(No Model.)

J. T. ROBINSON.

PAPER CUTTING MACHINE.

No. 333,783. Patented Jan. 5, 1886.

Fig. 1.

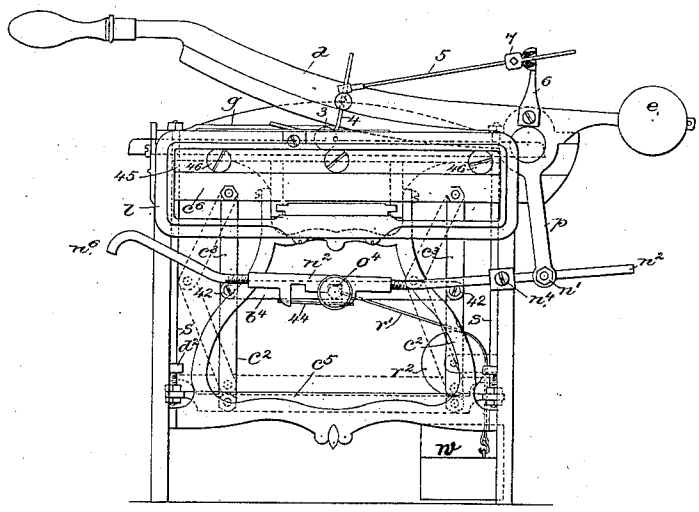


Fig. 4.

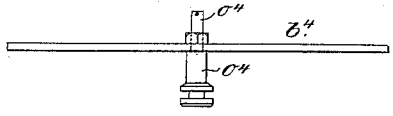


Fig. 5.

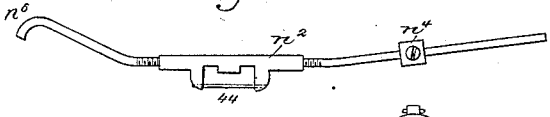


Fig. 2.

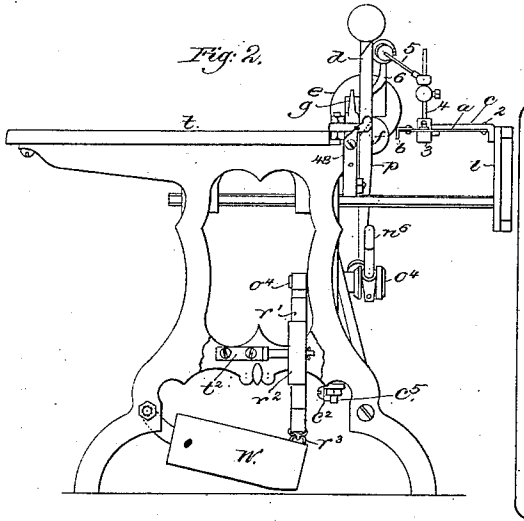
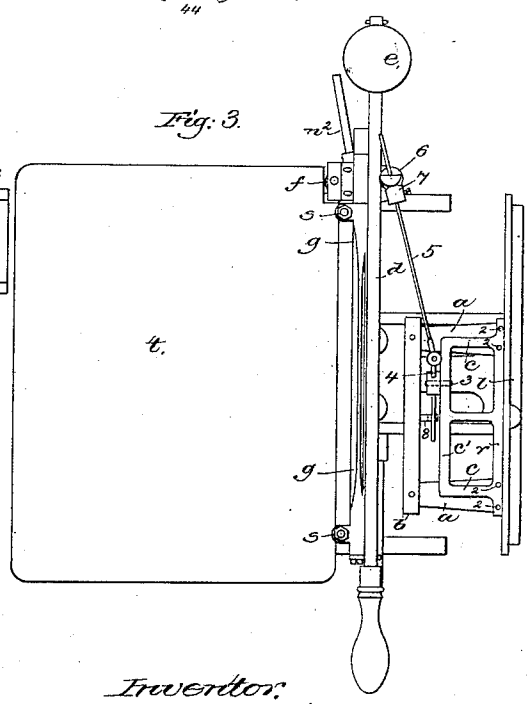


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN T. ROBINSON, OF HYDE PARK, MASSACHUSETTS.

PAPER-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 333,783, dated January 5, 1886.

Application filed May 28, 1885. Serial No. 166,924. (No model.)

To all whom it may concern:

Be it known that I, JOHN T. ROBINSON, of Hyde Park, county of Norfolk, and State of Massachusetts, have invented an Improvement in Paper-Cutting Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object the improvement of the machine described in my former patent, No. 225,871, dated March 23, 1880.

The invention will be first particularly set forth and then claimed.

Figure 1 is a front elevation of one of my improved paper-cutting machines, showing the parts in their normal positions. Fig. 2 is a side elevation of Fig. 1; Fig. 3, a plan view of Fig. 1, showing the spring-gage and its attached parts; Fig. 4, a detailed view of the link b^4 and its cross pin or stud, and Fig. 5 a detail of the controlling-bar.

In this invention I have added to the open central guide, *l*, a spring-gage composed, essentially, of the two spring-arms *a a*, which I have attached to the frame *c c* by two screws or rivets, 2 2, the outer ends of the said spring-arms having connected with them an edge-gage, *b*, which depends or projects down below the said spring-arms, the said edge-gage being parallel with the end of the table *t* and the lower member of the cutting mechanism. This edge-gage *b*, by adjustment of the gage *l*, as in the said patent, or in other suitable manner, may be placed more or less distant from the knife *d*, according to the width of the strip of paper to be cut. When the strip cut from the end of the sheet on the table is quite narrow, the edge-gage is close to the knife, and it sometimes happens that the gage and knife interfere with each other. For the best results the spring-gage should descend with the blade as the latter commences to cut the paper, and to effect this automatically I have provided a frame consisting of the arms *c c* and cross-piece *c'*, and I have attached it to the spring-arms *a a* by the screws 2 2, before described, and on this frame I have placed a stud or pin, 3, on which I have mounted an elbow-lever, 4, the upper arm of which has connected with it a link or rod, 5, extended loosely through a hole in a post, 6, connected with and extended from the knife *d*, the said rod having adjustable on it a collar, 7. The lower end of the elbow-lever 4 is extended horizontally over a finger, 8, attached to the edge-gage *b*, (see Fig. 3,) and as the lever 4 is turned to throw the lower end thereof down against the finger 8 the said lever, acting on the said finger, is made effective to depress the said gage as the knife *d* cuts the paper, for the collar 7 is so adjusted that the post will strike against it and turn the lever 4 in the direction to depress the spring-gage just as the knife commences to cut into the paper. Supporting the edge-gage on spring-arms enables it to rise promptly as the knife is raised, and the gage is always in operative position whenever the knife is to be moved to cut the paper, and great speed of operation may thus be attained. The stud or projection c^4 at the rear side of the link b^4 has secured to it a belt, r', which passes over a pulley, r^2, having its shaft secured to an arm, t^2, fastened to the frame of the machine, the other end of the said belt being secured by suitable hooks, r^3, to the weight *w*, the said belt, pulley, and weight acting to effect the descent of the clamp and regulate the extent of its pressure on the material. The clamp or presser *g*, to bear upon the paper on the bed close to the rear side of the blade *d*, is supported at its opposite ends by slide-rods *s s*, placed in suitable fixed guides, as at d^2, and the said clamp is lifted at each end when the paper is to be fed forward by means of devices whereby both ends of the clamp rise together.

As herein shown, the lower ends of the clamp-carrying rods *s* are provided with means shown as a bar, c^5, attached to both rods by suitable nuts, the said bar serving for the attachment with the said rods of means for lifting them and the clamp, the said means being toggle-jointed levers composed each of links c^2 c^3, the upper ends of the parts c^3 of the links being pivoted to the rigid frame part c^6, while the lower ends of the parts c^2 are joined with the bar or connection c^5, referred to, the two center joints, 42, of the levers being connected together by the link b^4, movement of the latter horizontally or longitudinally in the

direction of its length causing the rods *s s* to be lifted equal distances, and the ends of the clamp to be lifted uniformly at both ends. The link b^4 at or near its center has a cross pin or stud, o^4, which at the front side of the link is provided with a head or enlargement, o^2, adapted to be embraced by one or the other of the hooks or notched parts of the clamp-moving bar n^2, (see Fig. 5,) so that as the bar n^2 is reciprocated the link and toggle-levers will be moved to positively and uniformly lift the clamp, the extent of movement imparted to the clamp being more or less, according to which of the two notches or which of the hooked parts of the bar n^2 engages the stud or pin o^4—the less the movement of the said bar the less the movement of the clamp, and vice versa. The bar n^2 will usually be moved to raise the clamp whenever the blade is raised by means of the arm *p*, extended from or below the knife or blade *d*, and acting on an adjustable collar, n^4, on the said bar, the lower end of the arm *p* having a bolt, *n'*, provided with an eye to receive loosely and hold up one end of the rod n^2. The rod n^2 at its front end, near and below the handle of the blade *d*, is provided with a handle-like extension in convenient position to be engaged by the operator whenever for any reason it is desired to lift the clamp without moving the blade. A rod, 44, on the bar n^2 acts to keep it down in engagement with the pin or stud o^4. The lower member of the shear is a narrow blade, 45, of steel, fastened in place on the bed by means of screws 46.

In the operation of the clamp, the parts being as shown in Fig. 1, (which will be referred to hereinafter as the normal position,) the operator by raising the knife causes the arm *p* to slide along the bar n^2 until it strikes against the collar n^4, and thereafter, as the knife is still further raised, the arm *p*, bearing against the collar n^4, causes the link b^4 to be moved, placing the links c^2 c^3 in the position indicated by the dotted lines, Fig. 1, thereby raising the bar c^5, the rods *s s*, and the clamp or presser *g*, until nuts on the rods *s s* strike the guides d^2, secured to the frame of the machine and in which the said rods slide. When the paper is in position to be cut, the blade *d*, its handle being grasped, is lowered, the weight *w* then acting to keep the clamp in its position bearing upon the material or paper. If it be desired that the paper be cut into narrow strips, the operator will raise the handle n^6, disengaging the rod n^2 (see Fig. 1) from the pin or stud o^4 of the link b^4, and will move the said hooked bar so that the pin or stud o^4 will be engaged by the other recess of the said bar, in which condition the collar n^4 will be pushed against the arm *p* far enough to slightly lift the clamp *g* from its normal position, the weight *w* being somewhat lifted, and thereafter slight upward movement of the blade or knife will effect the lifting of the clamp. While the arm *p* presses directly against the collar n^4 any movement of the blade or knife causes a direct corresponding movement of the rod n^2 and link b^4, lifting the clamp. By this arrangement of parts the range of movement of the blade or knife is shortened without changing the distance the clamp is raised, thereby allowing the knife to be worked fast and the paper to be cut quick, and at the same time the whole machine is under the control of the person operating the knife, the said machine requiring but one person to feed the paper, operate the clamp, and perform the cutting. The descent of the blade or knife is determined by the stop 48, part of which is broken away in Fig. 2.

A convenient manner of constructing the bar n^2 consists in casting the notched portion and screw-tapping therein the handle and portion bearing the collar n^4.

I claim—

1. The frame *c c'*, provided with the stud 3, and carrying the spring edge-gage having the finger 8, combined with the elbow-lever 4, mounted on said frame, and the link 5, connected to one end of said lever, and provided with a collar, 7, engaged by a post, 6, on the knife, substantially as shown and described.

2. The clamp mounted at each end on guide-rods, combined with the toggle-levers c^2 c^3, affixed to a stationary part of the machine, and jointed to the movable bar c^5, which supports the guide-rods, and arranged one at each end of the same, and a connecting-link provided with a weight to hold said levers in a given position, and means, substantially as set forth, to operate said levers, substantially as shown and described.

3. In a paper-cutter, the clamp, slide-rods carrying it, the toggle-jointed levers connected therewith, and the link to connect the said levers, combined with the hooked or notched clamp-lifting rod n^2, movement of which causes the clamp to be lifted, substantially as described.

4. In a paper-cutter, the clamp, its slide-rods, connected toggle-levers, and link b^4, combined with a belt and a weight, the said belt passing over a pulley and being secured to the said link, substantially as described.

5. In a machine for cutting paper, a blade or knife provided with a projection, and a clamp, and guide-rods to support it at each end, and toggle-jointed levers to lift the clamp, and a link to connect the toggle-jointed levers, combined with the clamp-operating rod, provided with a plurality of notches or projections to engage a projection upon the link, and with the collar to be struck by an arm projecting from and operated with the blade or knife, the movement of the latter operating the clamp sooner or later during the descent of the blade or knife, according to which notch is made to operate the link, the combination being and operating substantially as described.

6. In a paper-cutter, the pivoted blade *d*, provided with the projection *p*, and the hooked

rod n^2, provided with a handle, n^6, arranged at the side of the machine below the handle of the blade, and the collar n^4 upon the said rod, combined with a clamp and means, substantially as described, between it and the said hooked rod, and actuated by the said rod, whereby by change of position of the hooked rod, as described, the clamp may be raised more or less as the knife is moved, the adjustment being made by the operator at the same side of the machine where is located the handle of the blade, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN T. ROBINSON.

Witnesses:
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B. J. NOYES.