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TRIMMER FOR SHEET MATERIAL.

APPLICATION FILED SEPT. 29, 1914.

1,161,774.

Patented Nov. 23, 1915.

2 SHEETS—SHEET 1.

Fig. 1.

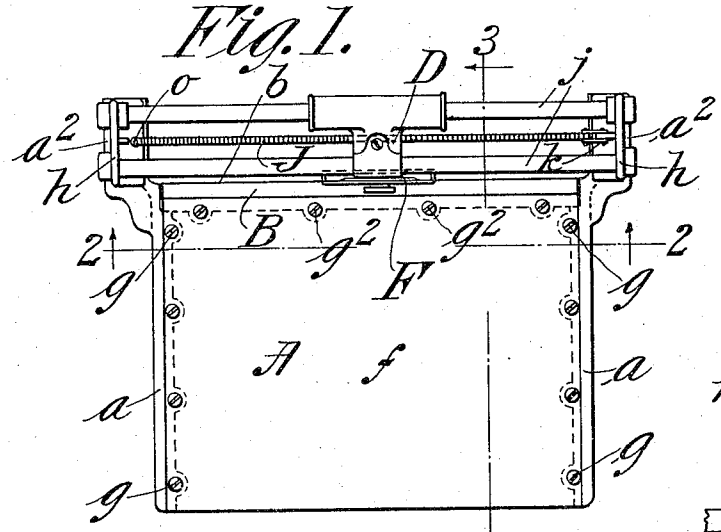


Fig. 4ª.

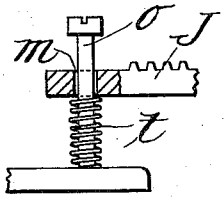


Fig. 2.

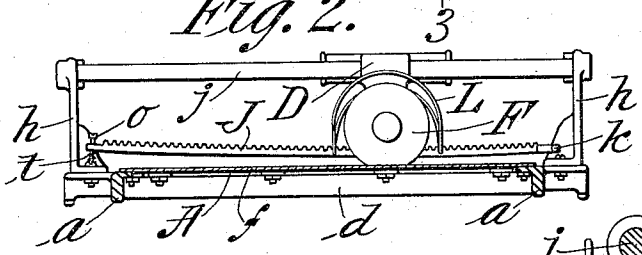


Fig. 3.

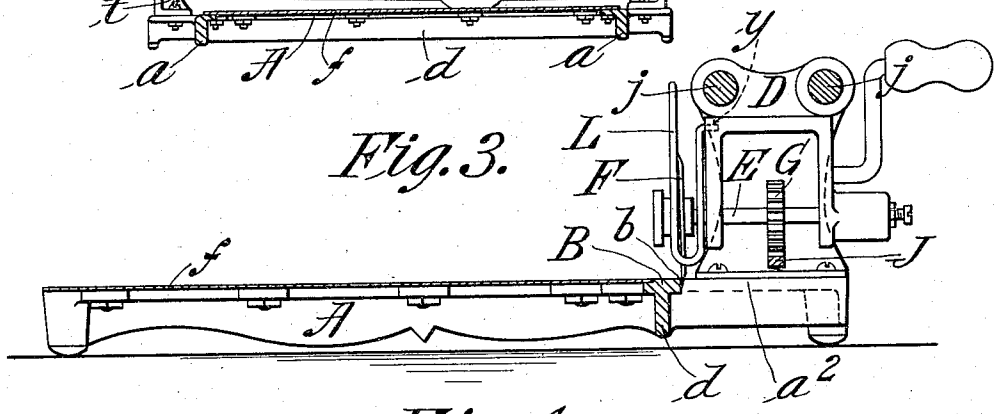
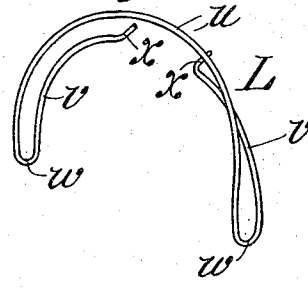


Fig. 4.



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2 SHEETS—SHEET 2.

Fig. 5.

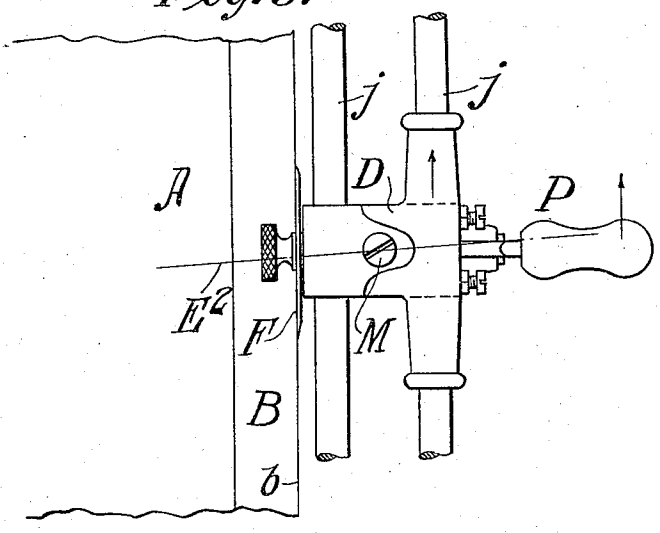
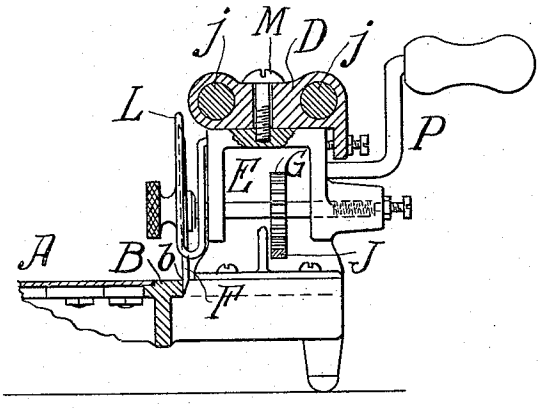


Fig. 6.



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TRIMMER FOR SHEET MATERIAL.

1,161,774. Specification of Letters Patent. Patented Nov. 23, 1915.

Application filed September 29, 1914. Serial No. 864,113.

To all whom it may concern:

Be it known that we, WILLIAM H. JOHNSON, ARTHUR L. BIRD, and CHARLES E. CONNELL, citizens of the United States of America, and residents of Brandon, in the county of Rutland and State of Vermont, have invented certain new and useful Improvements in Trimmers for Sheet Material, of which the following is a full, clear, and exact description.

This invention relates to improvements in paper cutters or trimmers especially adapted for employment in the trimming of photographic prints, but susceptible of employment for other purposes; and is of a general character such as shown and described in an application for Letters Patent of the United States filed by us March 9, 1914, Serial No. 823,478.

The principal objects of the present invention are to provide a trimmer having an improved construction of the base; having improved and simplified means for causing the rotary motion of the cutter disk; having provisions whereby the cutter disk will be automatically slightly inclined in a forward direction with respect to the direction in which it is bodily moved, relatively to the straight cutting edge of the base with which it coacts; and having means to serve as a guard whereby personal injury to the operator cannot accidentally result from the rotary action of the cutter disk while the trimmer is being operated.

The invention is described in conjunction with the accompanying drawings and is set forth in the claims.

In the drawings:—Figure 1 is a plan view of the trimmer; Fig. 2 is a sectional elevation on line 2—2, Fig. 1, looking forward. Fig. 3 is a cross sectional view, on a larger scale, on line 3—3, Fig. 1. Fig. 4 is a perspective view showing the form of a guard employed in conjunction with the cutter disk. Fig. 4^a is a fragmentary sectional elevation to represent a detail of construction hereinafter referred to. Fig. 5 is a plan view and Fig. 6 is a sectional elevation for illustrating provisions whereby the cutter disk may be automatically inclined forwardly relatively to the cutting edge as it is bodily moved with the carrier therefor.

In the drawings, the base A of the trimming machine is composed of opposite end members *a a* and a forwardly located bar B having a straight cutting edge *b* and a depending strengthening web *d*, and a base plate *f* of sheet or thin steel, the latter extending between and being secured by screws *g g* to the opposite end members of the frame and having its forward marginal portion laid into a rabbet in the bar B and secured by screws g^2, g^2 to the latter, the upper surface of the plate *f* and the upper surface of the bar B being flush and continuous.

The end members *a a* and the straight edged bar B being of cast metal and the part *f* being in the form of a thin plate or sheet metal, produce a comparatively light and very strong base or bed for the trimmer and one which, unlike wood, will not be affected for warping or distortion by wet photographic prints or atmospheric conditions. The end members *a a* have the extensions a^2, a^2, forwardly beyond the cutting edge *b* and supporting thereat upstanding brackets *h h* on and between which are maintained the horizontal rods *j j* constituting the runner support on which the carrier D is horizontally slidable. The said carrier has a transverse substantially horizontal shaft E mounted therein, provided at its rear end with a cutter disk F which coacts with the straight cutting edge of the base; and said shaft is also provided with a gear wheel G affixed on an intermediate portion thereof. A rack bar J is provided horizontally between the end extensions a^2 a^2 of the base frame with which the said gear wheel meshes. The said rack bar is supported at one end on a horizontal pivot *k*, and it has an aperture *m* in its other end, through which a stationary upstanding stud *o* extends; and a spiral spring *t* encircling the stud constitutes a means for yieldingly supporting the apertured end of the rack bar J. The said bar being desirably of comparatively light construction and of considerable length is more or less flexible; and the pivotal hanging of same at one end and the spring supporting thereof at the other provides for its being in constant meshing engagement with the gear wheel bodily carried with the shaft of the carrier so that in the traverses of the carrier the disk will certainly be rotated in the proper direction.

L represents a guard supported by the carrier having an embracing relation to the upper opposite edge portions of the cutter

disk and serving to prevent personal injury to the operator by the disk while using the trimmer. This guard L, as particularly shown in Fig. 4, consists of a length of wire having the intermediate portion *u* bent to semi-circular form, having the end portions *v v* thereof forwardly offset from said semi-circular portion by bends *w w*,—these end portions *v v* being bent to arc forms more or less nearly parallel with the portion *u*, and their extremities *x x* are forwardly extended and engaged in perforations *y* which are provided therefor in the rear side of the carrier.

The particular manner of mounting the cutter disk whereby it may be automatically presented forwardly inclined relatively to the straight cutting edge *b* and with reference to whichever is the forward movement, whether the cutter is carried in a direction away from the person or in a reverse direction, is illustrated in Figs. 5 and 6, in which it is seen that the support in which the disk shaft E is mounted is constituted by a hanger made as a part separate from or supplemental to the carrier proper D. This hanger is connected to the carrier proper by the vertical screw M which passes loosely through a vertical bore therefor in the carrier and which has the extremity thereof in screw thread engagement with the hanger.

The screw or threaded and headed stud M constitutes an axis pivot for the hanger, by means of which it, and the disk carried thereby, may be bodily swung, in a slight degree, relatively to the carrier D.

The handle P rigidly connected to the hanger and extended transversely relatively to the length of the sliding movement of the carrier acts both as a means for the propulsion of the carrier and as a lever to cause the swinging movement of the hanger.

Assuming that the carrier is being moved in the direction of the arrow, Fig. 5, by the operator, through the medium of the handle P, the force imposed on such handle is such as to slightly swing the hanger so that the axis of the cutter disk F and its carrier shaft E is inclined as shown, in a somewhat exaggerated degree, by the broken line E^2,—the plane of the disk perpendicular to the shaft axis having its inclination forwardly relatively to the straight cutting edge *b*, bringing it to certain contact against such edge and resulting, in the action of the machine, in effecting the slitting of the sheet material with absolute certainty and with a clean and sharp, or non-ragged, cut.

We claim:—

1. In a paper trimmer, a base having straight cutting edge, and having a horizontal runner support above and forwardly of the cutting edge, a carrier slidably mounted on said support and having a transverse substantially horizontal shaft rotatively mounted therein, provided with a cutter disk for coaction with the straight cutting edge of the base and also provided with a gear wheel affixed thereon, and a rack bar parallel with the cutting edge supported at one end on a horizontal pivot, and spring supported at its other end, and with the teeth of which said gear wheel meshes.

2. In a paper trimmer, a base having a straight cutting edge, and having a horizontal runner support above and forwardly of the cutting edge, a carrier slidably mounted on said support and having a transverse substantially horizontal shaft rotatively mounted therein, provided with a cutter disk for coaction with the straight cutting edge of the base and also provided with a gear wheel affixed thereon, a rack bar parallel with the cutting edge supported at one end on a horizontal pivot, and having an aperture in its other end, a stationary upstanding stud extending through said aperture, and a spiral spring encircling the stud below, and supporting the apertured end of the rack bar.

3. In a paper trimmer, a base frame comprising opposite end members, and a forwardly located bar having a cutting edge, and a depending strengthening web, a metallic base plate extending between and secured to the opposite end members of said frame and also secured to said straight edged bar and having its upper surface flush with the upper surface of said bar, opposite upstanding brackets supported by forwardly extended portions of the end members, a horizontal runner support mounted on said brackets, a carrier slidably mounted on said support and having a transverse substantial horizontal shaft rotatively mounted therein provided with a cutter disk for coaction with the straight edge of said base bar, and means for acquiring, under the sliding movement of the carrier, the rotative movement of the cutter disk.

4. In a paper trimmer, a base support having a forwardly located straight cutting edge and having a horizontal runner support above and forwardly of such edge, a carrier slidably mounted on said support and having a transverse shaft rotatively mounted thereon, provided with a cutter disk for coaction with the straight cutting edge of the base, means for acquiring under the sliding movement of the carrier the rotative movement of the cutter disk, and a guard consisting of a length of wire, having the intermediate portion bent to semi-circular form, and having the end portions thereof forwardly offset from said semi-circular portion and bent to arc form, and having their extremities forwardly extended and engaged in perforations which are provided therefor in the side of the carrier, the so formed wire appliance constituting a guard

having an embracing relation to the upper and opposite edge portions of the disk.

5. In a paper trimmer, a base having a straight cutting edge and a horizontal runner support above such cutting edge, a carrier slidably mounted on said support, a hanger carried by said support and having a swiveling action on a vertical axis relatively thereto, a substantially horizontal shaft rotatively mounted in the hanger provided with a cutter disk for coaction with the straight cutting edge of the base, a handle extended from the hanger and by means of which the hanger and the carrier are slid in unison and by means of which, also, the hanger is swung relatively to the carrier to present the disk in a plane forwardly inclined relatively to the cutting edge, and means for acquiring under the sliding movement of the carrier a rotative movement of the cutter disk shaft.

Signed by us at Brandon in presence of two subscribing witnesses.

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Witnesses:
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."