(No Model.)

L. C. CROWELL.

WEB SEVERING MECHANISM.

No. 419,835. Patented Jan. 21, 1890.

Fig. 1.

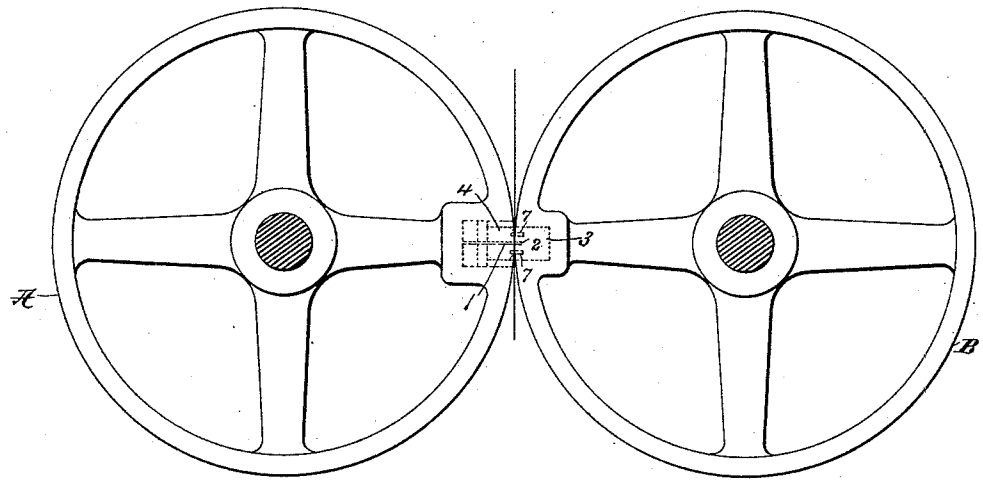
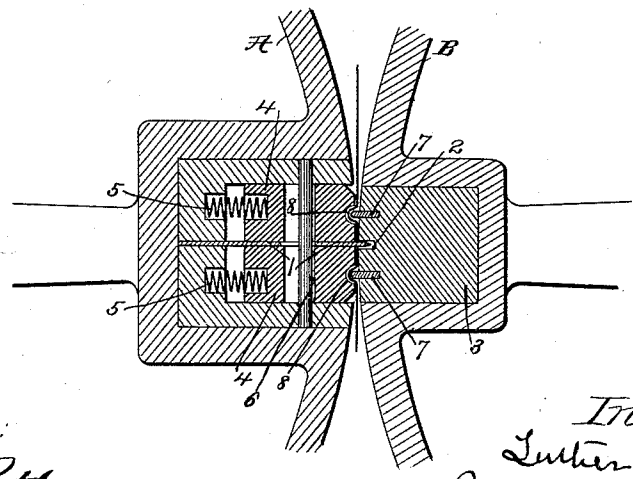


Fig. 2.



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WEB-SEVERING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 419,835, dated January 21, 1890.

Application filed December 12, 1889. Serial No. 333,526. (No model.)

To all whom it may concern:

Be it known that I, LUTHER C. CROWELL, a citizen of the United States, residing at Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Web-Severing Mechanisms, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to web-severing mechanism of the class in which two members are employed, one carrying a groove and the other a blade, the blade and groove co-operating by the movement of one or both of the members for the severance of the web, such mechanism and my improvements thereto being of general application in all classes of machines in which a web or sheet of paper or other thin material is severed, but especially intended for use in web-printing machines.

In severing mechanism of the class referred to as heretofore constructed, especially in cases in which the support for the web on either side of the cutting mechanism is at some distance from the blade and groove, it frequently happens that the material being severed yields sufficiently to the blade so that the latter does not produce a complete severance.

The object of my invention is to avoid this difficulty, and I accomplish this by providing on each side of the blade and groove means for holding the paper firmly in position during the process of cutting, whereby the tension of the paper under the blade is not relieved and a complete severance is assured.

In the acccompanying drawings, forming a part of this specification, Figure 1 is an end elevation of a pair of cylinders provided with my improved cutting mechanism, and Fig. 2 is a cross-section showing the cutting mechanism in detail.

Referring to said drawings, A and B are two cylinders carrying, respectively, the male and female members of the cutting mechanism. These cylinders may be rotated by any suitable means, and may be the cutting and collecting cylinders of a web-printing machine—such as are shown in many of my prior patents—feeding and cutting cylinders in any class of machine in which a web of paper or similar thin material is used, or cutting-cylinders not adapted to feed the paper, the feeding being produced by any of the means in ordinary use.

Referring particularly to Fig. 2, the cylinder A is provided with a cutting-blade 1, which co-operates with the cutting-groove 2, placed in cylinder B, to sever the web at each revolution of the cylinders. The groove 2 is formed in the usual block 3, set into a recess in the cylinder, and the blade 1 is provided upon its opposite sides with the usual cheek-pieces 4. The block 3 is formed, preferably, of some soft material—such as wood, cork, vulcanized rubber, or lead—to prevent dulling of the blade through striking the sides or bottom of the groove.

The cheek-pieces 4 normally project slightly beyond the periphery of cylinder A, but are arranged to yield as the blade and groove come into co-operative positions, and thus allow the blade to protrude a greater distance for the severance of the web. These cheek-pieces may be made of yielding material—such as rubber—and depend for their yielding movement entirely upon the resiliency of the material. They will, however, preferably be supported, as shown, upon the springs 5, which allow the necessary yielding movement, and may then be constructed of any suitable material. These cheek-pieces 4 will be held in their forward position against the tension of the springs 5 by means of the rod 6, passing transversely through slots in the blade and cheek-pieces. The construction as thus far described is that in common use.

Referring now to the parts constituting my invention, there are provided upon each side of the groove 2 projecting ribs 7, which act against the cheek-pieces 4, and thus nip and hold the web during the cutting operation. These ribs 7 consist, preferably, of pieces of sheet metal set into grooves in the block and project sufficiently to hold the paper firmly by pressing against the material of the cheek-pieces 4 as the blade enters the groove. If the cheek-pieces be of rubber or other yielding material, the ribs pressing against the cheek-pieces will hold the web with sufficient firmness. If the cheek-pieces be spring-supported, they may be constructed of wood,

cork, rubber, lead, or any other soft material, in which the ribs may enter slightly, nipping the web more firmly; or they may be made of hard wood or any ordinary metal, in which case, however, they will preferably be provided with slight recesses or grooves 8 to receive the ribs. These recesses may be used, also, with the blocks constructed of soft material, if desired. It is to be remarked that the ribs 7 may be upon the cheek-pieces and press against the block, if preferred.

The operation of the device is as follows: As the blade enters the groove the ribs 7 upon each side of the latter press the paper or other material against the cheek-pieces, holding it firmly against the force tending to stretch the paper or cause it to slip during the operation of the cutting-blade. The severance, therefore, is made against the tension of the paper held firmly firmly on either side of and close to the groove, all stretching and slipping, therefore, being practically avoided and a complete severance being assured.

It will be understood that it is immaterial whether the severance be continuous or not, the holding means being equally applicable to a perforator or a continuous cutting-blade.

While my invention has been illustrated in connection with rotary members carrying a cutting mechanism, it will be understood that it is applicable to all classes of machines employing a cutting mechanism consisting of male and female members, whatever be the movement of the parts carrying such mechanism.

What I claim is—

1. A cutting mechanism composed of two members, one provided with a blade having yielding cheek-pieces and the other with a cutting-groove, and a pair of ribs of rigid material carried by one member upon the opposite sides of the blade and groove and having edges projecting from the surface of the member by which they are carried and acting to nip the material being severed against the other member, substantially as described.

2. A web-severing mechanism composed of two cylinders, one provided with a blade having yielding cheek-pieces and the other with a cutting-groove, and a pair of ribs of rigid material carried by one cylinder upon the opposite sides of the blade and groove and having edges projecting from the surface of the cylinder by which they are carried and acting to nip the web against the other cylinder, substantially as described.

3. A web-severing mechanism composed of a pair of cylinders, one provided with a blade having yielding cheek-pieces composed of soft material and the other having a cutting-groove formed in a block of soft material, and a pair of ribs set into the soft material of one cylinder upon the opposite sides of said blade and groove and acting to nip the web against the soft material of the other cylinder, substantially as described.

4. A web-severing mechanism composed of a pair of cylinders, one provided with a blade having yielding cheek-pieces and the other having a cutting-groove, and a pair of ribs carried by one cylinder upon the opposite sides of said blade and groove and acting to nip the web against the other cylinder, the latter being formed with recesses to receive the ribs, substantially as described.

5. A web-severing mechanism composed of a pair of cylinders, one provided with a blade having spring-supported cheek-pieces and the other having a cutting-groove, and a pair of ribs carried by one cylinder upon the opposite sides of said blade and groove and acting to nip the web against the other cylinder, the latter being formed with recesses to receive the ribs, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

LUTHER C. CROWELL.

Witnesses:
J. J. KENNEDY,
GEO. H. BOTTS.