June 17, 1930. H. L. KUTTER 1,764,322

PAPER MACHINERY

Filed March 20, 1924 4 Sheets-Sheet 1

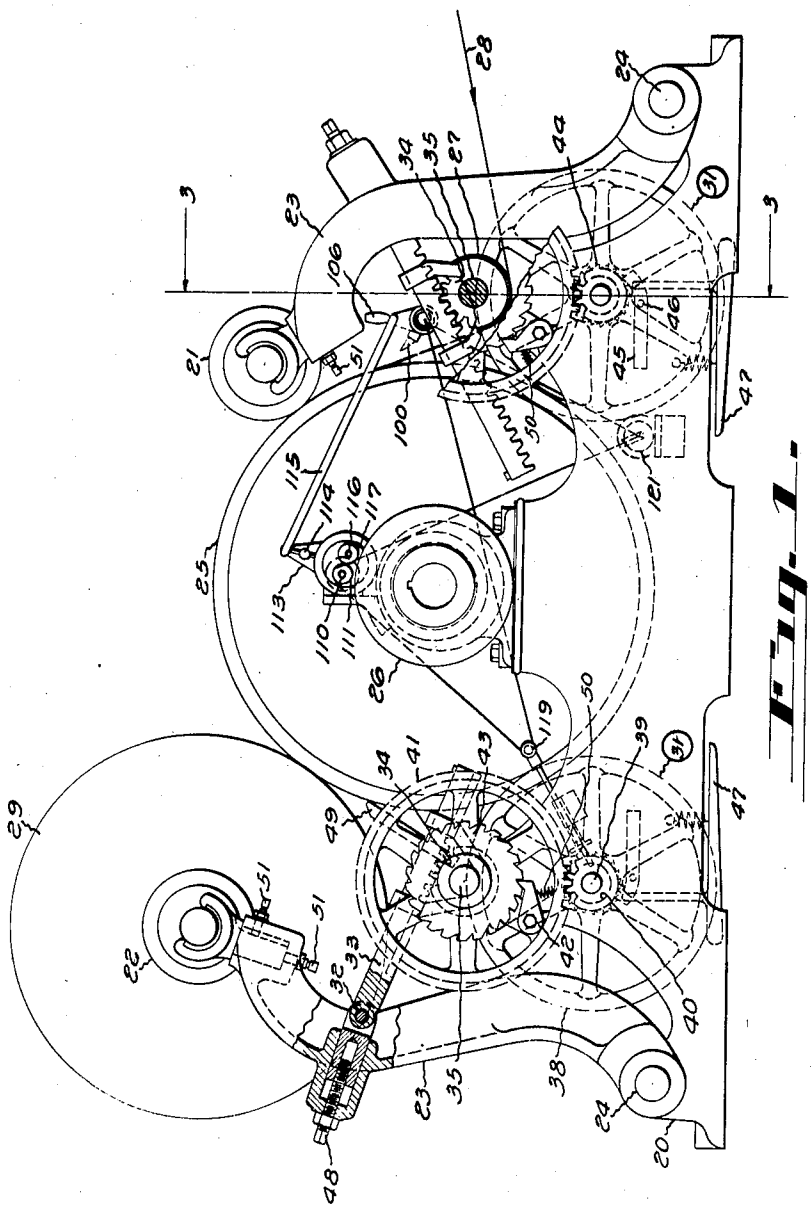


Fig. 1.

Inventor

Herman L. Kutter

By Marechal & Fish

Attorneys

June 17, 1930. H. L. KUTTER 1,764,322

PAPER MACHINERY

Filed March 20, 1924 4 Sheets-Sheet 2

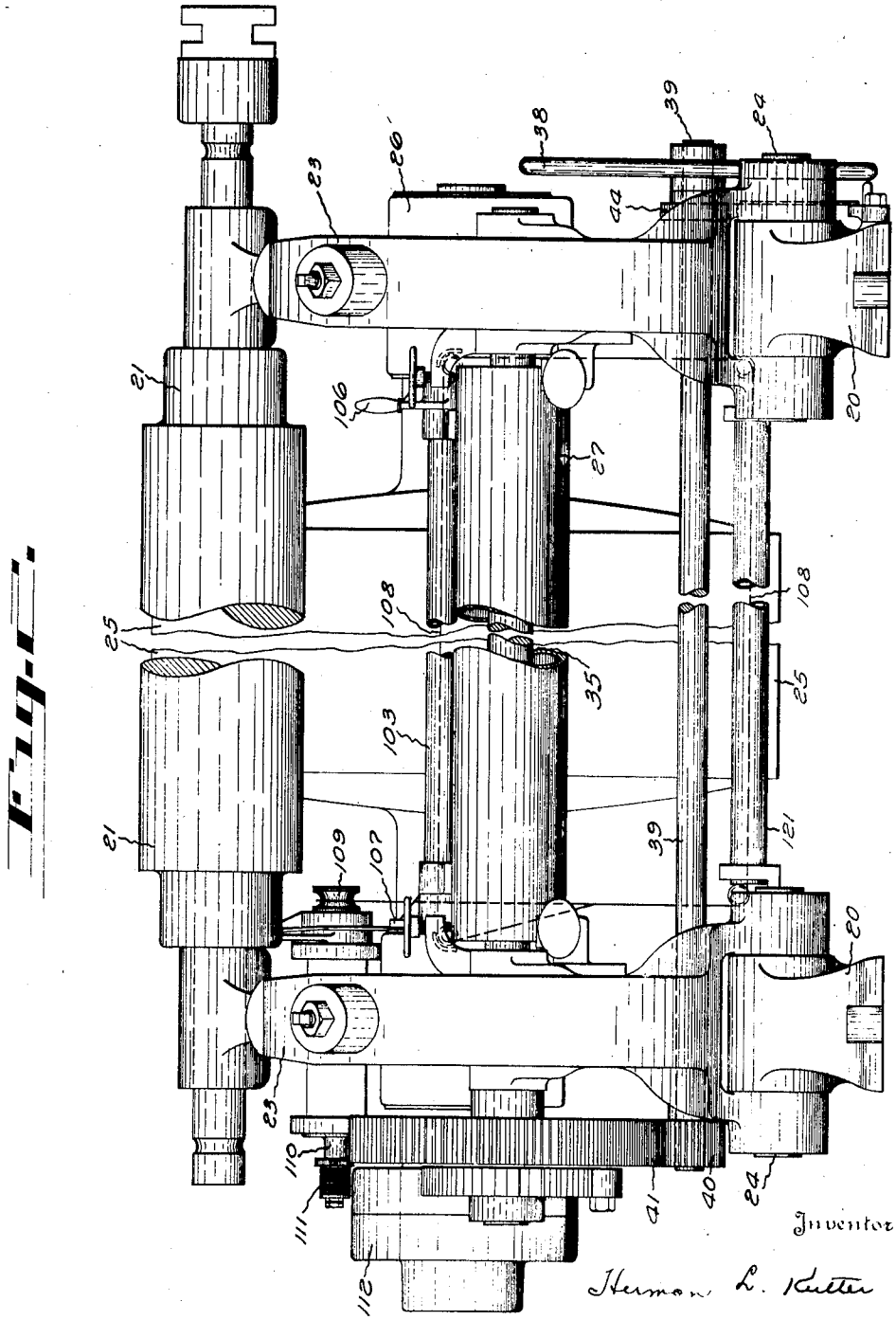


Fig. 2.

Inventor

Herman L. Kutter

By

Marechal & Fehr

Attorneys

June 17, 1930. H. L. KUTTER 1,764,322

PAPER MACHINERY

Filed March 20, 1924 4 Sheets-Sheet 3

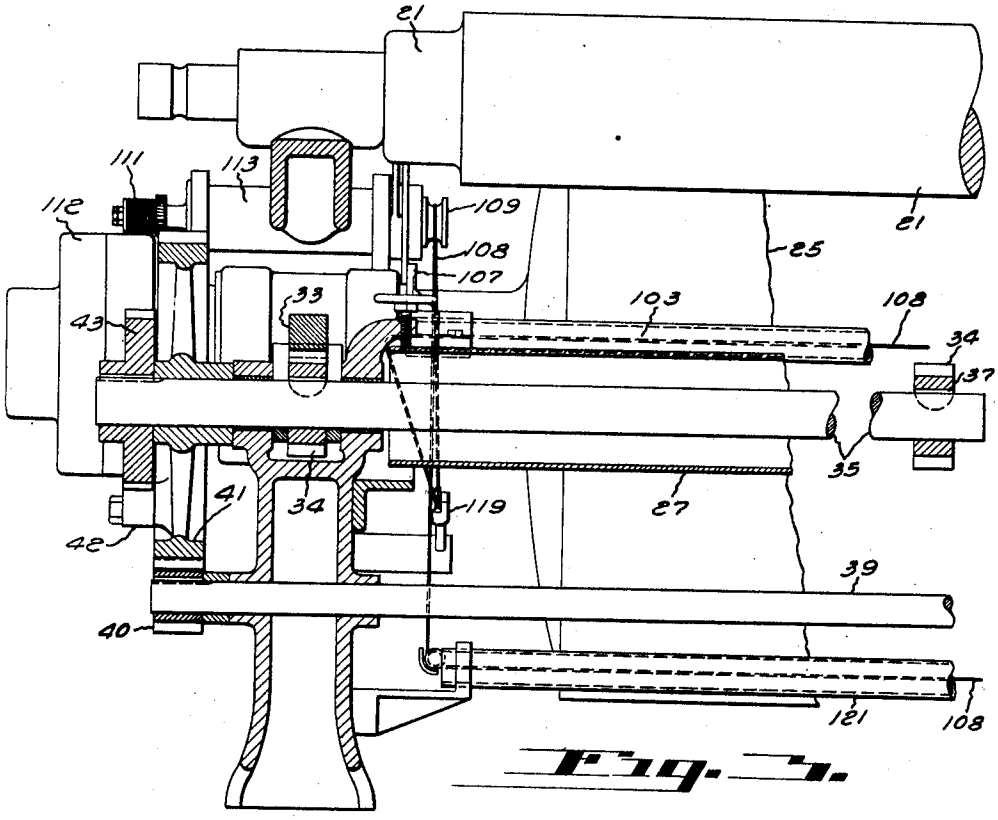


Fig. 3.

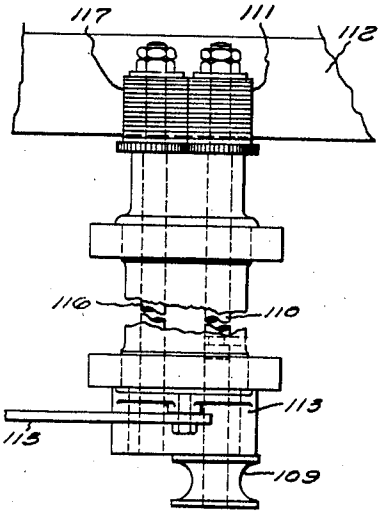


Fig. 5.

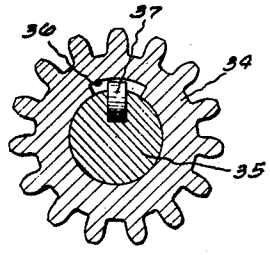


Fig. 4.

Inventor

Herman L. Kutter

By Marshall & Fisher

Attorneys

June 17, 1930. H. L. KUTTER 1,764,322

PAPER MACHINERY

Filed March 20, 1924 4 Sheets-Sheet 4

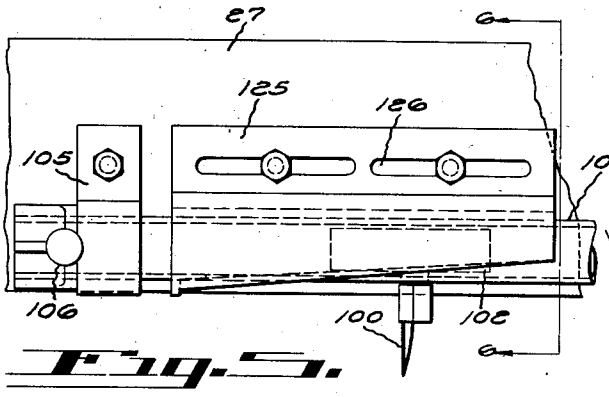


Fig. 5.

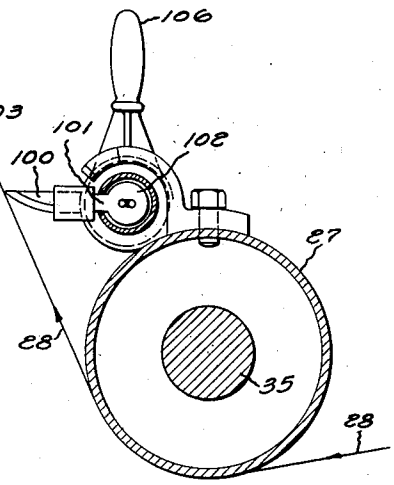


Fig. 6.

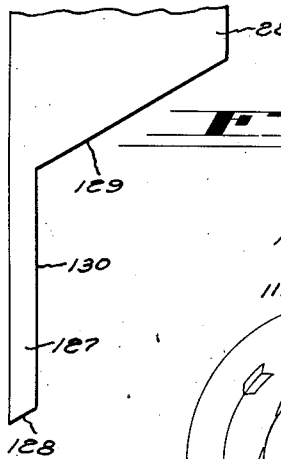


Fig. 8.

Fig. 7.

Inventor

Herman L. Kutter

By Marshall & Dehr

Attorneys

Patented June 17, 1930 1,764,322

UNITED STATES PATENT OFFICE

HERMAN L. KUTTER, OF HAMILTON, OHIO, ASSIGNOR TO THE BLACK-CLAWSON COMPANY, OF HAMILTON, OHIO, A CORPORATION OF OHIO

PAPER MACHINERY

Application filed March 20, 1924. Serial No. 700,590.

This invention relates to reels for winding up paper and particularly to uniform speed reels in which an endless sheet of paper, moving at a high rate of speed, is wound into rolls without interrupting the uniform movement of the paper.

One object of the invention has to do with the winding up of the paper upon the winding mandrel. Heretofore difficulty has been experienced in winding the paper properly upon the winding mandrels owing to the fact that the finished paper is not always of uniform thickness, and as a result non-uniform winding of the paper on the mandrel with attendant wrinkling, has occurred. One of the principal objects of the present invention is to provide apparatus for winding paper into rolls, which is constructed to secure uniform winding without the necessity of constant attention.

Another object of the invention is to provide such apparatus with efficient means for effecting transfer of the moving sheet of paper from one winding mandrel to another, without the loss of any of the paper.

Other and further objects of the invention will appear from the following description and the accompanying drawing in which:

Fig. 1 is a rear elevational view of the winding reel;

Fig. 2 is an end elevation of the reel;

Fig. 3 is a section taken on the line 3—3 of Fig. 1;

Fig. 4 shows a detail of the winding construction;

Fig. 5 is a detail of a portion of the paper cutting mechanism;

Fig. 6 is a section on the line 6—6 of Fig. 5; and

Fig. 7 is a mixed perspective and diagrammatic view of the paper cutting mechanism;

Fig. 8 shows the end of the sheet of paper as cut by the paper cutting mechanism herein described; and

Fig. 9 is an enlarged detail of a portion of the driving means for the paper cutting mechanism.

In the making of paper it is generally the practice to wind the sheet of paper as it comes from the paper making machine onto mandrels to form rolls of paper of suitable size. As the finished paper comes to the mandrel it may vary in thickness and as a result the paper tends to wind more tightly about one portion of the roll than another so that wrinkling may occur, which is objectionable and causes heavy losses. To overcome this difficulty the mandrel upon which the paper is wound is supported at its opposite ends by independent supporting members which are constructed so that they may readily vary their positions, and the position of the mandrel, to maintain a uniform weight, and therefore a uniform tension, on the paper sheet across its entire width to thus insure uniform winding of the paper. Generally a plurality of winding mandrels are provided and as one roll is wound to the proper size it is the practice to break or tear the moving strip of paper by hand and transfer the end of the sheet to a new mandrel. After the sheet takes hold on the new mandrel, the paper then winds up on this new mandrel and the old mandrel with its roll of paper may be removed. During this transferring operation the sheet of paper continues to come on at a high rate of speed and there is often a considerable waste of paper before the operation is completed, which waste may assume large proportions if the operation is not skillfully and quickly done. According to the present invention this transfer is accomplished by providing mechanical means for cutting a lead strip from the sheet of paper which is wound around the second mandrel after which the sheet of paper is cut across its width, at an angle, the body of the sheet following the lead strip and winding uniformly about the mandrel.

Referring particularly to Figs. 1 and 2 the reel comprises front and rear frames 20 supported in spaced apart relation upon suitable foundations. At opposite ends of the frame are winding mandrels 21 and 22 which are carried by long bearing arms or supports 23 which are independently pivoted at 24 to the frames 20. Between the winding mandrels 20 and 21 there is a large wind-

ing drum 25 which is journalled for rotation in the bearings 26 carried by the frame 20. To the right of the winding drum in Fig. 1 is a spreader pipe 27.

The sheet of paper 28 to be wound approaches the winding reel from the direction indicated and passes underneath the spreader pipe 27 onto the winding drum 25, from which drum it then winds onto one of the winding mandrels 21 or 22. As shown in Fig. 1 the paper is being wound upon the mandrel 22 to form a roll of paper 29. As soon as the roll of paper 29 reaches the desired size the paper is cut by means of a knife 100 and transferred from the mandrel 22 to the mandrel 21. An elevating mechanism 31 is provided for elevating the mandrel 22 and its roll of paper out of contact with the winding drum whereby it may be removed from the bearing arms 23 and replaced by an empty or new mandrel. By reversing the operation of the elevating mechanism 31 the new mandrel 22 may then be lowered into contact with the winding drum to receive the paper after the roll is completed upon the mandrel 21. It is to be observed that the sheet of paper preferably comes into contact with the winding drum 25 before it reaches either of the winding mandrels, it being found that better results are thereby obtainable. The winding drum is provided at 49 with a doctor.

Pivotally connected with each bearing arm at 32 is a rack 33 engaging a pinion 34. The pinions engaging the racks of the bearings arms which support each mandrel are mounted upon a cross shaft 35 to which they are loosely keyed by means of a connection such as is shown in Fig. 4, the key-way 36 in the pinion 34 being considerably wider than the key 37 in the shaft 35.

During the winding operation the winding mandrels 21 and 22 normally bear against the surface of the winding drum 25 and are frictionally driven thereby. As paper is wound upon the mandrel, to form a roll thereon, the mandrel itself moves away from the winding drum and the racks 33 connected to the bearing arms at the opposite ends of the mandrel cause a rotation of the pinions 34 on the shaft 35. The bearing arms at the opposite ends of the mandrel are movable independently of one another within predetermined limits as determined by the play between the key slots 36 and the keys 37. Adjusting means 48 are provided to effect such adjustments of this loose connection or interlocking means as may be desirable. The purpose of this loose connection is to permit the roll by its own weight to automatically maintain uniform pressure and tension on the paper as it is wound on the mandrel. Should the paper being wound be slightly thicker at one edge than it is at the other then the roll will of course be slightly larger at one end and this must be compensated for in some manner. It will be seen that by the present invention this compensation is accomplished automatically because the roll by its own weight takes a position against the winding drum with the winding surface parallel with the surface of the winding drum and the paper carried thereon, the bearing arms 23, racks 33 and pinions 34 at the opposite ends of the mandrel accommodating themselves to the position taken by the roll 29. Adjusting screws are provided at 51 whereby the bearings at either end of the mandrel may be adjusted both vertically and laterally in their supporting guides in the bearing arms 23 as best shown in Fig. 1.

To remove the weight of the mandrel 22 and roll 29 from the drum 25 and to facilitate the removal of the roll from its bearing arms there is provided an elevating mechanism designated as a whole by 31 which consists of a large hand wheel 38 mounted upon a shaft 39 having at its opposite end a pinion 40 engaging a gear wheel 41. Gear 41 carries a pawl 42 adapted to engage the teeth of a ratchet wheel 43 keyed on the end of the shaft 35. Referring to the elevating mechanism at the left of Fig. 1 it will be seen that by turning the hand wheel 38 in a clockwise direction the pawl 42 will engage the teeth of the ratchet wheel 43 to rotate the shaft 35 and pinions 34 in a counter clockwise direction, thereby elevating roll 29. The shaft 39 of the elevating mechanism is provided with a ratchet wheel 44 which is engaged by a pawl 45 pivoted at 46, the weight of the pawl and associated parts being such as to maintain the pawl in engagement with the ratchet wheel 44. To lower the bearing arms after the removal of the roll 29 and its replacement by a new mandrel, the pawl 45 is released by the foot lever 47 and the hand wheel 3 turned in a direction opposite to that for elevating. Spring 50 holds the pawl 42 at all times in engagement with the ratchet wheel 43, the pressure being such that should the bearing arms through friction or otherwise tend to remain in elevated position, the pawl will exert sufficient force on the ratchet wheel to draw the bearing arms down.

The above described mechanism accomplishes the first-mentioned object of the present invention. The bearing arms 23 being movable independently of one another the outer or winding surface of the roll 29 is at all times in contact with the winding drum across the width of the sheet of paper. The outer or winding surface of the roll 29 may therefore be said to be parallel with the drum or guide means for the sheet of paper which is being wound. Likewise it will be obvious that the paper being wound is maintained under uniform pressure and

tension throughout its width thereby insuring smooth winding of the paper.

After the roll of paper has reached the desired size on mandrel 22, it is necessary, as already stated, to sever or cut the moving sheet of paper from the roll and transfer it to the mandrel 21 which thereupon receives and winds the paper. Mechanically operated means is provided for cutting the sheet of paper whereby the transfer may be effected without loss of time or waste of paper.

The paper cutting mechanism consists of a knife or cutting tool 100 supported by the stem 101 of a cylindrical block 102 slidable in a tube or guide 103 which is provided with a narrow longitudinal slot 104 to receive the stem 101, as shown in Figs. 5, 6 and 7. The knife, sliding in the tube 103 is adapted to move across the moving sheet of paper from one edge to the other and for this purpose the guide tube 103 is mounted transversely on the reel, being supported upon the spreader tube 27 in such a position that the knife 100 may be moved into the path of the moving sheet of paper, as shown at the right in Fig. 1. The guide tube 103 is adapted to revolve in its bearing members 105 secured to the spreader tube 27, as clearly illustrated in Figs. 5, 6 and 7. An operating handle 106 and an operating lever 107 are rigidly secured to opposite ends of the tube 103 and retain it in position in the bearing members 105.

The knife 100 is adapted to be drawn through the guide tube 103 by means of an endless flexible cable 108 which is attached at opposite ends to the block 102, and the flexible cable is in turn driven by the pulley 109 which may be driven from any moving part of the reel or independently of the reel if so desired. As herein shown the pulley 109 is mounted on a shaft 110 carrying at its opposite end a friction driven disc 111 adapted to be moved into engagement with the coupling member 112 on the shaft of the winding drum 25. The shaft 110 carrying the driving disc 111 is carried in a rocking frame 113 which is pivoted to rock at 114 and is connected by means of a link 115 with the operating lever 107. Also carried by the rocking frame 113 is a second shaft or spindle 116 carrying on one end a driving disc 117 which is also adapted to engage the coupling member 112. The shafts or spindles 110 and 116 are so mounted on the rocking frame 113 that when the frame is rocked to the left as shown in Figs. 1 and 7, the driving disc 111 engages the coupling member 112, and when the rocking frame 113 is tilted to the right then the driving disc 117 engages the coupling member 112. The spindles 110 and 116 are geared together by means of gears so that either of the driving discs 111 and 117 may drive the flexible cable 108 through the pulley 109, but in reverse directions. In the position shown in the drawings the rocking frame 113 is in neutral position with neither of the discs 111 and 116 in engagement with the coupling member 112. As shown in the drawings the flexible cable as it leaves the end of the guide tube 103 passes over the pulley 118, the take-up pulley 119, the pulley 109 on the spindle 110 and the pulley 120 at the entrance of the pipe 121 through which pipe the cable passes to the other side of the machine, where it passes over the pulleys 122 and 123, the end of the cable being then connected to the guide block 102.

The operation of the cutting mechanism may best be described upon reference to Fig. 7. Assuming that the knife 100 is at the extreme left end of the slot 104 and is desired to cut the moving sheet of paper, the operating handle 106 is moved in the direction of the arrow C. This movement of the handle 106 turns the guide tube 103 in its bearings causing the knife 100 to turn downwardly into the plane of the paper though beyond the edge of the paper. At the same time the operating lever 107 which is secured to the guide tube 103 rocks the rocking frame 113 on its pivot to cause the driving disc 111 to engage the coupling member 112. Thus, coincident with the movement of the knife 100 into the path of the paper, the flexible cable is put into operation to draw the knife 100 from its extreme left end position across the sheet of moving paper as indicated by arrow C′ in Fig. 7. During this cutting operation it will be understood that the operator is pressing the lever 106 in the direction of the arrow C. When the knife has moved across the width of the paper it strikes stop cam 124 which cams the knife 100 and the tube 103 upwardly, the knife moving out of the plane of the paper and the driving disc 111 being thereby disengaged from the coupling member 112. This brings the knife to rest. To return the knife to its original position the lever 106 is rocked backwardly in the direction of the arrow R. This raises the knife still further from the plane of the paper and at the same time brings the driving disc 117 into engagement with the coupling member 112, thereby drawing the knife 100 in the direction of the arrow R′. As the knife 100 reaches the end of its return movement it strikes a second stop cam 125 which turns both the knife 100 and the tube 103 downwardly into their neutral position. It will be understood that in this position the knife 100 is at rest and out of cutting relation with the paper. Stops 124 and 125 are mounted on the spreader tube and preferably are provided with adjusting slots, as shown at 126 in Fig. 5, to permit their adjustment longitudinally of the guide 103.

In employing this cutting mechanism at

the time that it is desired to transfer the sheet of moving paper from a full mandrel to an empty mandrel (as for example from mandrel 22 to mandrel 21 in Fig. 1), the operator moves the handle 106 in the direction of the arrow C for just an instant and then back toward neutral position just far enough to move the driving disc 111 out of driving connection with the coupling 112, the knife or cutting tool 100 still remaining in contact with the paper and cutting it longitudinally. By this movement the knife cuts into the paper and comes to rest within 6 or 8 inches or any desired distance of the edge of the paper thereby cutting therefrom a narrow strip of the moving paper as illustrated at 127 in Fig. 8. The strip 127, which is herein termed a lead strip, may then be wound about the empty mandrel, the remainder or body of the moving sheet continuing to wind upon the old roll of paper. As soon as the lead strip is caught or engaged on the new or empty mandrel the handle 106 is again pushed in the direction of arrow C to cause the knife to continue its movement across the sheet of paper. The moving sheet of paper is thus completely severed from the old roll and, following the guidance of the previously cut lead strip, now winds onto the new mandrel. The shape of the paper as it is cut by the knife is shown in Fig. 8 wherein the edges 128 and 129 are formed by the knife as it moves across the sheet of paper and the edge 130 is formed while the driving disc 111 is temporarily disengaged from the coupling member 112 and knife 100 is at rest, as already explained. It will be observed that although the knife 100 moves at right angles to the length of the paper, the latter is cut diagonally as shown at 128 and 129, the angle of the cut being, of course, dependent upon the relative velocities of the paper and the knife. When, as here, the knife is driven from a moving part of the apparatus, the paper is cut at a uniform angle, but it will be understood that the knife may be driven from any suitable source and its speed varied as desired.

While the cutting mechanism is described as being adapted to cut the paper from only one side, it is evident that it may, if desired, be arranged to cut the paper from either side. When so arranged the driving mechanism for the knife would have to be somewhat modified so as to effect positive driving of the knife from either side, while the knife is held advanced into the plane of the paper. Such modification of the mechanism would be easily within the capacity of a mechanic skilled in the art, and it is, therefore, not illustrated herein.

Attention is also called to the fact that machines of this character are made both for left and right hand operation, depending on the place they are located. A machine of the opposite hand to that shown in the drawing, would naturally, have the mechanism just reversed, the mechanism for lifting and lowering the mandrel being arranged for manipulation from the opposite side of the machine, and the cutting mechanism being also arranged for manipulation from the opposite side.

While the form of apparatus herein described constitutes a preferred embodiment of the invention, it is to be understood that the invention is not limited to this precise form of apparatus and that changes may be made therein without departing from the scope of the invention which is defined in the appended claims.

What is claimed is:

1. An apparatus of the character described comprising, in combination, a winding drum adapted to carry a sheet of paper on its periphery, a plurality of winding mandrels adapted to bear against the periphery of the drum, and means for lowering the mandrels into bearing contact with the drum at different positions to initiate winding thereon.

2. An apparatus of the character described comprising, in combination, a winding drum adapted to carry a sheet of paper on its periphery, winding mandrels on opposite sides of the drum and adapted to bear against the periphery thereof, and means for lowering either of the mandrels into bearing contact with the drum to initiate winding thereon.

3. An apparatus of the character described comprising, in combination, a winding drum adapted to carry a sheet of paper on its periphery a plurality of winding mandrels normally biased to bear against the periphery of the drum, and means unitary with the apparatus for raising one or more of the mandrels out of contact therewith.

4. An apparatus of the character described comprising, in combination, a winding mandrel, supports at opposite ends of the mandrel constructed for independent movement relative to each other during winding operation to compensate automatically for winding irregularities, and interlocking means cooperating with the supports to limit their relative movement.

5. An apparatus of the character described comprising, in combination, a winding mandrel, independently movable supports at opposite ends of the mandrel, and interlocking means cooperating with the supports to limit their relative movement, said interlocking means including a lost-motion connection.

6. An apparatus of the character described comprising, in combination, a winding mandrel, independently movable supports at opposite ends of the mandrel, and interlocking means cooperating with the supports to limit their relative movement, said interlocking

means including a shaft and a gear thereon having a lost-motion connection therewith.

7. An apparatus of the character described comprising, in combination, a winding mandrel, independently movable supports at opposite ends of the mandrel, and interlocking means cooperating with the supports to limit their relative movement, said interlocking means including a plurality of gears and means connected with the supports for actuating the gears.

8. An apparatus of the character described comprising, in combination, a winding mandrel, independently movable supports at opposite ends of the mandrel, and interlocking means cooperating with the supports to limit their relative movement, said interlocking means including a shaft, gears thereon and racks connected with the supports and engaging the gears, one of said gears having a lost-motion connection with the shaft.

9. An apparatus of the character described comprising, in combination, a winding drum adapted to carry a sheet of paper on its periphery, a winding mandrel constructed to bear against the drum and to wind the paper into a roll upon the mandrel, a pivoted supporting arm for each end of the mandrel, and means having a pivotal connection with each of said arms for raising the mandrel and roll out of contact with the drum.

10. An apparatus of the character described comprising, in combination, a winding drum adapted to carry a sheet of paper on its periphery, a winding mandrel constructed to bear against the drum and to wind the paper into a roll upon the mandrel, a pivoted supporting arm for each end of the mandrel, and means comprising a link connected with each of said arms for raising the mandrel and roll out of contact with the drum, and means for adjusting the connection of one or more of said links with said arms.

11. An apparatus of the character described comprising, in combination, a winding drum adapted to carry a sheet of paper on its periphery, a winding mandrel constructed to bear against the drum and to wind the paper into a roll upon the mandrel, independently movable supports for opposite ends of the mandrel, elevating mechanism for moving one of the supports away from the drum, and a lost-motion connection between the elevating mechanism and the other support.

12. An apparatus of the character described comprising, in combination, a winding drum adapted to carry a sheet of paper on its periphery, a winding mandrel constructed to bear against the drum and adapted to wind the paper into a roll upon the mandrel, independently movable supports for opposite ends of the mandrel, a lost-motion connection between the supports, and elevating mechanism for raising the roll out of contact with the drum, said elevating mechanism operating through said lost-motion connection.

13. An apparatus of the character described comprising a winding mandrel adapted to receive a continuously moving sheet of paper and to wind the same into a roll thereon, a second winding mandrel adapted to receive said sheet of paper, and means for cutting from the moving sheet of paper a lead strip adapted to be wound about the second mandrel while the body of the sheet continues to wind upon the first mandrel, said means being operable thereafter upon actuation to sever said body of the sheet from the first mandrel whereby to cause the sheet to wind upon the second mandrel.

14. An apparatus of the character described comprising a winding mandrel adapted to receive a continuously moving sheet of paper and to wind the same into a roll thereon, a second winding mandrel adapted to receive said sheet of paper, and means for cutting the sheet of paper for winding upon the second mandrel, said means being operable upon initial actuation to cut from one edge of the moving sheet of paper a lead strip adapted to be wound about the second mandrel while the body of the sheet continues to wind upon the first mandrel, and being operable thereafter upon further actuation to sever said body of the sheet from the first mandrel whereby to cause the sheet to wind upon the second mandrel.

15. An apparatus of the character described comprising a winding mandrel adapted for winding a sheet of paper thereon to form a roll of paper, a pivoted supporting arm for said mandrel at each end thereof, means operable upon said arms for moving them to effect desired positioning of the mandrel, and means permitting movement of the arms with respect to each other during winding operation to compensate for winding irregularities.

16. An apparatus of the character described comprising a winding mandrel adapted for winding a sheet of paper thereon to form a roll of paper, a pivoted supporting arm for said mandrel at each end thereof, means operable upon said arms for moving them to effect desired positioning of the mandrel, and means for effecting independent adjustment of said supporting arms with respect to each other.

17. An apparatus of the character described comprising the combination with a winding drum, of a winding mandrel adapted to receive a sheet of paper from said drum for winding thereon to form a roll of paper, supporting means for said mandrel

at each end thereof, means operable upon said supporting means for moving them to effect positioning of the mandrel relative to the winding drum, and means permitting movement of the supporting means with respect to each other during winding operation to compensate for winding irregularities.

18. An apparatus of the character described comprising, in combination, a winding drum adapted to carry a sheet of paper on its periphery, a winding mandrel constructed to bear against the drum and to wind the paper in a roll upon the mandrel, supporting means for each end of the mandrel pivoted for independent movement with respect to each other, said means guiding the mandrel during winding operation for movement in a direction approximately radial with respect to the drum, and means operating upon said pivoted supporting means for raising the mandrel and roll out of contact with the drum.

19. An apparatus of the character described comprising the combination with a winding drum, of a winding mandrel adapted to receive a sheet of paper from said drum for winding thereon to form a roll of paper, pivoted supporting means for said mandrel at each end thereof adapted to rock about their pivots as paper is wound upon the mandrel, means operable upon said pivoted supporting means for moving said mandrel relative to the winding drum, and means associated with said moving means for effecting independent adjustment of said supporting means.

20. An apparatus of the character described comprising, the combination with a winding drum, of a mandrel adapted to receive a sheet of paper from said winding drum for winding thereon to form a roll of paper, a pivoted supporting arm at each end of said mandrel, a shaft, means for operating each of said supporting arms from said shaft, said operating means including a lost-motion connection between each of said supporting arms and said shaft, and means for rotating said shaft to move both of said supporting arms to effect positioning of said mandrel relative to said winding drum.

21. An apparatus of the character described comprising, the combination with a winding drum, of a mandrel adapted to receive a sheet of paper from said winding drum for winding thereon to form a roll of paper, a pivoted supporting arm at each end of said mandrel, a shaft, operative connections between each of said supporting arms and said shaft, each of said connections including a pinion having a lost-motion connection with said shaft, and a rack connected to a supporting arm and meshing with said pinion, and means for rotating said shaft to move both of said supporting arms to effect desired positioning of said mandrel relative to said winding drum.

22. An apparatus of the character described comprising, the combination with a winding drum, of a mandrel adapted to receive a sheet of paper from said winding drum for winding thereon to form a roll of paper, a pivoted supporting arm at each end of said mandrel, a shaft, a lost-motion connection between each of said supporting arms and said shaft to permit relative movement of said arms to compensate for winding irregularities during winding operation, and means to rotate said shaft to effect desired positioning of said winding mandrel relative to said drum, said last-mentioned means being constructed to be maintained in operative engagement with said shaft and at the same time permit rotation of said shaft to provide for movement of the mandrel away from the winding drum during winding operation.

23. Apparatus of the character described comprising in combination, a winding drum adapted to carry a sheet of paper on its periphery, two winding mandrels, separate supporting means adapted to support each of said mandrels in normal operating position to bear against said drum to receive the continuously moving sheet of paper and to wind the same into a roll thereon, and power-actuated means actuated from a driven part of said apparatus for severing from one roll the sheet of paper while it is in motion, whereby the traveling sheet of paper may be transferred to the second winding mandrel in normal operating position to be wound into a roll thereon.

24. Apparatus of the character described comprising in combination, a winding drum adapted to carry a sheet of paper on its periphery, a winding mandrel, means for supporting the winding mandrel in normal operating position to bear against said drum to receive the continuously moving sheet of paper and to wind the same into a roll thereon, a second winding mandrel, means for supporting the second winding mandrel, a web severing device associated with the apparatus, means for operating the web severing device, and an interconnection between said operating means and a movable part of said apparatus for effecting actuation of said operating means by the movement of said movable part to cause said web severing device to sever the web being wound on said first mentioned winding mandrel, whereby the traveling sheet of paper may be transferred to said second winding mandrel to be wound into a roll thereon.

25. Apparatus of the character described comprising in combination, a winding drum adapted to carry a sheet of paper on its periphery, a winding mandrel, means for supporting the winding mandrel in normal

operating position to bear against said drum to receive the continuously moving sheet of paper and to wind the same into a roll thereon, a second winding mandrel, means for supporting the second winding mandrel, a web severing device associated with the apparatus, means for moving the web severing device transversely across the apparatus to sever the web of paper across the width thereof, and an interconnection between said moving means and a movable part of said apparatus to cause the operation of said moving means and the severance of said web being wound on said first mentioned winding mandrel, whereby the traveling sheet of paper may be transferred to said second winding mandrel to be wound into a roll thereon.

In testimony whereof I hereto affix my signature.

HERMAN L. KUTTER.