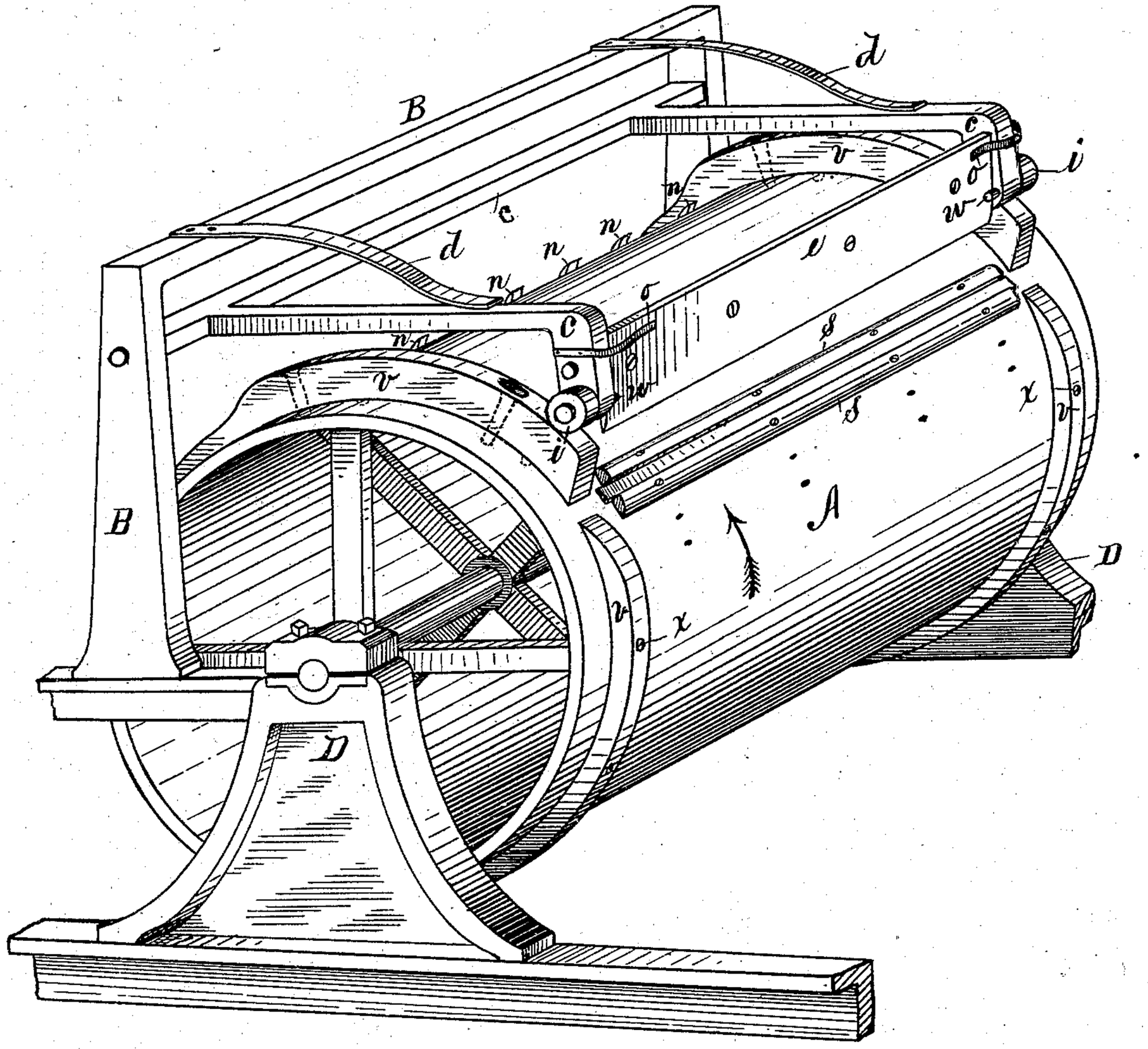
(No Model.)

S. A. GRANT.

PAPER CUTTING DEVICE FOR PRINTING PRESSES.

No. 255,616. Patented Mar. 28, 1882.



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SIDNEY A. GRANT, OF MALDEN, MASSACHUSETTS.

PAPER-CUTTING DEVICE FOR PRINTING-PRESSES.

SPECIFICATION forming part of Letters Patent No. 255,616, dated March 23, 1882.

Application filed September 2, 1881. (No model.)

To all whom it may concern:

Be it known that I, SIDNEY A. GRANT, a citizen of the United States, residing at Malden, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Paper-Cutting Devices for Printing-Presses, of which the following is a specification.

This invention relates to the details of construction of paper-cutting devices for printing-presses, the object being to provide improved devices to operate with cylinder-presses to cut paper from a roll-strip, and which are adjustable so that a longer or shorter piece of paper can be cut, according to the requirements of the work.

The drawing forming part of this specification illustrates the cylinder of a printing-press to which are applied the said cutting devices constructed according to my invention.

In the drawing, A is the cylinder of a printing-press and D is a portion of the frame of said press.

B is an addition to the frame D for providing a support for the knife-frame *c*.

d d are springs secured to frame B, one end of which lies on said frame *c*, and their opposite ends are secured to frame B.

c is a knife-frame pivoted between the vertical posts of frame B.

e is a knife pivoted between the two arms of frame *c*.

i i are two rollers hung upon studs projecting from said arms.

o o are springs secured to said arms and having one end lying against the face of knife *e*, near its upper edge.

v v are circular cams around cylinder A, near each end thereof, and they are adjustably secured thereon by screws *x*, and by others (shown in dotted lines) through the thicker part of said cams.

s s are parallel strips adjustably secured upon cylinder A.

n are the usual paper-nippers adapted to operate with press-cylinders of this description.

The cylinder A is of the ordinary construction used in cylinder printing-presses, and has attached to it in the usual way the nippers *n*. Upon said cylinder, near to each end thereof, are secured the two cams *v v*. Said cams are secured upon said cylinder by screws *x*, and the face of the cylinder under said cams has a series of screw-holes made therein, as shown in dotted lines, to provide for changing the position of the thick portion of said cams relative to the nippers *n* by sliding said cams around the cylinder, or, in other words, by holding said cams while the cylinder is turned to move the nippers *n* nearer to or farther from the ends of said thick portions of the cams, when said screws may be inserted through the cams into the cylinder.

Two parallel strips, *s s*, which are of sufficient thickness to form a groove between them, as shown, and whose length is that of knife *e*, or more, are secured adjustably upon cylinder A, and may be moved thereon to correspond with any change of said cams *v*, as aforesaid, as the operative position of said strips is between the broken portions of said cams, as shown in the drawing.

The knife-frame *c* has the ends of its horizontal portion pivoted in the vertical ends of frame B, and its two arms reach over cylinder A, as shown. Each of said arms is provided at its end with a roller, *i*, adapted to revolve on a stud projecting from said arms, and said rollers rest upon the peripheries of said cams *v* and support frame *c*, so that vertical motion is imparted to said frame as said cams revolve under said rollers.

A knife, *e*, is pivoted between the arms of frame *c*, and two springs, *o o*, are adapted to press against the face of said knife near its upper edge and hold its lower portion below its pivot-point, against a stop-pin, *w*, set in one of said arms. Two springs, *d d*, secured to frame B, are adapted to bear upon the top of said arms and compensate for any lack of weight to make said frame and knife operate properly.

The operation of my improvements with cylinder A is as follows: The rotary movement of said cylinder is in the direction indicated by the arrow thereon. The end of the paper strip from the roll is brought to the cylinder and made to lie thereon about on a line under the edge of knife *e*, or in a convenient position for the nippers *n* to catch it as the cylinder revolves. Said nippers having thus caught the end of the paper the latter is drawn under knife *e*, following around the cylinder until rollers *i i* drop off the ends of cams *v*, letting knife *e* drop suddenly upon the paper, driving its cut-

ting-edge into the groove between the strips *s s*, and thus severing that part of the paper between nippers *n* and the strips *s s* from the strip. Said piece of paper which is so cut off is carried around to be printed upon in the usual way, and the nippers *n* again seize the end of the paper, and the operation is repeated. When knife *e* drops as aforesaid, carrying its lower edge into the groove between strips *s s*, the rotary motion of cylinder A is not arrested, but said knife oscillates upon its bearings in the arms to frame *c*, and its cutting-edge is swung slightly by the movement of one of strips *s* against it; but as soon as said strip has passed from under said knife, leaving it free, springs *o o* act and swing the knife back to the cutting position shown in the drawing, frame *c* meanwhile riding upon cams *v v*.

By the employment of the above-described improvements paper for printing with cylinder-presses can be fed thereto automatically from a roll and be cut to variable lengths before being printed upon, thus saving the expense of previously cutting and then feeding the paper sheet by sheet from a table.

Instead of using the separate strips *s s*, so applied to cylinder A as to form a suitable groove between them for the edge of knife *e* to drop into, a single grooved flat strip may be used, made of hard wood, rawhide, or any suitable material which will constitute a proper grooved knife-bed upon which the edge of the knife may drop and sever the paper without injuring its cutting-edge. When said strips are applied as above described some one of the above-named or other suitable material is placed between said strips for the edge of said knife to fall upon, as shown.

What I claim as my invention is—

1. The combination, with the printing-press cylinder A, provided with the nippers *n*, of the adjustable strips *s s*, the adjustable cams *v v*, the pivoted knife-frame *c*, and the knife *e*, pivoted to oscillate in said frame, substantially as set forth.

2. The combination, in paper-cutting devices for printing-presses, of the cylinder A, having a grooved knife-bed adjustable to different positions upon its periphery, the oscillatory knife *e*, and mechanism, substantially as described, to permit said knife to drop upon said knife-bed and to lift said knife therefrom as said bed passes under said knife, substantially as set forth.

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