

(No Model.)

J. WEST.
CUTTER ROLL.

No. 461,600.

Patented Oct. 20, 1891.

Fig. 1

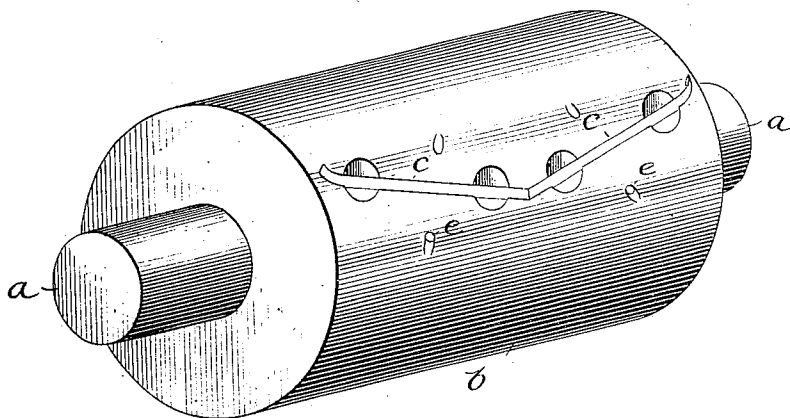


Fig. 2.

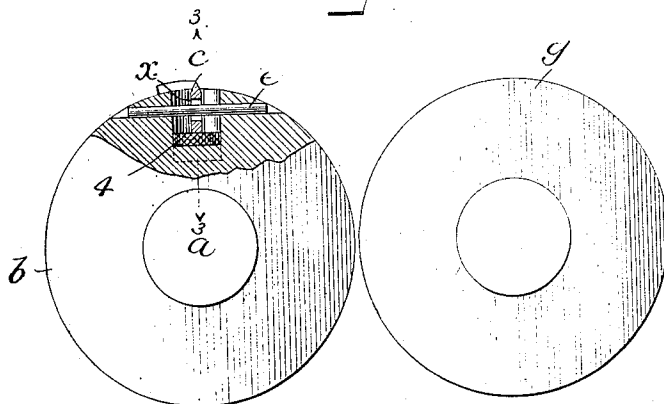
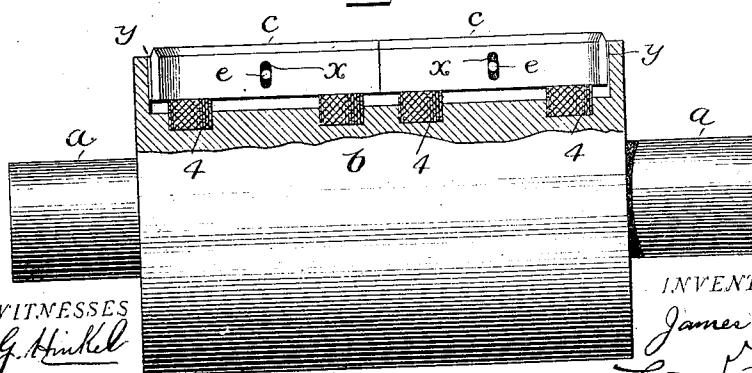


Fig. 3.



WITNESSES

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JAMES WEST, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-HALF TO SAMUEL
CUPPLES, OF SAME PLACE.

CUTTER-ROLL.

SPECIFICATION forming part of Letters Patent No. 461,600, dated October 20, 1891.

Application filed November 14, 1890. Serial No. 371,458. (No model.)

To all whom it may concern:

Be it known that I, JAMES WEST, a citizen of the United States, residing in St. Louis, State of Missouri, have invented certain new and useful Improvements in Cutter-Rolls, of which the following is a specification.

In the manufacture of many articles of paper it is desirable to operate upon traveling strips or sheets to cut the same to different forms—as, for instance, in the manufacture of envelopes where the sheet must be severed transversely to form the outline of the flap and to separate the successive sections or blanks. Attempts have been made to effect this cutting by means of knives carried by revolving shafts; but great difficulty has been experienced in maintaining the knives in operative condition, inasmuch as the knives, owing to their rapid operation, speedily become dulled and wear unequally and fail to make clean cuts, so that the paper when cut at all presents edges that are more or less ragged. With the view of remedying these defects I construct a revolving cutter, as fully set forth hereinafter, and as illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of a cutter embodying my invention. Fig. 2 is a transverse section of the cutter-roll, showing its relation to the bed-roll. Fig. 3 is a longitudinal section on the line 3 3, Fig. 2.

The cutter is mounted on the shaft *a* in any suitable manner, preferably supported by a cylinder *b* on said shaft, and consists of one or more blades *c*, which extend in a direction generally horizontally of the carrier parallel or at a sufficient angle to the axis to cut the edge of a flap of an envelope and the edges of which conform to the outline of the cylinder, but projecting always above the latter when they are set at an angle to the axis of the shaft, as is the case in the construction shown in the drawings, where the two blades *c c* meet at an angle, constituting a single cutter with its cutting-edge conforming to the outline of the flap of an envelope.

The blade or blades, instead of being secured rigidly to its support, is confined loosely thereto—that is, so as to have a limited amount of play—and has its bearings upon springs

which tend to throw it outwardly, but yield to permit it to move inward to a limited extent at either or both ends, but without allowing the edge to pass back of the periphery of the carrier-cylinder. Different means of loosely connecting the blade to its carrier may be employed. For instance, the blade may have one or more elongated openings *x* for the passage of a transverse pin *d*, extending through openings in the cylinder on the carrier, which has a slot *y* to receive the blade, but somewhat wider than the blade, so as to permit the latter to play freely therein. As shown, the spring-support consists of blocks *f* of rubber fitting sockets in the cylinder and arranged for the lower edge of the blade to rest thereon and so as to yield when pressure is brought against the edge of the blade to press it inward.

Opposite the revolving cutter is a bed in the form of a revolving cylinder *g*, preferably of extremely hard material—say tempered steel—and the strip of paper to be cut is passed between the cutter and the bed, traveling at the same rate of speed as the edge of the cutter.

Inasmuch as the knife is loosely supported in its rotating carrier and is free to move to a limited extent transversely and radially, it will accommodate itself to the surface of the bed, so that even if irregularly worn at the edge each portion of the cutting-edge can find its bearing upon the surface of the bed-roller, while the spring-support of the knife, acting with a yielding resistance when the knife is pressed in by its contact with the bed, will insure the requisite pressure of the edge against the bed, but will prevent the dulling of such edge or the indentation of the bed that would occur if any portion of the knife projected unduly from a rigid support.

Without limiting myself to the precise construction and arrangement of parts shown, I claim—

1. A rotary cutter having a knife-carrier; a rigid knife-blade arranged in a direction generally longitudinal to the carrier and permanently projecting beyond the face of the carrier and loosely confined to the carrier and resting on spring-bearings arranged to yield

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to a limited extent to pressure upon the edge of the knife, substantially as set forth.

5 2. The combination of a rotating cylinder having a peripheral socket, a cutter consisting of two or more rigid knife-blades arranged in a direction generally longitudinal to the carrier and confined loosely end to end in said socket with their edges beyond the face of the carrier, and spring-bearings for the
10 knife-blades, substantially as described.

3. The combination, with a rotating shaft and carrier, of a cutter consisting of one or more rigid knife-blades arranged in a direc-

tion generally longitudinal to the carrier and supported loosely by said carrier and bearing 15 upon springs with its edge permanently beyond the carrier, and a bed-roller having a plane surface and arranged to receive the edge of the cutter, substantially as set forth.

In testimony whereof I have signed my name 20 to this specification in the presence of two subscribing witnesses.

JAMES WEST.

Witnesses:

J. B. CRANE,
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