

Nov. 16, 1948.

O. C. ROESEN
WEB SPLICING DEVICE

2,454,093

Filed Feb. 6, 1945

4 Sheets-Sheet 1

Fig. 2.

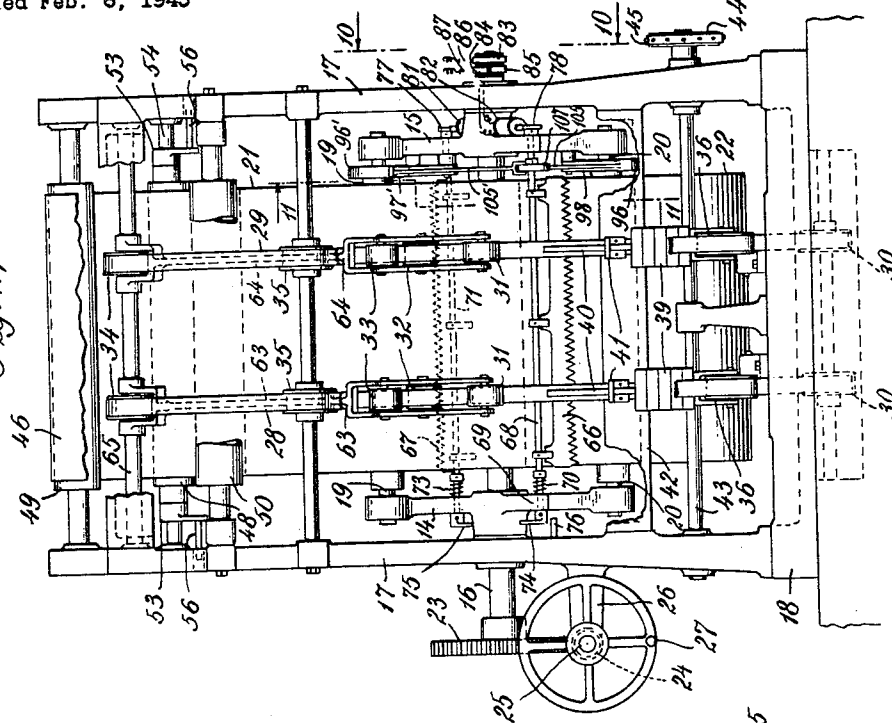
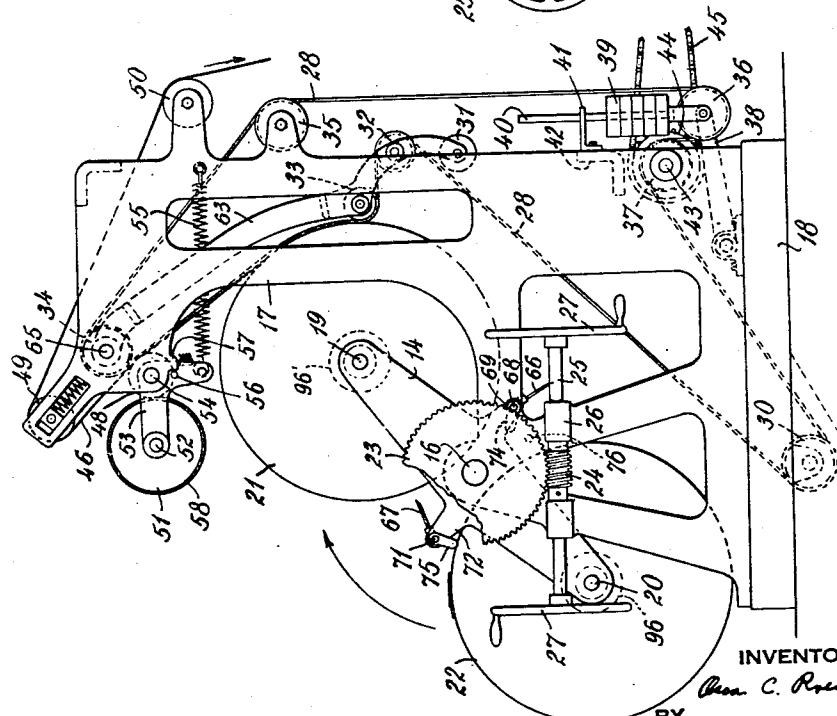


Fig. 1



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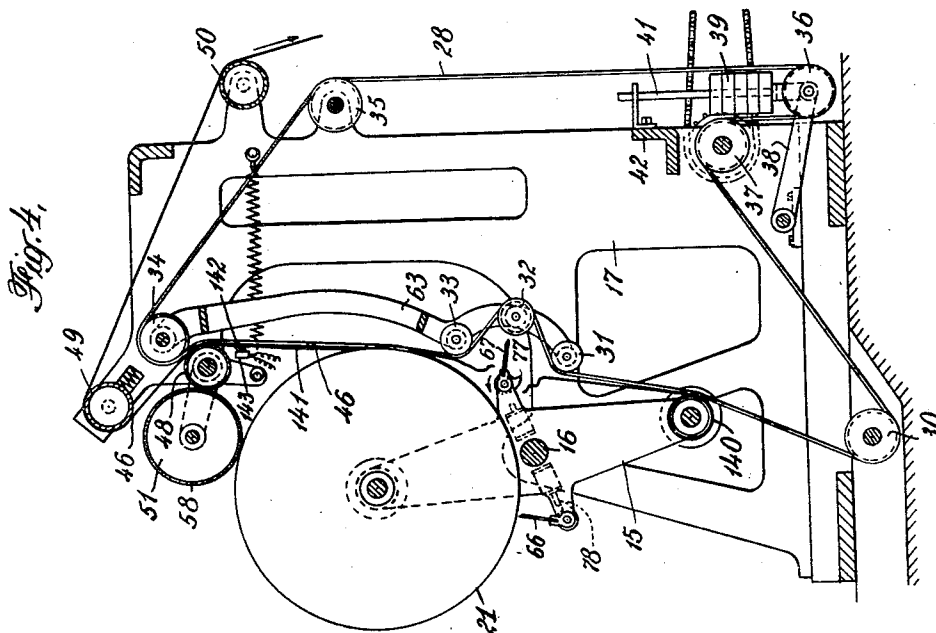
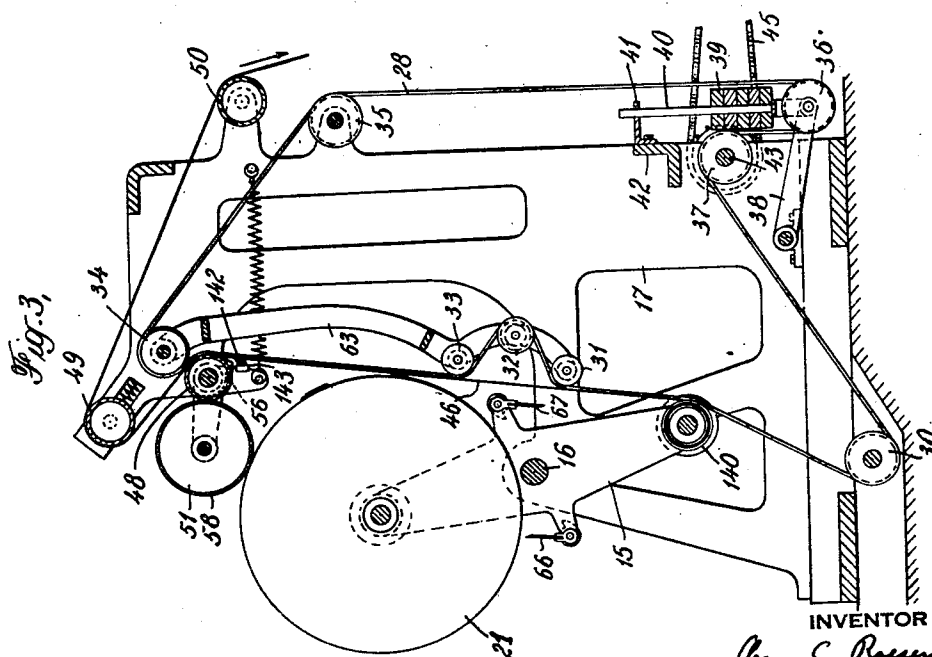
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WEB SPLICING DEVICE

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4 Sheets-Sheet 2



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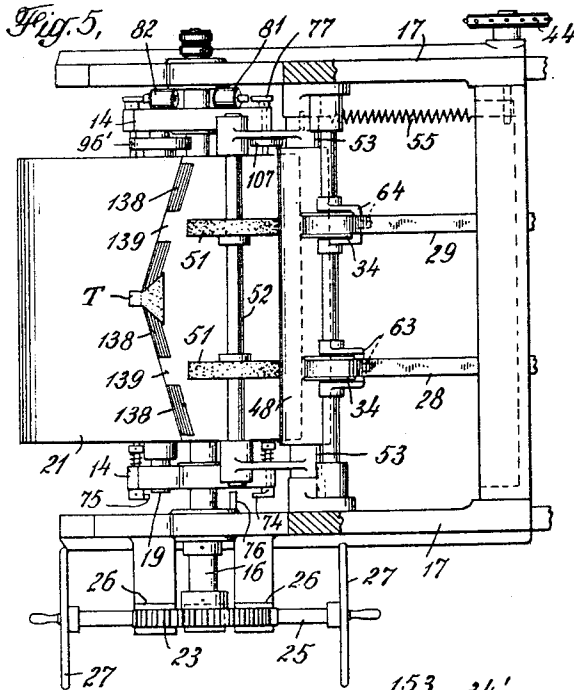
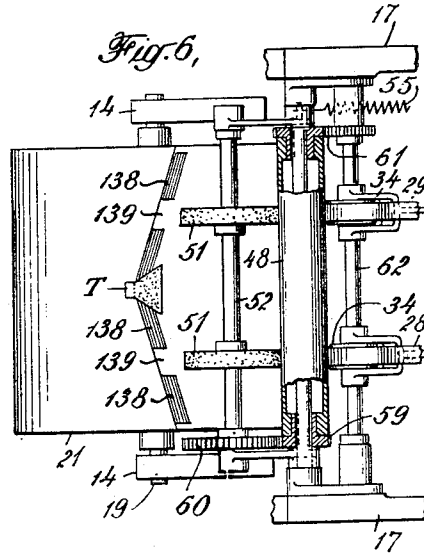
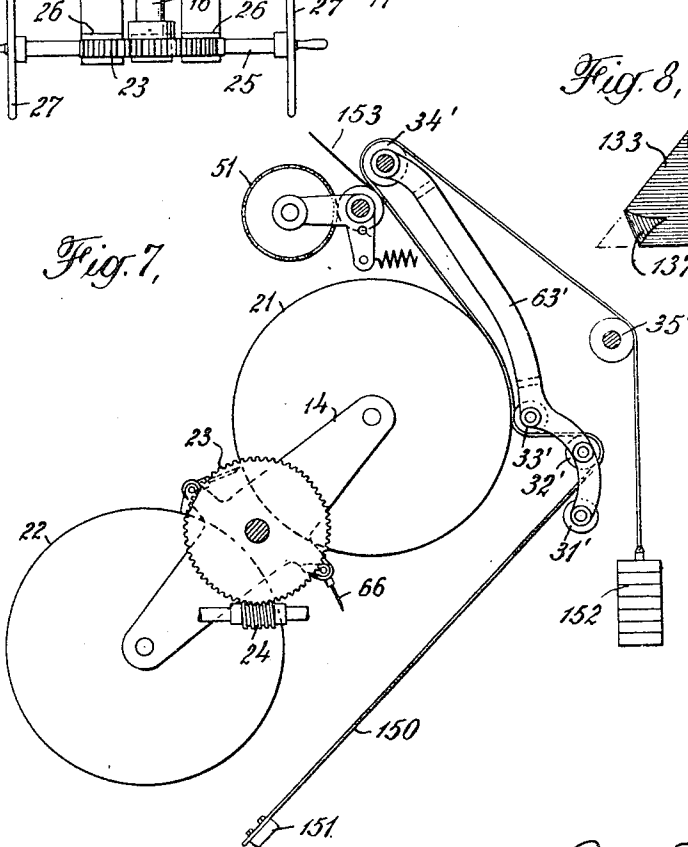
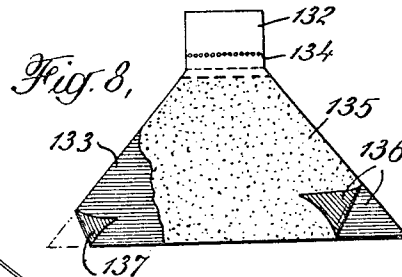
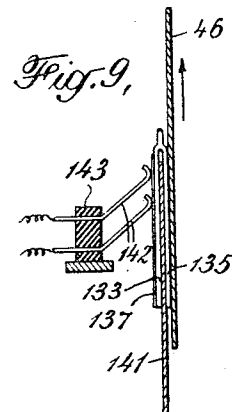
Nov. 16, 1948.

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WEB SPLICING DEVICE

2,454,093

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4 Sheets-Sheet 3



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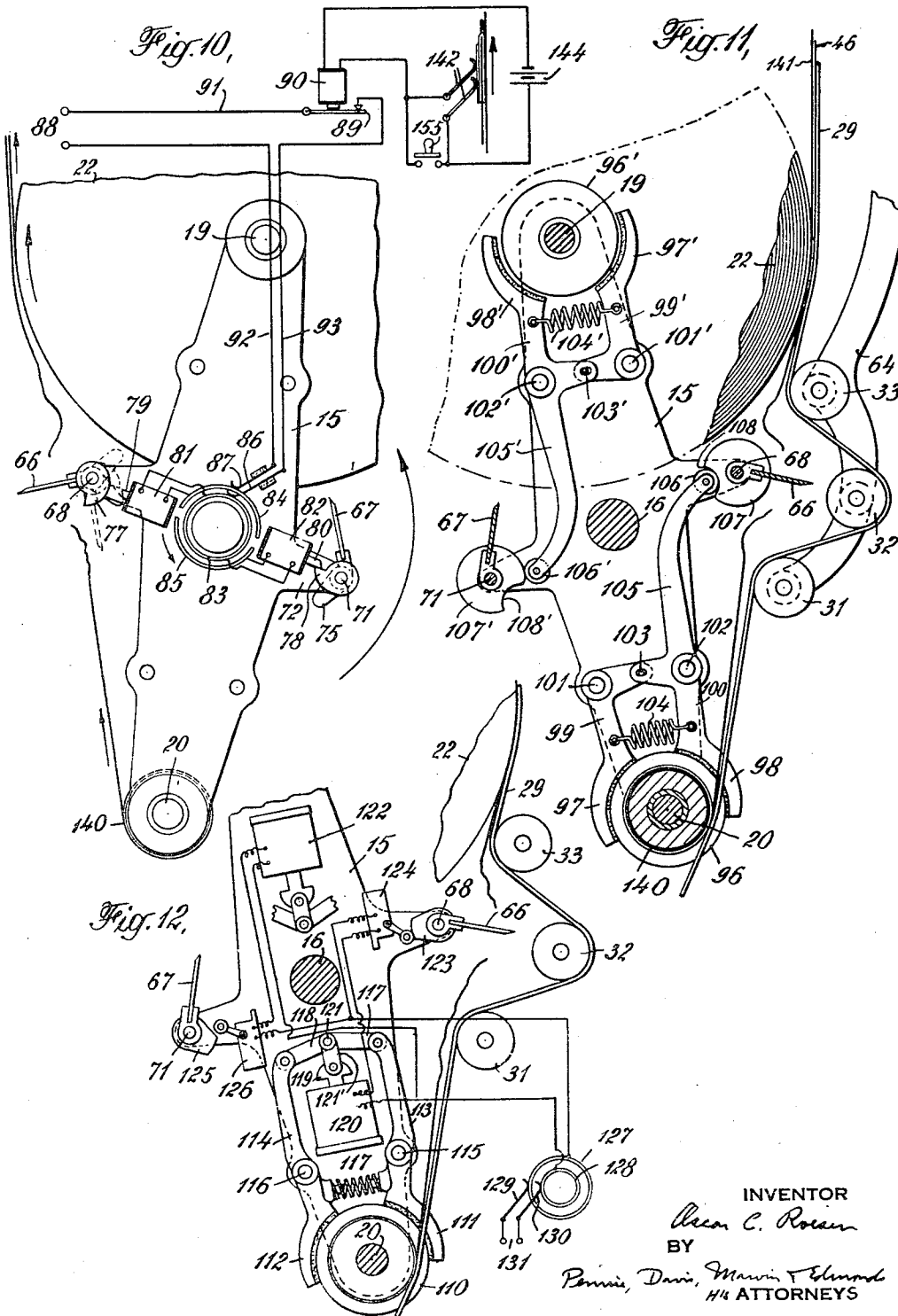
Nov. 16, 1948.

O. C. ROESEN
WEB SPLICING DEVICE

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4 Sheets-Sheet 4



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UNITED STATES PATENT OFFICE

2,454,093

WEB SPLICING DEVICE

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Application February 6, 1945, Serial No. 576,477

17 Claims. (Cl. 242—58)

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This invention relates to web splicing and more particularly concerns improved apparatus for accelerating a new web roll and splicing the leading end of the web thereon to a similar web running from a substantially depleted web roll to web consuming apparatus.

In many manufacturing operations, relatively thin flexible webs of paper, fabric or other material are fed to machines or devices that form finished articles from the web. For example, in the printing of newspapers, magazines and books, a paper web is fed to a printing press, and in the manufacture of paper bags and other containers, a paper or other flexible web is fed to a bag or container making machine. In these and similar operations including the winding of small web rolls from large rolls, the web is continuously supplied and the economic and efficient operation of the web consuming apparatus necessitates periodical replacement of the web roll from which the web is fed. It is in all cases desirable and in many cases essential that the replacement of a web roll be accomplished without stopping the operation of the web consuming apparatus or materially retarding the rate of travel of the web thereto. For this reason, the new or replacement web roll must be rotatively accelerated to a speed at which its surface velocity equals or closely approximates the linear velocity of the running web, after which the leading end of the web on the new roll must be spliced to the running web, and the web running from the old roll to the splice severed.

In the past, various types of apparatus for accomplishing the above described web replacement have been proposed in connection with paper webs employed in the printing of newspapers and the like. In most of the arrangements heretofore proposed, the new web roll carries a layer of tacky adhesive on its surface at the leading end of the web thereon, and the running web is maintained out of contact with the new roll surface until the new roll has been accelerated to running web speed and thereafter until the old roll has substantially run out. In these arrangements, special means are provided for accelerating the new web roll, and this means must be designed and arranged to bring the new roll to a surface speed as close as possible to that of the running web. This roll accelerating mechanism is necessarily somewhat complicated and adds considerably to the initial cost and maintenance expense of the web roll replacement apparatus.

In most known web feeding and splicing appa-

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ratus, the web being fed from a roll to the web consuming apparatus is maintained under suitable tension by contact thereof with belts, straps or other suitable means, and it is desirable or essential that this tension be maintained during replacement of the roll from which the web is fed. After the web running from a depleted roll is spliced to the web on a new roll, the web running from the old roll must be severed, and in the past, this has been accomplished by a knife which is sectionalized to pass between the belts or straps that engage and maintain tension on the web. The result is that the web is partially cut and undesirable ribbons of web material may be left trailing behind the point where the knife contacts the web.

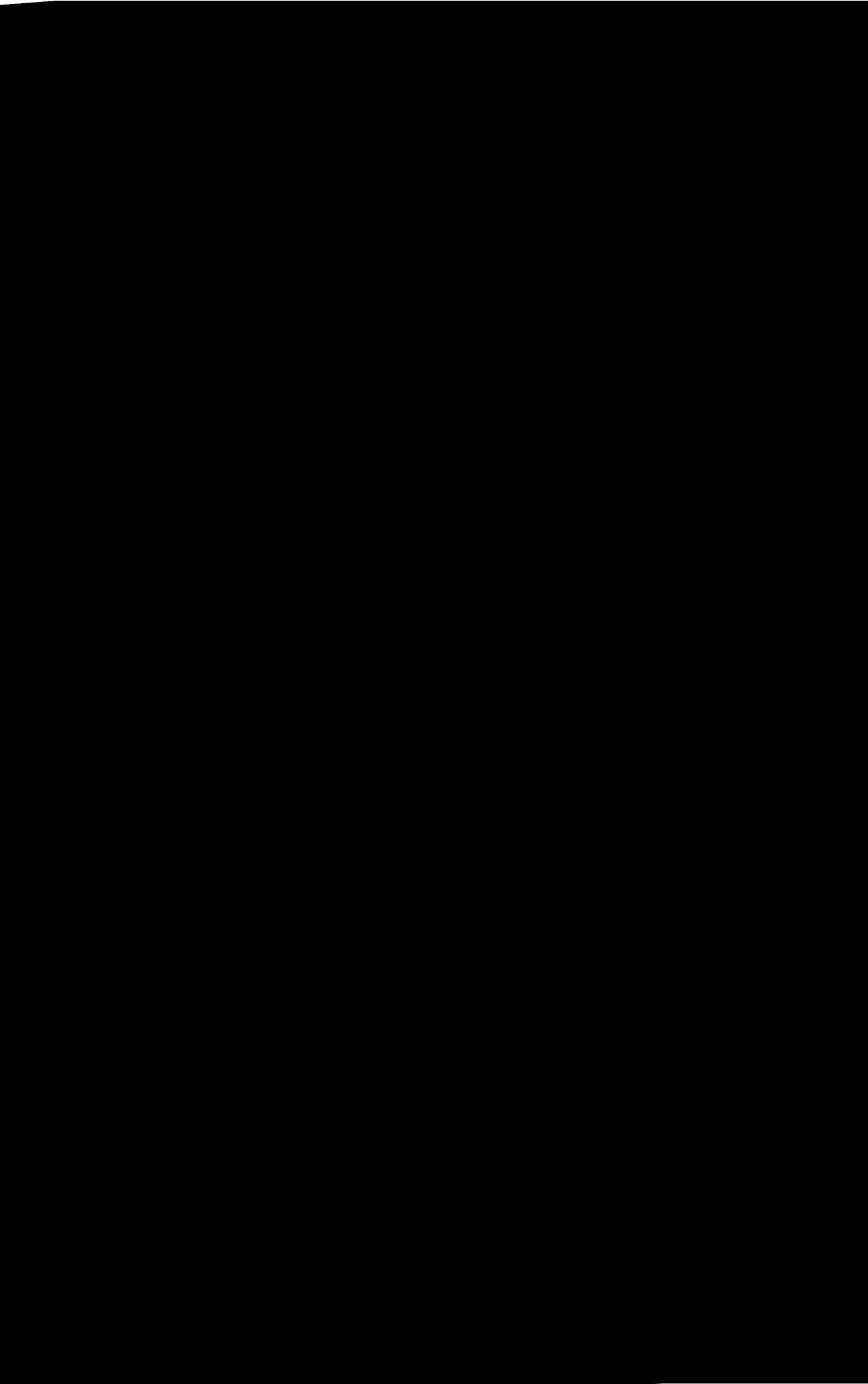
With the above and other considerations in mind, it is proposed in accordance with the present invention to provide improved web roll replacement apparatus which may employ tacky adhesive to make the splice, and which employs the web running from the old web roll to the web consuming apparatus as the means for accelerating the new roll to running web speed. In a preferred form of the invention, the driving power from the running web is derived directly from the surface of that web and is applied to the surface of the new web roll to accelerate it. The invention further contemplates improved apparatus for severing the old web behind the splice while maintaining tension on the web, means for stopping rotation of the old web roll after the splice is made, and the combination of this web severing and roll stopping means with the new roll accelerating means referred to above.

The invention greatly simplifies the web replacement apparatus, reduces its cost and simplifies its operation. The use of the running web itself as the new roll accelerating means and the transmission of driving power from this web to the surface of the new roll insures the acceleration of the new roll to a surface velocity precisely equalling the running web speed, and this without the provision of any complicated or precisely designed roll accelerating drive means.

Various additional objects, advantages and characteristic features of the invention will be apparent from the ensuing description of a typical embodiment thereof.

In describing the invention in detail, reference will be made to the accompanying drawings in which a preferred embodiment of the invention has been illustrated. In the drawings:

Fig. 1 is a side elevation of simplified appa-



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spliced thereto and on the new web after the splice is made and the old web is severed. This is accomplished by the mechanism now to be described.

As noted above, the running belts 28 and 29 are offset from their normal path by the idler rollers 31, 32 and 33. These rollers are carried by the depending arms 63 and 64 which are pivotally connected at their upper ends to the shaft 65 which carries the idler rollers 34 (Fig. 2). As best shown in Figs. 3 and 4, the arrangement is such that the belts 28 and 29 are offset laterally from the running web 46 over a short span of its run adjacent and slightly above a horizontal plane through the axis of the reel.

The arms 63 and 64 are free to swing about their pivotal supports and hence follow the belts 28 and 29 as these belts are moved to various positions during movement of the reel.

Two knives 66 and 67 are carried by the reel arms 14 and 15. As shown in Figs. 1 and 2, the knife 66 is fixed to a knife shaft 68 journaled in extensions 69 of the reel arms 14 and 15, and a spring 70 surrounding the shaft 68 with its opposite ends fixed respectively to the shaft and to the adjacent reel arm extension 69 biases the shaft to turn to a position in which the knife 66 is extended to its cutting position as shown in Fig. 1. The knife 67 is similarly fixed to a shaft 71 journaled in reel arm extensions 72, and similarly biased by a spring 73. Resetting levers 74 and 75 are respectively fixed to the front ends of the knife shafts 68 and 71. A pin 76 fixed to the inner face of the front frame member 17 is disposed to contact the resetting levers 74 and 75 in turn and move the knives to their retracted positions as the reel rotates.

The knife shafts 68 and 71 are held in positions to retract the knives 66 and 67 by latch mechanism which may be disposed on the outer face of the rearward reel arm 15. As shown in Figs. 2 and 10, latching cams 77 and 78 are respectively fixed to the ends of the knife shafts 68 and 71 and are engaged to hold the shafts in knife retracting positions against the bias of the springs 70 and 73 by latches 79 and 80 respectively. The latches 79 and 80 are respectively retractable by the energization of solenoids 81 and 82 fixed to the rearward face of the reel arm 15. The energizing circuit for these solenoids has been diagrammatically illustrated in Fig. 10. As there shown, one terminal of each solenoid 81 and 82 is connected to a slip ring 83 on the reel shaft. The other terminal of the solenoid 81 is connected to a slip ring segment 84 extending around substantially half the circumference of the reel shaft, and the other terminal of the solenoid 82 is connected to a slip ring segment 85 extending around substantially the other half of the reel shaft circumference. A stationary contact 86 continuously engages the slip ring 83 and a stationary contact 87 engages one or the other of the segments 84 or 85 depending on the position of the reel. An energizing circuit for the solenoids 81 and 82 is connected across the stationary contacts 86 and 87 and includes in series a source of electrical energy indicated at 88, the contacts 89 of a relay 90 and the wires 91, 92 and 93.

With the arrangement described, when the reel is in such a position that the knife 66 is adjacent the running web, the solenoid 81 is connected to the described energizing circuit and when the relay 90 closes its contacts as hereinafter described, this circuit is closed, the latch 79 is retracted, the knife shaft 68 is released and turned by its spring

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70 to a position to extend the knife 66 through the web to sever the same. As shown in Fig. 4, this release of the knife occurs when the knife is opposite the section of the tension belts 28 and 29 that is offset away from the running web by the rollers 31, 32 and 33, whereby the knife 66 cuts the web across its entire width without contacting the belts. Rotation of the reel in a clockwise direction from the cutting position resets the knife 66 in its retracted position by engagement of the arm 74 with the pin 76. The knife 67 is similarly released and retracted when the reel is in such a position that this knife is adjacent the running web.

Means are preferably provided for stopping rotation of each depleted roll after the web running therefrom has been severed following a splice. In accordance with the invention, this means comprises a roll spindle brake, arranged to be applied when the web running from the depleted roll to the point where it has been spliced to a new roll web has been severed. The brake mechanism may be mounted on the inside of the rearward reel arm 15, as shown in Fig. 2. One form of brake mechanism is shown more in detail in Fig. 11. As there illustrated, each of the roll spindles 20 and 19 is provided with a brake drum 96 and 96'. The brake mechanisms for the respective spindles are identical and a description of one only will be given, corresponding parts of the other being designated by like reference characters with distinctive exponents. A pair of brake shoes 97 and 98 are carried on bell crank levers 99 and 100 respectively pivotally connected to the reel arm 15 at 101 and 102. The bell crank levers are linked to move in unison by a pin 103 and a tensioned spring 104 connected between the brake shoe carrying arms of the levers biases them to move in a direction to apply the brake shoes to the drum 96. The lever 100 has an integral arm 105 extending beyond the pivot 102 and carrying a roller 106 at its end. The roller 106 engages a cam 107 fixed to the shaft 68 of the knife 66 (Figs. 2 and 11). The cam 107 has a depression 108 that receives the roller 106 when the shaft 68 moves to the position in which the knife 66 is extended to sever the web, as shown in Fig. 11. When the roller 106 falls into the depression 108, the bell crank levers 100 and 99 are moved about their pivots 102 and 101 by the spring 104 to apply the brake shoes 98 and 97 to the drum 96 and so stop rotation of the spindle 20 carrying the depleted web roll. Resetting of the knife 66 to its retracted position causes the cam 107 to move the arm 105 to retract the brake shoes 97 and 98 and so release the spindle 20.

Electrically operated brake mechanism may be employed if desired, and one such arrangement is illustrated in Fig. 12. As there shown, a brake drum 110 is provided on the spindle 20 and a pair of brake shoes 111 and 112 carried by levers 113 and 114 are arranged to engage the drum 110 when the levers turn about the pivotal supports 115 and 116 by which they are secured to the reel arm 15. A compressed spring 117 is disposed between the levers 113 and 114 and normally biases these levers apart to retract the brake shoes 111 and 112 from the drum 110. A pair of toggle links 117 and 118 connect the ends of the levers 113 and 114 and are pivotally connected together and to the armature 119 of a solenoid 120 by a pin 121 and a link 121'. With the described arrangement, energization of the solenoid 120 pulls the toggle links 117 and 118 toward an aligned position and so separates the

ends of the levers 113 and 114, forcibly applying the shoes 111 and 112 to the drum 110 to stop rotation of the spindle 20. Similar brake mechanism operated by a solenoid 122 is provided on the other end of the reel arm 15 for retarding the opposite roll spindle.

The solenoids 120 and 122 are energized only when the corresponding knife 66 or 67 is extended. The knife shaft 68 for the knife 66 carries a cam 123 arranged to close a switch 124 when the shaft moves the knife to its extended web severing position. Similarly a cam 125 on the shaft 71 of the knife 67 closes a switch 126 when the knife 67 is extended. The solenoid 120 is energized through a circuit including the switch 124, and the solenoid 122 is energized through a circuit including the switch 126, these circuits including the slip rings 127 and 128 which may be suitably mounted on the reel shaft 116, the contacts 129 and 130, and a source of energy represented at 131.

Web rolls are prepared for use in my improved apparatus by applying adhesive to the outer surface of the leading end of the web thereon and releasably securing this web end to the roll surface. As shown in Figs. 5 and 6, the leading end of the web on a new roll 21 may be trimmed to a central point and secured to the underlying web turn comprising the roll surface by a paster tab T.

The tab T is preferably of the type disclosed and claimed in my co-pending application, Serial No. 522,579, filed February 16, 1944, and entitled "Splicing of webs," now Patent No. 2,386,345, dated October 9, 1945. This tab comprises a sheet of paper or other thin flexible material having a roll surface engaging portion 132 and an under web end engaging portion 133 separated by a weakened portion which may comprise a transverse roll of perforations 134. An outer web end engaging portion 135 is also provided and is suitably fixed to the under portion 133 adjacent but below the perforations 134. The adjacent surfaces of the under and outer web end engaging portions 133 and 135 as well as the under surface of the roll surface engaging portion 132, may be coated with gum or adhesive of the type used on gummed tapes or envelope flaps, as indicated at 136. The under surface of the under web end engaging portion 133 carries a layer or coating 137 of electrically conductive material such as metal foil or metallic paint.

The tab portions 135 and 133 are respectively stuck to the outer and under surfaces of the web at its leading end and the portion 132 is stuck to the adjacent roll surface, as shown in Figs. 5 and 6. A layer of adhesive 138, which may be tacky pasting adhesive such as rosin glue, is applied to the outer surface of the leading end of the web with gaps 139 in this layer in line with the traction rollers 51, as shown in Figs. 5 and 6.

The operation of the described embodiment of my invention will now be described. Prior to the time that the roll 140 from which the web 46 is running to the web consuming apparatus has been substantially consumed, a new roll 21, prepared as above described, is rotatively mounted on the spindles 19 between the reel arms 14 and 15. The reel is then turned in a clockwise direction to approximately the position shown in Fig. 3, where the surface of the new roll comes in contact with the traction rollers 51. The rollers 51 are rotating at a surface velocity equal to the web speed, being driven from the running web 46 by the roller 48 as explained above. The traction roll-

ers engage the cylindrical surface of the new web roll in line with the gaps 139 between the layers of splicing adhesive 138, and accelerate the new roll 21 to running web speed. The traction rollers 51 are maintained in firm engagement with the new roll surface by the springs 55 which are elongated as the roll 21 pushes the rollers 51 upward, as shown in Fig. 3.

After the roll 21 has been thus accelerated to web speed, and the old roll 140 has run off to the point where replacement is necessary, the reel is further rotated clockwise to a position in which the new roll surface contacts the running web 46. This is the pasting position, illustrated in Fig. 4. Thereafter, as soon as the leading end of the new roll web contacts the running web 46, the adhesive layers 138 stick the new roll web end to the running web to make the splice, whereupon the running web strips the new web end away from the new roll surface, breaking the tab T along the line of perforations 134, and the new web 141 moves upwardly with the running web 46. Immediately after the new web end leaves the new roll surface, it moves past a pair of stationary contacts 142 which are mounted on an insulating support 143 suitably fixed in a position to contact the under surface of the new web, as shown in Figs. 3, 4, 9 and 10. The contacts 142 are disposed in line with the electrically conductive layer 137 on the under surface of the under tab part 133. When this conductive layer 137 engages the contacts 142, it electrically connects them and completes an energizing circuit for the relay 90, which circuit includes a source of electrical energy illustrated in Fig. 10 as a battery 144. Energization of the relay 90 closes its contacts 89 and so energizes the solenoid 81 and releases the knife shaft 68, permitting the knife 66 to move out to its extended position and sever the old web 46 below the splice, as illustrated in Fig. 4. Movement of the knife shaft 68 to the knife extending position also results in stopping the rotation of the old roll 140 by applying the brake shoes 97 and 98 of the construction illustrated in Fig. 11 or the brake shoes 111 and 112 of the construction of Fig. 12 to the brake drum 96 or 110 on the spindle 20, as above described. This stops rotation of the old roll substantially at the time when the web running therefrom is severed, and excessive runoff of the remaining web from the old roll is thereby prevented.

In the above described operation, the conductive layer 137 of the paster tab T acts as a web carried control actuator and initiates the web cutting and old roll stopping operations automatically immediately after the splice is made. This automatic operation is not in all cases essential, and when no conductive tab surface or other web carried control actuator is provided, the web cutting and old roll stopping operations can be manually initiated as by closing a manually operable switch 155 (Fig. 10) and thereby energizing the relay 90 to cause operation of the web severing and roll stopping mechanisms as described above.

It will be noted that throughout the above described roll accelerating and splicing operations, the running web is maintained in contact with the flexible tension belts 28 and 29 and is thereby maintained under tension as it runs to the web consuming apparatus. The offsetting rollers 31, 32 and 33 permit the knives to completely sever the old web without interrupting the application of tension.

After the splice is made, the reel is further

rotated clockwise to move the new roll 21 to a running position substantially as shown in Fig. 1, and the old roll 140 is then removed from the reel and replaced by a new roll 22.

The described operation is repeated whenever it is necessary to replace a depleted web roll. It will be understood that in successive splicing operations, the old web is severed below the splice alternately by the knives 66 and 67 which are turned to operative positions as the reel rotates to bring successive new rolls up to the splicing position.

Stationary flexible tension means may be used in place of the above described running belts. As illustrated in Fig. 7, the belts may be replaced by the stationary straps 150 which are suitably fixed at 151 below the reel axis, run over offsetting rollers 31', 32' and 33' on the dependent arms 63' and pass over idler rollers 34' and 35'. Suitable weights 152 are secured to the ends of the straps 150, and the number of these weights can be varied to alter the pressure between the straps and the web contacted thereby, whereby the tension on the running web can be variably adjusted. The operation of the apparatus with the stationary tension straps is the same as has been described above, the frictional engagement of the straps with the running web 153 serving to maintain this web under tension as it runs to the web consuming apparatus.

I claim:

1. In web splicing apparatus, in combination with a running web and a new web roll rotatably mounted with its cylindrical surface substantially parallel to the running web and movable toward the running web, means for accelerating the new roll to a surface velocity approximating the speed of the running web comprising rotary means driven solely by the running web and engageable with the surface of the new roll when it is moved toward the running web.

2. In web splicing apparatus, in combination with a new web roll and a web running from another roll, means for rotatively mounting the new roll with its cylindrical surface parallel to the running web, and a driving connection simultaneously engageable with the surfaces of the new roll and the running web and driven by the running web for transmitting driving power from the running web to the new roll to accelerate the roll to running web speed.

3. In web splicing apparatus, in combination with a new web roll and a web running from another roll, means for rotatively mounting the new roll with its cylindrical surface parallel to and movable into engagement with the running web, and a driving connection disposed in surface contact with and driven by the running web and engageable by the surface of the new roll as it moves toward the running web for transmitting driving power from the running web to the new roll to accelerate the new roll.

4. In web splicing apparatus, in combination with a rotatable running web roll, a rotatable new web roll and a web running from said running roll substantially parallel to the cylindrical surface of said new roll, means for mounting said new roll to move toward said running web, and new roll accelerating means engaging said running web and driven thereby and disposed in the path of movement of said new roll to be engaged by the cylindrical surface of said new roll when said new roll is moved adjacent said running web.

5. In web splicing apparatus, in combination with a rotatable running web roll, a rotatable

new web roll and a web running from said running roll substantially parallel to the cylindrical surface of said new roll, means for mounting said new roll to move toward said running web, a roller engaging said running web and driven thereby, and movable means driven by said roller and disposed in the path of movement of said new roll for engaging the surface of said new roll and accelerating the same when said new roll is moved adjacent said running web.

6. In web splicing apparatus, in combination with a rotatable running web roll, a rotatable new web roll and a web running from said running roll substantially parallel to the cylindrical surface of said new roll, means for mounting said new roll to move toward said running web, a roller engaging said running web and driven thereby, at least one traction roller continuously engaging said running web engaging roller and driven thereby, and movable means for supporting said traction roller in the path of movement of said new roll while permitting movement of said traction roller out of said path, whereby upon movement of said new roll toward said running web said new roll is successively engaged and accelerated by said traction roller and moved past said traction roller into contact with said running web.

7. In web splicing apparatus, in combination with a running web and a new web roll, means for rotatably mounting said new roll with its cylindrical surface parallel to and movable toward said running web, a roller engaging the surface of said running web which is adjacent said new roll surface, a plurality of traction rollers continuously engaging said web engaging roller and driven thereby, and means for supporting said traction rollers in the path of movement of laterally spaced portions of the cylindrical surfaces of said new roll, whereby upon movement of said new roll surface toward said running web said new roll is engaged and accelerated by said traction rollers.

8. In web splicing apparatus, in combination, a rotatable web roll reel, a running web roll and a new web roll respectively rotatably mounted on said reel at circumferentially spaced positions, means for conducting a running web from said running roll past and parallel to the cylindrical surface of said new roll, flexible tension means engaging the surface of said running web which is remote from said new roll surface, a roller engaging and driven by the surface of said running web which is adjacent said new roll surface and a traction roller engaging and driven by said roller and disposed for engagement with the cylindrical surface of said new roll when such surface moves closely adjacent said running web.

9. In web splicing apparatus, in combination with a running web roll, a web running therefrom and a new web roll, means for mounting said new web roll with its cylindrical surface parallel to said running web and movable into contact therewith to make a splice, flexible tension means engaging the surface of said running web opposite that engageable by said new roll, and web severing means extending continuously transversely of the running web on the side thereof opposite that engaged by said tension means and movable into said running web to sever the same.

10. In web splicing apparatus, in combination with a running web roll, a web running therefrom and a new web roll, means for mounting said new web roll with its cylindrical surface parallel to said running web and movable into contact with the inner surface thereof to make a splice, flexible tension means engaging the outer surface of the

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running web along the span thereof between the running roll and the new roll, a web severing knife adjacent the inner surface of said span of the running web between said rolls, means for moving said knife across said span of the running web to sever the web and means for maintaining said tension means out of contact with said web at the point where said knife moves across said web span.

11. In web splicing apparatus, in combination with a running web roll, a web running therefrom and a new web roll, means for mounting said new web roll with its cylindrical surface parallel to said running web and movable into contact with the inner surface thereof to make a splice, flexible tension means engaging the outer surface of the running web along the span thereof between the running roll and the new roll, a web severing knife adjacent the inner surface of said span of the running web between said rolls, means for moving said knife across said span of the running web to sever the web and a plurality of offsetting rollers engaging said tension means and maintaining the same out of contact with said web along the portion of said web span where said knife moves to sever the web.

12. In web splicing apparatus, in combination, a web roll reel rotatable about an axis and including radially extending means for rotatably supporting a plurality of web rolls at positions spaced circumferentially of said axis, means on one side of said reel for conducting a running web from one roll on said reel past and parallel to the cylindrical surface of a circumferentially adjacent roll on said reel, flexible tension means engaging said running web on the surface thereof remote from said reel, means for offsetting said tension means from the running web surface along a portion thereof which engages the running web between adjacent rolls, a plurality of extensible web severing devices carried by said reel each disposed between each circumferentially adjacent pair of rolls, and means responsive to the angular position of said reel for extending the web severing device that lies adjacent the running web through such web at the point where said tension means is offset by said offsetting means.

13. In web splicing apparatus, in combination, a web roll reel rotatable about an axis and including radially extending means for rotatably supporting a plurality of web rolls at positions spaced circumferentially of said axis, means on one side of said reel for conducting a running web from one roll on said reel past and parallel to the cylindrical surface of a circumferentially adjacent roll on said reel, means driven by said running web and engageable with the surface of a roll on said reel for accelerating such roll to running web speed, means for splicing the web on a roll so accelerated to the running web, a plurality of web severing devices carried by said reel, each disposed between each circumferentially adjacent pair of rolls and operative to sever the running web between such rolls after a splice is made, and means responsive to the angular position of said reel for selectively operating the web severing device that is adjacent said running web conducting means.

14. In web splicing apparatus, in combination, a web roll reel rotatable about an axis and including radially extending means for rotatably supporting a plurality of web rolls at positions spaced circumferentially of said axis, means on one side of said reel for conducting a running web from one roll on said reel past and parallel to the cylindrical surface of a circumferentially

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adjacent roll on said reel, means driven by said running web and engageable with the surface of a roll on said reel for accelerating such roll to running web speed, means for splicing the web on a roll so accelerated to the running web, a plurality of web severing devices carried by said reel, each disposed between each circumferentially adjacent pair of rolls and operative to sever the running web between such rolls after a splice is made, and means responsive to both the splicing of the said roll web to the running web and the angular position of said reel for selectively operating the web severing device that is adjacent said running web conducting means after the splice is made.

15. In web splicing apparatus, in combination, a web roll reel rotatable about an axis and including radially extending means for rotatably supporting a plurality of web rolls at positions spaced circumferentially of said axis, means on one side of said reel for conducting a running web from one roll on said reel past and parallel to the cylindrical surface of a circumferentially adjacent roll on said reel, a plurality of extensible web severing devices carried by said reel, each disposed between each circumferentially adjacent pair of rolls and operative when extended to sever the running web between such rolls, a plurality of brake mechanisms carried by said reel for respectively stopping the rotation of each of said rolls, means responsive to the angular position of the reel for selectively extending the web severing device that is adjacent said running web conducting means, and means responsive to the extending of such web severing device for operating the brake mechanism for the roll from which the web is conducted by said web conducting means.

16. In web splicing apparatus, in combination, a web roll reel rotatable about an axis and including radially extending means for rotatably supporting a plurality of web rolls at positions spaced circumferentially of said axis, means on one side of said reel for conducting a running web from one roll on said reel past and parallel to the cylindrical surface of a circumferentially adjacent roll on said reel, means driven by said running web and engageable with the surface of a roll on said reel for accelerating said roll to running web speed, means for splicing the web on a roll so accelerated to said running web, a plurality of extensible web severing devices carried by said reel, each disposed between each circumferentially adjacent pair of rolls and operative when extended to sever the running web between such rolls after a splice is made, a plurality of brake mechanisms carried by said reel for respectively stopping the rotation of each of said rolls, means responsive to the angular position of said reel for selectively extending the web severing device that is adjacent said running web conducting means, and means responsive to the extending of such web severing device for operating the brake mechanism for the roll from which the web is conducted by said web conducting means.

17. In web splicing apparatus, in combination, a web roll reel rotatable about an axis and including radially extending means for rotatably supporting a plurality of web rolls at positions spaced circumferentially of said axis, means on one side of said reel for conducting a running web from one roll on said reel past and parallel to the cylindrical surface of a circumferentially adjacent roll on said reel, means driven by said

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running web and engageable with the surface of a roll on said reel for accelerating said roll to running web speed, means for splicing the web on a roll so accelerated to said running web, a plurality of extensible web severing devices carried by said reel, each disposed between each circumferentially adjacent pair of rolls and operative when extended to sever the running web between such rolls after a splice is made, a plurality of brake mechanisms carried by said reel for respectively stopping the rotation of each of said rolls, means responsive to both the splicing of said roll web to the running web and to the angular position of the reel for selectively extending the web severing device that is adjacent said running web conducting means, and means responsive to the extending of such web severing device for

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operating the brake mechanism for the roll from which the web is conducted by said web conducting means.

OSCAR C. ROESEN.

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The following references are of record in the file of this patent:

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Number	Name	Date
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2,334,160	Caffrey	Nov. 16, 1943

FOREIGN PATENTS

Number	Country	Date
668,530	Germany	Sept. 27, 1932