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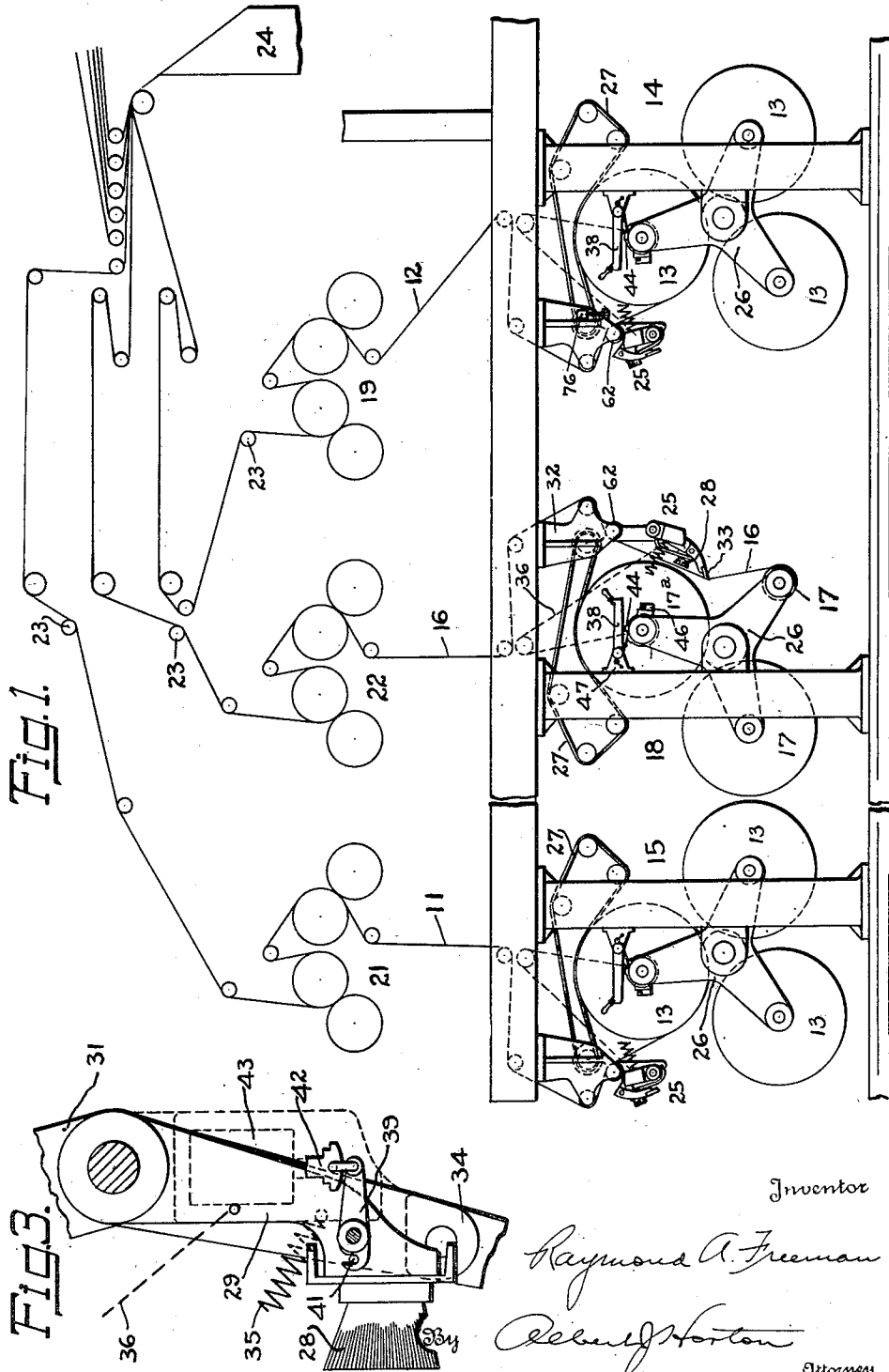
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WEB ROLL SUPPLY MECHANISM

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3 Sheets-Sheet 1



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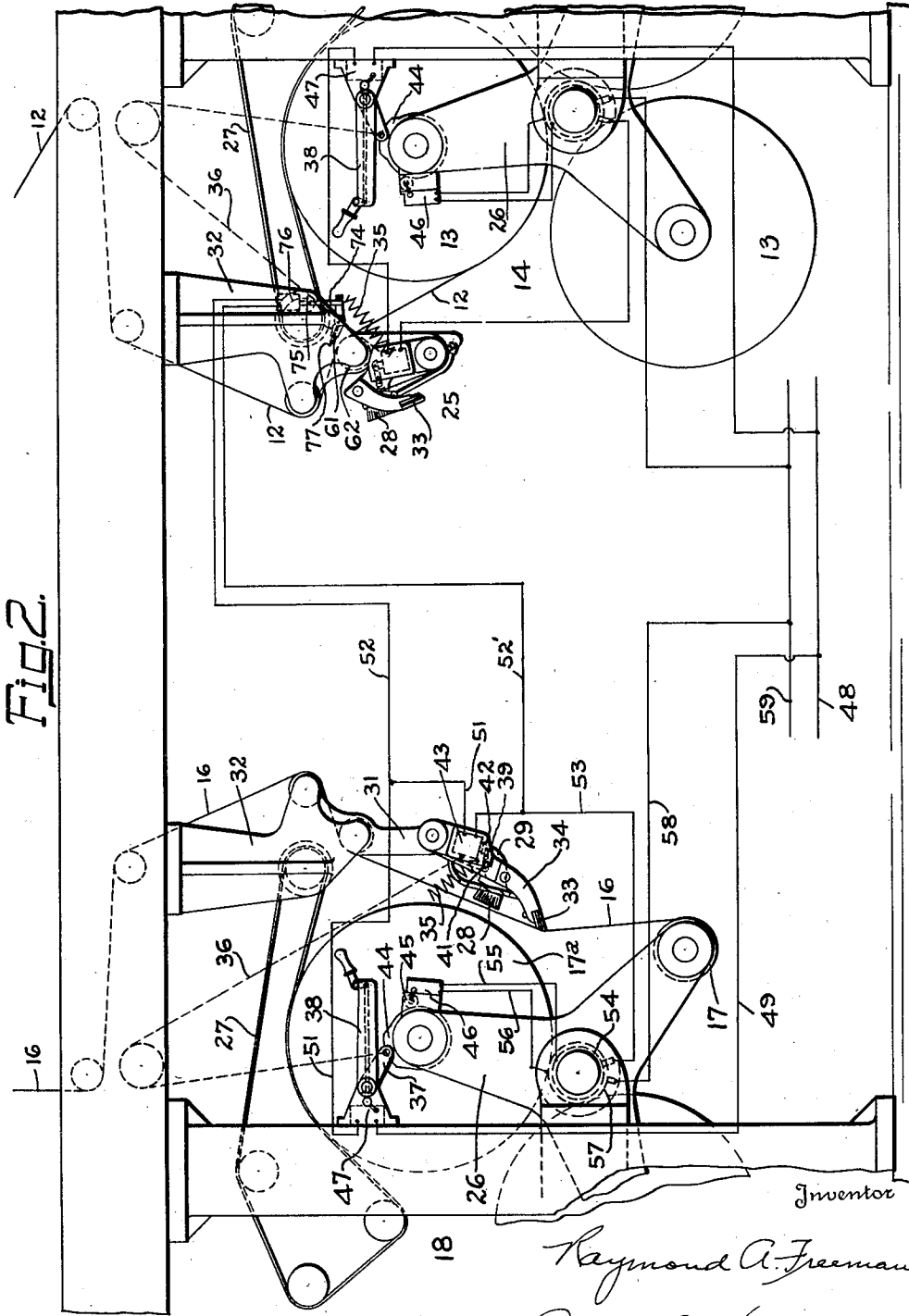
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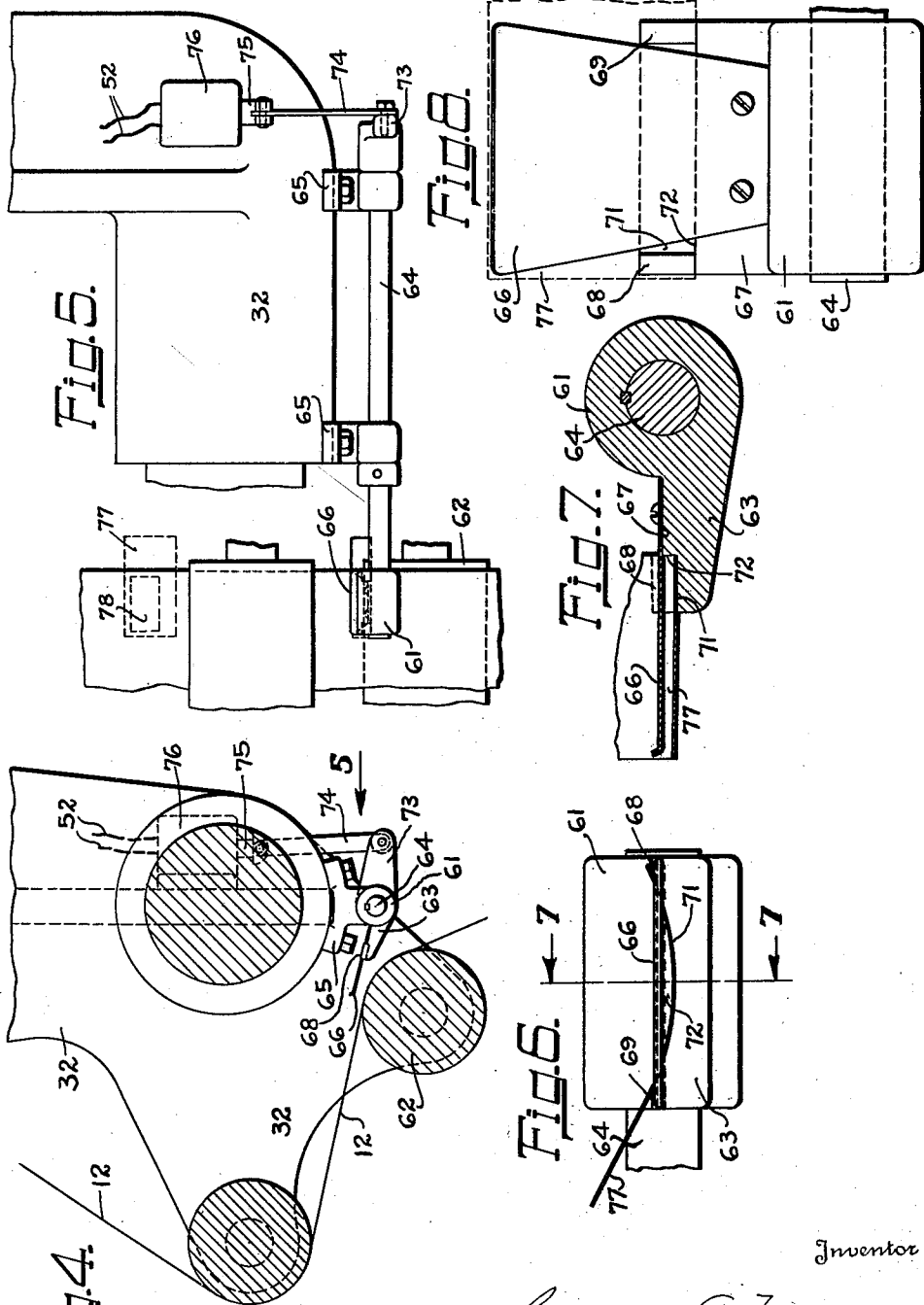
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# UNITED STATES PATENT OFFICE

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## WEB ROLL SUPPLY MECHANISM

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15 Claims. (Cl. 242—58)

This invention relates to web printing machines such as are used for printing newspapers, magazines and similar products, and more particularly to improvements in the web supply mechanisms thereof whereby provision is made to indicate at the delivery end of the machine when a web join has been made in order that the products in which a joint is present may be distinguished from the others.

10 It is the usual practice to apply an indicator in the form of a "flag" upon each full length replacement roll in such a manner that a portion of the flag extends beyond the edge of the web at the end of the roll, when the roll is prepared for having its web joined to the web of the expiring web roll. When the completed product is delivered at the delivery end of the machine, the indicating flag, due to the folding of the product, protrudes beyond one edge of the same, and attracts the attention of the operator who may then remove the copies of the product having the joined together web sections therein.

On machines for printing newspapers and like products in which the printing cylinders are arranged to print a web four pages wide, which web is slit in the center to form two separate products having a lengthwise fold, it frequently happens that it is desired to assemble a one page wide sheet into each of the separate products, and in such instances, it is necessary to feed a narrow web from a half length web roll located in the center of the machine. Both edges of this half roll, when assembled with the other sheets will be adjacent the folds of the completed products, and an indicating flag, if applied to the half roll as above described, would not protrude and be visible to the operator at the delivery of the machine. In order to obviate this disadvantage and to insure indication that a web join has been made in the web of this half roll so that products having joined together web sections therein may be identified, it is proposed to apply an indicating means, such as a flag, to the web of an adjacent full length roll, when a join is made in the web of the half length roll.

One of the objects of this invention is to provide in a printing machine, a web supply mechanism including provision for applying means to indicate the disposition, in a plurality of completed products, of a product having joined together web sections therein.

Another object is to provide means to apply an indicating element to the web of a full length roll of a printing machine, when a join is made in the web of a half length roll.

Still another object is to provide automatically operable mechanism for applying an indicating element to the web of a web roll when a join is made between a running web and the web of a replacement roll.

A further object is to provide an improved holder for an indicating element or flag, wherein the flag may be firmly held, readily releasable therefrom, and positively applied to a running web whenever a join is made in a running web.

A still further object is to provide a mechanism for applying an indicating element to a running web in timed relation with the operation of another mechanism of the machine.

It is also an object of this invention to provide a mechanism for indicating web joins, of generally improved construction, whereby the device will be simple, durable and inexpensive in construction, as well as convenient, practical, serviceable and efficient in its use.

With the foregoing and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts, and in the details of construction hereinafter described and claimed, it being understood that various changes in the precise embodiment of the invention herein disclosed may be made within the scope of what is claimed without departing from the spirit of the invention. The preferred embodiment of the invention is illustrated in the accompanying drawings, wherein:

Figure 1 is a schematic view of a portion of a multiple unit printing machine, embodying the features of this invention;

Figure 2 is an enlarged view of adjacent web roll stands, showing web supply mechanisms and web joining mechanisms, somewhat diagrammatically, the electrical circuit of the control means therefor, and including the combination therewith, of an indicating element applying mechanism;

Figure 3 is an enlarged sectional view of the web joining mechanism;

Figure 4 is an enlarged view of an indicating element applying mechanism embodying the features of this invention;

Figure 5 is a view of the mechanism shown in Figure 4 viewed in the direction of arrow 5;

Figure 6 is an enlarged front end view of an indicating element holder;

Figure 7 is a section on line 7—7 of Figure 6; and

Figure 8 is a detail plan view of the holder for the indicating element or flag.

As generally indicated in Figure 1, a printing machine may be constituted by a plurality of printing units, through each of which a web is run and finally directed to a collecting and folding mechanism from which the completed product is delivered. The product when in the form of a newspaper may consist of a plurality of sections, some of which are printed upon the web from a full length roll, and others from the web of a half length roll. For the purpose of describing the principles of this invention, it will be assumed, that the webs 11 and 12 are being furnished from full length rolls 13 of each of the web supply mechanisms 15 and 14 respectively, and that a web 16 is being furnished from a half length roll 17 of a web supply mechanism 18. The webs 12, 11 and 16 are run through sets of printing cylinders 19, 21 and 22 respectively, and then over a plurality of guide rollers 23, to any well known form of collecting and folding mechanism, generally indicated at 24, where the printing webs are assembled and folded with each other, and other printed webs from other units, into completed products and delivered from the machine in the well known manner. Each of the web supply mechanisms includes a web joining mechanism whereby the web of an expiring web roll may be replaced by the web from a replacement web roll. Herein is shown a form of web joining mechanism indicated generally at 25, adapted for use with a three roll web supply mechanism to join the webs, and sever the web of the expiring web roll. The respective webs are mounted upon the roll supporting reel 26 which may be rotated, when desired, to position the supported web rolls, into the required operative position. A driven roll rotating belt 27 is provided in association with each roll supply mechanism.

Each of the web joining mechanisms 25 is constituted by a web deflecting member or brush 28 mounted between arms 29 which are pivoted to an extension 31 of a supporting bracket 32, and a web severing device 33 mounted between arms 34, which are also pivoted upon the extension 31. The arms 29 and 34 are adapted to be folded up out of the way after a web join is made as shown in connection with the full length roll 13, and to be disposed in web joining position as shown in connection with the half length roll 17. A spring 35 is provided to hold the mechanism 25 in both positions. After being disposed in web joining position the mechanism 25 may be operated to cause the web deflecting member 28 to press the web of the expiring web roll against a previously prepared adhesive covered area on the web of a replacement web roll, for instance, as will be readily understood from the illustration in Figure 2, in connection with the half length roll 17. When the join between the webs is made, the web severing device 33 is operated to sever the expiring web, whereby only the web of the replacement roll is fed into the machine.

A cable 36 is provided having one end secured to an arm 29 and the other end secured to the arm 37 of a manually operable lever 38, whereby downward movement of the lever 38 will tend to urge the member 28 into engagement with web 16, to press it against the replacement roll 17<sup>a</sup> and join it to the web thereof. In the embodiment illustrated, the movement of the member 28 by the lever 38 is restrained by a releasable connection between an arm 29, supporting the member 28 and an arm 34 supporting the device 33, herein comprising a catch 39 pivoted to the arm 34 and en-

gaging a pin 41 on the arm 29. The catch 39 may be operated to release the arm 29 by the movement of a plunger 42 under the influence of a solenoid 43 whenever the latter is energized. It will be understood that the arms 34 are limited in their movement toward the replacement roll and that the arms 29 are permitted to move relatively thereto, further toward the replacement roll, when the catch 39 is released.

Provision is herein shown whereby the solenoid 43 may be energized in timed relation with the rotation of the replacement roll 17<sup>a</sup> and comprises a cam 44 mounted for rotation with the replacement roll and adapted to engage a switch operating arm 45 of a circuit closing switch 46 mounted on the arm of the reel 26 which supports the roll 17<sup>a</sup>. The lever 38, when pressed upon to move it downwardly, is adapted to operate a circuit closing switch 47. By the above described means the solenoid 43 is energized to release the catch 39 by the closing of an electrical circuit from a supply cable 48 through circuit wire 49, switch 47, circuit wire 51, solenoid 43, circuit wire 53, contact ring 54, rotatable with reel 26, circuit wire 55, switch 46, circuit wire 56, contact ring 57, also rotatable with reel 26, circuit wire 58, to another supply cable 59. It is to be understood that the cam 44 will operate switch 46 when the adhesive covered area of the web of the web replacement roll is in proper position, to operate the catch 39 by closing the circuit between circuit wires 55 and 56, which latter operation is possible as the switch 47 has been previously moved to circuit closing position by operation of the lever 38.

As above referred to, an indicating element applied directly to the web of a half length roll would, in many instances, be folded into the product and not be visible to the operator at the delivery end of the machine and, therefore, provision is herein made for applying an indicating element or flag to the web of a full length roll of a web supply mechanism disposed adjacent to or associated with the web supply mechanism supplying a web from half length rolls. The indicating element applying mechanism herein disclosed comprises an element or flag holding member 61 disposed in position relatively to the web 12 of the full length web roll 13, to be adapted to apply a flag upon the same adjacent an edge thereof, as the same passes over a guide roller 62, supported upon the bracket 32.

The flag holding member 61 includes an arm 63 keyed or otherwise secured to one end of a shaft 64 which is journaled in supports 65 fastened to the bracket 32. A wiping leaf 66 preferably made of springy material, such as thin spring steel, is fastened to the top flat surface 67 of the arm 63 and extends forwardly beyond the end of the same. The leaf 66 lies between upwardly raised shoulders 68 and 69 formed, one along either side of the arm 63, by the formation of a recess 71, concave in cross section transversely of the arm 63. A transversely extending forwardly directed shoulder 72 is formed by the recess 71 in the arm 63 under the leaf 66. A lever arm 73 is secured upon the other end of the shaft 64, and has one end of a link 74 pivotally secured thereto. The other end of the link 74 is pivotally secured to the end of a plunger 75 of a solenoid 76 mounted on the bracket 32.

The arrangement of the above parts is such, that energization of the solenoid 76 will rock the arm 63 to swing the leaf 66 downwardly into engagement with the web 12, running over the roller 62 to dispose a thin paper-like indicating element

or flag 77 thereon and by a wiping action, due to its resiliency, cause the same to adhere to the web 12. It will be understood that the indicating element 77 is prepared by having an adhesive 5 78 disposed thereon, as shown in Figure 5, and is held by the holder 61 by being inserted in the recess 71 beneath the leaf 66 between it and the arm 63 and being curved thereby between the shoulders 68 and 69 and overhanging one side 10 of the arm 63 as shown in Figure 6, whereby it will project beyond the edge of the web 12 as shown in dotted lines in Figure 5 when applied thereto. The shoulder 72 limits the extent to which the flag 77 can be inserted beneath the leaf 66. The resiliency of the material of which the flag 77 is made in cooperation with the leaf 66 and the curved form of the flag caused by the shoulders 68 and 69 and the recess 71 firmly holds the flag 77 in place in the holder 61, until it is 20 engaged with the web 12 by the leaf 66.

Energization of solenoid 76 may be accomplished in timed relation with the operation of the web joining mechanism 25 by connecting the terminal wires 52 and 52' of the solenoid 76 to the wires 51 and 53 respectively, whereby both solenoids 76 and 43 will be energized simultaneously under control of the cam 44. From the above, it is obvious that provision has been made by this invention to apply an indicating element or flag to a web substantially simultaneously with the operation of making a web join. 30

It will be understood that the invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof, and it is therefore desired that the present embodiment be considered in all respects as illustrative and not restrictive, and it will be further understood that each and every novel feature and combination present in or possessed by the mechanism herein disclosed forms a part of the invention included in this application. 35

What I claim is:

1. In a machine operating upon a web to form a folded multiple page product, a half length web roll, a full length web roll, the webs from each roll running into said machine, means to join the web of a replacement web roll to the web of the half length roll, and means to apply a releasably held indicating element upon the web running from the full length roll when said web joining means is operated, whereby the element will extend from an outside edge of the folded product. 45

2. In combination with an operable web joining mechanism, a web roll rotating means, means to automatically apply a web join indicating element to a running web, and common means rotated with the roll by said roll rotating means to control the operation of said web joining mechanism and said element applying mechanism. 50

3. In a machine operating upon a web, an operable mechanism associated with said machine, means to apply a releasably held indicating element adapted to be secured to the surface of a running web and extend beyond its edge, including a holder adapted to releasably hold such an element and mounted to move toward and away from the running web, and means to move said holder toward the running web in timed relation with the operation of said mechanism. 55

4. In a machine operating upon a running web, means to apply an indicating element adapted to be secured to the running web and project beyond an edge thereof, including a rockable holder to releasably hold the element, and an electrical 60

solenoid controlled plunger, and means to energize said solenoid to cause said plunger to rock said holder toward the running web and engage the element therewith. 5

5. In an indicating flag applying mechanism, a flag holder comprising a member having an arm portion and a leaf part extending over said arm portion, said arm portion cooperating with said leaf part to releasably retain a thin paper-like flag therebetween. 10

6. In an indicating flag applying mechanism, a flag holder comprising a member having an arm portion and a leaf part extending over said arm portion, said arm portion having a shoulder formed thereon beneath said leaf part, to limit the insertion of a thin paper-like flag therebetween. 15

7. In an indicating flag applying mechanism, a flag holder comprising a member having an arm portion and a leaf part extending over said arm portion, said arm portion cooperating with said leaf part to releasably retain a thin paper-like flag therebetween, and having a shoulder formed thereon beneath said leaf part to limit the amount the flag is inserted therebetween. 20

8. In an indicating flag applying mechanism, a flag holder comprising a member having an arm portion and a leaf part extending over said arm portion, said arm portion cooperating with said leaf part to releasably retain a thin paper-like flag therebetween, and means to actuate said holder to apply a flag, so held, to a running web. 25

9. In an indicating flag applying mechanism, a flag holder comprising a member having an arm portion and a leaf part extending over said arm portion, said arm portion cooperating with said leaf part to releasably retain a thin paper-like flag therebetween, means to actuate said holder to engage a flag, so held, to a moving member, said means including an electrically controllable member. 30

10. In a machine adapted to operate upon a plurality of webs to form a folded multiple page product, means to join the web of a replacement roll to one of said webs, an indicating element applied to and extending from an edge of any one of the other webs whereby it will extend beyond an outer edge of the folded product, and means to apply said element to said web when the aforesaid web join is made. 35

11. In a machine adapted to operate upon a plurality of webs to form a folded multiple page product, a web running into the machine from a full length roll, a web running into the machine from a half length roll, means to join a web of a replacement roll to the web of the half length roll, an indicating element applied to the web of the full length roll to extend beyond an outer edge of the folded product, and means to so apply said element to said web when the web join is made. 40

12. In a machine adapted to operate on a plurality of webs to form a folded multiple page product, an indicating element having an adhesive covered portion and being adapted, when said portion is applied to an edge of a first one of the webs which will coincide with an outside edge of the folded product, to extend beyond the edge of the product, means to join the web of a replacement roll to a second one of the webs, and means to releasably hold said adhesive covered portion of said element and being operable to apply the element to the first one of the webs when the web of the replacement roll is joined to the second one of the webs. 45

13. In a mechanism for applying an indicating element having an adhesive covered area to a running web, a support for the element adapted to receive the same with the adhesive covered portion extending beyond an edge of the support, and a part adapted to overlie and releasably retain the element on said support.

14. In a machine adapted to operate upon a web running into the machine, a mechanism to apply an indicating flag to the web, the said flag having a first portion to overlie and be connected to the running web and a second portion to extend beyond an edge of the running web, includ-

ing a support to releasably hold the flag and being operable to apply the first portion of the flag to the running web.

15. In combination, an indicating flag having a first portion to overlie and be connected to a web running into a machine operating thereon and a second portion to extend beyond the edge of the running web, a holder to releasably carry said flag, and means to move said holder toward the running web to engage said first flag portion with the web.

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