

UNITED STATES PATENT OFFICE.

DAVID F. CROWDER, OF ST. LOUIS, MISSOURI, ASSIGNOR TO THE AMERICAN
ROLL PAPER COMPANY, OF SAME PLACE.

ROLL-PAPER CUTTER.

SPECIFICATION forming part of Letters Patent No. 428,464, dated May 20, 1890.

Application filed October 20, 1888. Serial No. 288,666. (No model.)

To all whom it may concern:

Be it known that I, DAVID F. CROWDER, of St. Louis, Missouri, have made a new and useful Improvement in Roll-Paper Cutters, of which the following is a full, clear, and exact description.

The improvement relates to that class of cutters in which the paper roll is hung in stationary bearings and the knife adapted to move toward the surface of the roll as the diameter of the roll diminishes and the paper cut by drawing it against the edge of the knife. In the usual construction of this class of cutters the knife is held in place as the paper is drawn against it and the necessary tension obtained upon the roll by means of springs acting to press the knife directly or indirectly against the roll. This construction, while advantageous in some respects, is objectionable in that it cannot well be adapted to paper of various thicknesses and strength. If the springs employed are sufficiently strong to hold the knife when a certain strong stiff paper is being used, they are unduly strong for a thinner, more flexible paper, and if the springs are adapted to the lighter paper, then they are too weak for the heavier paper, as they fail to hold the knife in position when the paper is drawn against it.

The object of the present improvement is to provide a roll-paper cutter free from the above-named objections, and which is well, and equally well, adapted to all grades of paper, and whereby the use of much lighter springs for actuating the knife and producing a tension than could otherwise be used is permitted, and, if desired, the necessity of springs entirely avoided.

The said improvement consists, in a roll-paper cutter having a knife which moves toward the roll as it diminishes in size, of a self-adjusting tie which serves to hold the knife so that it shall not yield when the paper is drawn against it, substantially as herein set forth and claimed, aided by the annexed drawings, forming part of this specification, of which—

Figure 1 is a view in perspective, and Fig. 2 an end elevation, of the improved roll-paper cutter.

Like letters of reference applied to the drawings denote like parts.

The frame of the cutter consists, substantially, of the base A, uprights B B', and the top plate C. The paper roll D is provided with the usual gudgeons, (not shown,) which respectively are held and adapted to be rotated in bearings b in the uprights respectively.

E represents the knife. Its supporting arm or arms e are jointed or pivoted to the frame, as at e', to enable the knife to be moved toward and from the lateral surface of the roll. The knife is of any suitable shape and it can be stiffened in any desirable manner. By reason of its gravity the knife drops toward the roll, and unless some part intervenes the knife comes in contact with the roll; but for the means presently described the knife, when the paper end is drawn against it to be cut, would yield and be moved away from the roll.

G represents a tie whose function it is to hold the knife from moving when the paper end is drawn against it to be cut. There is preferably such a tie at each end of the roll. The tie is made so that as the roll diminishes in diameter it shall permit the knife to move toward the roll, but in all positions of the knife, as it thus follows the roll, to hold it from being moved in the opposite direction. To this end the tie is made in the form of a rack-bar and adapted to engage with a pin or other projection H upon the upright. The teeth g of the rack-bar, by pointing them toward the knife, are made so that the rack-bar can as the roll diminishes in diameter slip past the pin, and thus move with the knife—that is, the tie at its outer end g' is jointed to the knife, and as the knife follows the roll the rack-bar slips tooth by tooth past the pin H. On the other hand, each tooth g becomes a shoulder upon the rack-bar to prevent it being drawn in the opposite direction and to cause it to act as a tie to hold the knife in all of its successive positions. The rack-bar is preferably provided with a guard g², and at g³ it may have a shoulder, which, when it is desired to uphold the knife away from the roll, (as when a roll is being inserted in the frame,) comes against the pin H, and thus

prevents the rack-bar and knife from dropping. The guard g^2 is spaced sufficiently from the teeth g to permit of the rack-bar being raised to disengage it from the pin H.

5 I represents a tension-spring for controlling the rotation of the roll D as its end d is drawn out past the knife. The spring at one end is secured to the frame of the cutter and at its other end adapted to bear either directly or
10 indirectly upon the roll. It needs to exert only sufficient pressure upon the roll to prevent it from unwinding too freely. One or more springs can be used, and they can be variously shaped.

15 The tie G is shown made straight. It can be curved or otherwise suitably shaped, and it can be connected with either the knife; as shown, or with its arm e .

I claim—

20 1. The combination of the cutter-frame, the knife, the knife-arms pivoted to said frame, the tie or ties, and the projection or projections upon said frame, said tie or ties at one end being jointed to said knife and at the
25 other end being adapted to engage with said projection or projections, substantially as described.

2. The combination of the cutter-frame, the knife, the knife-arms pivoted to said frame, the tie or ties, and the projection or projections upon said frame, said tie or ties at one end being jointed to said knife and having a series of shoulders to enable the tie or ties as the knife moves toward the roll to be moved past said projection or projections, but to engage with said projection or projections when the paper end is drawn against the knife, substantially as described. 30 35

3. The combination of the cutter-frame, the knife, the knife-arms pivoted to said frame, the tie or ties, the projection or projections upon said frame, and the tension-spring, substantially as described. 40

4. The combination of the frame, the knife jointed by means of its arms to said frame, the tie or ties, and the projection or projections upon said frame, said tie or ties being made in the form of a rack-bar and having a guard, substantially as described. 45

Witness my hand.

DAVID F. CROWDER.

Witnesses:

C. D. MOODY,

D. W. C. SANFORD.