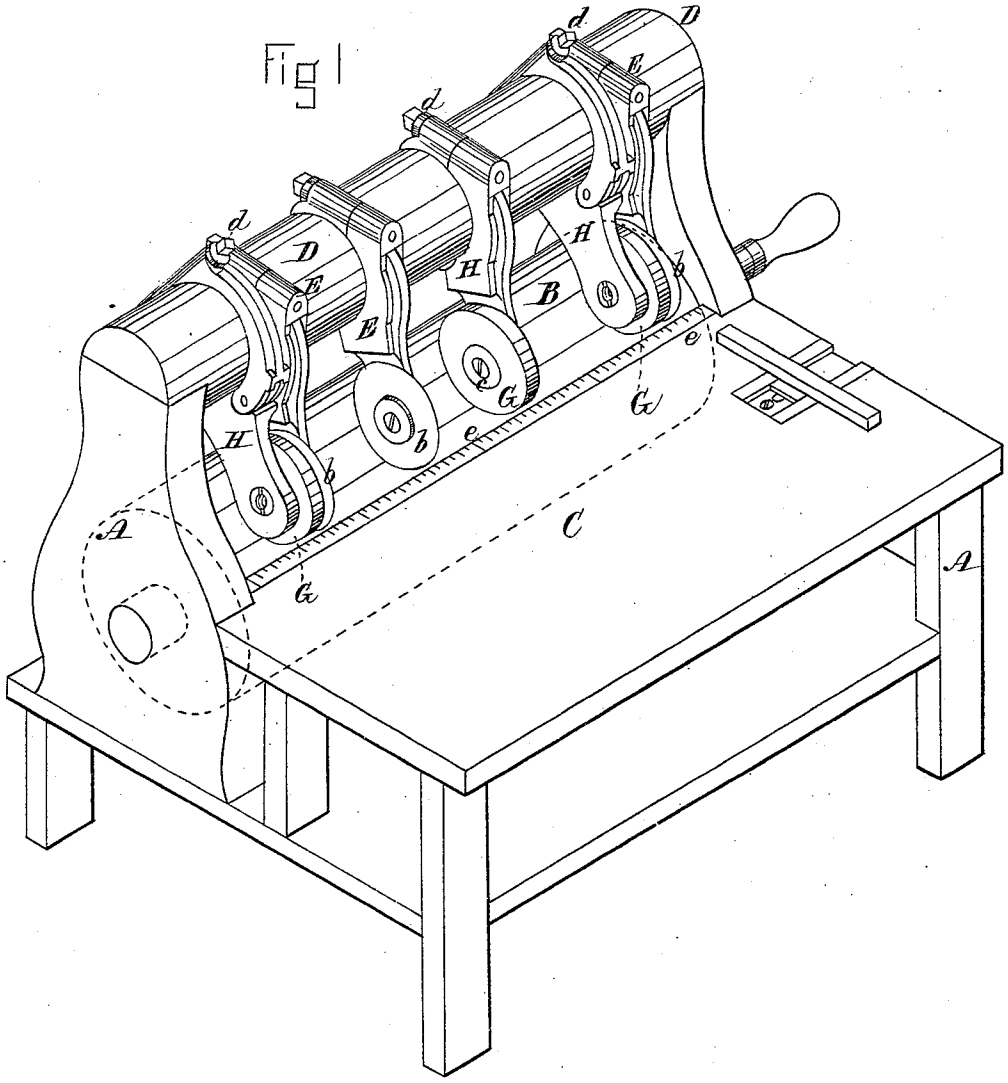
(No Model.) 2 Sheets—Sheet 1.

W. D. TURNER.

ROTARY PAPER CUTTER.

No. 246,923. Patented Sept. 13, 1881.

Fig 1



WITNESSES

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(No Model.) 2 Sheets—Sheet 2.

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Fig 2

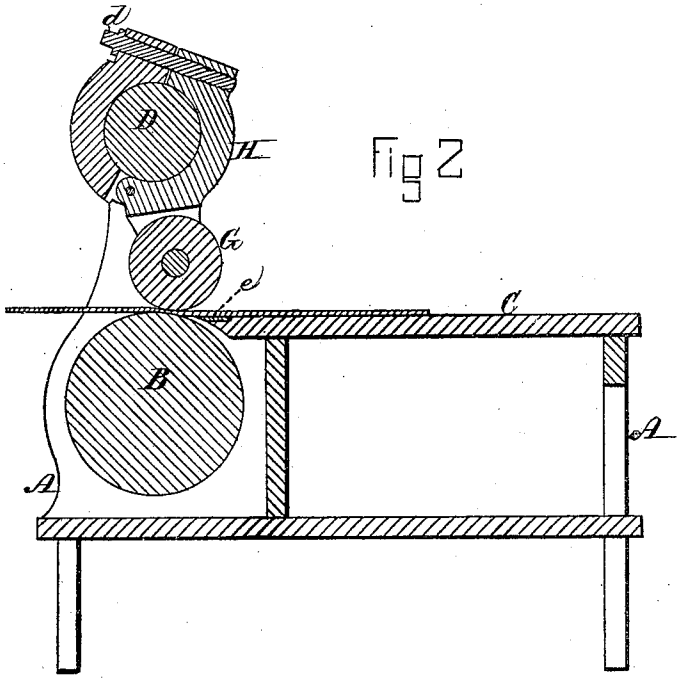


Fig 3

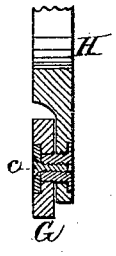


Fig 4

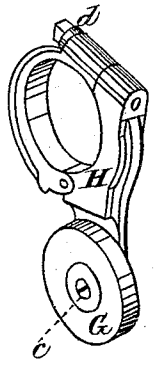
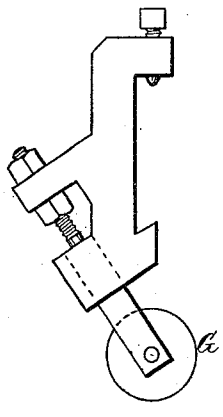


Fig 5



WITNESSES

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UNITED STATES PATENT OFFICE.

WILLIAM D. TURNER, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR TO JAMES C. MARSHALL, OF BOSTON, MASSACHUSETTS.

ROTARY PAPER-CUTTER.

SPECIFICATION forming part of Letters Patent No. 246,923, dated September 13, 1881.

Application filed July 8, 1881. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM D. TURNER, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented certain Improvements in Machines for Scoring and Cutting Paper for Boxes, &c., of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective view of a paper scoring and cutting machine having my improvements applied thereto. Fig. 2 is a vertical section through the same. Fig. 3 is a sectional detail. Fig. 4 is a perspective view of one of the pressure-rolls and its holder. Fig. 5 represents a modification to be referred to.

Machines for scoring and cutting paper for boxes, &c., as heretofore constructed, have been provided with a pair of feed-rolls arranged in front of the main roll on which the paper is cut, and extending entirely across the machine. These long feed-rolls, however, besides adding considerably to the cost of the machine, are objectionable for the following reasons: First, when a narrow strip of paper is to be cut, and is passed between them, the upper roll is raised on one side more than on the other, which prevents it from bearing evenly on the surface of the paper, and often causes it to be fed forward in a curved instead of in a straight line, as is necessary to produce perfect work; second, in trimming off rough selvage edges, if the attempt is made to cut as near as possible to the edge, the paper is liable to "buckle up" and deviate from a straight course, on account of its being held and supported by the feed-rolls at such a long distance from the point where it is being acted upon by the cutter, and consequently it has been customary to make this cut at a considerable distance from the edge of the paper, which results in an unnecessary waste of material; third, the feed-rolls must necessarily be placed at a considerable distance from the top of the main roll, where the cutters act upon the paper, and are consequently in the way, and absolutely prevent the placing of a fixed scale on the edge of the table in close proximity with the cutters, as is desirable to facilitate the operation of accurately setting them at the desired distances from each other; fourth, considerable additional power is required to drive the feed-rolls, as they are of small diameter and must be run at such speed as to cause their surface motion to equal that of the large or main roll. Should, however, the attempt be made to use an ordinary machine without these feed-rolls or any substitute therefor, and the cutters should be arranged at opposite ends of the machine, the central portion of the paper would be liable to buckle or bulge up, the effect of which would be to cause the cuts or scores made at the opposite edges of this central portion to diverge instead of being absolutely parallel, as required.

My invention has for its object to overcome these evils and to enable me to dispense with the feed-rolls heretofore employed; and it consists in a paper scoring and cutting machine in which the paper is kept down firmly upon the large or main roll at any desired point or points by a series of friction or pressure rolls, each secured to or mounted upon an independent holder or stock placed upon a horizontal supporting bar or shaft extending transversely across the machine, these holders, which are adapted to be put on or taken off at any desired point or points or moved along the bar, being made adjustable or provided with means for varying the distance of the pressure-rolls from the surface of the main roll in accordance with the thickness of the paper or the degree of pressure required thereon.

In the said drawings, A represents the framework of the machine, in suitable bearings in which run the journals of the large roll B, which is rotated by hand or other suitable power for the purpose of moving the paper to be scored or cut over the surface of the bed or table C.

D is the cutter-bar or carrier-shaft, which extends transversely across the machine, and is secured, as usual, in a horizontal position immediately over the roll B, and upon this bar are placed the adjustable cutter-holders E, which carry the rotary disk-cutters *b*, of the usual form and construction employed in machines of this description.

G G represent a series of rotary friction or

pressure rolls, each of which is secured by means of a screw, *c*, or in any other suitable manner, to the lower end of a holder or stock, H, of similar construction to the cutter-holders E, and also mounted upon the cutter-bar D. These holders H, like those E, are each made in the form of a divided collar, which can be readily opened to allow of its being placed upon the cutter or supporting bar or removed therefrom, a clamping-screw, *d*, serving to draw the two portions of the collar together and cause it to tightly clasp or embrace the bar D in order to hold the pressure-roll G immovably when adjusted in the desired position. The adjustment of the pressure-roll can be effected by sliding the holder along the bar D or by turning or swinging it around on the bar to vary the distance of the pressure-roll G from the roll B, according to the thickness of the paper to be scored or cut or the amount of pressure which it may be desired to exert thereon.

I do not confine myself to any particular form of holder, as a holder of any suitable form or construction adapted to be placed upon a round supporting-bar or upon one of rectangular or other form in cross-section may be used, suitable provision being made for adjusting the pressure-roll in a vertical plane toward or from the main roll B, or moving it, with its holder, in a horizontal plane by sliding the latter along its supporting-bar.

In Fig. 5 is represented a pressure-roll applied to one of the ordinary cutter-holders which are commonly used in paper-cutting machines having a cutter-bar of rectangular form in cross-section. In this case it will be seen that the pressure-roller is attached to an adjustable slide, by means of which its distance from the surface of the main roll can be varied as desired. Any holder, however, which can be used for a rotary cutter may be employed equally as well for a pressure-roll. Any desired number of these independent pressure-rolls, with their holders, may be employed, and it will be seen that they can be readily placed upon the supporting-bar D, between the cutters, at the exact point or points required to firmly hold the paper down upon the roll B close up to the cutter, or wherever it may be found desirable to apply pressure to the paper being cut or scored to hold it firmly down upon the revolving roll B, to insure its being fed thereby through the machine, thus enabling me to entirely dispense with the long feed-rolls heretofore employed.

The pressure-rolls G may be of any suitable width or thickness and have a smooth or roughened bearing-surface; or, if desired, the face can be rendered elastic by covering it with rubber or other suitable substance.

Instead of placing the holders H of the pressure-rolls upon the cutter-bar D, it is obvious that they may be mounted upon a separate and independent supporting-bar extending across the machine close to and parallel with the bar D without departing from the spirit of my invention.

In addition to the advantages of being able to instantly put on or take off a pressure-roll or run it along the supporting-bar to the point where it is required to be used, it will be seen that as there are no long feed-rolls in front of the roll B, the front edge of the table C can be brought up close to the cutters, where it can be provided with a fixed scale, *e*, to facilitate the operation of setting the cutters at certain distances from each other, which cannot be done where feed-rolls are placed in front of the roll B, as heretofore, for the reason that they will not admit of a scale being placed sufficiently near to the cutters to be of any practical value. Furthermore, in a machine provided with independent pressure-rolls, as above described, the waste caused by trimming off the ragged edges of the paper can be reduced to a minimum, for the reason that one of the pressure-rolls can be set to bear upon the paper close up to the cutter, so as to support and hold it firmly in place and effectually prevent it from buckling up, as heretofore, thus insuring a straight and even cut at the least possible distance from the rough edge of the material.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a machine for scoring and cutting paper, an independent rotating pressure or friction roll, G, secured to a stock or holder adapted to be placed upon a horizontal supporting-bar, and made adjustable toward or from the surface of the roll upon which the paper is scored or cut, and laterally with the holder, by sliding the latter along the bar, substantially as and for the purpose set forth.

2. In a machine for scoring and cutting paper, the combination, with the roll B and the rotary cutters *b*, of a series of rotary pressure-rolls, G, mounted upon independent holders adapted to be placed upon a supporting-bar extending transversely across the machine parallel with the roll B, substantially as and for the purpose described.

3. In a machine for scoring and cutting paper, the combination, with the roll B and the rotary cutters *b*, of a series of rotary pressure-rolls, G, mounted upon independent holders adapted to be placed upon a supporting-bar, D, and made adjustable thereon in the direction of its length, to bring the pressure-rolls into any desired relative position with respect to the cutters, and means, substantially as described, for varying the distance of the pressure-rolls from the surface of the roll B, as and for the purpose set forth.

WILLIAM D. TURNER.

In presence of—
ROBERT THOMPSON,
SAML. T. DOUGLAS.