No. 627,598. Patented June 27, 1899.

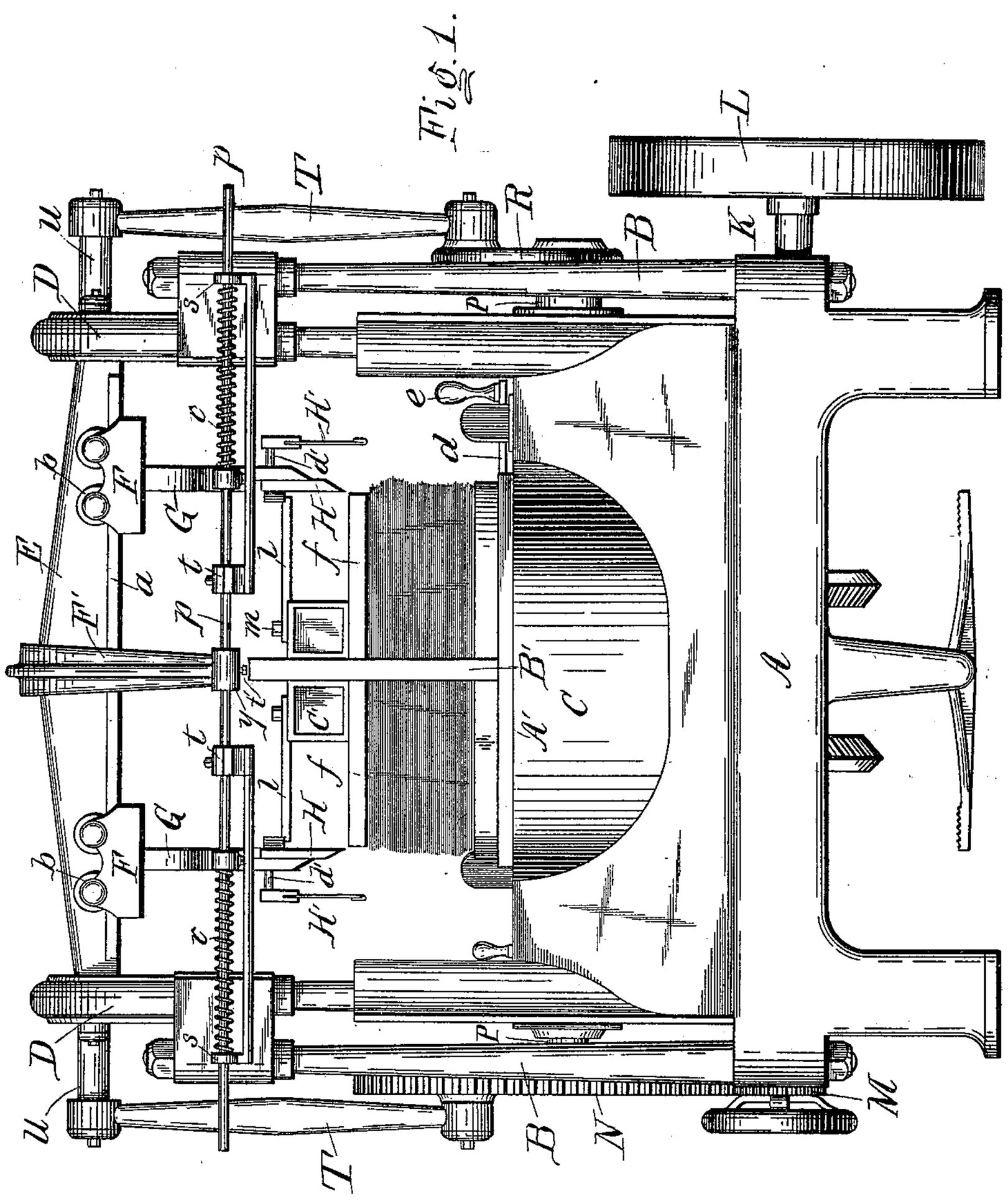
C. SEYBOLD.

PAPER TRIMMING MACHINE.

(Application filed June 9, 1898.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.



Witnesses.
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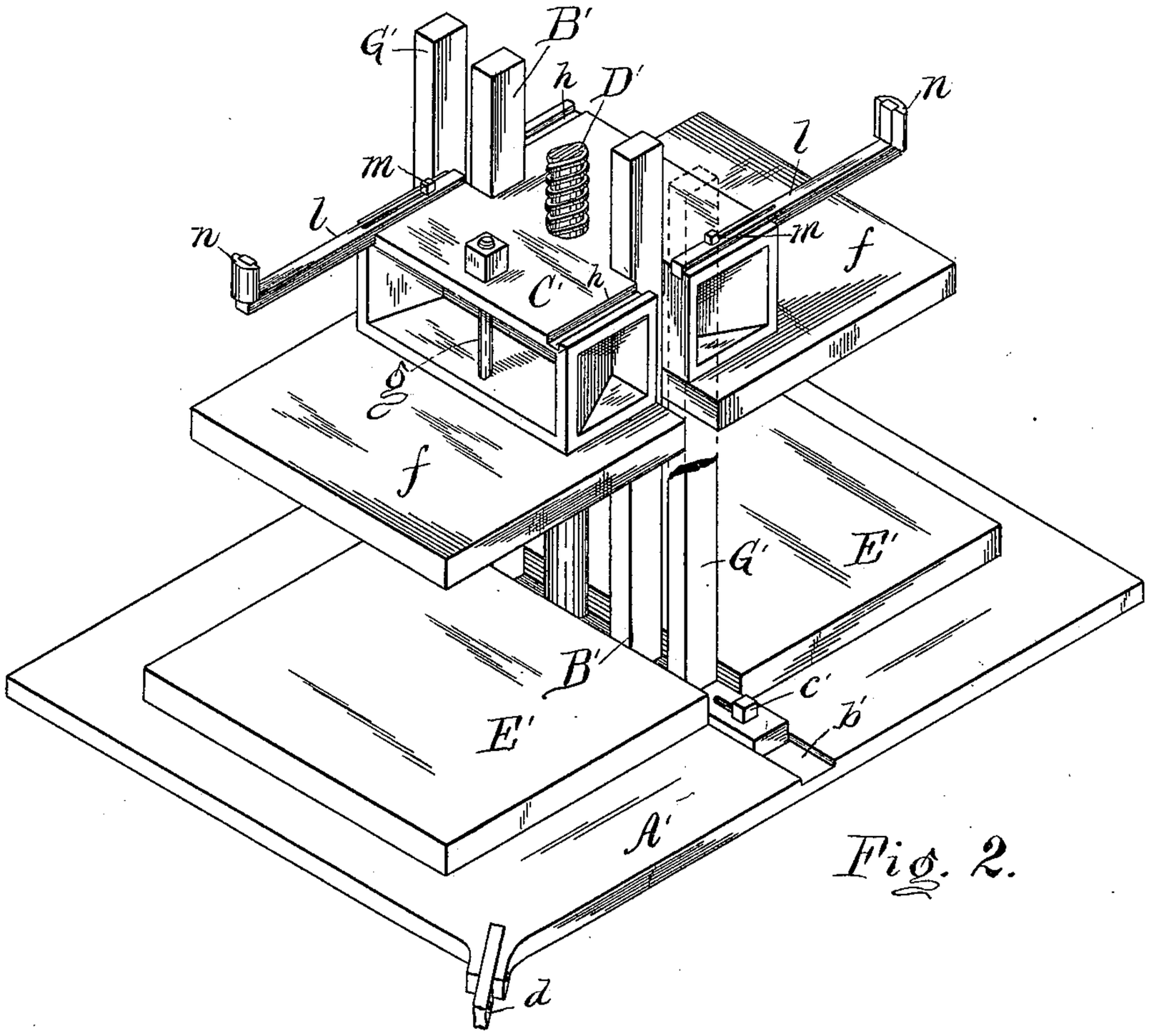
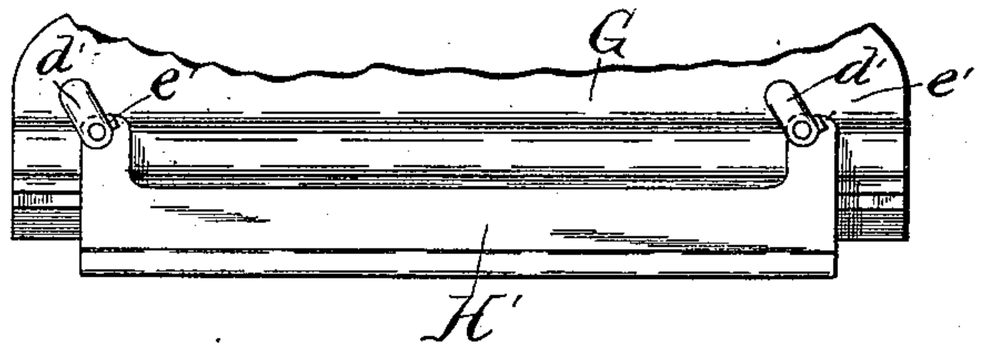


Fig. 2.

Fig. 3.



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UNITED STATES PATENT OFFICE.

CHARLES SEYBOLD, OF DAYTON, OHIO.

PAPER-TRIMMING MACHINE.

SPECIFICATION forming part of Letters Patent No. 627,598, dated June 27, 1899.

Application filed June 9, 1898. Serial No. 683,023. (No model.)

To all whom it may concern:

Be it known that I, CHARLES SEYBOLD, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented a certain new and useful Improvement in Paper-Trimming Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to machines for trimming the edges of bundles of paper—such as books, pamphlets, circulars, and the like—and has special relation to that construction of machines in which a pair of cutting-knives are employed, acting automatically and simultaneously in planes parallel to each other, to trim two edges at a time. The general construction and operation of this class of machines I have fully shown and described in my Letters Patent No. 594,490, of November 30, 1897, for paper-trimming machines; and my present invention relates to certain improvements thereon, to be hereinafter particularly pointed out and claimed, whereby the adjustment of the cutting-knives is obtained without the necessity of a duplicate set of pattern-boards, and the chips trimmed from the packages are prevented from encumbering the operation of the machine, and additional support may be given the backs of the packages during the trimming operation.

In the drawings, Figure 1 is a rear elevation of my paper-trimming machine, showing my improvements. Fig. 2 is a perspective view of the clamp-table and clamp-plate of the machine with the gage-bars for adjusting the lateral movement of the cutting-knives. Fig. 3 is a side view of a portion of one knife-carrier, showing the shield or guard for preventing the scattering of the chips trimmed from the bundles.

As described in my above-mentioned patent, the operating mechanism is mounted in a suitable solid and substantial framework A, side standards B B, and bed-plate C, with head-blocks D D mounted in the standards B B.

E is the knife bed or frame, provided with tracks *a*, upon which are mounted on the rollers *b b* the knife-carriages F F, to the depending side plates G G of which are secured the cutting-knives H H, the knife-carriers and knives thus being capable of a horizontal lateral movement, as well as a vertical cutting movement, with the knife-bed E.

K is the main driving-shaft, driven by pulley L and carrying at its other end the gear M, which meshes with the gear N, mounted on shaft P, journaled in the bed-plate of the machine. This shaft P carries cranks R at each end, coupled by connecting-rods T T with the arms U U, which are rigidly secured to the knife-bed E, so that the rotation of the driving-shaft will actuate the knife-bed E vertically to operate the cutting-knives, the knife-bed having its bearing in diagonal slots in the head-blocks, so as to give a downward shearing cut.

A′ is the clamp-table, mounted on the bed C of the machine so as to turn thereon horizontally, while *d* is a lever-bar, and *e* the handle therefor for turning the table.

B′ B′ are upright posts secured to the clamp-table, and C′ is a clamp-plate or casting mounted on the screw D′, which is rotated in either direction by suitable gearing (not shown) to raise and lower the clamp-plate. Bolted to the under surface of this clamp-plate by bolts *g* are the pattern-boards *f f*, of the exact size of the bundles of paper to be trimmed, while E′ E′ are the cutting-boards on the table A′, against which the cutting-knives act.

The construction of the machine as so far described is all old, as heretofore shown and described in my Patent No. 594,490, above mentioned. Heretofore, however, in machines of this class it has been necessary to provide a duplicate set of pattern-boards to form guides for the cutting-knives. These pattern-boards, however, are a matter of considerable expense, as the upper and lower set have had to be exact duplicates, and the first part of my present invention relates to devices to obviate the necessity for such duplication of patterns. To accomplish this, I form grooves *h h* in the upper surface of the clamp-plate C′ and mount therein guide-bars *l l*, adjustable by set-screws *m m*. The outer ends of these bars are shod with indurated fiber or like material *n n*, rounded off at the edges, as shown. These bars are then set in

the desired position, so as to form a stop for the knife-carriers and knives at exactly the proper position to allow the knives to descend along the sides of the lower pattern-boards, and thus the guide-bars take the place of the former upper set of patterns so far as the side cuts are concerned.

As described in my above-mentioned patent, the knife-carriages F F and knife-plates G G, with the knives II II, are mounted to move horizontally on the knife-bed E. Passing horizontally through each of the depending knife-plates G G and serving as a lateral guide therefor is a rod *p*. Surrounding this rod are the spiral springs *r r*, bearing between the knife-plates G G and collars *s s*, secured to the rod, as hereinafter described. The effect of these springs is to press the knives into close contact with the ends of the guide-bars *n n*, and when the knife-actuating mechanism is set in operation the knives will descend with shearing cut and trim the side edges of the bundles of paper held under the clamp-plate. When the knives have returned to their normal position, the operator then turns the table A′ quarter-way around to bring the other edges of the paper bundles within the action of the knives. This movement of the table of course withdraws the guide-bars *l l*, and the springs *r r* at once cause the knives to approach each other until stopped by the clamp-collars *t t*, adjustable along the rod *p*. As a support for the rod *p* I secure centrally to the knife-bed E an arm F′, carrying a collar *y*, through which the rod *p* passes and to which it is secured by set-screw *t′*, and the collars *t t* are adjusted for the end cuts of the knives at the exact distance from this collar *y* to allow the knives to descend along the front and rear edges of the pattern-boards *f f*.

For convenience I have shown the collars *t t* and *s s*, which are mounted on the rod *p*, connected by the bars *a′ a′*, so that each collar *t* is adjusted simultaneously; but of course these collars may be separate and each adjustable by set or clamp screw independently.

It will be seen that the guide-bars B′ B′ for the clamp-plate C′ are always in a fixed position, so that when large-sized pattern-boards are employed the back edges of the books, circulars, or the like will not be supported for some distance. In order, therefore, to provide additional support, I form a groove *b′* in the table A′ at front and rear and mount therein angle-bars G′ G′, which are secured by set-screws *c′* just within the pattern-boards *f f*, thus forming additional support for the back edges of the bundles of paper.

It frequently happens in trimming the edges of the paper that the chips cut therefrom scatter over the operating parts of the machine, and in order to prevent this and keep the chips on the cutting-table, whence they can be easily swept off by the operator, I provide the shields or guards II′ II′. These shields are pivoted at *f′ f′* on arms *d′ d′*, pivotally mounted on the knife-plates G G, so as to hang down with their lower edges just below the cutting edges of the knives, while stops *e′ e′*, fixed to the shield, have a bearing against the ends of the arms *d′ d′* and prevent the pivotal centers of the shields swinging into the same vertical line with the pivots of the arms, so that as the shields descend with the knives toward the table should chips accumulate thereunder the shields can swing up out of the way and prevent damage thereto. It will be evident that these shields will prevent the improper discharge of the chips and keep them on the cutting-table.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a paper-trimming machine, provided with a pair of cutting-knives arranged in parallel planes and mounted to move laterally, with means for actuating the knives to trim the paper and rotatable clamp for holding the paper bundles, pattern-boards and guide-bars adjustably secured to said clamp, and means for keeping said knives against said guide-bars in line with the side edges of said pattern-boards, with adjustable stops to keep said knives in line with the end edges of said pattern-boards when the clamp is rotated, substantially as shown and described.

2. In a paper-trimming machine, provided with a pair of cutting-knives arranged in parallel planes, and mounted to move laterally, with means for actuating the knives to trim the paper, and a clamp for holding the paper bundles, a horizontal rod on which said knives are mounted, with springs mounted on said rod, pressing the knives toward each other, and collars adjustably secured to said rod to form stops for said knives at the proper distance for the end cuts thereof, substantially as shown and described.

3. In a paper-trimming machine provided with a pair of cutting-knives arranged in parallel planes, and mounted to move laterally, with means for actuating the knives to trim the paper, and a clamp for holding the paper bundles, pattern-boards and guide-bars secured to said clamp, said guide-bars being adjustable to bring the outer edges thereof in line with the side edges of said pattern-boards, a horizontal rod on which said knives are mounted, with springs on said rod pressing the knives toward each other, and collars adjustably secured to said rod to form stops for said knives in line with the end edges of said pattern-boards, substantially as shown and described.

4. In a paper-trimming machine, provided with a pair of cutting-knives arranged in parallel planes, and mounted to move laterally with means for actuating the knives to trim the paper, shields pivoted to the knife-plates parallel with said knives and outside the same, with means for allowing said shields

to swing up to prevent damage thereto should they meet with obstruction, substantially as shown and described.

5. In a paper-trimming machine, provided with a clamp table and plate, with means for raising and lowering said plate to hold the paper, and bars fixed to the operating-table and serving as guides for said clamp-plate, supplemental bars with means for adjustably securing same to the clamp-table to serve as additional supports for the back edges of the paper bundles to be trimmed, substantially as shown and described.

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