Nov. 8, 1955 J. D. CONTI 2,723,085

TENSION APPARATUS FOR A PLURALITY OF CONTINUOUS ELEMENTS

Filed Nov. 18, 1952 2 Sheets-Sheet 1

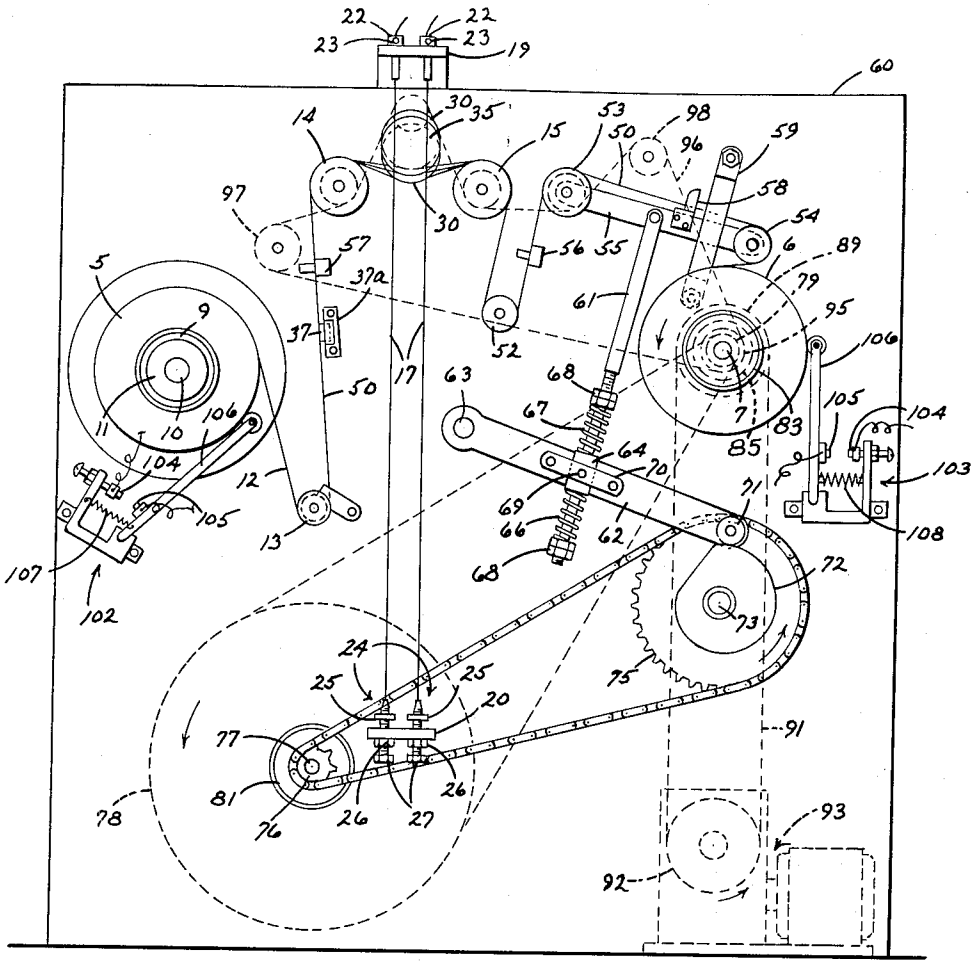


Fig. 1

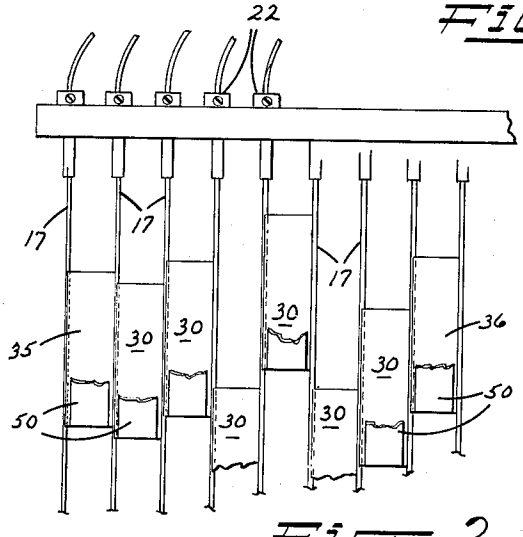


Fig. 2

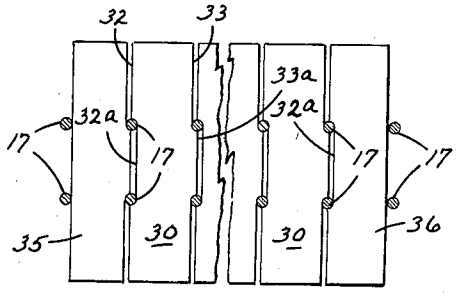


Fig. 3

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TENSION APPARATUS FOR A PLURALITY OF CONTINUOUS ELEMENTS

Filed Nov. 18, 1952 2 Sheets-Sheet 2

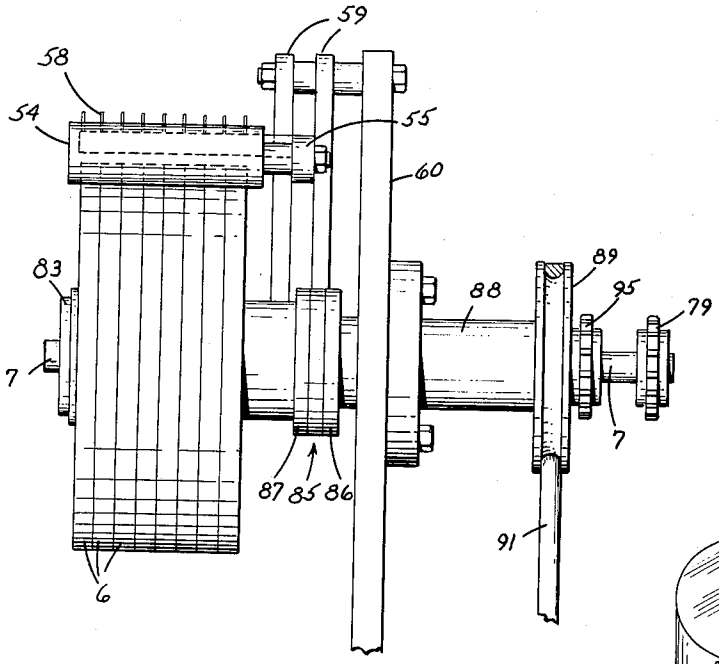


Fig. 4

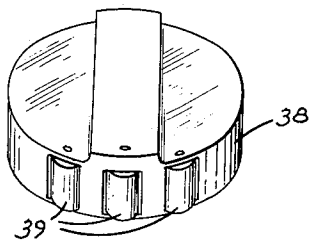


Fig. 5

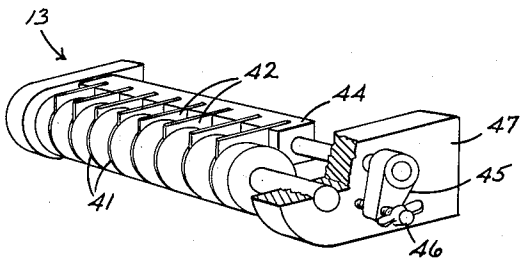


Fig. 6

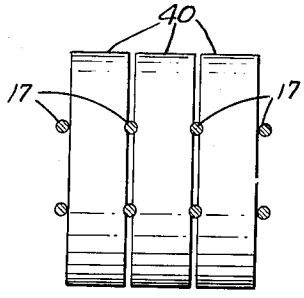


Fig. 7

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TENSION APPARATUS FOR A PLURALITY OF CONTINUOUS ELEMENTS

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Application November 18, 1952, Serial No. 321,188

11 Claims. (Cl. 242—55)

The present invention relates to the tensioning of continuous running elements and particularly to an apparatus for applying tension simultaneously to a plurality of tapes, ribbons, strands, or the like being advanced along concurrent paths.

In the manufacturing of tapes from cellophane or other films, for example, a common procedure is to unwind a supply package comprising a wound relatively-wide sheet or band by drawing such a continuous body of film through a multiple-knife slitting device to produce a plurality of tapes, and thereafter to wind the tapes simultaneously about a common spindle. Since the thickness of the unslit band of film may vary transversely with respect to its length, the take-up rate of the various tapes which are slit therefrom may vary on account of small differences which develop as the winding of the tapes progresses, in the diameter of the separate tape packages which are rotated at the same number of revolutions per minute. Unless tension is applied separately to such tapes as they advance toward respective product packages being wound therefrom, some of the packages are likely to be wound too tightly while others are wound so loosely as to affect their desirability in the trade. It also may happen that such differences in thickness of the film may average out within each package at completion of its winding. However, in such a case, the various portions of a tape package would be wound at different tensions; thus the physical condition of the package is much improved if the entire length of the tape of each package is wound at uniform tension.

It is an object of the present invention to provide apparatus for advancing a plurality of continuous elements at a predetermined speed while each element is subjected to a predetermined tension. It is also an object to utilize an apparatus comprising a single take-up spindle for winding into separate packages a plurality of continuous elements, such as strands or tapes or other elements of small cross section, while maintaining constant tension in each element. It is a further object to provide a multiple tape-winding apparatus comprising a single take-up spindle having a system for separately tensioning each tape wound by the apparatus. It is also an object to provide a multiple tape winding apparatus suitable for winding pressure-sensitive tapes into separate packages. It is a further object to provide apparatus in accordance with the foregoing objects that is simple in construction and easy to operate. Other objects, features, and advantages will become apparent from the following description of the invention and the drawing relating thereto in which

Fig. 1 is a diagrammatic elevation illustrating parts of one embodiment of the invention;

Fig. 2 is a fragmentary elevation view of a portion of the apparatus shown in Fig. 1;

Fig. 3 is a fragmentary plan view of elements of the apparatus shown in Fig. 2;

Fig. 4 is an elevation view of a winding spindle and other portions of the apparatus connected concentrically therewith;

Fig. 5 is a perspective view of a modified tension producing member;

Fig. 6 is a perspective view of a slitter used in the apparatus of Fig. 1; and

Fig. 7 is a plan view, with guide elements in section, of modified tensioning weights.

In the broader aspect of the present invention, the apparatus comprises separate gravity-urged members mounted in adjacent relationship and supported between upwardly extending guides so that a plurality of continuous elements may pass over spaced rolls or other spaced means for advancing elements, each element passing under a separate member supported between adjacent guides between such advancing means. In a preferred embodiment each of the members has flat oppositely-facing surfaces spaced to provide a peripheral surface of such width as to permit passage of one of the elements thereunder in a direction parallel to the planes of the spaced surfaces, at least one of the flat surfaces of each member being grooved or recessed to receive the guides which extend between the adjacent members with respect to which the gravity-urged member may float in a vertical direction in accordance with the accumulated slackness or extension derived from the continuous element passing thereunder. The present invention is especially useful in winding tapes of cellophane onto a single take-up spindle, and, by way of example, is disclosed in connection with the manufacturing of such tapes.

Fig. 1 illustrates as one embodiment of the invention a film-slitting and tape-winding machine in which a wide band **12** of cellophane or other film is unwound from a supply package **5** and thereafter slit into a plurality of tapes which are separately tensioned and wound into packages **6** about a take-up spindle **7**. The supply package is supported on the core or drum **9** of a rotor which is rotatable with respect to its stationary supporting shaft **10**. A drag-clutch **11**, such as a conventional band or disc-type brake or hydraulic torque converter, having one member attached to the shaft **10** and a member rotatable therewith attached to the drum **9** prevents the rotor from turning freely on the shaft **10** whereby sufficient tension is developed in the sheet **12** being unwound from the package **5** to maintain the sheet taut as it advances through a slitter **13** and toward a drawing means, such as the driven horizontally-spaced rolls **14** and **15**. These rolls have axes which are generally horizontal and parallel. Extending vertically between the two rolls are a plurality of wire guides **17** which occur in pairs, the pairs being spaced in a direction extending parallel to the axis of the rolls **14** and **15**. The guides of each pair are spaced in a direction extending transversely with the axis of the rolls **14** and **15**. The guides of the entire group are preferably parallel. The guides **17** comprise preferably heavy wires, for example, 1/16 of an inch in diameter, which may be subjected to substantial tension to maintain them thoroughly straight and along desired respective alignments between two support members **19** and **20** therefor.

The wires **17** may be secured to the supporting members by an arrangement such as that shown wherein the members are apertured along the desired axis for each wire with end portions of the wires extending through such apertures. One end portion of the wire extends through a collar **22** having a radially aligned set screw **23** which may be tightened against a portion of the wire extending through the collar. Extending through the frame member for supporting the other end of the wire is a chuck-type device **24** having a central passageway through which the end portion of the wire may extend, such a device being, for example, longitudinally slit and externally tapered and threaded to receive a nut **25**. As the nut is screwed in the direction of increasing diameter, the jaws provided by the slit barrel section of the device grip the wire. An

untapered section of the device 24 is exteriorly threaded for receiving a nut 26 which seats on the frame member 20 through which it extends. The device is provided with a polygonal head 27 which may be held while the nut 26 is turned to increase or reduce tension in the wire 17. By the arrangement just described, each guide wire 17 may be adjusted to a taut condition wherein it functions efficiently as a guide in engagement with one or a pair of the weights 30, 35, and 36.

As may be seen from Figs. 1, 2, and 3, the weights 30, 35, and 36 have generally cylindrical peripheral surfaces extending between flat substantially parallel oppositely-facing end surfaces. One end surface 32 of each weight 30, and 36 has a recess 32*a* for receiving a pair of wire guides 17 along the opposite side surfaces of the recess. The other end surface 33 of the weights 30 and an end surface of the weight 35 has a wide flat ridge 33*a* extending parallel to the recess in the surface 32 of such width as to fit between a pair of wires 17 which extend along the sides of the recess 32*a* of an adjacent weight 30. Thus the sides of the ridge 33*a* of one weight 30 and the sides of the recess of the adjacent weight engage the same pair of wires 17. The depth of the recess 32*a* and the height of the ridge 33*a* are preferably less than the diameter of the wires 17 so that it is impossible for the cylindrical surface of one weight to overlap that of another weight and thus interfere with the separate movements of adjacent weights along the wires. In this manner, some of the longitudinal portions of the surface of each guide disposed between a pair of weights moving along separate adjacent paths relative to the guide are engaged by one guide and other surface portions are engaged by the other guide.

It will be noted that a weight 35 at the extreme left of Figs. 2 and 3 does not have a recess in its left end surface as do the weights 30. The entire series of weights may be constructed of similar weights to supplant the weights 30 and the weight 36 shown at the extreme right of the series. The entire series may also comprise weights constructed similarly to the weight 36 which has a recess but no ridge analogous to the ridge 33*a* of the weights 30. The construction of the weights in accordance with that illustrated by the weight 30, having both a recessed surface and a raised surface for facilitating the guiding of the weights lengthwise of the guides, is presently preferred since guiding surfaces at both sides of the weights add to the general stability of the series and provide more positive support of the separate weights. While the weights are shown as solid, the desired weight and mass thereof may be arrived at by varying the size as to diameter and thickness and by providing them with a hollow recess or any hollow structure consistent with preserving suitable guide surfaces for engaging the guiding means, such as the wires 17, and a suitable peripheral surface over which the various tapes may pass under respective weights. While satisfactory weights 30, 35, and 36 are constructed of aluminum, the weights may be readily constructed of heavier material such as steel with a recessed or otherwise open construction.

Under some manufacturing conditions and requirements of the trade, it may be desirable to eliminate the tendency of the film material from which the tapes are cut to stick to surfaces of equipment which it engages, or to itself when wound into the product packages 6. As one expedient for reducing their adhesiveness, the tapes may pass from the slitter 13 over a soap-stone 37. The soap-stone is provided preferably in the condition in which it occurs in nature except for the shaping and cutting thereof which adapts it to be supported in a holder 37*a*. Sufficient particles of the soap-stone adhere to the tapes as they pass in frictional contact thereover to eliminate any undesirable adhesiveness of the film. While the stone 37 is shown engaging merely one side of the tapes, another stone may be similarly supported in contact with the opposite side of the tapes to render both sides thereof non-adherent. The application of soap-stone to the tapes is optional and may be omitted entirely when stickiness of the film is not material or objectionable.

Fig. 5 shows pictorially a modified weight 38 which may be used in place of those heretofore described. The portion of its periphery around which the tape passes when such a weight is supported between the guide wires 17 is recessed to receive rollers 39 which engage the tape with less friction than do the peripheral surfaces of the weights 30, 35, and 36. Fig. 7 illustrates modified weights 40 of generally cylindrical contour which are grooved along their end surfaces whereby the resulting grooved surfaces thereof may be engaged by the guide wires 17 when used in place of the other weights hereinbefore described.

Fig. 6 is a perspective view of the slitting device 13 with portions partly cut away to expose its structure. The device 13 comprises a plurality of rolls 41 separated by knives 42 attached to a pivotable support 44 therefor. The knives are held in cutting position between the rollers by an arm 45 attached to a trunnion of the support 44. A set screw 46 extends through the arm which may be tightened against the frame 47 of the device to secure the knives in cutting position. The set screw is loosened when it is desired to rotate the knives from between the rollers when, for example, the machine of Fig. 1 is to be laced.

In order that the tapes 50 formed from the sheet 12 may be wound to precise contour after passing through the tensioning system comprising the rolls 14 and 15, the weights 30, 35, and 36, they pass around an idler roll 52 and a driven roll 53 to an idler roll 54 supported rotatably by a lever 55 in pivotal relationship with the axis of the roll 53. The idler 52 is interposed between rolls 15 and 53 to provide sufficient contact of the tapes therewith to obtain positive traction. In order that the tapes may be held accurately to precise paths over the various rolls whereby they arrive at respective take-up packages precisely aligned and in good condition, guides are placed between successive rolls, such as the guide 56 mounted between the rolls 52 and 53. Other such guides are the guides 57 and 58. Each guide comprises a plurality of parallel blades spaced so as to extend between adjacent tapes.

The lever 55, in swinging about its pivot, moves between two elongate guide bars 59 secured to the main supporting panel 60 of the machine. The guide bars hold the idler roll 54 in precise radial alignment with the peripheries of the tape rolls being formed about the spindle 7. A predetermined clearance of the idler roll with the peripheries of the tape packages is maintained by the cam-operated system comprising a connecting rod 61 pivotally connected to the lever 55 and pivotally connected to a lever 62 pivotably supported by the panel 60 on a pivot 63. The connecting rod 61 is pivotally connected to the lever 62 by a sleeve 64 through which the rod 61 extends. The sleeve is held resiliently to a desired position along the rod 61 by a pair of springs 66 and 67 maintained in compression against the sleeve by nuts 68. The sleeve has lateral trunnions 69 in pivotal relationship with an apertured portion of the lever and a bearing element 70 secured to the lever. The end portion of the lever 62, remote from its pivot 63, supports a cam follower 71 which engages the periphery of a cam 72 mounted on a shaft 73.

The drive system for the shaft 73 connecting it to the spindle 7 is so constituted as to accomplish one revolution of the cam 72 during the building of a single group of tape packages on the spindle 7. The peripheral contour of the cam 72 is such as to maintain the desired clearance of the idler 54 with the peripheries of the tape packages being wound. The drive system for the shaft 73 may comprise, as shown, a step-down chain and sprock-

et driving system comprising a sprocket **75** mounted on the shaft **73** and a relatively small sprocket **76** mounted on a shaft **77**. The shaft **77** is driven by a large sprocket **78** connected with a relatively small sprocket **79** carried on a spindle **7**. The sprocket **76** is connected to the shaft **77** by an overrunning clutch **81** which allows positive driving of the sprocket by the shaft **77** during the building of tape packages but permits rotation of the sprocket **76** in a reverse direction relative to the shaft and resetting of the cam **73** when it is desired to commence the winding of tape packages.

As shown in Fig. 4, the tape packages **6** are supported on an arbor **83** mounted in relatively rotatable relationship with the spindle **7**. Since the machine is constructed to advance the sheet **12** and the tape **50** formed therefrom through the machine at a constant rate, the rotation of the arbor **83** must decrease with the increase in diameter of the rolls of tape being wound thereon. Therefore, the arbor **83** is driven by the spindle **7** through a slip-clutch **85** of which element **86** is fixed to the spindle **7** and another element **87** is fixed to the arbor. The spindle and the parts supported thereon are rotatably supported by a large bearing **88** attached to the panel **60**. The spindle **7** has fixed thereon a belt-pulley **89** connected by a belt **91** to a pulley **92** of a motor and drive-reduction unit **93**. The spindle **7** also supports a sprocket **95** connected by a chain **96** to sprockets fixed on the shafts of the driven rolls **14, 15,** and **53**. Contact of the chain **96** with the sprockets for these rolls is implemented by idler sprockets **97** and **98**. The arbor **83** may constitute, if desired, a portion of a multiple-arbor turret having the various arbors arranged for successive transferral to a winding position wherein each arbor is driven by a clutch drive such as described.

To stop the machine when the supply package **5** is exhausted, or when the tape packages **6** reach the desired diameter, a pair of limit switches **102** and **103** are provided which are responsive to the sizes of the supply package and the product packages, respectively. Points **104** and **105** of each switch engage when the machine is to be stopped. The contact points of the switch **102** are closed as the arm **106** follows the shrinking periphery of the supply package. The spring **107** acts in tension and urges the arm **106** in a direction to bring the contact points of the switch together. In the switch **103** a compression spring **108** urges the arm **106** in a direction such as to separate the points **104** and **105**. As the diameter of the tape packages increases, the arm **106** carries contact point **104** into engagement with point **105**. In either switch **102** or **103** the contact point **105** may be adjusted to cause contact of the points at a desired diameter of the respective package whose diameter it measures. The switches **102** and **103** are connected to relay switches of well known construction to control the power circuit for the driving unit **93**. Such a system is illustrative of various circuit-closing or circuit-opening devices which may be used in automatic machines under the conditions hereinabove indicated.

A machine such as hereinbefore described is particularly useful for simultaneously winding a plurality of tapes derived from a single sheet or band into evenly wound packages. The tension system of the machine in combination with a single spindle for collecting a plurality of continuous products, such as tapes, results in a system for simultaneously building wound packages at uniform tension with a minimum of apparatus. Such a machine is vastly simplified in structure and operation when compared with any system that may be derived from the prior art for producing packages of equal quality. The capacity for winding narrow tapes and packages of large diameter of the machine herein described is known to far exceed that of the machine for slitting film materials into tapes in present commercial use mainly because the tension control used in the conventional machines is inadequate and results in unstable packages which lack self-support in diameters exceeding 8 or 9 inches. Moreover, the daily winding capacity of the conventional slitting machines does not substantially exceed 50 pounds of wrapping film whereas the machine of the present invention may readily wind in excess of 150 pounds a day. Furthermore, the design of the machine of the present invention has great flexibility as to its easy adaptation or modification for handling a vast variety of continuous materials differing as to thickness, width, cross-sectional contour, and surface conditions.

While preferred embodiments of the invention have been shown and described, it is to be understood that changes and variations may be made without departing from the spirit and scope of the invention as defined in the appended claims.

I claim:

1. Apparatus for winding a plurality of continuous tapes comprising a pair of horizontally spaced rolls having substantially parallel axes, means for driving the rolls, the roll which last receives the tapes being driven at least as fast as the other roll, a plurality of vertically extending guides of thin cross section disposed between the rolls and spaced in a direction parallel to the axes of the rolls, means for supporting the guides comprising adjustable means attached to the end portions thereof for placing each guide under such tension as to hold it straight, adjacent pairs of the guides being spaced for passage therebetween of a tape from one roll to the other, and a weight for engaging each tape supported between each adjacent pair of guides, each weight having guide surfaces in engagement with said guides whereby the weight may move upwardly and downwardly when supported by a tape.

2. Apparatus for winding a plurality of tapes compising means for advancing the tapes in the same general direction, means spaced from the first-named advancing means for advancing the tapes away from said advancing means at a rate at least equal to and in predetermined ratio with that of the first-named advancing means, guides comprising a plurality of vertically extending pairs of wires, each pair of wires being spaced in a direction parallel to the direction of movement of the tapes between the advancing means, said pairs of wires being spaced transversely of the direction of travel of the tapes between the advancing means, and a weight for engaging each tape supported between each adjacent pair of pairs of wires, said weights having guide surfaces in cooperative slidable engagement with the wires for movement therealong in spaced paths.

3. Apparatus for winding a plurality of continuous flexible elements comprising means for advancing the elements in the same general direction, means spaced from the first advancing means for advancing the elements away from said first means at a rate at least equal to that at which the elements are advanced by said first means, a plurality of upwardly-extending guides of thin cross section disposed between both of said advancing means in spaced relation therewith, said guides being progressively spaced in a direction that is transverse with respect to the direction of movement of the elements to define a separate pathway for each element between each pair of adjacent transversely-spaced guides, means for supporting the guides comprising adjustable means attached to the end portions thereof for placing each guide under such tension as to hold it straight, and a weight for engaging each element supported between each transversely-spaced pair of guides, each weight having guide surfaces in engagement with said guides whereby the weight may move upwardly and downwardly therealong when supported by an element.

4. Apparatus for winding a plurality of continuous flexible running elements moving in the same general direction comprising spaced means for supporting said elements, means for controlling the rate of passage of

the elements relative to said spaced means, a plurality of upwardly-extending guides of thin cross section disposed between said spaced supporting means in spaced relation therewith, said guides being progressively spaced transversely with respect to the direction of movement of the elements relative to the supporting means to define a separate pathway for each element in traveling from one supporting means to the other, means for supporting the guides comprising adjustable means attached to the end portions thereof for placing each guide under such tension as to hold it straight, and a weight for engaging each element supported between each transversely spaced pair of guides, each weight having guide surfaces in engagement with said guides whereby the weight may move upwardly and downwardly therealong when supported by an element.

5. Apparatus for winding a plurality of continuous flexible running elements moving in the same general direction comprising spaced means for supporting said elements, means for controlling the rate of passage of the elements relative to said spaced means, a plurality of upwardly-extending guides of thin cross section disposed between said spaced supporting means in spaced relation therewith, said guides being progressively spaced transversely with respect to the direction of movement of the elements relative to the supporting means to define a separate pathway for each element in traveling from one supporting means to the other, means for supporting the guides comprising adjustable means attached to the end portions thereof for placing each guide under such tension as to hold it straight, and a weight for engaging each element supported between each transversely spaced pair of guides, each weight having guide surfaces in engagement with said guides whereby the weight may move upwardly and downwardly therealong when supported by an element, each guide which extends between two adjacent pathways being slidably engaged by the weights supported therein.

6. Apparatus for tensioning a plurality of continuous elements comprising means for advancing the tapes in the same general direction along parallel paths therefor, means spaced from the first advancing means for advancing the elements away from said first means at a rate at least equal to that at which the elements are advanced by said first means, a plurality of parallel elongate guides of thin cross section extending upwardly between said two advancing means in spaced relation therewith and transversely to the direction of movement of the elements therebetween, said guides being progressively spaced in a direction transverse to said direction of movement of the elements to define a separate pathway for each element between each transversely-spaced adjacent pair of guides, and a weight for engaging each element, each weight having guide surfaces in engagement with adjacent guides which extend longitudinally as well as transversely with respect to said direction of movement of the elements to support the weight for movement lengthwise of the adjacent pair of guides and in substantially fixed orientation with respect thereto without interference with another weight, the guide surfaces of each pair of weights separated by a guide being contoured for contact with different longitudinal portions of the surface of the guide in slidable relation therewith.

7. Apparatus for tensioning a plurality of continuous elements comprising means for advancing the tapes in the same general direction along parallel paths therefor, means spaced from said first means for advancing the elements away from said first means at a rate at least equal to that at which the elements are advanced by said first means, a plurality of parallel elongate guides of thin cross section extending upwardly between said two advancing means in spaced relation therewith and transversely to the direction of movement of the elements therebetween, said guides being progressively spaced in a direction transverse to said direction of movement of the elements to define a separate pathway for each element between the guides of each transversely spaced adjacent pair, and a weight for engaging each element, each weight having end surfaces at the opposite ends thereof which engage the guides, the end surfaces which face in one transverse direction with respect to said direction of movement of the elements comprising recessed portions which have less depth than thickness of the guides, the sides of the recessed surface portion of each weight being parallel and spaced to dispose each side of the recessed portion in continuous engagement with a guide extending between such weight and the weight which traverses an adjacent pathway.

8. Apparatus for tensioning a plurality of continuous elements comprising means for advancing the elements in the same general direction along parallel paths therefor, means spaced from the first advancing means for advancing the elements away from said first means at a rate at least equal to that at which the elements are advanced by said first means, a plurality of parallel elongate guides of thin cross section extending upwardly between the two advancing means in spaced relation therewith and transversely to the direction of movement of the elements therebetween, said guides being progressively spaced in a direction transverse to said direction of movement of the elements to define a separate pathway for each element between the guides of each transversely-spaced pair of guides, and a weight for engaging each element, each weight having end surfaces at opposite ends thereof which engage the guides, the end surfaces which face in one transverse direction with respect to the direction of movement of the elements comprising ridged portions which have less height than the thickness of the guides, the sides of the ridged surface portion of each weight being parallel and spaced to dispose each side of the ridged portion in continuous engagement with a guide extending between such weight and the weight which traverses an adjacent pathway.

9. Apparatus for tensioning a plurality of continuous elements comprising means for advancing the elements in the same general direction along parallel paths therefor, means spaced from the first advancing means for advancing the elements away from said first means at a rate at least equal to that at which the elements are advanced by said first means, a plurality of parallel elongate guides of thin cross section extending upwardly between said two advancing means in spaced relation therewith and transversely to the direction of movement of the elements therebetween, said guides being arranged in pairs progressively spaced in a direction transverse to said direction of movement of the elements to define a separate pathway for each element between adjacent pairs of transversely spaced guides, the guides of each pair being spaced lengthwise of said direction of movement, and a weight for engaging each element, each weight having opposite end surfaces for engaging the guides, the end surfaces of the weights which face in one transverse direction with respect to said direction of movement of the elements and also face into an adjacent pathway of another weight comprising recessed portions which have less depth than the thickness of the guides, the sides of the recessed portion of each weight being parallel and spaced to dispose each side of the recessed portion in continuous engagement with one of said pairs of guides extending between such weight and the weight of the adjacent pathway, the end surfaces of the weights which face in the opposite transverse direction comprising ridged portions which have less height than the thickness of the guides, the ridged surface portion of each guide extending between the guides of one of said pairs, the sides of the ridged surface portion of each weight being parallel and spaced to maintain continuous engagement with the pair of guides and to extend therebetween

into the recessed portion when the weight of the adjacent pathway is disposed in adjacent relation with such weight.

10. Apparatus for feeding a plurality of tapes to a take-up spindle comprising said spindle, means in non-slip relation with the tapes and in spaced relation with the spindle for advancing the tapes toward the spindle, means for driving the spindle connected in slip-drive relation therewith, an idler roll, adjustable means for supporting the idler roll for movement toward and away from the spindle, the idler roll having its axis extending substantially parallel to the axis of the spindle, and means for driving the advancing means and the adjustable means in synchronous relationship, the driving means being connected to the adjustable means in predetermined drive ratio to maintain a predetermined clearance of the idler roll with the peripheries of tapes wound onto the spindle.

11. Apparatus as defined in claim 10 wherein the adjustable means for supporting the idler roll comprises a

cam follower, and a cam in rotatable relation with the cam follower connected in driving relation with said driving means for the advancing means.

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