The invention relates to an attachment to a cigarette making machine preferably of the continuous rod type for coloring the wrappers of such cigarettes.

There is at present a demand among women cigarette smokers for a colored cigarette and some attempts have been made to meet this demand without any noticeable commercial success. Structurally such known forms of colored cigarettes have not been as satisfactory as the usual white wrapper cigarettes. This has been due at least in part to the fact that the cigarette manufacturers have simply substituted an all colored paper for the usual cigarette paper now in general use with the conventional white wrapper cigarettes. The white cigarette paper now in general use has been carefully constructed both chemically and physically to meet very exacting requirements. For instance, it must be an extremely thin tissue and yet have a tensile strength to permit it to be drawn under tension of about sixty pounds through the cigarette making machine without rupturing; it must have a rate of burning equal to that of its contained tobacco filling; it must burn substantially without ash and without odor; and, most important, it must be cheap.

An object of the invention is to provide an artistic form of colored cigarette which will retain all the structural advantages of the present highly developed form of white wrapper cigarette; which can be made with the usual cigarette forming machines following conventional practices and at the same time provide a cigarette having a bite end which women will not hesitate to place between their lips.

The invention herein featured contemplates utilizing the present commercial forms of these perfected cigarette papers as the basic wrapper material in order to retain their proven advantages and to treat the same to give them any of the desired colors without materially affecting their present advantages.

Among certain fastidious users, there is an objection to placing colored cigarette paper between their lips, this being based upon some feeling that perhaps the color would come off with some poisonous effect or that it would effect their lip rouge.

With reference to the apparatus feature of the disclosure, the primary object of the invention is to provide a simple form of attachment for a conventional type of cigarette making machine and this attachment is organized to apply color to the wrapper forming paper web immediately before it is fed to the cigarette making machine and to color the web in such way as to provide the necessary form of colored area so as to provide the cigarette as above described, and at the same time not to affect the normal and usual operation of the cigarette making machine in any way.

Applying wet coloring material to the thin cigarette paper as herein suggested has the effect of causing the paper to expand but this expansion is not always uniform and is controlled, at least in part, by numerous variables; for instance, by variations in the basic paper stock, by variations in the fluidity of the color material as it is being applied, and, more particularly, by variations in the rate of drying of the wetted web after it has passed the color applying mechanism on its way to the cigarette forming machine.

It is the usual practice in the operation of cigarette machines of this character to provide cutting or severing means for cutting off the finely formed cigarette rod into commercial cigarette lengths. It is obviously necessary in the form of cigarettes herein featured that the succeeding lines along which the rod is cut must come at exactly prefixed points in the uncolored bands between the colored areas in order to provide the fixed lengths to the uncolored white ends herein featured.

Accordingly, another object of the invention is to provide for an automatic control of the color mechanism so that this mechanism will locate the colored areas on the web in such positions that the severing device will successively cut the rod along accurately located lines across the uncolored bands irrespective of any creeping or lagging of the wetted web between the color applying mechanism and the cigarette forming machine.

Broadly, this aspect of the invention is attained by providing as part of the color applying mechanism a differential device acting on the color applying mechanism to advance or retard the instantaneous motion of the color applying mechanism relative to the web and which differential mechanism is in turn controlled by the location on the web of the colored areas about to enter the cigarette making machine.

In the embodiment of the invention herein disclosed, the dye or other coloring material used is applied to the web in prefixed areas by means of a printer roll and this in turn is supplied by means of a squeeze roll somewhat following con-
ventional structure of printing machines. There are, of course, occasions when it is necessary to interrupt the action of the color applying mechanism from time to time. It has been found that after such interruption there was a messy application of color on the portion of the web next passed for a period of time after the operation was resumed.

Accordingly, another object of the invention is to provide for a uniform application of the coloring material even though the operation be interrupted from time to time.

Broadly, this aspect of the invention is attained by moving the squeeze roll out of contact with the printer roll whenever the operation of the printer roll is interrupted and in maintaining the squeeze roll in continuous rotation during the period of time when it is out of contact with the printer roll.

In the drawings:

Fig. 1 is a perspective view of a preferred embodiment of the colored cigarette aspect of the invention;

Fig. 2 is a plan view of the colored portion of the web as it is being fed into the cigarette making machine;

Fig. 3 is a perspective view of an attachment to a cigarette forming machine, the parts being shown somewhat schematically for applying coloring to a white web to form the colored wrappers of Fig. 2;

Fig. 4 is a detailed view in axial section showing a loose driving connection between the printer roll and drive shaft on which it is mounted;

Fig. 5 is a diagrammatical showing the electrical parts for controlling the differential motor of Fig. 3; and

Fig. 6 is an explanatory view of a part of the electric eye control.

Referring to the finished cigarette 2 as shown in Fig. 1, it is understood that it is of commercial length and is provided with a wrapper 3 formed basically of a conventional grade of white cigarette paper. The mid-length portion 4 of the cigarette is of a color contrasting with white and in the illustrated embodiment of the invention is intended to be red. At one end of the cigarette is an uncolored band 5 about one-half inch long forming the bite end of the cigarette and at the opposite end is a narrow uncolored band 6 forming the end of the cigarette to be lit.

The cigarette wrapper 3 is formed from a long, narrow web 7 as shown in Fig. 2 in which the colored areas 8 are longitudinally spaced apart to provide therebetween uncolored areas 9 designed to be severed along cut lines 10 to form on opposite sides thereof the bands 5 and 6 in the finished cigarette. The color areas 8 extend from one long edge 11 of the web almost to the opposite long edge 12 and the adjacent long edge 13. In forming the cigarette as hereinafter described, adhesive is applied along the strip 11 and as the wrapper is turned about the tobacco filling in the cigarette forming machine to form the cigarette rod the uncolored margin strip 14 is located on the inner side of the finished rod leaving the colored side exposed as the continuously colored portions 10 in the finished cigarettes. In this way the coloring material may be used which might otherwise affect or be affected by the cementitious or adhesive material used in forming the cigarette rod.

Referring to Fig. 3, there is disclosed symbolically a cigarette forming machine 15 of the continuous or rod type. At the discharge end of the machine and operatively connected to be driven by a differential shaft 16, there is shown an accessory form of propeller blade cutting device 17 designed to cut the cigarette rod into commercial length cigarettes 18. The color applying mechanism herein disclosed is intended to constitute an attachment to any of the known forms of cigarette forming machines and it is the intent to operate the attachment in such a way as will have no effect upon the usual operation of such standard machines.

Still following known practices, the web 19 is drawn from a source of supply such as the spool 20 under tension by mechanism forming part of the machine 15. If necessary, the spool 12 may be relocated on the machine so as to provide the necessary space to accommodate the color applying mechanism herein featured, and to provide sufficient space between the color applying device and the cigarette forming machine to permit either an air drying of the web wetted by the applied color, or to permit the installation of a drying chamber or other necessary drying apparatus (not shown) between the color applying mechanism and the machine 15 for the purpose of insuring a sufficiently dried condition of the colored web before it is fed to the forming, filling and cementing elements within the machine.

The uncolored web is drawn off the spool 21 and is passed first over idler roll 22, then over the horizontal pressure roll 23, idler rolls 24 and 25, through the registering control 26 and then into the cigarette forming machine 15.

The color selected for use is applied to the web 19 by means of a printer 27 supplied from a color feeding device 28 and which printer in turn applies the color to the portion of the web passing between the printer roll 29 and the pressure roll 24.

The color feeding device 28 comprises a frame 32 pivotally mounted for rocking movement and includes a color reservoir 33 into which dips a pick-up roll 34. The roll 34 supplies color taken from the reservoir to a color ribbon 35 which is manually adjustable vertically in slots 36 formed in upstanding arms 37 forming part of the frame 32 and projecting above the reservoir 33. It is understood from this structure that squeeze roll 38 is delicately adjusted vertically to the pick-up roll 34 to control the thickness of the color film transferred to the printer roll 28.

Referring to the printer, there are disclosed in axial alignment three shafts forming a power drive for rotating the printer roll 28. This power drive includes a main shaft 39 driven from the power drive mechanism represented by shaft 40 forming part of the machine 15 so that the main shaft 39 rotates in synchronism with the operative parts of the machine 15 including the cutting device 17 connected to shaft 43 by drive 44. The main shaft is in normal driving engagement with a differential shaft 45 through a main control clutch 46. Differential shaft 45 is connected to a printer shaft 47 through a planetary type differential mechanism 48. This differential mechanism includes bevel pinion 49 on the end of shaft 45 which pinion acts through the intermediate printer shafts 33 and 34 meshing with pinions 35 on shaft 40 and normally drives shaft 40 in the opposite direction from shaft 28. Pinions 33 and 34 are revolvably mounted on studs 36 and 37 projecting inwardly from a ring gear.
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The printer roll 28 is loose on shaft 30 (see Fig. 4) and is provided at its periphery with two circumferentially spaced apart printing plates 43 and 44 each having a smooth face printing surface of the same dimension and equal to the area of the colored areas g. These printing plates are preferably formed of rubber or other approved forms of plate usual for transferring large areas of color to a travelling web. The adjacent ends of the plates are spaced apart a distance to provide the uncolored area h between adjacent colored portions of the web. The printer roll is provided with a crown-headed hub 45 and is held from movement in one direction by a stop collar 46 secured to the shaft 30. The hub 45 and the printer roll are driven from the shaft 30 through a crown-headed collar 47 provided with a slot 48 in which extends pin 49 from the gear in the serrated edge of the hub and collar 47 are maintained to provide a loose driving connection between the shaft and printer roll by means of a spring 50 bearing at one end on the collar 47 and on its opposite end on a stop 52 secured to the free end of the shaft 30.

By means of this construction, it is possible to readjust the position of the printer roll to the web as hereinafter described without the printing plates smearing the web during the periods of readjustment and reengagement. The shaft 30 may be given a slight rotation by the operation of the differential 31 during the instant of time while one of the printing plates is in its printing engagement with the web. As the peripheral speeds of the printing plate and web are equal at this time, the web will tend to hold the plate, and with it the printer roll 20, from either increasing or decreasing its speed for the time being. This means that shaft 30 may be given a slight rotary movement in either direction and have the effect of causing the same teeth on the hub 45 to ride up slightly on the cam teeth on the crown collar 47 without any effect except, of course, to shift the crown collar axially with incidental further compression of the remaining spring of 48. However, as the plates 43-44 move to bring the next succeeding recess between their ends opposite the web, the holding effect on the web will be momentarily released and this will permit spring 49 to push the crown collar to the right and thus shift the now free printer roll to restore the printer roll rotation into that adjusted position set by the previously rotationally adjusted printer shaft. In the particular set-up illustrated, a counter clockwise rotation of the ring gear 38 will advance the impressions made by the printing plates while a clock wise rotation of the ring gear will retard them.

The motor 42 is so regulated by the registry control 17 that any creeping of the web between the color applying mechanism and the cigarette machine will be corrected at the printer so that when the cigarette rod is passed out of its former 10, the cutting mechanism 11 will under all feeding conditions operate exactly along the prefixed cut line t to insure the formation of the cigarette as shown in Fig. 1 so that every cigarette will be exactly like every other cigarette. This is attained by a photo-electric cell type of electric mechanism for actuating and controlling the direction of rotation of the motor 42. In the showing in Fig. 5, the printed web 3 is represented by a line of alternate heavy and light portions corresponding respectively to the colored and uncolored portions of the web and which web is caused to pass through the registry control 17. This control includes two photo-electric cells 53 and 54 mounted in housings 55 and 56 located beneath the web, each housing having a rectangular opening 57 and 58 facing the web. Above the web is a lamp 59 with its housing 60 provided with two rectangular openings 61 and 62 located close to the web and directly opposite the openings 57 and 58. The all-over span of the openings corresponds to the distance between adjacent colored portions of the web. The photo-electric cells 53 and 54 are connected to magnets 63 and 64 of a double acting relay 65 through commutators 65 and 66. These commutators are driven from the mechanism of the cigarette making machine through a drive connection 92 and are timed to operate in synchronism with the action of the cutting device 1 so as to complete the circuits through the magnets 63 and 64 for a brief interval during each revolution of the commutators at the exact instant when an uncolored portion h of the web should be exactly opposite the openings as indicated in Fig. 5. So long as the uncolored portions of the web register exactly with the photo-electric cell registry device 17, motor 42 remains inactive and this is the normal condition of the corrective device.

To show a condition in which the differential device operates, reference is made to the explanatory showing in Fig. 6. In this case, it is noted that an uncolored portion of the web is early in its arrival at the registry control and thus at the cutting knife and to correct this in the succeeding colored areas the printer roll must be advanced.

In this case, the light passing through opening 62 is obstructed by a colored portion g of the web while light passing through the opening 61 is intercepted only by an uncolored portion h of the web, the following colored portion not yet having reached the opening 61. Under these conditions the intensity of the light impinging on the cell 63 will be greater than that impinging on the cell 54 and the current flow through magnet 63 will be correspondingly greater than that through the magnet 64. The armature 66 of relay 65 will be pulled to the left closing the circuit through magnet 63 which, in turn, will attract armature 71 and start motor 42 in the direction which will rotate ring gear 38 in a clockwise direction thus retarding the printing plates relative to the web as previously described. As the resulting printed areas are retarded, the currently active differential through magnets 63 and 64 will be reduced gradually until the condition shown in Fig. 5 has been reestablished, their power becomes substantially equal and armature 71 will resume its circuit breaking position opening the circuit and thus stopping the motor.

Referring to the color feeding device 18, the pick-up roll 23 is mounted in the frame 21 on a pick-up roll shaft 72. This shaft is normally rotated from the printer shaft 30 through a chain and sprocket drive 73 and through a one-way clutch 74 operating to drive the shaft 72 in a counterclockwise direction. It is the intent to
drive the pick-up roll at relatively high speed, say, 300 R. P. M. Thus, under normal driving conditions, power is taken from the main drive shaft 27, through the main clutch 29, through the differential device 81, through the chain and sprocket drive 78, through the one-way clutch 74 to the pick-up roll 23 and hence to the squeeze roll 24 which at this time is in bearing engagement with the color applying plates 43 and 44 on the printer roll 20. Means are provided for interrupting the power drive from the main shaft 27 and for this purpose the main clutch 29 is controlled by a hand lever 18. The parts are so arranged that moving the hand lever 18 in one direction will shift the main clutch into its inactive, nonclutching position.

It has been found preferable to keep the pick-up roll 23 and squeeze roll 24 rotating during the period while the printer is inactive and for this purpose means are provided for moving the squeeze roll 24 into an inoperative position away from the printing plates simultaneously with the movement of the main clutch into its inoperative position and at the same time to drive the pick-up roll from another source of power independent of the normal source of power originating in the machine 10 and acting through the main shaft 27. For the purpose of swinging squeeze roll 24 out of contact with plates 43 and 44 the frame 21 is rockably mounted to swing about the axis of the pick-up roll and its shaft 22. The pick-up roll 23 may also be driven from shaft 22 through pulley 76 loose on shaft 12 and driving the same through a one-way clutch 77. The pulley 76 is belted to a slow speed electric motor 78. Pressure roller 14 is mounted on bracket 83 and is normally in position to press the web against the plates 43 and 44.

The frame 21 and bracket 83 are rocked to and from their position with the squeeze roll 24 engaging the printer roll through control mechanism connected to the throw-out yoke 78 of the main clutch 29. This control mechanism includes a shaft 80, lever 81 and link 82 for rocking shaft 83 which, in turn, is provided with an arm 84 and link 85 connected to an ear 86 forming a projection from the frame 21. Also secured to the shaft 83 is the movable element 87 of switch 88 connected through wiring 89 to close the circuit through motor 78 when a reversal in this construction it will be seen that moving the hand lever 76 to disconnect the main clutch 29 will simultaneously swing the color feeding device 10 into an inoperative position and will at the same time close the circuit through the auxiliary motor 78 to cause it to become active and in this way maintain the pick-up and squeeze rolls rotating even though the balance of the printer is inoperative for the time being.

In operation and assuming that the machine is initially set to have the component mechanism of the machine 10 and the cutter 11 operate in proper timed sequence, the paper web is drawn from the source of supply 12 by the machine 10, is passed through the printer 10 arranged to have the colored areas located thereon and is then subjected to a drying step before the printed web reaches the cigarette machine. This machine operates conventionally to insert the tobacco filler on the web and to apply the usual adhesive thereto, in this case along the uncolored margin 1 provided therefor. The wrapper is formed, the overlapped edges pasted together and the cigarette rod m formed as is usual with such devices, after which the rod is cut off by the cutting device 11 into the usual cigarette lengths and still following conventional practices in this respect.

It is suggested that an aniline dye be used as the coloring material as this is the most satisfactory material and has the advantage of being inexpensive. It can be thinned so that very little coloring matter is added to the paper, merely enough to give a uniform surface coloring, care being exercised not to wet the paper any more than is necessary. This slight wetting has the advantage of providing for a quick drying, preferably by a simple air drying and this has a further advantage in that it has deleterious effect on the tensile strength and other characteristics of the paper web. It is also possible to change the colors used, simply by replacing one dye for another in the reservoir. Any incidental variation in the web due to the use of the different dyes and which may affect the timing of the survival of the cutting lines relative to the cutting device 11 is quickly and automatically adjusted by the electric eye form of differential control herein featured. The device therefore is entirely automatic in its operation and insures the proper location of the colored areas in the cigarette so that every cigarette is an exact duplicate of every other cigarette even though the printing operation in action for the time being may create momentary variations in the wetted web in the part thereof just before it reaches the cigarette forming machine.

I claim:

1. In a machine for making wrappers having a colored portion at their midlengths and uncolored end bands, the combination with mechanism including means for drawing a web of paper from a source along a treating path and through said mechanism, and cutting means beyond said mechanism and timed for severing the wrappers into commercial lengths, of a printer including a printer roll located to apply longitudinally spaced apart areas of color to the paper web while in said path, the portion of the web path between the printer and said mechanism being exposed for drying the web wetted by the printer, an electric eye form of control between the printer and said mechanism and operatively controlled by the colored areas on the web, said printer including a mechanical differential mechanism for rotating the printer roll relative to the web to relocate the colored areas on the web, a reversible motor for controlling the action of said differential mechanism to cause the printer roll to locate the colored area on the web in such spaced relation to the cutting means as will cause the cutting means to sever the wrappers across the uncolored bands between the colored areas, and power means normally operatively connected to drive said mechanism, the printer drive and the cutting means in unison.

2. A machine including mechanism for forming a continuous rod, of easily seversable and wrapped material, severing means for cutting the resulting rod into commercial lengths, and means for drawing a web of paper-like material through said mechanism to form the wrappers for the rod, means for supplied lengths formed in said first named means, and printer for applying longitudinally spaced apart areas of color to the web before it is fed to said mechanism, said printer operatively connected to function in a timed sequence relative to the severing means automatically to locate the spaced apart areas of color on the web leaving uncolored bands therebetween.
across which the severing means operate to cut off the commercial lengths from the rod irrespective of any incidental extensions or shrinkage of material between the printer and the severing means, the printer being spaced in advance of the forming mechanism a distance sufficient to permit the colored areas to dry before the web reaches said forming mechanism.

3. In a machine for coloring wrappers, the combination with a machine including means for driving a web of paper from a supply roll through the machine, of an attachment for applying longitudinally and equidistantly spaced apart areas of color of equal length to the web between the supply roll and the machine, means for momentarily speeding up or retarding the action of said attachment relative to the travel of the web past the same, automatic control means for said last named means governed by the location of the areas on the web as these areas are about to enter the machine for resetting the attachment relative to the portion of the web that instant passing the attachment men to govern the pace on the web at which it applies the color whereby the spacing of the colored areas is uniform while the web is in the machine irrespective of any unequal stretching or shrinking which may occur in the web by reason of the wetting of the same by the application of the color to the web.

4. The combination with a machine including means for feeding a web of paper therethrough, of means including a printing roll for applying longitudinally spaced apart areas of color to the web as it is fed to the machine, leaving uncolored areas between the colored areas, a power means for driving the printing roll and including a differential adjusting means including a reversible motor for rotatively adjusting the printer roll relative to the web as it passes the same, a control forsaid motor located adjacent said machine and including two photo-electric cells, each having a rectangular opening facing the colored web and controlled by the colored and uncolored areas on the web as the web passes said control, the back light of said openings being equal to the length of the uncolored areas, means forming two relay circuits, each circuit including one of the photo-electric cells, a commutator driven in synchronism with the cutting means and operating to close the circuit in a timed sequence with the operation of the cutting means, and one of the magnets of a double acting relay and circuit closing means controlled by the armature of said relay for selectively actuating said motor and for controlling its direction of rotation whereby the preceeding location of the colored areas on the web control the location of the succeeding colored areas on the web.

5. In a device of the class described, the combination with mechanism for drawing a length of web along a printing and drying path and for severing the same into preset lengths, of a printer including a printing roll for applying spaced apart areas of color to the web before it enters said mechanism, leaving uncolored bands between the colored areas, said roll having a peripheral speed substantially equal to that of the speed of the web engaging the same, adjustable means operatively connected to the printing roll for maintaining varying peripheral speeds of the printing roll relative to the speed of the web as it passes the same, and control means adjacent to and in advance of the cutting mechanism automatically controlled by the succeeding colored and uncolored areas of the web and operatively connected to said adjusting means to cause it to act on the printing roll for rotatively resetting the same in its relation to the web to cause the cutting mechanism to sever the web along succeeding severing lines located in the uncolored bands and in spaced relation to the adjacent ends of the colored areas.

6. In a device of the class described, the combination of a printer roll, means for driving the roll, means for feeding a web past the roll in position to cause the roll to apply succeeding and spaced apart areas of color to the web and to advance the web along a path beyond the roll, driving mechanism interconnecting the roll driving means with the web feeding means to cause the peripheral speed of the roll normally to be equal to the speed of the web, said roll driving means including a normally inactive reversible motor for momentarily advancing or retarding the rotation of the roll to reset it relative to the web and electronically actuated means facing the web at a fixed point in said path and controlled by the instant location of the colored areas for regulating the activity and direction of rotation of said motor and thus the resetting of the printing roll to control the points along the web at which the printing roll applies the color areas.

7. In a machine for applying color to a web, the combination of a main power drive provided with a color applying roll, said drive including differential mechanism and a reversible motor for selectively advancing or retarding the roll speed of the roll, means for feeding a web in operative relation to have the roll apply color to the same in spaced apart areas, and a photo-electric control for the motor in turn operatively controlled by the location of the color areas on the web whereby a previously applied color area will control the locating on the web of the currently applied color.

8. In a machine for applying spaced apart areas of color to a web, the combination of a main drive shaft, a printer roll loose on the shaft and provided with at least one printing plate having its ends circumferentially spaced apart, leaving at least one recess in the periphery of the printer roll, a spring pressed clutch forming a flexible driving connection between the shaft and the printer roll permitting a slipping of the shaft relative to the printer roll when its printing plate is in engagement with the web, means for feeding a web past the printer roll to receive the color therefrom, means for feeding color to the printer roll, means for driving the main shaft, the web feed and the color feed in unison, and means for rotatively adjusting the main shaft relative to the web movement and incidentally placing the flexible driving connection under tension, said printer roll being free to readjust itself relative to the shaft by virtue of the tension in said flexible driving connection during the period of time when the recess is opposite the web.

9. In a machine for applying color to a web, the combination of a pressure roll, a main drive shaft, a printer roll loose on the shaft, said roll provided on its periphery with a printing plate and having a recess at one end of the plate, means for passing a web between the printing plate and the pressure roll in position to have the plate apply color under pressure to the web, means for rotably adjusting the drive shaft
relative to the printer roll to relocate the place on the web where color is to be applied, and a spring pressed clutch providing a slip driving connection between the shaft and the printer roll operating to permit a slight rotation of the shaft relative to the printer roll, in addition to the normal driving relation between the shaft and printer roller during the time the recess is opposite the web and thus when the printer plate is out of contact with the web.

10. A control system for a machine having web feeding means wherein the roll of paper to be printed is driven by one of the printer rolls so located relative to the printer roll to relocate the place on the web where color is to be applied, and a spring pressed clutch providing a slip driving connection between the shaft and the printer roll operating to permit a slight rotation of the shaft relative to the printer roll, in addition to the normal driving relation between the shaft and printer roller during the time the recess is opposite the web and thus when the printer plate is out of contact with the web.

15. In a machine for applying color to a web, the combination of a printer roll, means including a squeeze roll having an operative position for applying color to the printer roll and having an inoperative idling position, control means for moving the color applying means to and from its operative engagement with the printer roll, a motor for driving the squeeze roll individually of said power means and a switch for controlling the motor, said switch being operatively associated with the control means to cause the motor to become active automatically on the movement of the color applying means out of its operative engagement with the printer roll whereby the squeeze roll is caused to continue to rotate when removed from the printer roll by the action of said motor.

20. In a machine for applying color to a web, the combination of a printer roll, a means for moving the squeeze roll to and from its operative engagement with the printer roll apply color thereto, means including a squeeze roll for feeding color to the printer roll, means for moving the squeeze roll when disconnected from the main power drive for rotating the squeeze roll when disconnected from the main power drive.

25. In a machine for applying color to a web, the combination of a printing roll, means for applying color to the printer roll, a control clutch means for controlling the driving connection between the squeeze roll and the printer roll, a normally operative driving connection between main drive and the color feeding means to cause the printer roll and the color feeding means to operate in unison and a supplemental power drive independent of the main power drive for keeping the squeeze roll rotating when the main power drive and printer roll are inactive.

30. In a machine for applying color to a web, the combination of a printer roll, means including a squeeze roll having an operative position for applying color to the printer roll and having an inoperative idling position, control means for moving the color applying means to and from its operative engagement with the printer roll, a motor for driving the squeeze roll independently of said power means and a switch for controlling the motor, said switch being operatively associated with the control means to cause the motor to become active automatically on the movement of the color applying means out of its operative engagement with the printer roll whereby the squeeze roll is caused to continue to rotate when removed from the printer roll by the action of said motor.

35. In a machine for applying color to a web, the combination of a printing roll, means for applying color to the printer roll, a control clutch means for controlling the driving connection between the squeeze roll and the printer roll, a normally operative driving connection between main drive and the color feeding means to cause the printer roll and the color feeding means to operate in unison and a supplemental power drive independent of the main power drive for keeping the squeeze roll rotating when the main power drive and printer roll are inactive.

40. In a machine for applying color to a web, the combination of a printing roll, means including a squeeze roll having an operative position for applying color to the printer roll and having an inoperative idling position, control means for moving the color applying means to and from its operative engagement with the printer roll, a motor for driving the squeeze roll independently of said power means and a switch for controlling the motor, said switch being operatively associated with the control means to cause the motor to become active automatically on the movement of the color applying means out of its operative engagement with the printer roll whereby the squeeze roll is caused to continue to rotate when removed from the printer roll by the action of said motor.

45. In a machine for applying color to a web, the combination of a printing roll, means including a squeeze roll for applying color to the printing roll, a mounting for the squeeze roll for moving the same to and from its engagement with the printing roll, a motor for driving the printing roll and the squeeze roll in unison, control means for rotating the squeeze roll and control mechanism operatively connected to cause the last named power means to become operative when the mounting has been moved out of engagement with the printing roll.

50. In a printing machine, the combination of a printing roll, a color applying device including a squeeze roll and a pick-up roll in operative engagement to transfer color to the printing roll, a shiftable frame in which the squeeze and pick-up rolls are journaled, manually actuated control means for moving the frame to and from a position in which the squeeze roll supplies color to the printing roll and means for maintaining the pick-up and squeeze rolls in rotation in all positions of the frame.

55. In a machine for applying color to a web, the combination of a printing roll, a color applying device including a squeeze roll and a pick-up roll in operative engagement to transfer color to the printing roll, a shiftable frame in which the squeeze and pick-up rolls are journaled, manually actuated control means for moving the frame to and from a position in which the squeeze roll supplies color to the printing roll and means for maintaining the pick-up and squeeze rolls in rotation in all positions of the frame.
with the printing roll and power means operable independently of said interconnected driving means for rotating the squeeze roll when so separated from the printing roll.

19. In a machine for applying color to a web, the combination of a printer roll, means including a squeeze roll normally in operative engagement with the printer roll to supply color thereto, control means for moving the color supply means to and from a position providing an operative engagement with the printer roll and to and from an idling position, and means for rotating the squeeze roll while in either of said positions.

20. In a machine for forming lengths of colored wrappers each with an uncolored end, the combination of means defining a web traversing path and including in order a printer for applying wet coloring material to a paper web to form thereon spaced apart areas with incidental wetting of the web by the wet materials, a device for forming said web into a wrapper and a severing device for successively severing the wrapper into the desired lengths of wrappers, a driving connection between the printer and severing device normally connected to effect one printing operation to each severing operation, said driving connection including a timing device controlled by the printed areas as they approach the severing device for causing the severing device to cut the wrapper across the uncolored bands between the colored areas irrespective of any creeping or lagging in the wetted web after it leaves the printer.

21. Mechanism for coloring a web of cigarette wrapper paper before it is passed into the cigarette forming machine, including the combination of a printer for printing one side of the paper web while in motion with succeeding areas of a liquid dye, said areas having a length slightly less than the length of a commercial cigarette leaving an uncolored band between the colored areas for forming a bite end to the finished cigarette, said printer being spaced in advance of the forming machine a distance sufficient to permit the colored areas to dry before the web reaches the forming machine, means for normally driving the printer at a peripheral speed equal to that of the web as it passes the same, and a control for said last named driving means in turn controlled by the location of the color areas on the web whereby an area to which color has been previously applied will control the locating on the web of the area to which color is being currently applied.

22. In a diameter of the class described, the combination with mechanism for drawing a length of web along a printing and drying path and for severing the same into preset lengths, of a printer provided with a printing roll operatively engaging the web while in said path to apply color thereto along spaced apart areas and means operatively controlled by variations in a prefixed spacing of the adjacent ends of the colored areas relative to said path at the instant of actuation of the severing device for rotatively adjusting the printing roll relative to the web to insure the timing of the cutting mechanism to sever the web between succeeding colored areas.

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