Nov. 16, 1926. **1,606,774**

M. NELSON

CUTTER FOR ROLLS OF PAPER

Filed March 16, 1923 2 Sheets-Sheet 1

Fig. 1.

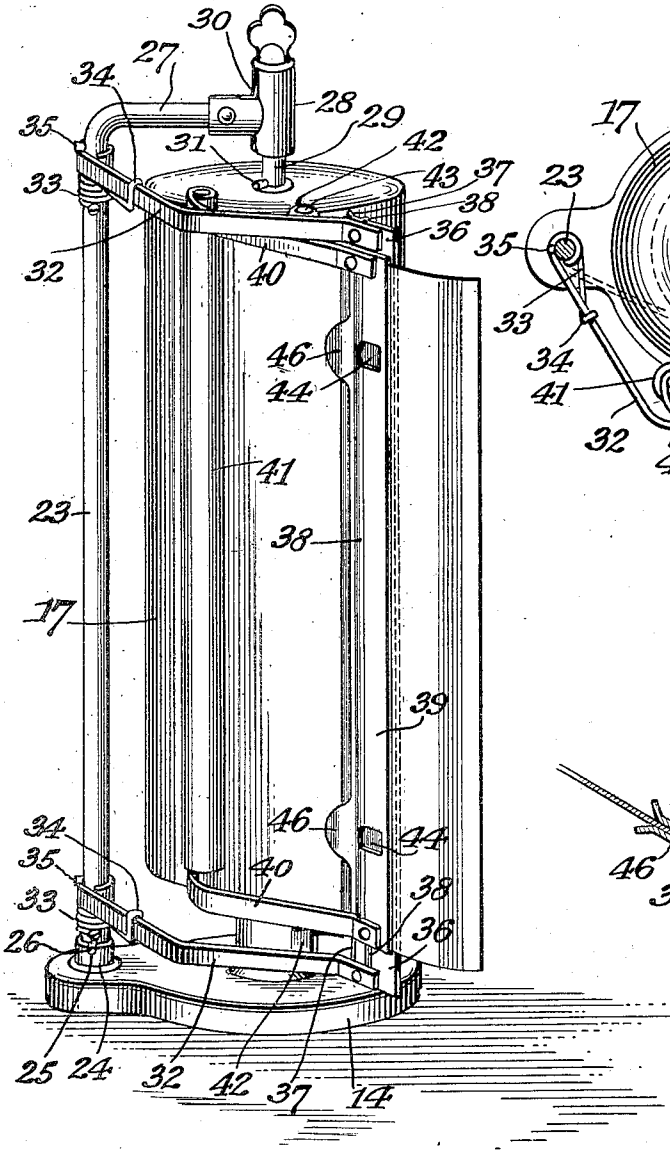


Fig. 4.

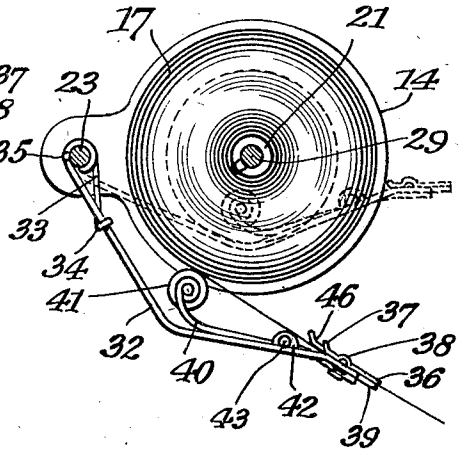
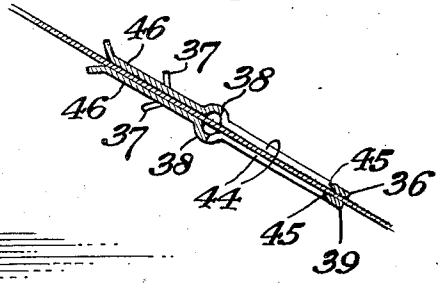


Fig. 5.



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Fig. 2.

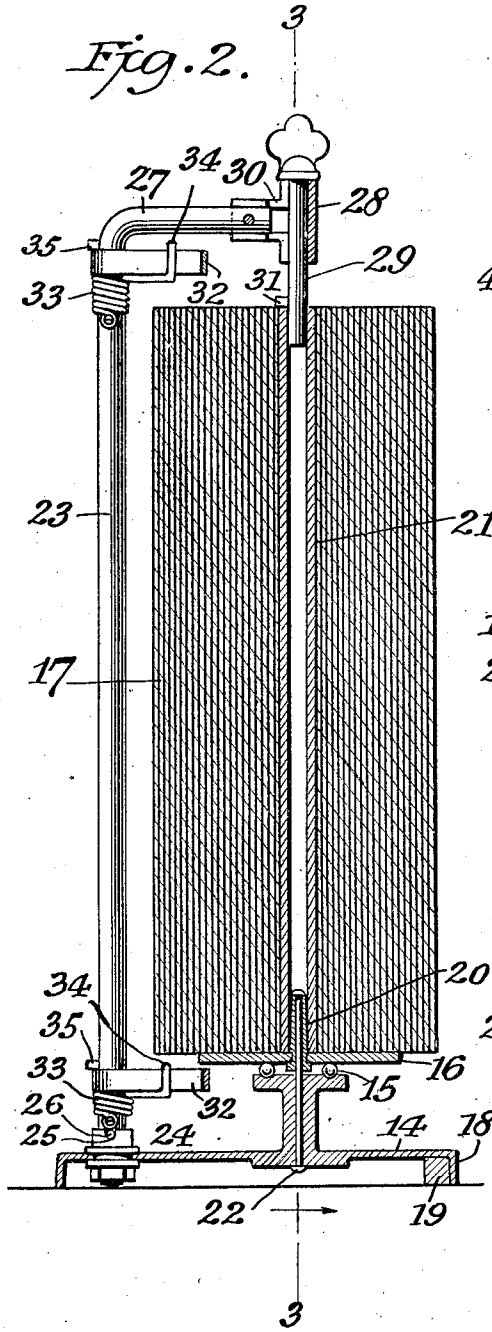
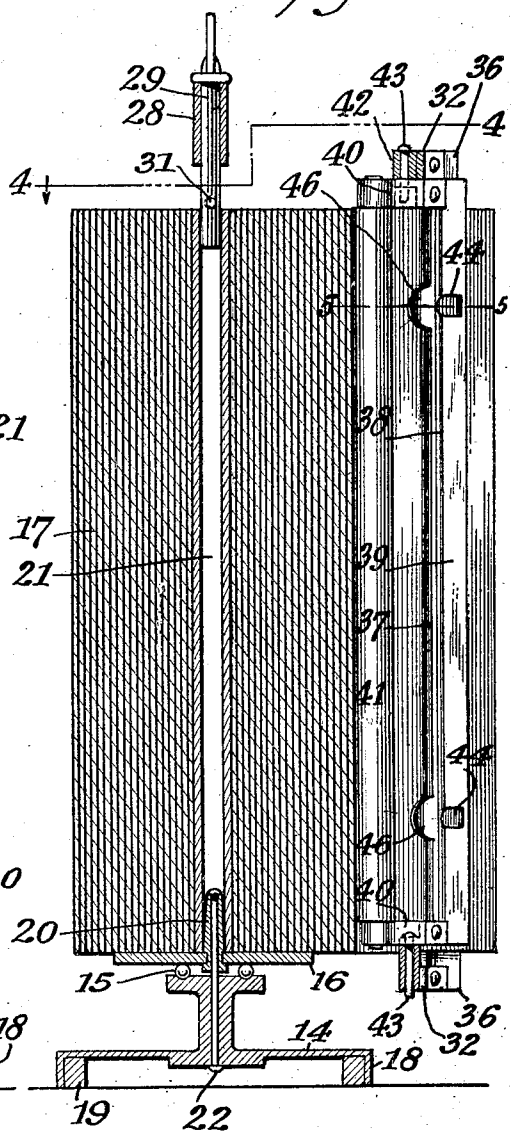


Fig. 3.



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UNITED STATES PATENT OFFICE.

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CUTTER FOR ROLLS OF PAPER.

Application filed March 16, 1923. Serial No. 625,572.

This invention relates to cutters for rolls of paper, and it has particular relation to an improved cutting mechanism for that class of devices which are adapted to be used in stores for carrying rolls of wrapping paper and cutting the desired lengths of paper from the rolls.

The object of my present improvements is to provide an improved cutting mechanism of the class set forth, which will possess advantages in point of positive action, convenience, tensional control of the status of the roll of paper in the successive cutting of lengths therefrom, effectiveness and general efficiency, and the improved cutting means comprises plural blades between which the paper is fed from the roll and means carried by said blade or knife construction and bearing upon the roll to tensionally maintain the wound status thereof during the use in which lengths of paper are cut therefrom and the roll is reduced in size, substantially as hereinafter set forth.

My present invention is adapted for effective use upon vertical paper-cutters of the type shown in my previous Patent No. 1,116,834, issued November 10, 1924, and the types of paper cutters shown in my previous Patents No. 1,518,749, and No. 1,518,750, both issued December 9, 1924, but it will be obvious that the improved cutting mechanism constituting the subject-matter of my present invention is also adapted for effective application and use upon all types of paper cutters which are designed to carry a revolubly-mounted roll of wrapping paper and for cutting the desired lengths of paper from the rolls by means of a knife or blade construction extending in the longitudinal plane of the roll and carried with relation thereto upon a suitable support.

In the accompanying drawings I have illustrated the improved cutting means of my present invention in its operative relation to the types of paper cutters which are shown in my previous patents above referred to, and

In the drawings—

Figure 1 is a perspective view of a complete paper-cutter device having my present improved cutting mechanism.

Fig. 2 is a vertical sectional view of the device.

Fig. 3 is a corresponding vertical sectional view, at right angles to the section shown in Fig. 2, on the line 3—3, Fig. 2.

Fig. 4 is a horizontal sectional view on the line 4—4, Fig. 3.

Fig. 5 is a detail horizontal sectional view, on an enlarged scale, on the line 5—5, Fig. 3.

Corresponding parts in all the figures are denoted by the same reference characters.

The vertical cutter of the type herein illustrated, having the improved cutting means of my present invention, comprises a stationary base, 14, carrying ball-bearings, as at 15, upon which is mounted a revolving base, 16, on which the roll of paper, 17, is seated and carried in its revoluble movement. In the preferred construction, said stationary base has a downwardly-extending circumferential flange, as at 18, and has secured within the angle of said flange a rim-weight or ring, 19, whereby the complete vertical device is counter-balanced in its operative position, and can thus be conveniently and portably used upon glass store counters or other suitable supports without being secured or fastened thereto. The revolving base carries an axial stud, 20, which projects within the bottom end of the bore-block, 21, of the roll of paper, to retain the latter in its seated position, and in the preferred construction this stud is constituted by a thimble having a reduced lower portion passing through a corresponding axial opening in said base and bradded or riveted beneath the latter, and a headed retaining pin, 22, is passed through the bore of said thimble and through the stationary base 14 and has its lower end bradded or riveted beneath the latter, whereby the revolving base is secured in its operative position upon the ball bearings 15.

The support for the cutting blade or knife means, in the vertical type of paper cutter which is herein illustrated, is constituted by an upright or standard, 23, carried by the stationary base 14 in a position relative to the revolving base. In the preferred construction, for detachable and knock-down purposes, the connection between said stationary base and standard is constituted by a thimble, 24, having a lateral base-flange or shoulder beneath which the lower end of the thimble passes through a corresponding opening in the stationary base and is bradded or riveted beneath the latter, and at its top edge the thimble is provided with recesses, as at 25. The standard 23 has lateral studs, as at 26, which seat in said recesses, and the lower threaded end of the standard

passes through the thimble 24 and is secured by a nut at the under side of the stationary base, thus producing a secure and detachable connection between the standard and stationary base and precluding a lateral or turning movement of the standard. At its top end the standard has a laterally-extending arm, 27, carrying at its outer end a cylindrical socket, 28, in axial relation to the stud 20 of the revolving base, in which socket is seated a top retaining pin, 29, which enters the top end of the bore-block of the roll of paper and thus sustains the latter in operative position. In the preferred construction, said socket 28 is provided with a vertical slot, 30, to permit the insertion-passage of a lateral pin or stud, 31, carried by the retaining pin 29 and resting upon the top end of the bore-block 21 of the roll of paper, to prevent the block from "riding up" or displacement in the revoluble use of the paper roll. The slotted socket 28 may be formed from a metallic sheet of approximately T-shape, best to form a cylindrical main portion with wings fastened to the end of the standard-arm 27 and leaving a space forming the slot 30 between the opposite edges of the cylindrical body.

The improved cutting means of my present invention is carried upon arms which are spring-controlled and which are mounted upon and projected from the main standard or other suitable support as comprised in the paper-cutter device upon which said improved cutting means is employed. The mounting and spring-control, in the type of vertical paper-cutter as herein illustrated, is constituted by arms or rods, 32, having at one end a revoluble bearing upon the upright or standard 23, said bearing being preferably constituted by a cylindrical eye formed at the end of the arm, and a coiled spring, as at 33, is mounted upon the standard beneath the arm 32 and has one end secured to the standard and its other free end extended outwardly beneath said arm a suitable distance beyond the bearing thereof and turned against the outer face of the arm and over the top edge thereof, as at 34, the arm being thus effectively maintained in its spring-controlled operative status. Preferably, lateral pins or studs, as at 35, are provided upon the standard above the bearing-eye of the arms 32, as an additional strength or preventional means against displacement of the retained operative position of said arms.

Any suitable number of the blade-carrying arms 32 may be employed, according to the size or character of the cutter device, but I have herein illustrated two of such arms located respectively with relation to the top and bottom portions of the roll of paper in the longitudinal extent of the latter. Said arms carry at their outer ends a cutting blade or knife, 36, extending in the longitudinal plane of the paper roll, and the arms are of sufficient length to maintain said blade positionally in a plane beyond the front of the roll of paper in its initial width or diameter and beyond the peripheral plane of the revolving base as the roll diminishes in diameter under conditions of successive use. Said blade 36 is in fixed relation to its carrying-arms 32 and moves therewith in the tensionally-controlled action of the arms, but said blade is stationary in relation to the auxiliary fulcrum-movement blade which is hereafter described.

It is desirable to employ a fine or thin blade for service in the type of paper cutters to which my improvements relate, the outer edge of which constitutes the cutting edge or knife, and the blade is therefore preferably constituted by a thin sheet of resilient metal, with its rear edge bent or turned outwardly at an angle to its plate surface, as at 37, and provided with a longitudinal bent groove or depression, as at 38, extending in the plate adjacent said bent or turned edge and in a direction corresponding thereto, for purposes of strength and reinforcement.

In parallel relationship to the stationary blade, and coincident therewith, is provided an auxiliary or supplemental blade, 39, carried at the outer ends of supplemental arms or rods, 40, having a fulcrumed action upon the main blade arms 32 and carrying at their inner ends a roller, 41, extending longitudinally of the roll of paper and operatively pressing against the surface of the same at the center or median line of the side thereof to maintain the paper roll in normal wound position back of the free end which is to be cut therefrom. Said roller is revolubly mounted at its opposite ends upon the rear ends of the respective supplemental arms, 40, the latter being, in the preferred construction, provided with a terminal eye receiving a pivot-pin secured in the end of the roller.

The supplemental arms 40, which carry the auxiliary blade 39 in its parallel relationship to the stationary blade 36, projectively extend in the space between the main arms 32 carrying the stationary blade, the top supplemental arm 40 being beneath the related top arm 32 and the bottom supplemental arm 40 being above the related bottom arm 32, the operative fulcrumed mounting and position of the auxiliary blade mechanism being within the space between the supporting structure of the main stationary blade. Said space between the main blade-supporting arms 32 is sufficient to permit the mounting and operation of the fulcrumed auxiliary blade and its supporting means between the supporting means of the stationary blade, and in the relative

mounting of the plural blade construction with respect to the longitudinal extent of the paper of the roll a further small space allowance (say, of approximately one-fourth an inch) is made to provide room for the free passage of the paper between the respective blade-supporting arms 32 and 40 and out between the fulcrumed and stationary blades.

The fulcrumed mounting of the auxiliary blade with its supporting arms 40 in operative relation to the supporting arms 32 of the stationary blade, may be effected in any suitable or desired manner. I have herein shown such fulcrumed relationship by means of a block, 42, carried upon one of the supporting arms, and a fulcrum pin, 43, mounted in said block and passing through a lateral plate or flange upon the other arm.

The outer ends of the respective supporting arms 32 and 40 are bent at a relative angle to their main portion, as shown, to establish the desired positional angle of the cutting blades with relation to the roll of paper and the parallel operative relationship of the plural blades. The auxiliary blade 39 corresponds in its general characteristics to the stationary blade 36 and is also provided with a turned or bent rear edge 37 and longitudinal bent groove or depression 38 for purposes of strength and reinforcement.

Under the foregoing conditions of construction, the action of the controlling coiled springs 33 against the supporting arms 32 of the stationary blade transmits the pressure thereof, through the fulcrumed connection of the supporting arms 40 of the auxiliary blade, to force the roller 41 against the paper roll, and also thus results in transmitting the pressure action to cause the auxiliary blade to operatively press against the stationary blade in its parallel relationship thereto, this action being automatically maintained at all times during the use of the paper roll and the diminishing diameter thereof.

At suitable points in both the parallel blades are provided slots, 44, which register in the respective blades. Such registering slots are preferably at two points, respectively adjacent the top and bottom portions of the blades, and serve as openings through which the end of the paper passing between the blades may be pulled by the thumb and finger, to feed the paper from between the blades without precedently turning the roll of paper with the hand. The outer edge of the respective slots 44 is preferably beveled, as at 45, to facilitate the slipping of the thumb and finger over said edge without losing the hold or drawing action on the paper in feeding or pulling the terminal edge thereof from between the blades. Coincident with the inner ends or edges of said slots, 44, the blades are provided with a wing or extension, 46, projecting beyond the rear edge of the blade, which serves as an additional reinforcement at the slotted or cut-out portion, and said wings also serve as a guide or means to facilitate the passage or sliding of the paper between the blades, for which purpose the outer edges of said wings are slightly bent or turned outwardly, as shown, the bends of the respective registering wings of the respective blades being in opposite directions. It will also be noted that the reinforcing grooves 38 of the blades are located at a point beyond the inner ends of the finger-slots 44.

The operation and advantages of my invention will be readily understood. The improved cutting means provides a construction in which the cutting blade does not itself bear upon the roll of paper but the cutting knife or blade mechanism is operative beyond the roll in an action upon the free end of the paper extending therefrom. The improved construction, providing plural parallel cutting blades between which the free end of the paper feeds and one of which blades has a fulcrumed action with relation to the other blade and carries roller means bearing against the roll of paper beyond the free end thereof to maintain the roll in wound status, enables a convenient and positive action at all times and provides for the effective positional maintenance and cutting of the free end of the paper which is fed from the roll.

I do not desire to be understood as limiting myself to the detail construction and arrangement of parts as herein shown and described, as it is manifest that variations and modifications therein may be resorted to, in the adaptation of my invention to varying conditions of use, without departing from the spirit and scope of my invention and improvements. I therefore reserve the right to all such variations and modifications as properly fall within the scope of my invention and the terms of the following claims.

Having thus described my invention, I claim and desire to secure by Letters Patent:

1. In a paper cutter comprising means for revolubly carrying a roll of paper and a support positionally related to the roll, plural cutting blades the respective opposite faces of which extend in the longitudinal plane of the roll and in parallel abutting relationship to receive the free end of the paper from the roll between said abutting faces of the cutting blades, one of said cutting blades being carried upon tensionally-controlled means projective from said support and said blade having a stationary or fixed status with relation to its carrying means, and the other cutting blade having a mounting fulcrumed intermediate its ends

upon the tensionally-controlled supporting means of said relatively-stationary blade, and means for controlling the fulcrumed action of said relatively-movable auxiliary blade in its bearing towards said stationary blade.

2. In a paper cutter comprising means for revolubly carrying a roll of paper and a support positionally related to the roll, plural cutting blades the respective opposite faces of which extend in the longitudinal plane of the roll and in parallel abutting relationship to receive the free end of the paper from the roll between said abutting faces of the cutting blades, one of said cutting blades being carried upon tensionally-controlled means projective from said support and said blade having a stationary or fixed status with relation to its carrying means, and the other cutting blade having a mounting fulcrumed intermediate its ends upon the tensionally-controlled supporting means of said relatively-stationary blade, and means carried by said relatively-movable auxiliary blade mechanism to bear against the side of the paper roll and control the fulcrumed action of said auxiliary blade in its bearing towards said stationary blade.

3. In a paper cutter of the class described for revolubly carrying a roll of paper, plural cutting blades the respective opposite faces of which extend in the longitudinal plane of the roll and in parallel abutting relationship, one of said cutting blades being tensionally mounted and the other cutting blade having a mounting fulcrumed intermediate its ends upon the tensionally-controlled mounting of said first blade, and pressure means active against the side of the paper roll for causing said fulcrumed blade to press against the other blade under the action of the tensionally-controlled mounting of said first blade, the mounting and operation of said plural blades being such that the free end of the paper from the roll passes between the abutting faces of said plural cutting blades.

4. In a paper cutter of the class described for revolubly carrying a roll of paper, plural cutting blades the respective opposite faces of which extend in the longitudinal plane of the roll and in parallel abutting relationship, one of said cutting blades being tensionally mounted and the other cutting blade having a mounting fulcrumed intermediate its ends upon the tensionally-controlled mounting of said first blade, and pressure means causing said fulcrumed blade to press against the other blade, the mounting and operation of said plural blades being such that the free end of the paper from the roll passes between the abutting faces of said plural cutting blades, and said parallel tensionally-bearing blades having slots in their plate surface forming finger openings for pulling upon the paper.

5. In a paper cutter of the class described for revolubly carrying a roll of paper, plural cutting blades the respective opposite faces of which extend in the longitudinal plane of the roll and in parallel abutting relationship, one of said cutting blades being tensionally mounted and the other cutting blade having a mounting fulcrumed intermediate its ends upon the tensionally-controlled mounting of said first blade, and pressure means causing said fulcrumed blade to press against the other blade, the mounting and operation of said plural blades being such that the free end of the paper from the roll passes between the abutting faces of said plural cutting blades, and said parallel tensionally-bearing blades having at the inner edge a projecting wing or extension forming a guide for the passage of the paper.

6. In a paper cutter of the class described for revolubly carrying a roll of paper, plural cutting blades the respective opposite faces of which extend in the longitudinal plane of the roll and in parallel abutting relationship, one of said cutting blades being tensionally mounted and the other cutting blade having a mounting fulcrumed intermediate its ends upon the tensionally-controlled mounting of said first blade, and pressure means causing said fulcrumed blade to press against the other blade, the mounting and operation of said plural blades being such that the free end of the paper from the roll passes between the abutting faces of said plural cutting blades, and said parallel tensionally-bearing blades having slots in their plate surface forming finger openings for pulling upon the paper and having at the inner edge co-incident with said slots a projecting wing or extension forming a reinforcement and a guide for the passage of the paper.

In testimony whereof I have signed the foregoing specification.

MEYNARDIE NELSON.