Oct. 15, 1929. F. W. LODDING 1,731,902

SLITTING MACHINE

Filed May 9, 1927

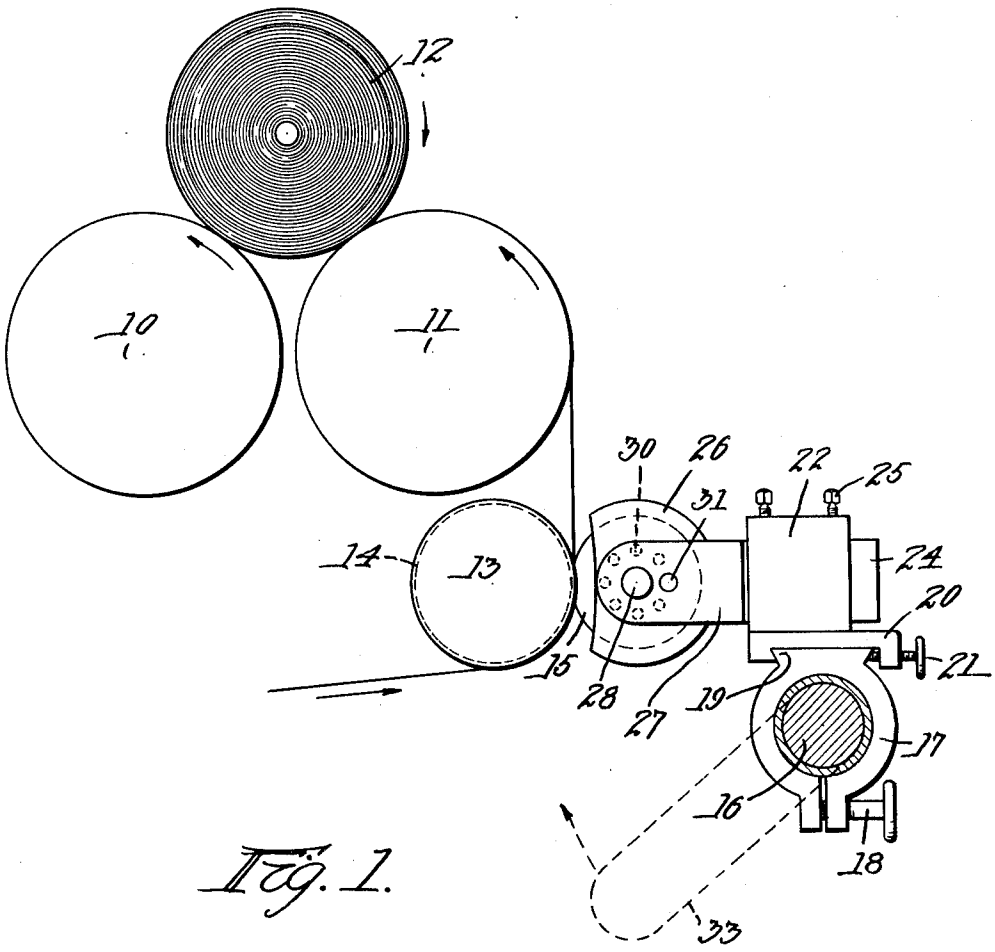


Fig. 1.

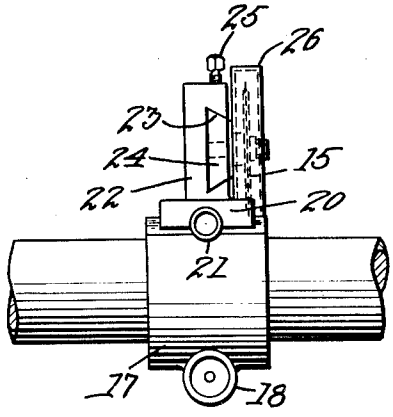


Fig. 2.

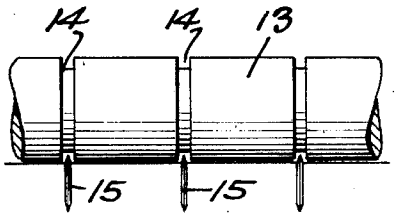


Fig. 3.

Inventor
Frederick W. Lodding
By Attorneys

Southgate Fay & Hanley

Patented Oct. 15, 1929 1,731,902

UNITED STATES PATENT OFFICE

FREDERICK W. LODDING, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO RICE, BARTON & FALES, INC., OF WORCESTER, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS

SLITTING MACHINE

Application filed May 9, 1927. Serial No. 189,775.

This invention relates to a slitting device for a web winding machine practically, but is capable of use wherever a web of paper, cloth or other material has to be slit.

The principal object of the invention is to provide a slitter which will slit a web neatly and at any speed at which the web may travel which will involve only one cutting surface for each slit, thus reducing the amount of sharpening required.

Other objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings in which

Fig. 1 is an end view of a part of a winding machine with a preferred form of slitter applied thereto in accordance with this invention.

Fig. 2 is a side view of one of the slitters; and

Fig. 3 is a plan showing a series of slitters in cooperation with the slitting roll over which the web passes.

I have shown the machine as used in connection with a winding machine comprising two drums 10 and 11 for supporting a roll of paper 12 and rotating in the direction of the arrows to rotate the roll of paper and wind it up upon itself as the machine continues to operate. The web can be drawn into the winding machine in any desired direction and I have shown it as coming in under a paper roll 13. This roll, as shown in Fig. 3, is provided with a series of grooves 14 circumferential in character and preferably having square shoulders and a depth sufficient for the purpose to be described.

Cooperating with the roll 13 are a series of slitters 15. These are shown in the form of circular cutters with very sharp edges. They are so located as to engage the web of paper on the surface of the roll 13 in the centers of the grooves 14 and penetrate the web. The web of paper is drawn over the roll 13 with sufficient tension so that it is held over the grooves with considerable pressure. This causes the slitters to slit it in said grooves without having any opposing surfaces engaging the slitters and therefore without any shear action at all. The paper can be slit by the mere passage of the paper past the slitters 15 with the paper held across the outside surface of the roll at the grooves. The slitters penetrate the paper and do not come against any solid surface either at the side or at the bottom of the groove. Therefore these slitters are not dulled as rapidly as they would be if a shear action were employed but they are kept to a fine degree of sharpness.

The slitters may be held in stationary position in which case the entire slitting operation is performed by the passage of the paper across them.

I have shown the slitters as located in a series supported by a cross rod 16 on a series of split clamps 17 held on the rod by screws 18. These clamps are provided with dovetailed projections 19. These split rings are fastened in approximately the right position and the slitters are adjusted afterwards separately as will appear. On each dove-tail projection is a frame 20 held in position by a screw 21. This base carries an upright 22 which has a horizontal dovetail guide 23 in its vertical face. In this is carried a horizontal slide 24 which can be adjusted out and in toward the roll 13 and held in adjusted position by screws 25. The slide carries at its inner end a guard 26 for protecting the slitter and a support 27. This support and the guard carry a stud 28 on which the slitter 15 is freely rotatable. If this is all there is to it the slitter will rotate at the same speed as the web. Better results are secured by rotating the slitter in the opposite direction or in the same direction at greater speeds but good results are obtained by holding the slitter stationary.

I have shown the slitter as provided with a circular series of holes 30 and the support 27 as provided with a pin 31 in a hole therein adapted to enter one of said holes and hold the slitter against turning. This obviously concentrates the wear on one spot on the edge of the slitter. In order to adjust the slitter to present a new cutting surface, the pin 31 is withdrawn and the slitter turned and then the pin inserted in another one of the holes 30. The pin of course is supported in the hole in the support 27.

However the details are arranged, this is a very efficient slitting machine and it involves a construction in which the rod or shaft 16 can be turned in its bearings by means of a handle 33 to swing all of the slitters out of the way to permit threading of the web into the machine. The slitting operation is particularly efficient and the slitters do not require sharpening as often as they would if constructed and operated in accordance with the previous practice. They are very easily put in place and removed and they perform a very neat and satisfactory slitting operation.

Although I have illustrated and described only two forms of the invention I am aware of the fact that other modifications can be made therein by any person skilled in the art without departing from the scope of the invention as expressed in the claims. Therefore I do not wish to be limited in these respects but what I do claim is:—

1. In a slitting device, the combination with a roll having a circumferential groove provided with square shoulders, of a slitter consisting of a disc having a circular sharp cutting edge, means for drawing a web of paper or the like between the roll and slitter so that the web will lie on the surface of the roll and be stretched over the groove and the cutter will penetrate the web between the shoulders of the groove to slit it, means for adjusting the cutter to bring a different part of its edge into cutting relationship with the roll and means for holding the cutter against rotating during the cutting operation.

2. In a slitting device, the combination with a roll having a groove therearound and means for drawing the web taut over the surface of the roll, of a slitter having a sharp edge located in a position to penetrate the web between the two sides of the groove, said slitter having a series of perforations therein, a support for the slitter having a perforation, and a pin adapted to pass through the latter perforation and into any one of the perforations in the slitter, whereby the slitter will be held in stationary position and can be adjusted to bring a different part of its surface into slitting position.

In testimony whereof I have hereunto affixed my signature.

FREDERICK W. LODDING.