(No Model.) 2 Sheets—Sheet 1.

J. S. EDGECOMB.

PAPER CUTTER.

No. 572,358. Patented Dec. 1, 1896.

Fig. 1.

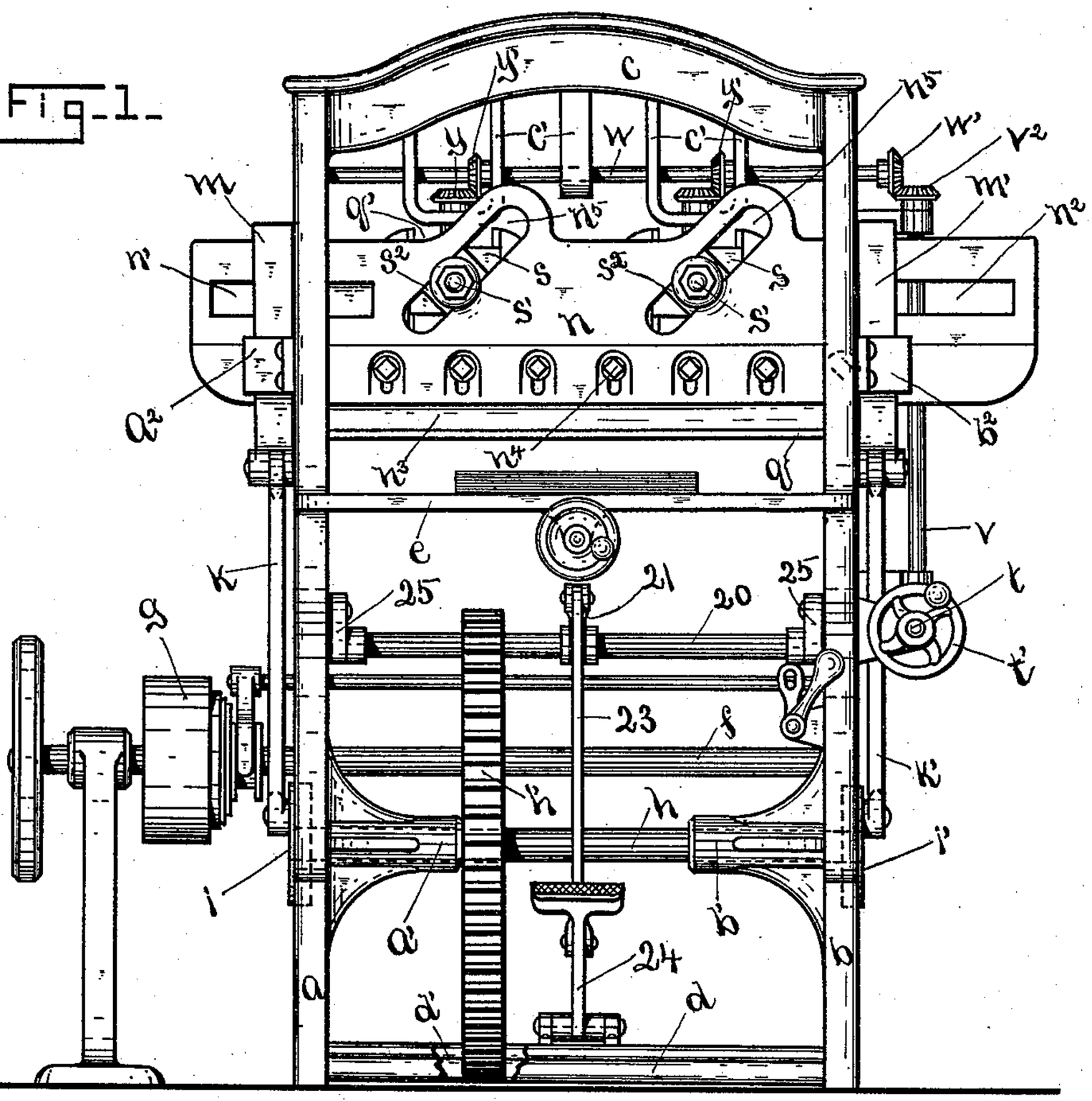
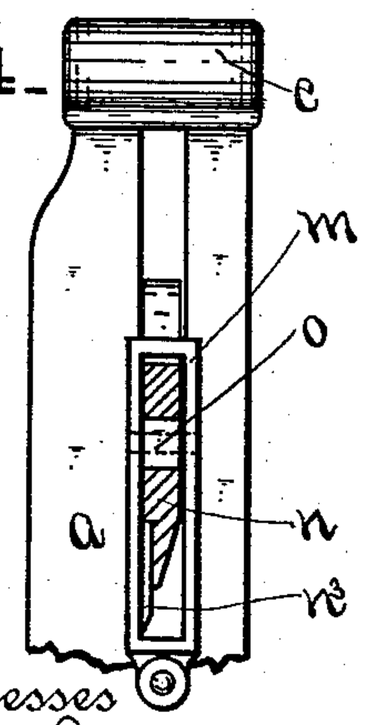
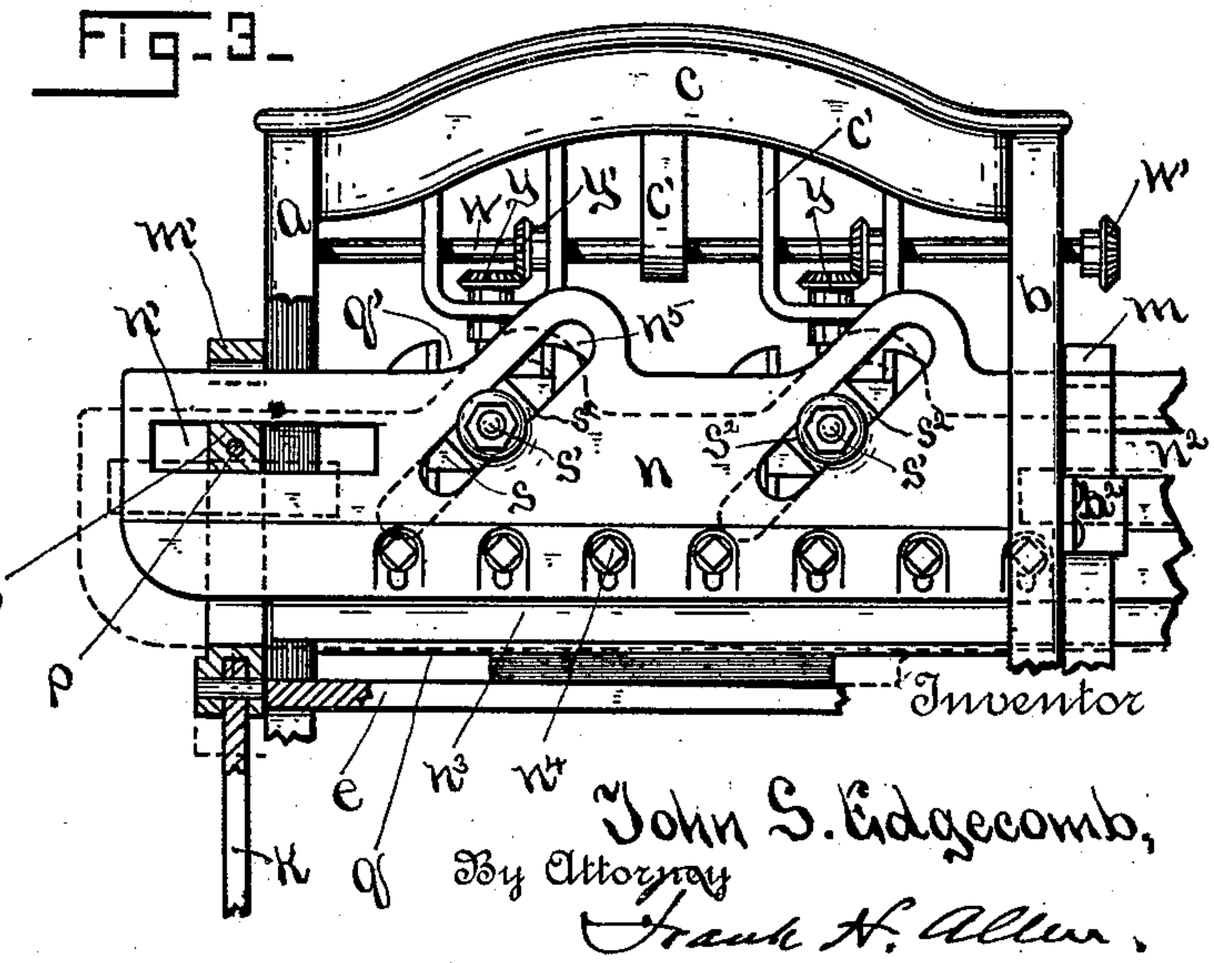


Fig. 4.



Witnesses
Alonzo M. Luther.
Frank A. Leeland.

Fig. 3.



Inventor
John S. Edgecomb,
By Attorney
Frank H. Allen.

(No Model.) 2 Sheets—Sheet 2.

J. S. EDGECOMB.

PAPER CUTTER.

No. 572,358. Patented Dec. 1, 1896.

Fig. 2.

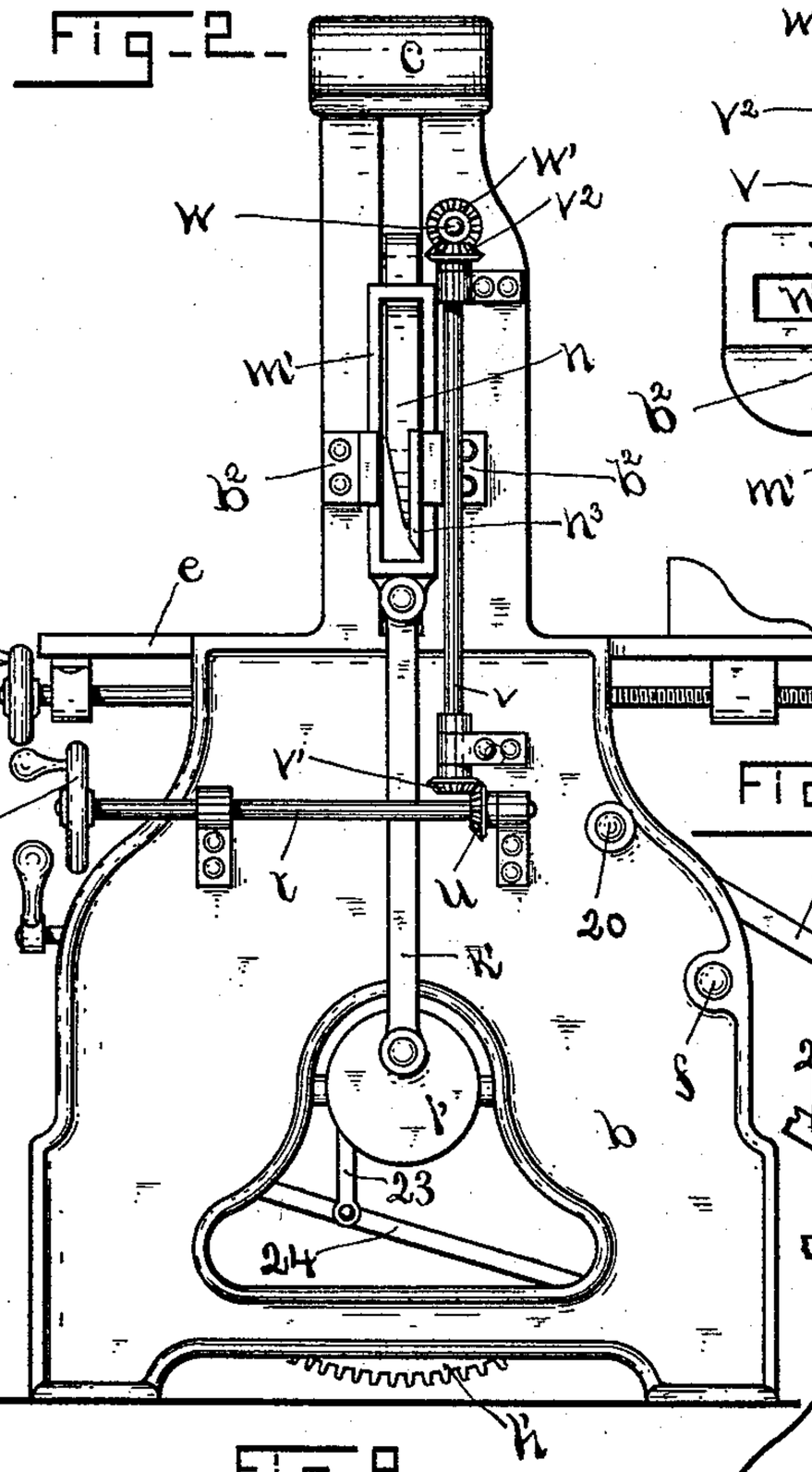


Fig. 6.

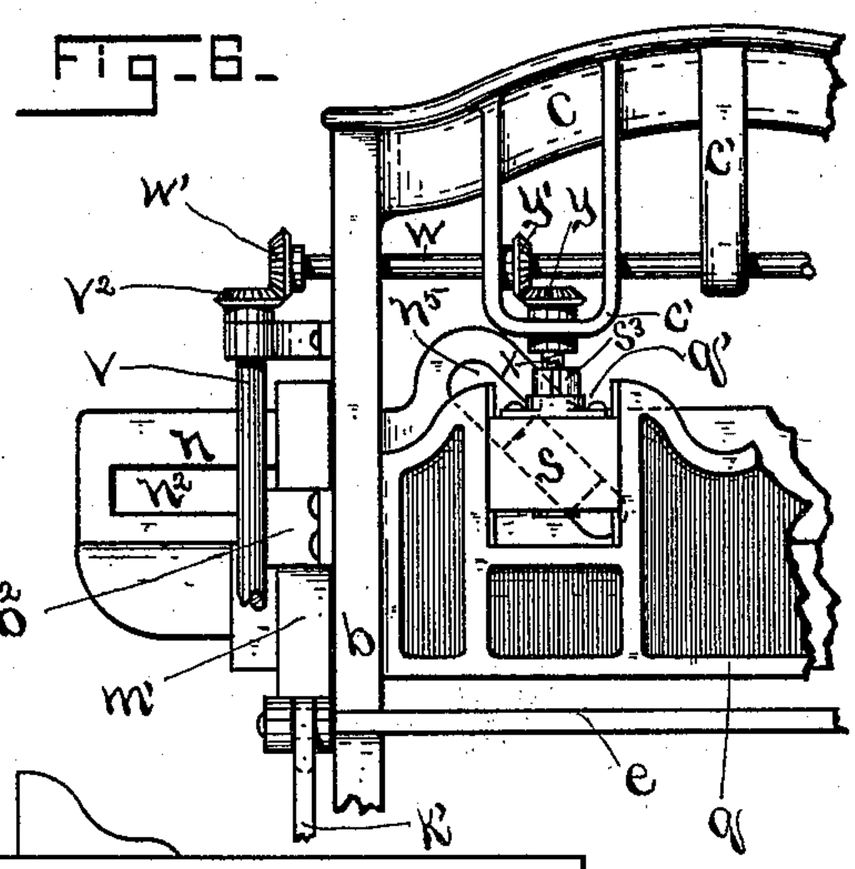


Fig. 5.

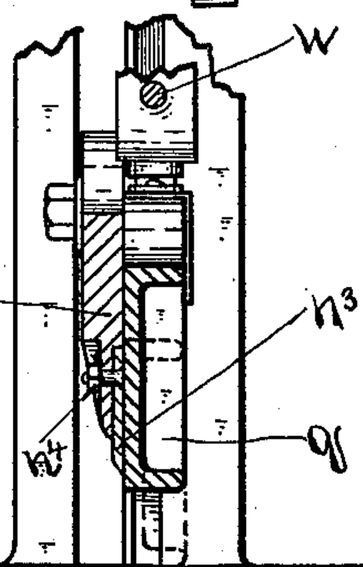


Fig. 8.

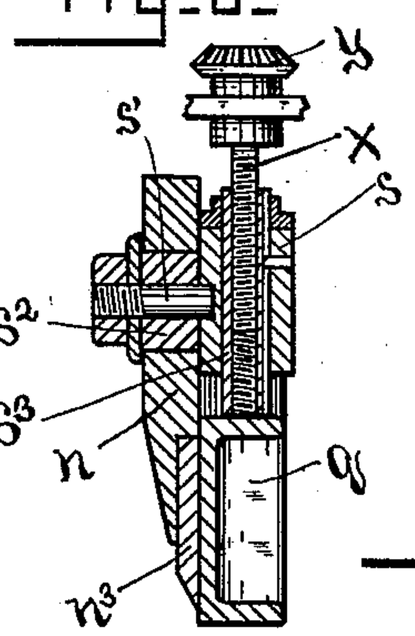
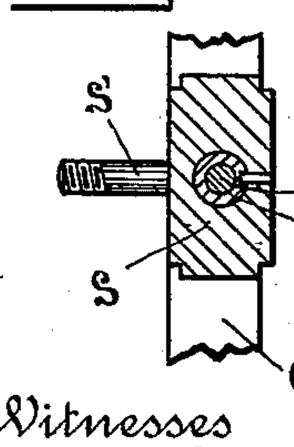
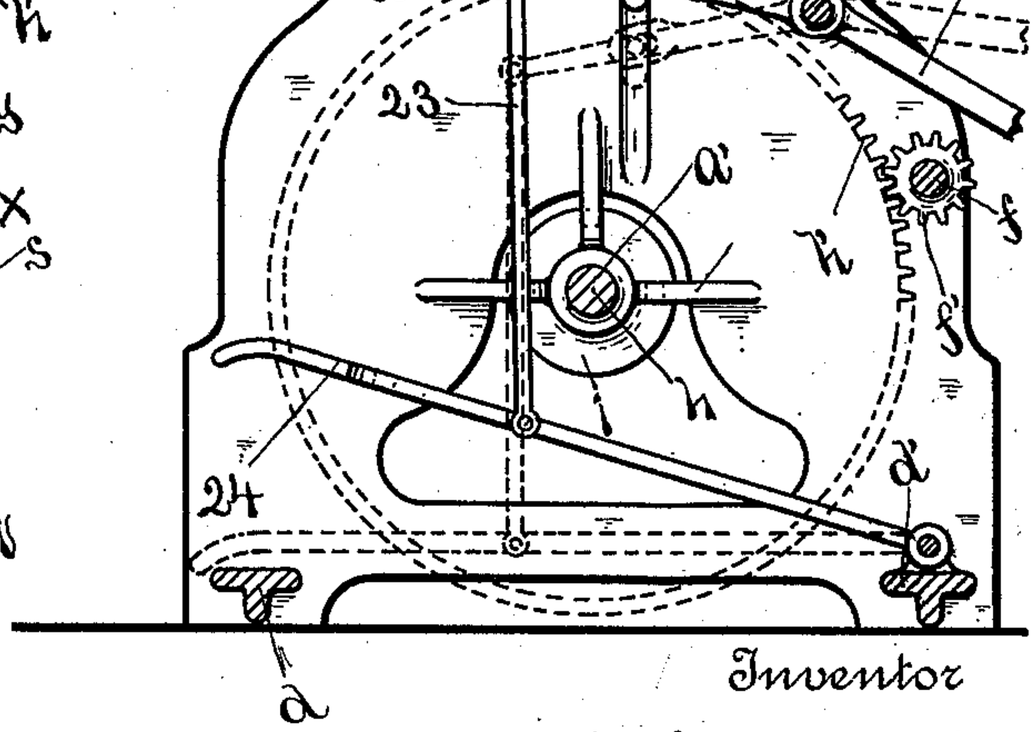


Fig. 7.





Witnesses
Alonzo M. Luther.
Frank A. Lecler.

Inventor
John S. Edgecomb,
By Attorney
Frank H. Allen.

UNITED STATES PATENT OFFICE.

JOHN S. EDGECOMB, OF MYSTIC, CONNECTICUT.

PAPER-CUTTER.

SPECIFICATION forming part of Letters Patent No. 572,358, dated December 1, 1896.

Application filed February 17, 1896. Serial No. 579,677. (No model.)

To all whom it may concern:

Be it known that I, JOHN S. EDGECOMB, a citizen of the United States, residing at Mystic, New London county, State of Connecticut, have invented certain new and useful Improvements in Paper-Cutters, which improvements are fully set forth and described in the following specification, reference being had to the accompanying two sheets of drawings.

This invention is in self-clamping paper-cutters of the "guillotine" type, and my purpose is to improve particularly the clamping mechanism to the end that it may work positively and automatically, yet may at all times remain free to be operated by hand or foot. I have also provided simple means for adjusting the clamping-bar to vary the upward travel of the same relatively to the movement of the cutter-bar.

To explain my invention most clearly, I have provided the annexed drawings, in which—

Figure 1 is a front elevation of a paper-cutter embodying my said improvements, the cutting and clamping bars being shown as partly raised; and Fig. 2 is an elevation of the same as viewed from the right end of Fig. 1. Fig. 3 is a front elevation of the upper part of said cutter, showing the cutting and clamping bars in their operative positions, that is to say, as they appear when clamping and cutting a pile of sheets of paper. In Fig. 4 I have shown an end view of the upper portion of the frame of the paper-cutter with the cutter-bar supports mounted therein, the cutter-bar proper being shown in cross-section. Fig. 5 shows the inner side of frame *a* and the cutter and clamping mechanisms, in section, mounted in said frame. Fig. 6 is a rear side elevation of a portion of the upper framework, the clamping and cutter bars, and my improved means for controlling the said clamping-bar; and Figs. 7 and 8 illustrate details of said improvement.

In the drawings the letters *a* and *b* indicate the main frames of my improved paper-cutter, the same being connected and stiffened by a cross-frame *c* at the top and by tie-rods or girders *d d'* at the bottom, and also by the usual bed or table *e*.

f denotes a shaft that is journaled in frames *a b* and serves as the main or driving shaft of the cutter. Mounted upon the outwardly-projecting portion of said shaft is a friction clutch-pulley *g*, that may be belted to any suitable form of counter-shaft or to the line-shaft. Secured to shaft *f* is a small pinion-gear *f'*, that meshes with and drives a large gear *h'*, secured to a shaft *h*, that is journaled in the frames *a b*, or to journal-boxes *a' b'*, bolted to said frames. The opposite ends of shaft *h* extend through the frames and bear crank-disks *i i'*, to whose wrist-pins are connected rods *k k'*, whose upper ends are connected with the ends of hollow slides *m m'*, that are mounted to travel in vertical ways a^2 b^2 in the upper part of the machine-frames. The cutter-bar *n* is mounted in the box-shaped slides *m m'* and is adapted both to travel upward and downward with said slides and to slide longitudinally therein.

The cutter-bar as here shown is formed with longitudinal slots n' n^2, within which are located rectangular blocks *o o*, that are secured to the slides *m m'* by bolts *p p*, the cutter-bar being thus suspended upon the said blocks.

When shaft *f* is set in revolution, the gears *f' h'* cause shaft *h* to revolve with a slow steady movement and the described cranks and connecting-rods *k k'* impart downward and upward motion to the sliders *m m'* and to the cutter-bar *n*, mounted therein.

The cutting-knife is indicated by the letter n^3 and is secured to the described bar *n* by bolts n^4.

Immediately in the rear of the cutter-bar *n* is the clamping-bar *q*, said clamping-bar being formed with two rectangular openings *q'*, whose side walls form ways on which may slide vertically rectangular carriages *s s*.

Projecting from the faces of carriages *s*, that confront the cutter-bar *n*, are studs *s'*, on which are loosely mounted blocks s^2, that lie in diagonal slots n^5, formed in the cutter-bar *n*. When the latter is moved downward, the clamping-bar *q* moves with it until the pile of material to be cut is reached, when the clamping-bar stops. As the cutter-bar continues its downward movement the blocks s^2 in the diagonal slots n^5 immediately cause the cutter-bar to travel diagonally downward, thus producing a sliding or shaving cut as the knife passes through the pile of paper.

The description thus far given explains gen-

erally the action of my paper-cutter when used only as a self-clamping machine, but it will sometimes become necessary, or at least desirable, to clamp the work to be cut or trimmed before starting the cutter into action, substantially as is practiced in ordinary hand-clampers, and to make it possible to do this I have provided novel mechanism whereby the carriages *s* may be adjusted in their ways in the clamping-bar to vary the vertical travel of the latter relatively to the cutter-bar, said adjusting mechanism being best understood by reference to Figs. 1, 2, 6, 7, and 8. The letter *t* denotes a horizontal shaft journaled in bearings secured to frame *b*, having a hand-wheel *t'* at one end and at the opposite end a bevel or miter gear *u*, that meshes with a corresponding gear *v'* on the lower end of a vertical shaft *v*, that is also journaled in bearings secured to frame *b*. At the upper end of said shaft *v* is a miter-gear v^2, that meshes with a companion gear *w'* on a shaft *w*, that is journaled in the frames *a b* and is also supported by downwardly-projecting portions *c'* of the cross-head *c*.

Referring now to Figs. 2 and 5, the reference-number 20 denotes a rock-shaft that is journaled in frames *a b* and has mounted thereon a lever-arm 21, to one of whose ends is secured a heavy weight 22, and to the opposite end is hinged a rod 23, by means of which the lever 21 is connected with a foot-lever 24 in such manner that when the lever 24 is forced downward the weight 22 will be raised.

Secured to shaft 20, near its opposite ends, are arms 25, whose free ends are pivoted to certain rods 26, whose upper ends are connected with the vertically-movable clamping-bar *q*, and it will now be understood that by forcing downward the foot-lever 24 the said bar *q* may be correspondingly moved downward. Ordinarily, however, the weight 22 more than counterbalances the clamping-bar and holds it in its elevated position, and that position is determined by the position of the carriages *s*, or rather of the position of certain internally-threaded sleeves s^3, that are splined to slide in said carriages.

In Fig. 6 I have shown the clamping-bar *q* as having been forced downward (out of engagement with the stop-sleeves s^3) by pressure applied to the foot-lever 24. Figs. 7 and 8 explain clearly the manner of splining said sleeves.

Within the threaded sleeves are screws *x*, upon whose upper ends are miter-gears *y*, that mesh with like gears *y'* on the horizontal shaft *w*, already described. When shaft *w* is caused to rotate, (by revolving the hand-wheel *t'*,) screws *x* are correspondingly rotated, and the sleeves s^3 are forced downward or drawn upward through the carriages *s*, according to the direction of rotation of the shaft and screws. If the sleeves are forced downward, they force the clamping-bar *q* also downward, and the range of movement of sleeves s^3 on their screws is such that the clamping-bar may, if desired, be forced down to the table *e* or to a pile of paper mounted on said table. So soon, however, as screws *x* are rotated to draw the sleeves upward the weight 22 at once acts to raise the clamping-bar. In fact, said weight seeks constantly to lift the clamping-bar into engagement with the lower ends of the sleeves, no matter to what position the latter may be raised or lowered. It will thus be seen that the clamping-bar may be forced down and held against upward movement by running the sleeves s^3 downward, in which event the cutter-bar may travel downward and upward independently of said clamping-bar, or by drawing the sleeves s^3 upward to their highest position the clamping-bar may be moved downward and upward with the knife, or by running the sleeves part way down the clamping-bar will move downward with the knife and pass upward until stopped by contact with said sleeves, when the knife-bar will continue upward alone. It will also be seen that the clamping-bar may be forced downward independently of the cutter-bar and the sleeves s^3 by bringing into use the foot-bar 24 and its connections.

I thus provide in a simple but practical way a combination of mechanical elements that makes a variety of clamping movements possible. In all cases, however, it should be understood that when the cutter-bar descends a diagonal movement is imparted to said cutter-bar so soon as the downward travel of carriages *s* is stopped by the stopping of the clamping-bar as the latter reaches the pile of paper or other material to be cut.

Having thus described my invention, I claim—

1. In a paper-cutter, in combination, a vertically-movable cutter-bar and clamping-bar, means as set forth for connecting said bar whereby one may slide diagonally upon the other, said connection including carriages *s* mounted to slide in ways in the clamping-bar, sleeves s^3 splined to slide in said carriages, and mechanism for sliding said sleeves in said carriages to limit the upward movement of the clamping-bar.

2. In a paper-cutter in combination, a vertically-movable clamping-bar, yielding mechanism for holding said bar normally in its elevated position and including a foot-lever, as set forth, whereby said bar may be lowered, carriages *s* mounted to slide in ways on said bar threaded sleeves splined to slide in said carriages, screws engaging said threaded sleeves and means for rotating said screws to vary the position of said sleeves relatively to the said carriages for the purpose specified.

JOHN S. EDGECOMB.

Witnesses:
J. O. FISH,
H. B. NOYES, Jr.