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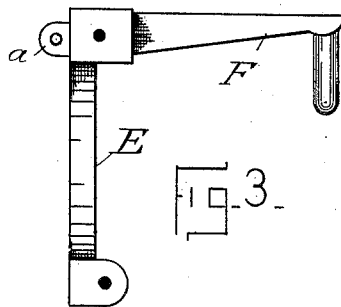
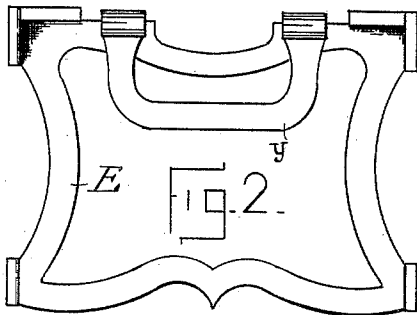
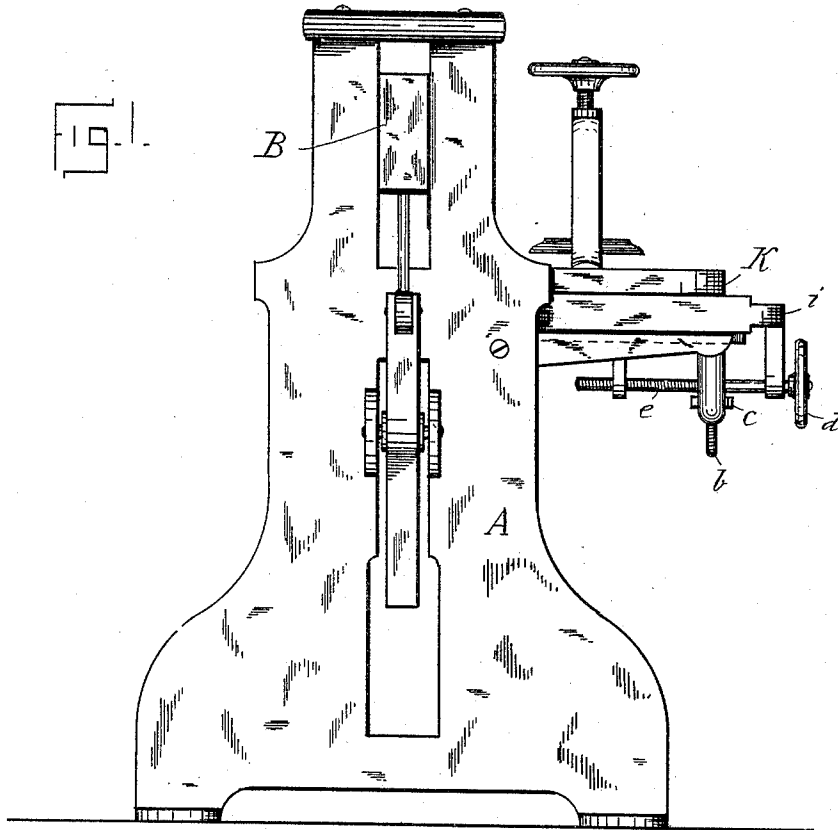
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J. S. EDGCOMB & G. E. SANBORN.

PAPER TRIMMING MACHINERY.

No. 465,656.

Patented Dec. 22, 1891.



WITNESSES =

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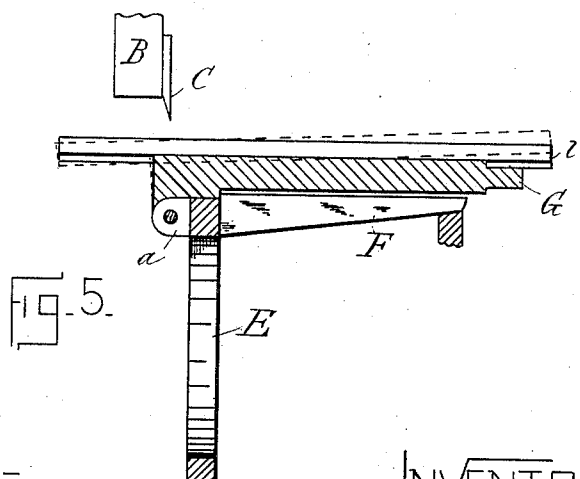
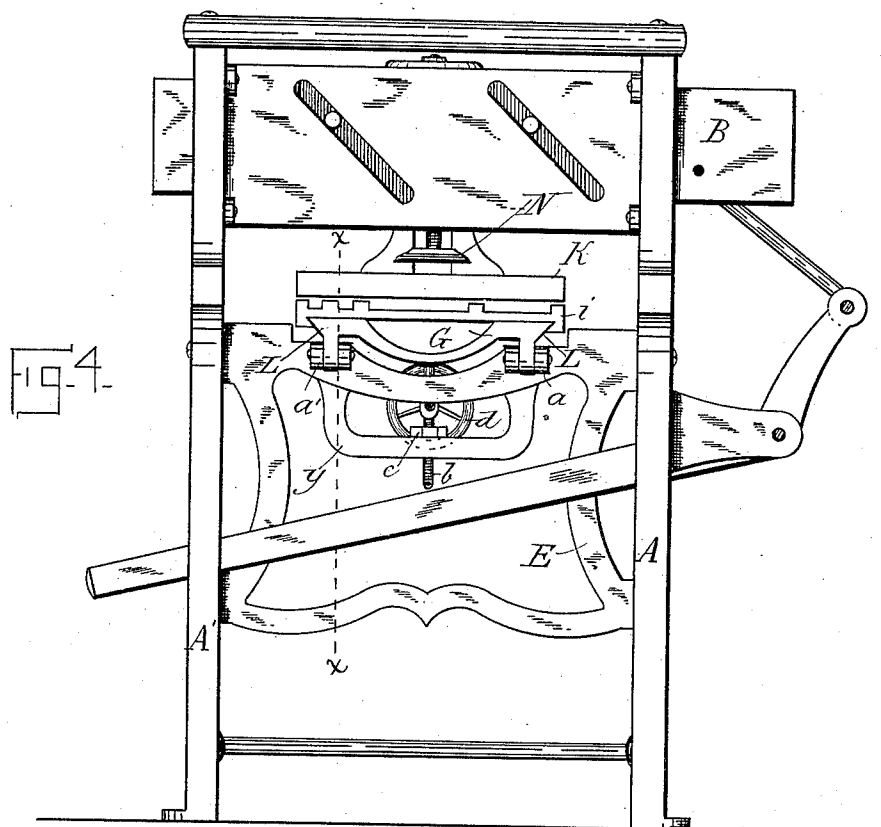
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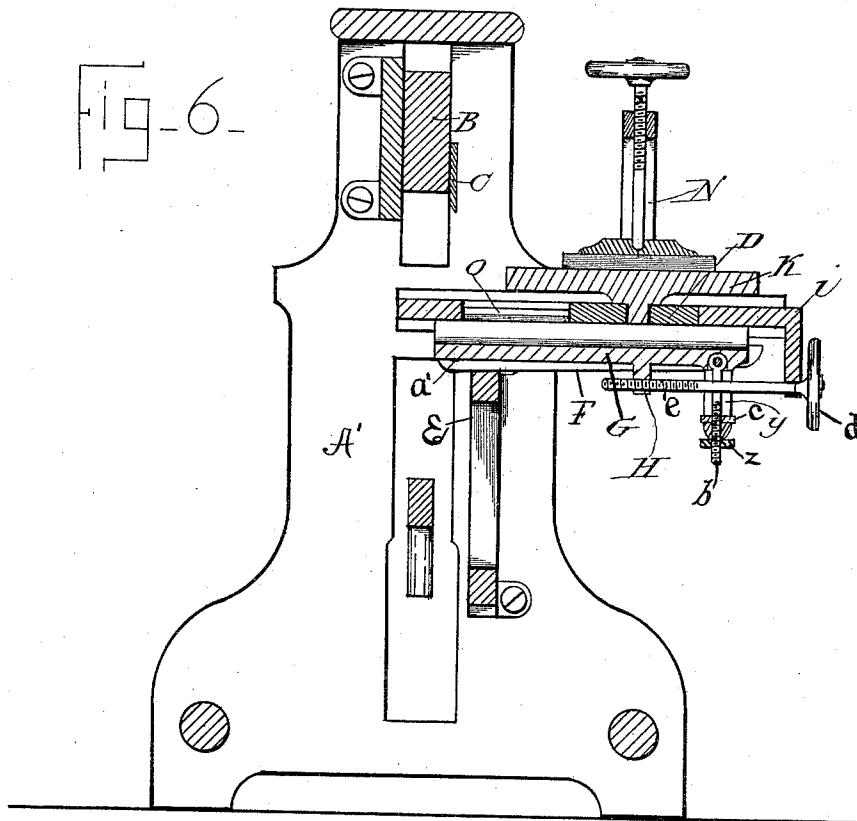
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UNITED STATES PATENT OFFICE.

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PAPER-TRIMMING MACHINERY.

SPECIFICATION forming part of Letters Patent No. 465,656, dated December 22, 1891.

Application filed February 18, 1885. Serial No. 156,319. (No model.)

To all whom it may concern:

Be it known that we, JOHN S. EDGCOMB, of Groton, in the county of New London and State of Connecticut, and GEORGE E. SANBORN, of the city, county, and State of New York, have invented certain new and useful Improvements in Paper-Trimming Machinery, which improvements are fully set forth and described in the following specification, reference being had to the drawings which form a part of and accompany said specification.

Our improvements relate to that class of mechanical devices commonly known as "paper-cutters" or "paper-trimmers," used largely by book-binders and printers, and also by others who have occasion to cut paper or cardboard in "piled-up" sheets, our immediate object being to overcome a certain tendency on the part of the cutting-knife to crowd off or away from the pile of paper being cut or to draw in and cut under said pile as said knife descends, which tendency exists in many of the so-called "paper-trimmers" now used.

Said invention also relates to a simple and convenient means for adjusting and holding the movable paper-supporting bed made use of, as more fully referred to hereinafter.

In the annexed drawings, Figure 1 is an end elevation of a paper-trimmer embodying our invention. Fig. 2 is a detached front view of the bracket which supports the paper-table, and Fig. 3 is a side view of Fig. 2. Fig. 4 is a rear elevation of said trimmer; and Fig. 5 a sectional view on line *xx*, Fig. 4, showing our tilting bed *G* and means for supporting and operating said bed. Fig. 6 is a longitudinal sectional view through the center of said trimmer.

The general form and arrangement of parts (aside from our added improvements, the tilting bed and parts on or in combination therewith) is identical with the corresponding parts of paper-trimming machines now in common use—that is to say, a vertically-reciprocating knife, operated by powerful mechanism, is arranged within a suitable supporting-frame, and secured in the same frame is a bracket which serves the double purpose of stiffening said frame and of supporting the paper-table.

It has been the practice heretofore with cer-

tain makers of paper-trimming machinery for book-binders' use to provide an auxiliary paper-clamping device rotatably fixed to or in a slide arranged to slide in an oblong opening or slot in a rigid paper-supporting table, the edges of each being provided with guides, (substantially of the general form shown in Figs. 1 and 4,) by which the pile of sheets which are to form a book may be securely clamped together, yet may be advanced to the knife and revolved to trim successively the several sides of the pile without being released from said clamping mechanism; but as such movable clamping devices are located on a horizontal bed formed as a rigid part of cutter-frame proper their addition to a cutter tends to increase rather than lessen the thrust effects of the descending knife, which effects our invention is intended to overcome. Such a form of rotatable clamp on a rigid horizontal bed is shown and fully described in patent to H. Law, No. 83,513, dated October 27, 1868.

It is desirable in cutting through a pile of sheets, and especially so in trimming book-work, if not absolutely necessary, that the edges of the pile so cut shall be square with the paper-supporting table, or, in other words, that all the sheets of a pile should be cut to exactly the same size and shape. So far as we are acquainted with the state of the art there is a tendency in the knives of most of the trimmers now in use either to "crowd off" and away from the pile of paper as the knife descends, or to "draw in" and cut under, in either case varying materially the relative sizes of the top and bottom sheets of the pile. This is occasioned in part by the wearing of the ways or guides in which the knife-bar travels, but principally by the springing or yielding of the paper-clamping device and its bed, which, when formed as a rotatable auxiliary table, cannot be as rigid as the fixed bed of an ordinary paper-cutter. To overcome this serious difficulty we use a tilting bed *G*, hinged in the cross frame or brace *E*, on which rests and moves a sliding bed *i*, which in turn supports a slide *D*, in which the rotating clamp *N* is pivoted, this slide moving in guides placed at the two opposite longitudinal edges of the opening *O* in the sliding bed *i*. The tilting bed *G* is provided with

longitudinal guides L L, Fig. 4, on which the sliding bed *i* moves to and from the knife, thus carrying the clamped paper to be cut. The tilting bed G is raised, lowered, and at the front end supported by the threaded rod or bolt *b* and nut *c*, the last resting upon the yoke *y*, forming a part of and uniting the two parts of the bracket F. The functions of the sliding bed *i* are to carry or support the slide D, to which the paper-clamping device is attached or rotatably fixed in an oblong opening or slot O of the sliding bed, and also to slide back and forth on the guides of the tilting bed G, carrying the clamping devices and also the slide D in which they are supported, together with the paper to be cut. The sliding bed *i*, with the slide D and clamp N, being supported upon the tilting bed G, is capable of being raised and lowered therewith, so as to bring the paper to be cut into the proper position.

A A' represent the supporting-frame of the cutter, B the knife-bar arranged to slide vertically in said frame, and C the knife secured adjustably to the knife-bar.

Secured between the uprights A A' is a frame E, having formed as an integral part thereof or secured rigidly thereto a double bracket F and yoke *y*, which extends outward on the front side of the machine. The frame-brace E has at its upper inner end perforated lugs *a a'*, in which is hinged the tilting bed G, whose outer end is supported by a threaded bolt *b*, carrying a nut *c*, which rests on the yoke at the outer end of the double bracket F, and a check-nut *z* may be added, as in Fig. 6, if desired. The hinge-support of the bed G is placed immediately in vertical alignment with the knife C, so that as said knife descends the tendency to tip the bed G, bracket F, and frame-brace E is neutralized. The locating of said hinges in vertical alignment with the cutting-knife forms one of the features of our invention.

The tilting bed G is provided with ways L L, (see Fig. 4,) on which is placed the sliding bed *i*, the movement of said bed *i* on said ways being effected by the hand-wheel *d* and screw *e*, said screw being arranged to engage and travel in a threaded arm or lug H projecting from the under side of the bed G, on which is placed the sliding bed *i* and the paper-clamping device, as shown. It will now be evident that the tilting bed G may be moved out of its normal or level position by adjusting the nut *c*, which, if turned to the left hand, will elevate the outer end of the bed G, together with the sliding bed *i* and clamp N. Should the knife be inclined to cut under or draw into the pile of paper as it descends, nut *c* should be moved to elevate slightly the outer end of the bed and platform, the tilting bed G and sliding bed *i*, thus lifting the front side of the pile of paper to be trimmed, so that as the knife descends and is drawn into the pile it will cut a strip of the same width at the bottom as at the top where it entered. In other words, it will

make a cut at right angles to the table K, which supports the pile of paper. Should the knife be inclined to crowd off or away from the pile of paper as it descends, the outer end of bed G should be slightly depressed.

In the Patent No. 83,513, before referred to, the bed supporting the rotating table and in which the slide of that table moves is permanently attached to a horizontal bar which moves up and down in guides, carrying with it the sliding and rotating table on which rests the material to be cut in its advance to and retreat from the knife, and there is no horizontal moving bed whatever like the adjustable sliding bed *i* shown in this invention nor any adjustable tilting bed. In addition to these two elements there is present in this invention a rigid support secured to the frame for the tilting and the sliding beds, the sliding and rotating table, and the material to be cut. In several German patents a tilting table is shown, but no supporting-brackets in permanent relation to the frame, sliding bed, and rotating table in combination.

This invention is intended particularly for book-trimming, and the sliding rotating table K permits the book when once clamped to be cut on three sides without being released and automatically, so that the top and bottom edges of the book will be at right angles with the front edge, and so, also, as to each leaf of the book. The rigid bracket furnishes support to the adjustable tilting bed G, the adjustable sliding bed *i*, and the sliding rotating table K, all in such relation to the frame and to the knife that the cut may be made at right angles to the surface of the book where the cut is light, the paper soft, the lateral resistance and thrust upon the knife are absent, and without adjustment to counteract the lateral resistance and thrust; but where the cut is heavy, where the paper is stiff, and where for other reasons the lateral resistance to the knife and the thrust are great there is a tendency on the part of the knife to depart or be crowded from the perpendicular, and thereby to make an imperfect cut not at right angles to other cuts, and this tendency under such circumstances it is one of the purposes of this invention to counteract or prevent by or through the tilting and adjustment of the tilting bed and of the parts resting and sliding on or supported thereby through the adjusting device the nut *c*, which works in the yoke or connecting part of the bracket F. (Shown in front view in Fig. 2 and in side view in Fig. 3.)

Having thus described our invention, we claim—

1. In a book-trimmer and paper-cutter, and in combination, the following elements: the double bracket F, rigidly secured to the frame E, and thereby rigidly secured to the uprights A A', the adjustable tilting bed G, hinged on the frame E, the adjustable sliding bed *i*, moving on the ways L L of the tilting bed G, the slide D, moving in guides in the sliding

bed i, and the sliding rotating table K and its clamp pivoted in the slide D and supported on the sliding bed i.

2. In a book-trimmer and paper-cutter, and
5 in combination, the following elements: the bracket F, rigidly secured to the frame E and thereby rigidly secured to the uprights A A', the adjustable tilting bed G, hinged on the frame E and having its adjustable support in or on the bracket F, and the adjustable
10 sliding bed i, resting and moving on the ways LL of the tilting bed G and supporting and guiding the sliding rotating table K, pivoted in the slide D and provided with clamping
15 devices.

3. In a book-trimmer and paper-cutter, and in combination, the following elements: the adjustable tilting bed G, hinged to the frame

of the cutter and adjustably supported by a bracket rigidly secured to the frame, the adjustable sliding bed i, moving on the ways LL of the adjustable tilting bed G, the slide D, moving in guides in the sliding bed i, and the sliding rotating table K, pivoted in the slide D, supported on the sliding bed i and
25 provided with a clamp for clamping the work, substantially as shown and described.

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