENT OFFICE.

HENRY JOHNSON, OF NEW YORK, N. Y., ASSIGNOR TO M. NICHOLS JOHNSON, OF SAME PLACE.

PAPER-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 273,285, dated March 6, 1883.

Application filed December 6, 1880. Renewed June 26, 1882. (No model.)

To all whom it may concern:

Be it known that I, HENRY JOHNSON, of the city of New York, in the State of New York, have invented certain Improvements in Paper-Cutting Machines, of which the following is a specification, reference being had to the annexed drawings, in which—

Figure 1 is an end elevation of my improved paper-cutting machine. Fig. 2 is a plan view of the same. Fig. 3 is a side elevation of a portion of my improved paper-cutting machine, showing the end of the knife-bar and the links connecting the hand-lever thereto. Fig. 4 is a front view of the paper-gage, showing my improved method of attaching the parallel gage thereto. Fig. 5 is a plan view of the same. Fig. 6 is a central vertical section on line *x x*, Fig. 4. Fig. 7 is a plan view of the slide and bar by which the parallel gage is removably attached to the paper-gage. Fig. 8 is a plan view of the connecting-bar, the slide being removed. Fig. 9 is a front view of the slide and bar. Fig. 10 is a front view of the bar. Fig. 11 is an end elevation of the parallel gage.

My invention relates to that class of paper-cutting machines in which the knife is operated by a hand-lever; and it consists in a novel means of communicating the motion of the lever to the knife by means of a connecting-link.

My invention also consists in an improved mode of attaching a parallel gage to my improved paper-cutter.

It also consists in the mechanical details of the construction, as hereinafter more fully set forth.

My improved paper-cutting machine is represented in the accompanying drawings, in which—

A A are the side frames of the machine. B is the table, and C the head-block or cross-head, which supports the knife-bar E and the clamp F. G is the hand-lever, by which the knife is operated. K is the parallel gage, and I the paper-gage. L is the slide by which the parallel gage is attached to the paper-gage, and N the connecting-bar.

The side frames and table of my improved paper-cutting machine are constructed and attached together in any ordinary manner. From the side frames project upward the standards D D, which are connected together at their upper ends by the head-block or cross-head C. The standards D D are slotted transversely to receive the knife-bar E, which has the knife *a* bolted to its lower edge. The standards are also provided on their inner sides with grooves, in which the ends of the clamp F slide when it is raised or lowered by the screw *i*, operated by the hand-wheel H.

The knife-bar E is supported by the diagonal links *e e'*, the upper ends of which are pivoted to the cross-head C, at or near each end thereof, and the lower ends of which are pivoted to the knife-bar, within suitable longitudinal recesses cast therein. The well-known drawing cut is given to the knife by these links.

The requisite motion is imparted to the knife-bar and knife from the hand-lever G by means of a link, *c*, the inner end of which is pivoted to the standard D, while the outer end is pivoted to the lever between the point where the lever is attached to the knife-bar and that portion thereof to which the power is applied. The stationary pivotal point *b*, at which the link *c* is attached to the standard D, is thus made the fulcrum of the lever G, upon which the power applied to the lever is exerted. A suitable lug may be extended outward from the standard for the purpose of affording a point of attachment for the link *c*. The lever G is pivoted to the knife-bar at *o*, Fig. 1, and its motion, as it swings outward and descends into the position shown by dotted lines G' at the completion of the stroke, is indicated by the arrow in that figure. The outer end of the link *c* is attached to the lever G at *d*, Fig. 1. As the lever G is drawn downward and outward by the operator, it swings about the point *o*, at which it is attached to the knife-bar, and, being connected with its stationary fulcrum by the link *c*, it causes the knife to descend with a steady and powerful cutting motion.

The lever G and connecting-links are preferably constructed as shown in Figs. 2 and 3, the lower end of the lever being divided to receive the knife-bar, and the links *c c'* attached to the lever and to the standard D at *b b'* on each side of the lever.

In order to provide for the return motion of the knife, a spring, *n*, Fig. 1, is employed. This spring is coiled about a rod, *s*, the upper end of which projects into a suitable recess in the lower side of the knife-bar, while its lower end is attached to the side frame in such a way that the rod has both a swinging and a sliding motion. A convenient mode of accomplishing this, and at the same time of protecting the spring, is to inclose the spring and the rod in a hollow bar, *t*, having lugs at either end, through which the rod passes, and the lower lug being loosely attached to the side frame. A collar is affixed to the rod at the upper end of the spring.

A paper-gage, I, operated by a hand-wheel, *m*, and an adjusting-screw, Q, beneath the table, is attached to my improved paper-cutter.

My improved mode of attaching a parallel gage to the paper-gage, for the purpose of enabling the machine to cut narrow strips of paper, labels, &c., is represented in Figs. 4 to 11, inclusive.

The parallel gage consists of an upper and lower plate, *f f'*, Figs. 4 and 6, arranged parallel to each other at a suitable distance apart, and so connected together at each side by inclined pivoted links $g\ g'\ g''\ g^4\ g^5\ g^6\ g^7\ g^8$ that they may be brought closer together by the downward pressure of the clamp F. The links are of equal length, and equally inclined in two sets in opposite directions to the plates *f f'*, and the corresponding links on the two sides are connected together at their ends by rods $h\ h'\ k\ k'\ k''\ k^3\ k^4\ k^5\ k^6\ k^7$. The rods *h* and *h'* at the center of the system of links are secured to the upper and lower plates, respectively, by boxes *r* and *r'*, in which the rods *h* and *h'* are free to revolve; but the other rods are free to move away from the center as the links expand when the clamp is brought down. The ends of the links project slightly beyond the plates, so that the links themselves receive the force exerted on them between the clamp and the table B. The outer pairs of links, $g\ g'$ and $g^7\ g^8$, are connected by rods *s s'*, to which the springs *j j* are attached, by the contraction of which the plates *f f'* are separated. Lugs *l l l' l'* are attached to the inner sides of the plates, against which lugs the rods $k\ k'\ k^4\ k^5$ are arrested, thereby controlling the action of the springs *j j*. The positions of the links when the clamp has been depressed to the point represented by the line F' are shown by the dotted lines in Fig. 1.

In order to attach the parallel gage to the paper-gage, so that it will travel forward and back with it, but at the same time may be readily removed therefrom, I affix to the lower side of the paper-gage, in the longitudinal slot in the table, a bar, N, provided at its forward end with the slide L. A suitable recess is made in the upper side of the bar N to receive the slide L; but the sliding motion of the latter therein is limited by the pins *u* and *v*, Fig. 6, projecting downward from the slide through slots in the bar. The position of the slide L when pushed back into the recess is indicated by dotted lines in Fig. 6. The pin *u*, which projects some little distance below the bar N, serves as a finger-piece or catch by which the slide is drawn out of the recess when required. A pin projecting upward from the slide, through a slot in the paper-gage I, may be used to accomplish the same purpose.

From the upper side of the slide, and near the outer end thereof, two pins, *p p'*, project upward, a recess, W, Fig. 6, being made in the paper-gage I to receive the pins when the slide is pushed back. Two holes are made in the lower plate, *f'*, of the parallel gage, near the center of one side thereof, to receive the pins *p p'*. The parallel gage, when placed against the face of the paper-gage and upon the pins *p p'*, becomes for all practical purposes a part of the paper-gage, and may be moved along the table in either direction with it. The relations of the knife, the paper-clamp, and the parallel gage when used to cut narrow strips of paper are shown in Fig. 6. The slide L having been withdrawn from its concealment in the bar N, the parallel gage is adjusted thereon, and the paper to be cut is then placed against the links of the parallel gage, as represented at P, Fig. 6. The clamp F, being then brought down to the position represented by the dotted lines F', Fig. 6, compresses the parallel gage until the paper is securely held between the clamp and the table, after which the knife is brought down to sever the paper.

I make no claim to the parallel gage itself or its construction.

I am aware that pivoted levers and connecting-links have been heretofore used for actuating different kinds of machines—as shown, for instance, in the patent of Walsh and Dutot, machines for shearing metal, March 16, 1875, and such devices I do not claim.

I am aware also that the knife-bar of a paper-cutter has been heretofore operated by a hand-lever pivoted to the frame of the machine, and connected to the knife-bar by a link, as shown in the patent of Miller, No. 220,856, October 21, 1879; but such construction I do not claim, as in my arrangement of the parts, where the lever is pivoted directly onto the knife-bar and connected to the frame by a link, the lever itself travels downward with the knife, maintaining always an equal leverage on the knife-bar, and I am thereby enabled to secure a longer sweep for the lever and equalize the power during the entire stroke of the knife.

I also disclaim the pinions and racks shown by W. I. Reid, Patent No. 164,660, June 22, 1875.

I claim—

1. The combination and arrangement, in a paper-cutter, of the knife and knife-bar, having a diagonal cutting-movement, the hand-lever G, pivoted to the outer end of the knife-bar, and connected to its fulcrum on the frame of the machine by the swinging link *c*, attached

to the lever between its pivotal point and its free end, substantially as and for the purposes set forth.

2. The arrangement and combination of the knife and the knife-bar, having a diagonal cutting motion, the hand-lever G, forked to receive the knife-bar and pivoted thereto, and the connecting-links *c c'* on each side of the lever, substantially as described.

3. In a paper-cutting machine, a compressible parallel gage removably connected with the paper-gage by the connecting device, substantially as described, arranged to be concealed within a recess in the back paper-gage, substantially as and for the purposes described.

4. In combination with the knife, clamp, and paper-gage of a paper-cutting machine, the parallel gage K, removably connected with the paper-gage by means of the slide L, provided with one or more pins, *p p'*, substantially as described.

5. The combination of the paper-gage I, connecting-bar N, slide L, pins *p p'*, one or more, and the compressible paper-gage K, substantially as and for the purposes described.

HENRY JOHNSON.

Witnesses:
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CHAS. S. DUDLEY.