

P. L. STOHR.
ELECTRIC PAPER CUTTER.
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947,744.

Patented Jan. 25, 1910.

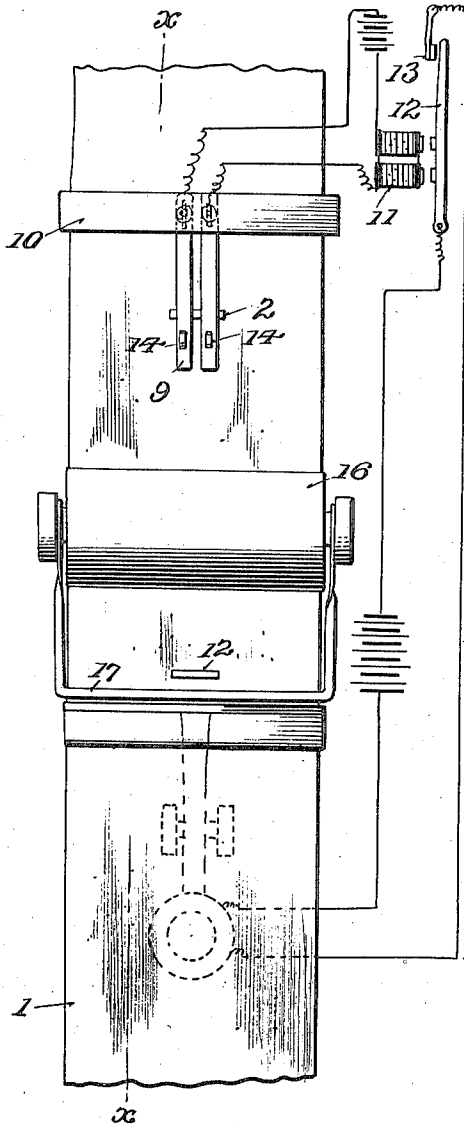


FIG. 1.

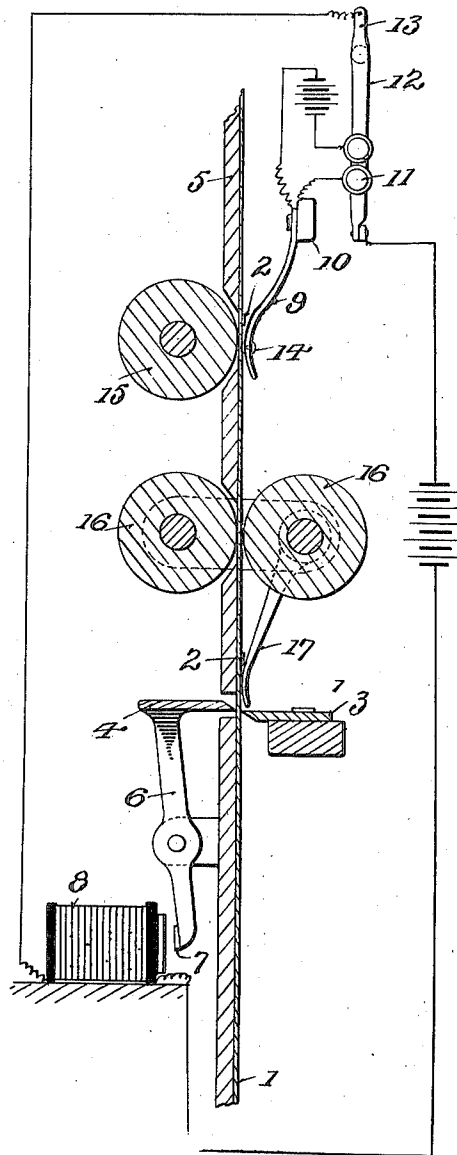


FIG. 2.

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ELECTRIC PAPER-CUTTER.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, PHILIP L. STOHR, citizen of the United States, residing at Elgin, in the county of Kane and State of Illinois, have invented certain new and useful Improvements in Electric Paper-Cutters, of which the following is a specification.

The present invention relates to paper cutting mechanism and is designed more particularly to devise a cutting mechanism electrically actuated for cutting a strip or web of paper into lengths or blanks of uniform or predetermined size.

In accordance with this invention, the strip or web of paper or like material to be cut up into lengths is provided at intervals with a circuit closing contact consisting preferably of an electric conducting ink printed or otherwise applied to the sheet material at intervals corresponding to the length into which the same is to be subdivided. A cutting mechanism is arranged to sever the strip or web and is electrically actuated, the operating means being included in an electric circuit which is completed by the circuit closing contacts of the strip or web, thereby severing the latter into the predetermined lengths.

For a full understanding of the invention, and the merits thereof and also to acquire a knowledge of the details of construction and the means for effecting the result, reference is to be had to the following description and accompanying drawings.

While the invention may be adapted to different forms and conditions by changes in the structure and minor details without departing from the spirit or essential features thereof, still the preferred embodiment is shown in the accompanying drawings, in which:

Figure 1 is a top plan view, showing the application of the invention; and Fig. 2 is a longitudinal section on the line $x-x$ of Fig. 1.

Corresponding and like parts are referred to in the following description and indicated in both views of the drawings by the same reference characters.

The web, or strip of paper, or other sheet material to be severed into lengths, is indicated by the reference numeral 1. Circuit closing contacts 2 are provided at intervals in the length of the strip or web corresponding to the sections or parts into which the same is cut. These circuit closing contacts

are regularly spaced when the strip or web is to be severed into uniform lengths. The circuit closing contacts are provided by applying to the strip or web lines or spots of electric conducting ink which may be applied by any form of printing mechanism and at the time that the strip or web is printed with the required matter. By the term electric conducting ink is to be understood any ink or material that is a good conductor of electricity so as to effectually close the terminals of the circuit including the electric actuating means for the cutting mechanism. One form of ink admirably adapted for the purpose comprises graphite, powdered metal and sulfate of copper and a binder. The strip or web may be fed to the cutting mechanism from a roll or in a single length. The cutting mechanism consists of a fixed blade 3 and a movable blade 4, said blades being arranged upon opposite sides of a table or support 5 over which the strip or web 1 passes. The movable cutter 4 is attached to one end of a lever 6, the opposite end of said lever being provided with a soft iron bar constituting the armature 7 of an electro-magnet 8 which is included in an electric circuit adapted to be closed by means of the contacts 2. The circuit, including the electro-magnet 8 may be closed directly or indirectly by means of contacts 2. It has been discovered that a strong current is required to energize the electro-magnet 8 sufficiently to operate the moving cutter and in order to prevent the burning of the paper or web to be cut up into lengths at the instant of the closing of the circuit, it is preferred to employ a light circuit to be closed directly by the contacts 2 and to utilize said circuit for closing the circuit including the electro-magnet 8. Blades 9 constitute terminals of the light circuit, and are spaced apart and are so placed as to be electrically connected by the contacts 2, to complete the circuit at the proper time to effect severance of the strip or web 1. The blades 9 consist of light springs and have adjustable connection with a support 10 thereby admitting of varying their position with reference to the contacts 2. The light electric circuit includes an electro-magnet 11 which attracts a lever 12 the same being provided with an armature. The lever 12 constitutes one terminal of the circuit in which is located the electro-magnet 8. A contact 13 forms the other terminal

of said electric circuit. When the electro-magnet is energized by the closing of the circuit through the contact 2, the lever 12 is attracted and closes the circuit through the electro-magnet 8, which attracts the armature 7, and moves the cutter 4 to sever the strip or web. This operation takes place the instant a contact 2 engages with the blades 9, the parts being so arranged that the severance of the strip or web 1 is through the center of the circuit closing contacts 2, whereby a portion of each contact appears at opposite ends of a blank or section. To prevent the blades 9 tearing light paper, rollers 14 are fitted thereto, and these rollers further insure a positive connection between the contacts 2 and the blades 9.

A roller 15 is located opposite to the extremities of the blades 9 and supports the strip or web 1 in line with the contact of the blade 9 with said strip. The strip or web is advanced over the table or support 5 by means of a pair of feed rollers 16. The strip, or web of paper, or like material provided with addresses, labels, advertising matter, or designs printed thereon at regular intervals and spaced apart so as to leave a margin between the printed matter, is also supplied with the circuit closing contacts which are likewise printed upon the strip or web preferably at the time of imprinting the required matter thereon and which may be effected without any appreciable cost. The circuit closing contacts are located midway between the printed matter of the strip or web so as to insure severance of the latter into uniform or equal lengths, whereby proper margin is provided. The strip or web may be rolled and may be subsequently cut at any time. When it is desired to sever the strip or web, the same is passed over the table 5, being fed thereover by the rolls 16, and passing between the cutters 3 and 4. When a circuit closing contact 2 engages with the circuit terminals or blades 9, the circuit is closed in the manner stated and the electro-magnet 8 energized and the armature 7 attracted, thereby actuating the cutter 4 and severing the sheet.

It is preferred to have the support or table 5 arranged in vertical or upright position. However it may be located horizontally or at an angle. When the cutter 4 operates, the end of the strip or web is pushed beyond the edge of the stationary cutter 3 and in order to return the paper to a position to pass between the cutters 3 and 4, a stripper 17 is provided and may be of any construction. As shown the stripper 17 consists of

an approximately U-shaped frame which is pivotally mounted upon the shaft of the upper feed roller 16.

Having thus described the invention, what is claimed as new is:

1. In a machine for cutting strips into predetermined lengths, a support, an energized circuit including cutting mechanism, means for feeding a strip to the cutting device for pressing the strip against the support at said cutting mechanism, and contacts arranged adjacent the strip feeding means and adapted to close the circuit through spaced conductors on said strip thereby to actuate the cutting mechanism.

2. In a machine for cutting strips into predetermined lengths, a support, a high potential circuit including a cutting device, means for feeding a strip to the cutting device, means carried by the feeding device for pressing the strip against the support at said cutting device, and a low potential circuit including spaced contacts arranged to intermittently engage a conducting surface on the strip as the latter is fed to the cutting device thereby to close both circuits and actuate said cutting device.

3. In a machine for cutting strips having conducting surfaces into predetermined lengths, a support, an energized circuit including a cutting device, means for feeding the strip to the cutting device, means for pressing the strip against the support at said cutting device, a second energized circuit including an electro-magnet, and spaced contact fingers arranged to bear against the conducting surfaces of the strip thereby to intermittently energize the electro-magnet and close the first mentioned circuit to actuate the cutting device.

4. In a machine for cutting strips into predetermined lengths, a support, an energized circuit including a cutting device, means for feeding a strip to the cutting device, means for pressing the strip against the support at said cutting device, and a second energized circuit including spaced contacts arranged to intermittently engage a conducting surface on the strip as the latter is fed to the cutting device, thereby to close both circuits and actuate said cutting device.

In testimony whereof I affix my signature in presence of two witnesses.

PHILIP L. STOHR.

Witnesses:

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