No. 871,828. PATENTED NOV. 26, 1907.

A. E. SEXTON.

ROTARY ROLL CUTTING ATTACHMENT.

APPLICATION FILED AUG. 8, 1906.

2 SHEETS—SHEET 1.

Fig. 3.

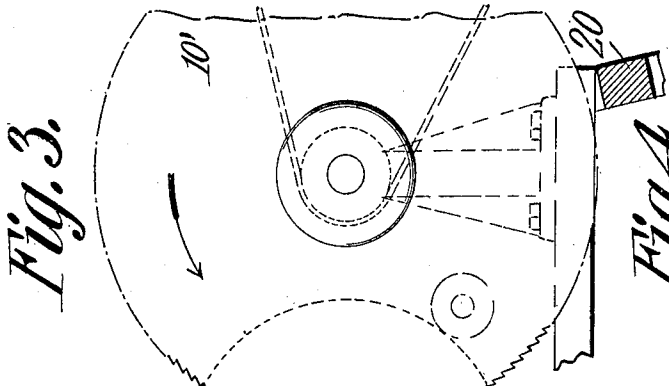


Fig. 4.

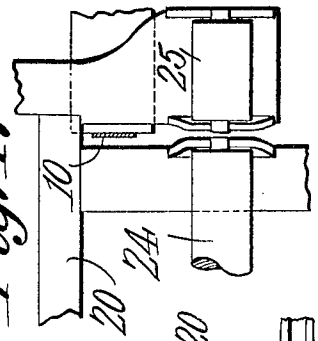
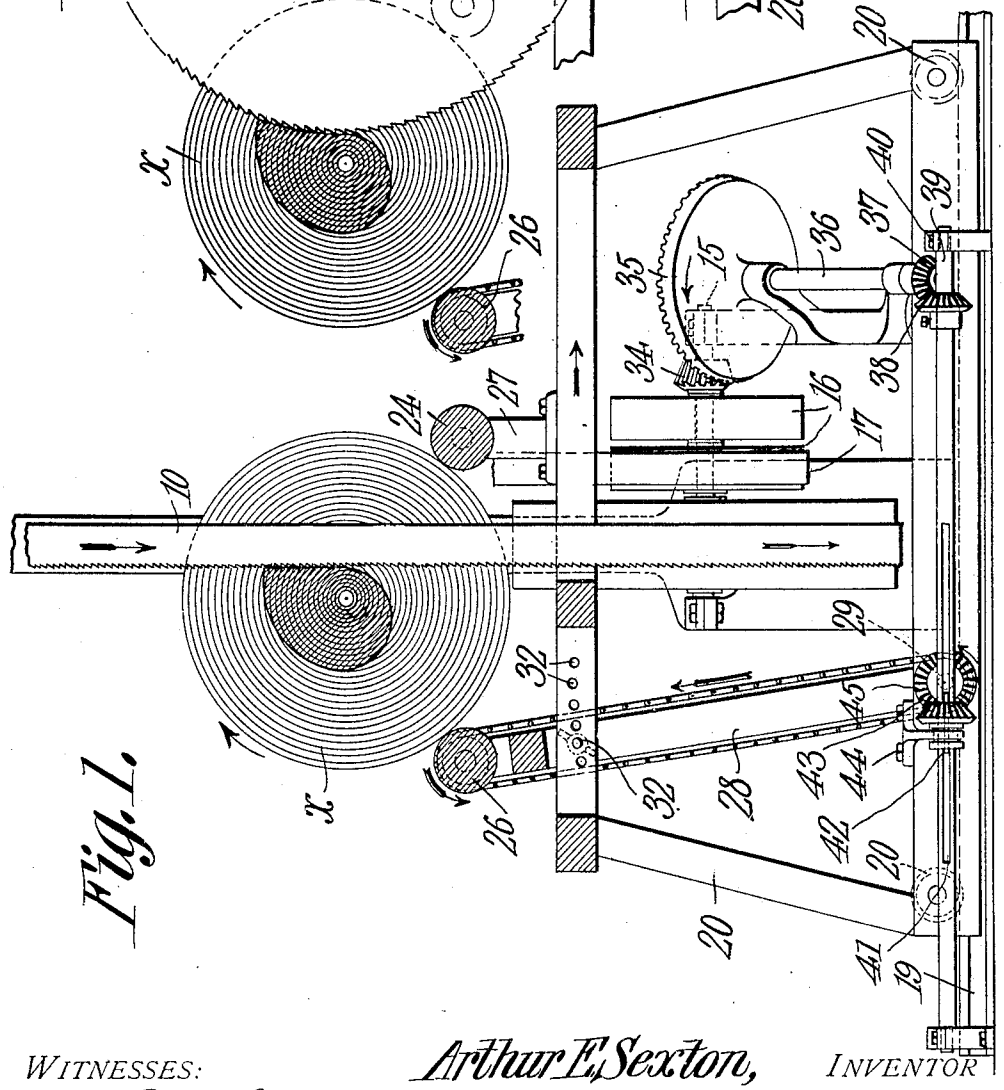


Fig. 1.



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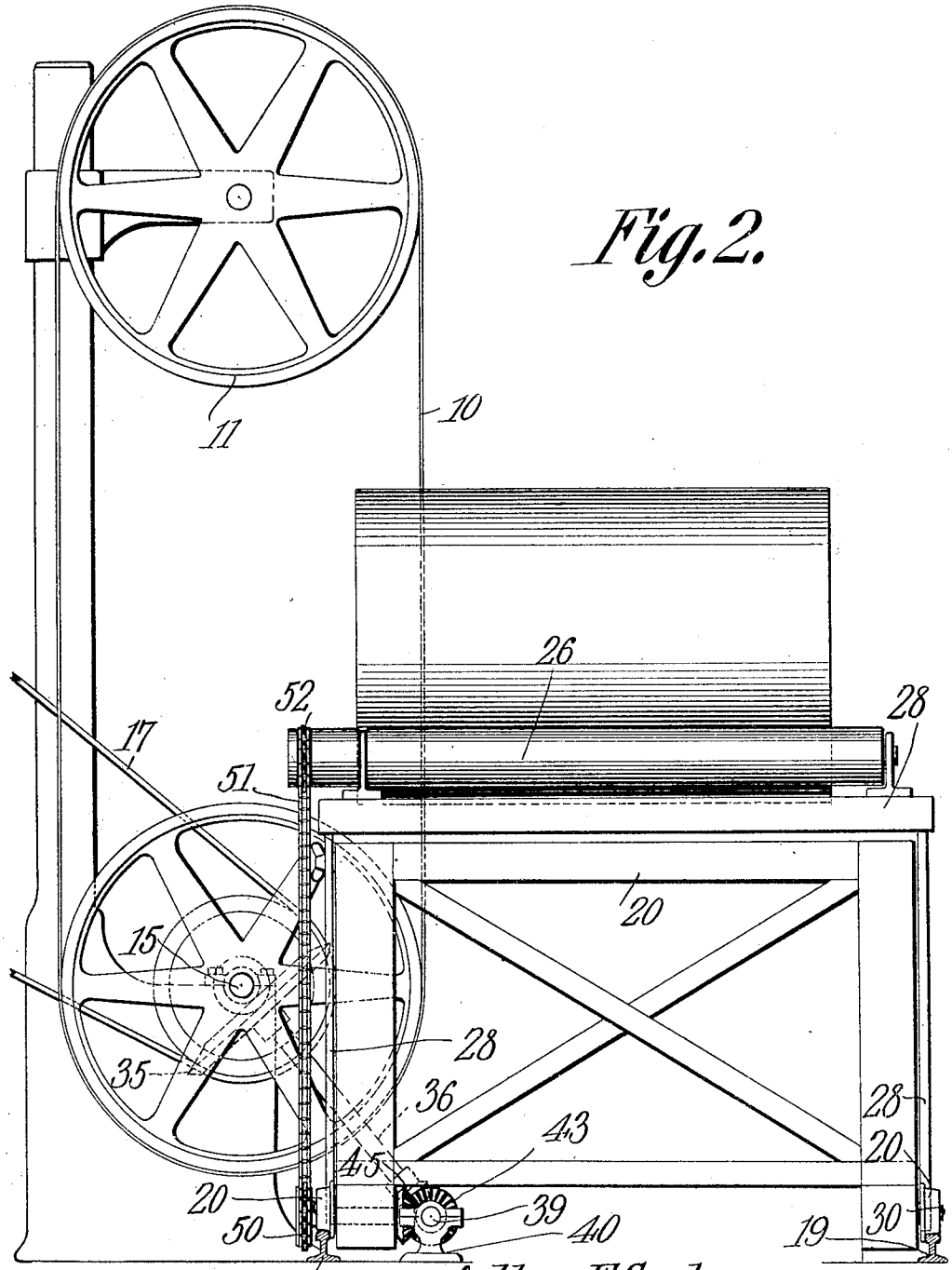
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2 SHEETS—SHEET 2.

Fig. 2.



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ROTARY ROLL-CUTTING ATTACHMENT.

No. 871,828. Specification of Letters Patent. Patented Nov. 26, 1907.

Application filed August 8, 1906. Serial No. 329,764.

To all whom it may concern:

Be it known that I, ARTHUR E. SEXTON, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Rotary Roll-Cutting Attachment, of which the following is a specification.

This invention relates to apparatus for cutting rolls of paper or other material into sections, and has for its principal object to provide improved mechanism including a saw, by which the cutting action will occur only in a direction toward or nearly toward the center of the roll.

In paper cutting saws as ordinarily constructed, the operation is carried on in much the same manner as though the saw were operating on wood or other more or less solid material, but with rolled material, such as paper, it is found that toward the end of the kerf, where the saw leaves the material, the layers or turns of paper will be torn and displaced, so that when the paper is unrolled, its edge is ragged and uneven. This is a serious disadvantage and renders the paper worthless for some purposes, and in carrying out the present invention, provision is made for effecting the cut in such manner that the actual cut shall take place only from the periphery of the roll inward, and not from any point within the roll to the periphery thereof.

A further object of the invention is to provide a paper roll cutting machine in which provision is made for slowly turning the roll of paper for the purpose of carrying the kerf away from the saw.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings:—Figure 1 is a transverse sectional elevation of a roll cutting machine constructed in accordance with the invention. Fig. 2 is an end elevation of the same. Fig. 3 is a partial view similar to Fig. 1, illustrating the employment of a circular saw. Fig. 4 is a plan view of a portion of the machine, showing the manner in which the rolls are spaced to permit the passage of the saw.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

In carrying out the invention, a band saw 10 is mounted on suitable carrying wheels 11 of the ordinary type, the lowermost wheel being carried by a shaft 15 provided with fast and loose pulleys 16 and driven by a belt 17 from any suitable source of power.

At a point in front of the band saw is arranged a pair of supporting rails 19, on which is mounted a wheeled carriage 20, the carriage being arranged to support the paper or other material to be cut, and to carry the same past the saw.

The work x is shown as supported by three rolls 24, 25 and 26, the two rolls 24 and 25 being mounted in suitable supporting standards 27 at the front of the work, and being slightly spaced from each other, as shown more clearly in Fig. 4 to permit the passage of the saw. The rear supporting roller 26 is mounted in bearings carried by a swinging frame 28, the latter having side arms which are pivoted at their lower ends, one on a short shaft 29 and the other on a stud 30 that is in transverse alinement with said shaft 29, this construction permitting adjustment of the position of the roller 26 in order to accommodate work of different diameter. After the swinging frame has been adjusted, it may be locked in place by a pin or screw 31, adapted to enter any one of a series of locking openings 32 formed in the main carriage 20.

Secured to the main shaft 15 is a pinion 34 that intermeshes with a bevel pinion 35 on an inclined shaft 36, the latter carrying also a pinion 37 which intermeshes with a bevel pinion 38 that is secured to a shaft 39, said shaft being placed alongside the carriage and being mounted in suitable bearings 40.

The shaft 39 is provided with an elongated key-way 41 for the reception of a slidable key or feather 42 which enters a keyway formed on the hub of a bevel gear 43 that is arranged to slide upon the shaft. The hub of this bevel gear is provided with an annular groove for the reception of a forked arm of a bracket 44 that projects from the carriage 20, so that said bevel gear must

move to and fro with the carriage, but in all positions may receive rotative movement from the shaft 39. The bevel gear 43 intermeshes with a bevel gear 45 on the shaft 29, and this shaft carries a sprocket wheel 50 which is connected by a link belt 51 to a sprocket wheel 52 on the shaft of the rear roller 26.

During the operation of the device, the shaft 39 will be constantly rotated, and this movement will be transmitted through the gearing connections to the roller 26, the latter serving to rotate the work x and the direction of rotation corresponds to the direction of movement of the working side of the band saw, so that the kerf will be carried away from the saw, as shown in Fig. 1, and the cutting action will take place only from the periphery of the work down to the horizontal plane of the axis of rotation of the work. Below that there will be an open groove, and the saw cannot, therefore, pull and tear the paper or other material as it would if the cutting action took place from the center or interior of the roll outward toward the periphery thereof, and it is found in practice that a smooth, clean cut is made.

In some cases a circular saw 10′ may be employed instead of the band saw, as shown in Figs. 1 and 2, but in this case the operation is the same as before described, the kerf being carried away from the saw, and the cutting action taking place in a direction from the periphery of the work inward.

I claim:—

1. In apparatus for cutting rolls of paper, a saw, a paper roll carrier, means for rotating said roll carrier, and means for so positioning and feeding the saw and carrier relatively to each other that the saw shall always cut toward the axis of the roll while the kerf is caused to recede from the limit of the cutting area.

2. The combination with a band saw, of an operating shaft therefor, a movable work carriage, a pair of rollers on said carriage and adapted to receive a roll of material to be cut, a sprocket wheel on one of said rollers, a shaft arranged near the base of the carriage, a sprocket wheel on said shaft, a link belt connecting the two sprocket wheels, a bevel gear on the shaft, a countershaft mounted in fixed bearings at one side of the carriage and having an elongated key way, a bevel gear mounted on the counter shaft and intermeshing with the first bevel gear, a bracket on said carriage and serving to hold the bevel gear and the counter shaft from movement independent of the carriage, and means for connecting the counter shaft to the saw operating shaft.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

ARTHUR E. SEXTON.

Witnesses:
H. H. Clark,
Emmet H. Wilson.