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Currie et al.

[11] **3,744,360**

[45] **July 10, 1973**

[54] **METHOD AND APPARATUS FOR DISPENSING CELLULAR WEB MATERIAL**

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[73] Assignee: **Cellu Products Company,** Patterson, N.C.

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[21] Appl. No.: **117,366**

[52] **U.S. Cl.** **83/23,** 83/42, 83/56, 83/104, 83/221, 83/225, 83/510, 83/650

[51] **Int. Cl.** **B65h 35/04**

[58] **Field of Search** 83/23, 42, 56, 68, 83/104, 221, 109, 225, 241, 510, 649, 650, 512

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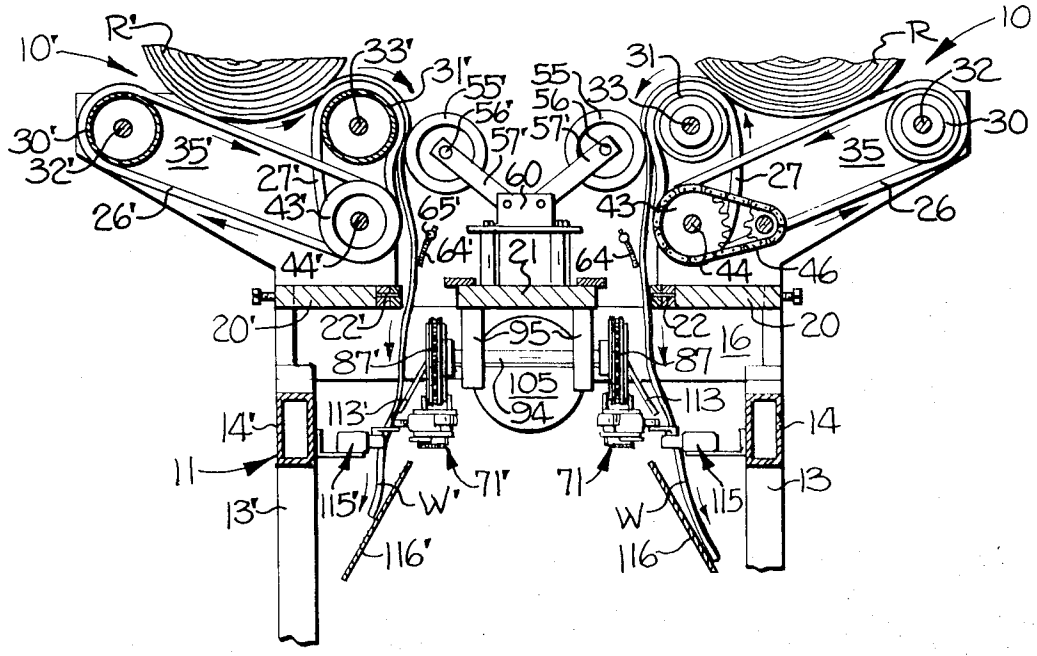
Primary Examiner—Willie G. Abercrombie

Attorney—Parrott, Bell, Seltzer, Park & Gibson

[57] **ABSTRACT**

A method of and apparatus for dispensing web material, especially cellular padding such as is used in packaging furniture and the like, wherein the material is directed downwardly in suspended condition from a source past an elongate stationary knife. Upon a predetermined length of the material falling past the knife, an anvil roller is traversed automatically along the knife, with the web material interposed therebetween, so that the anvil roller presses the material against the knife, causing the same to sever a predetermined length from the web material.

6 Claims, 8 Drawing Figures



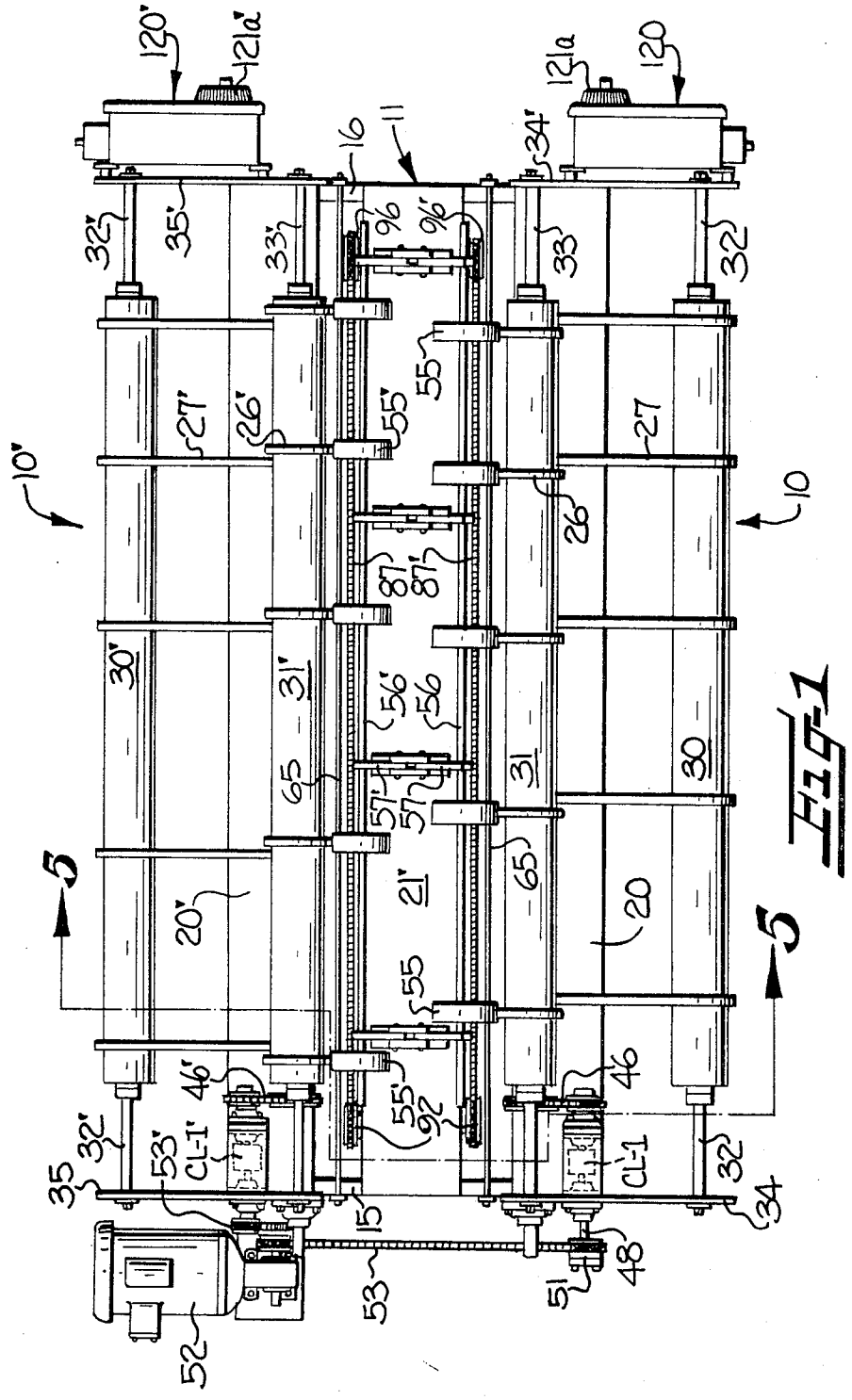

120'
121a'
121a
120
16
11
34'
35'
32'
33'
33
32
55'
55
27'
26'
27
10'
10
26
87'
87
30'
31'
56'
56
65
57'
57
31
30
5
20'
21'
20
55
46'
46
92
CL-1'
CL-1
53'
35
32'
15
48
51
53
52
34

FIG-1

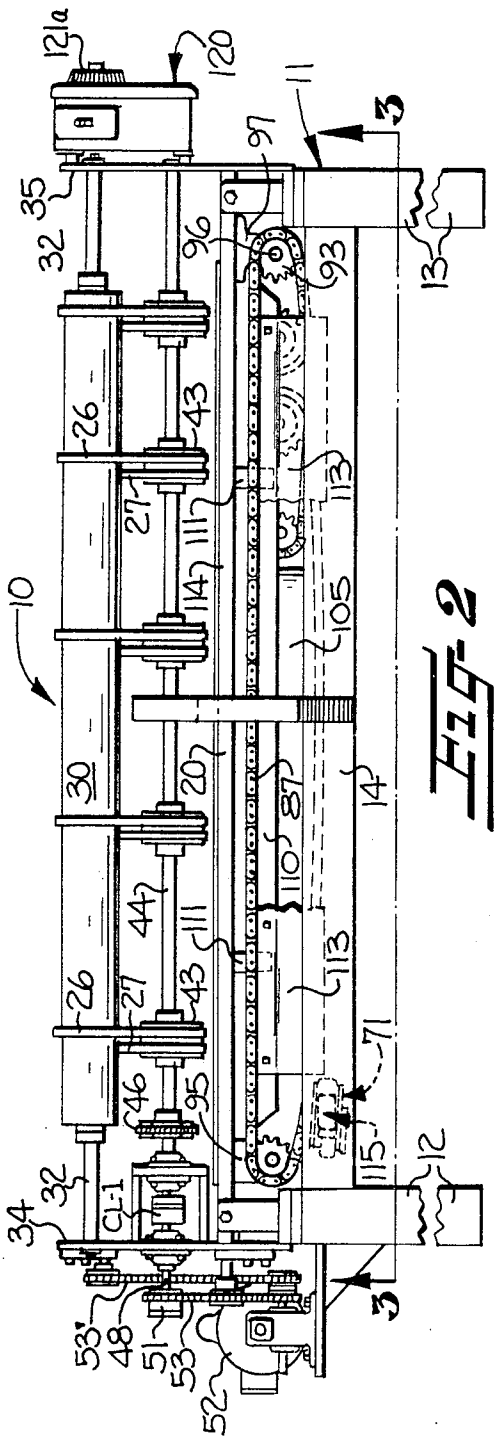


Fig. 2

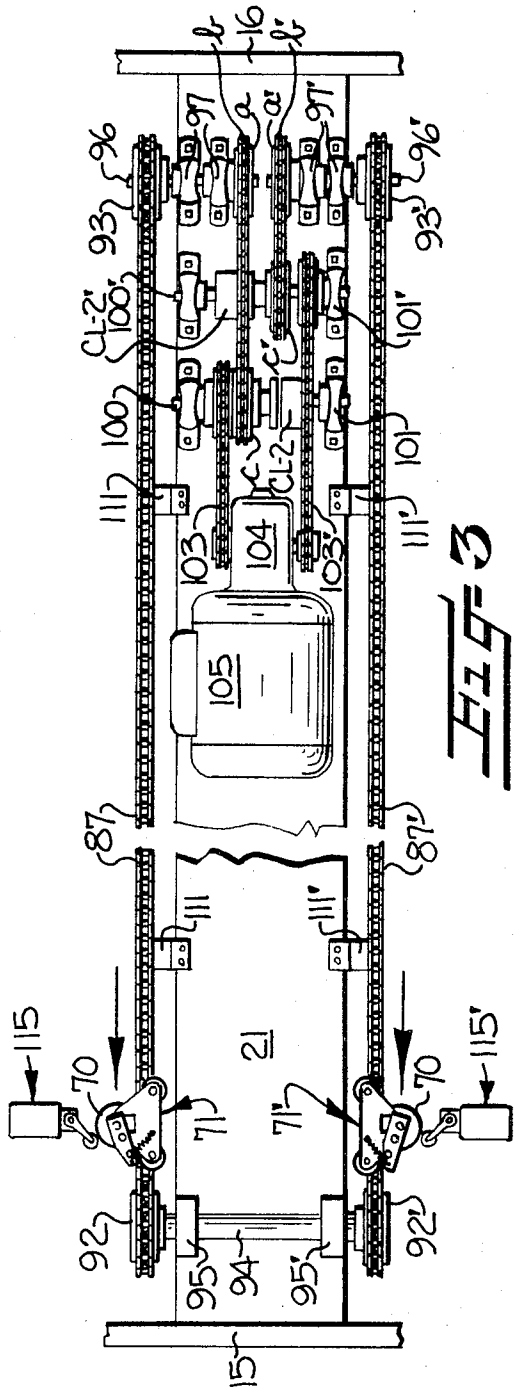


Fig. 3

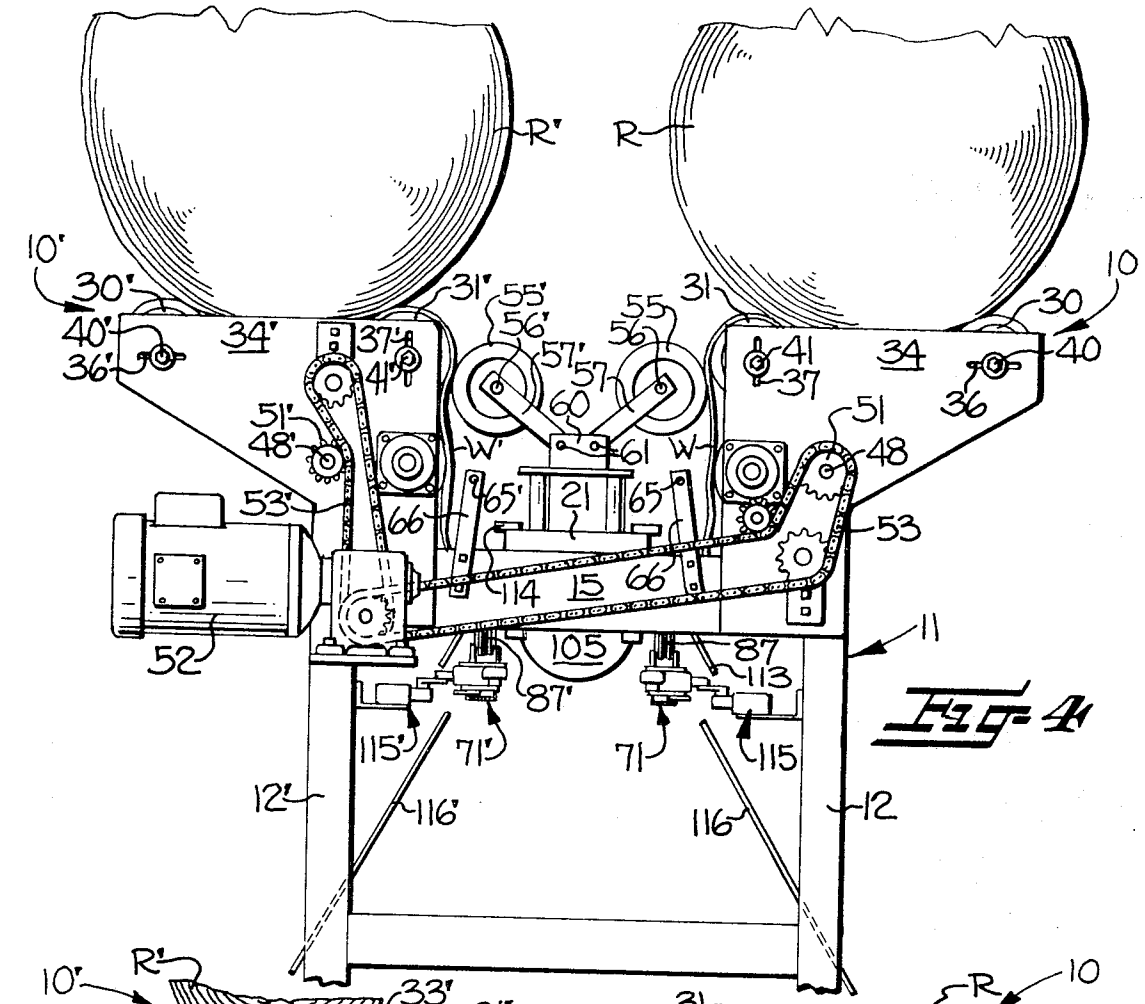

R'
R
10'
30'
40'
36'
34'
37'
41'
31'
55'
56'
57'
60
61
W'
W
51'
48'
53'
52
65'
21
66
114
15
105
87
113
87'
71'
115'
116'
12'
12
11
10
30
34
41
37
36
40
51
48
53
65
66
W
W'
71
115
116

Fig. 4

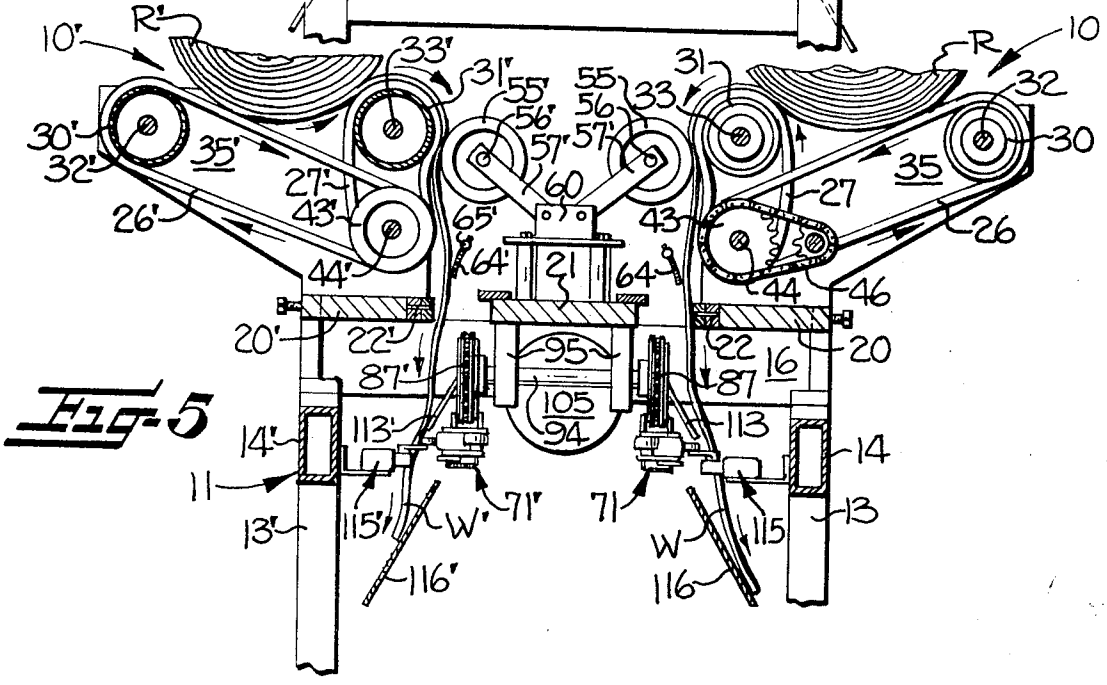

10'
R'
33'
31'
55'
56'
57'
60
30'
32'
35'
27'
43'
26'
65'
64'
21
44'
20'
22'
95
87'
105
94
14'
113'
11
13'
115'
W'
71'
116'
10
R
32
30
35
27
43
26
64
44
46
20
22
16
87
14
13
115
71
W
116

Fig. 5

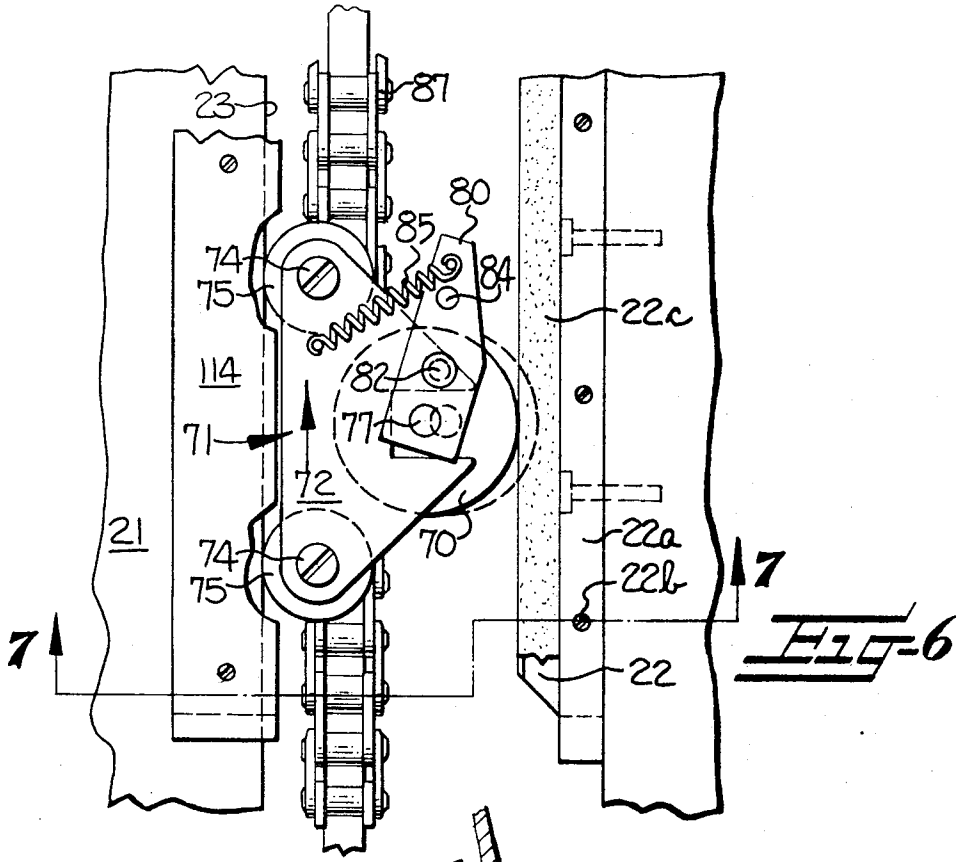

23
87
80
85
74
75
84
22c
114
82
77
71
72
70
21
74
75
22a
22b
7
7
22

Fig-6

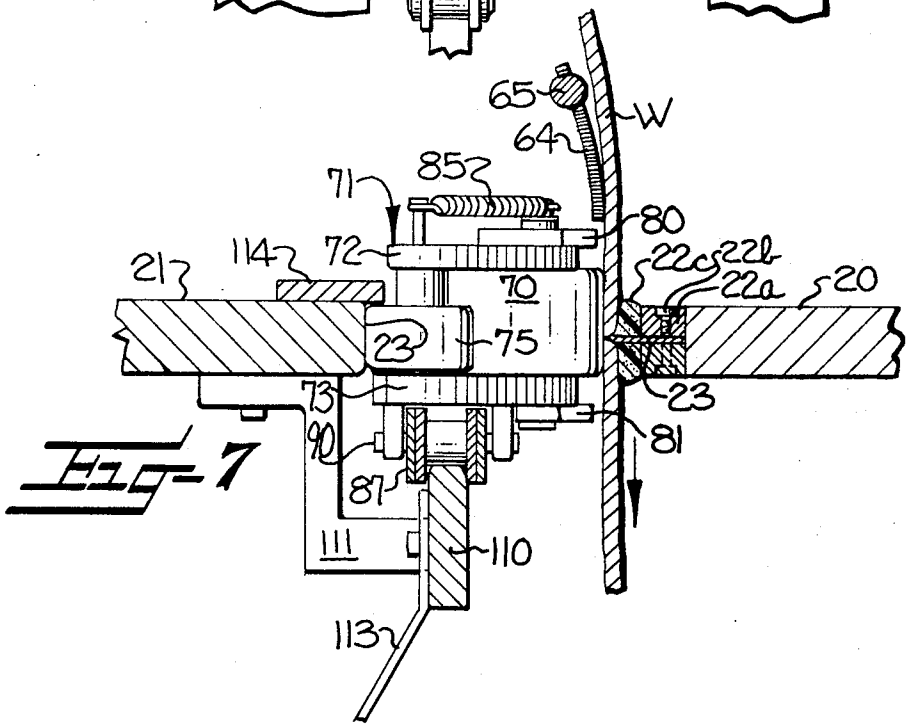

65
64
W
71
85
80
72
114
21
22c
22b
22a
20
70
23
75
73
23
90
81
87
111
110
113

Fig-7

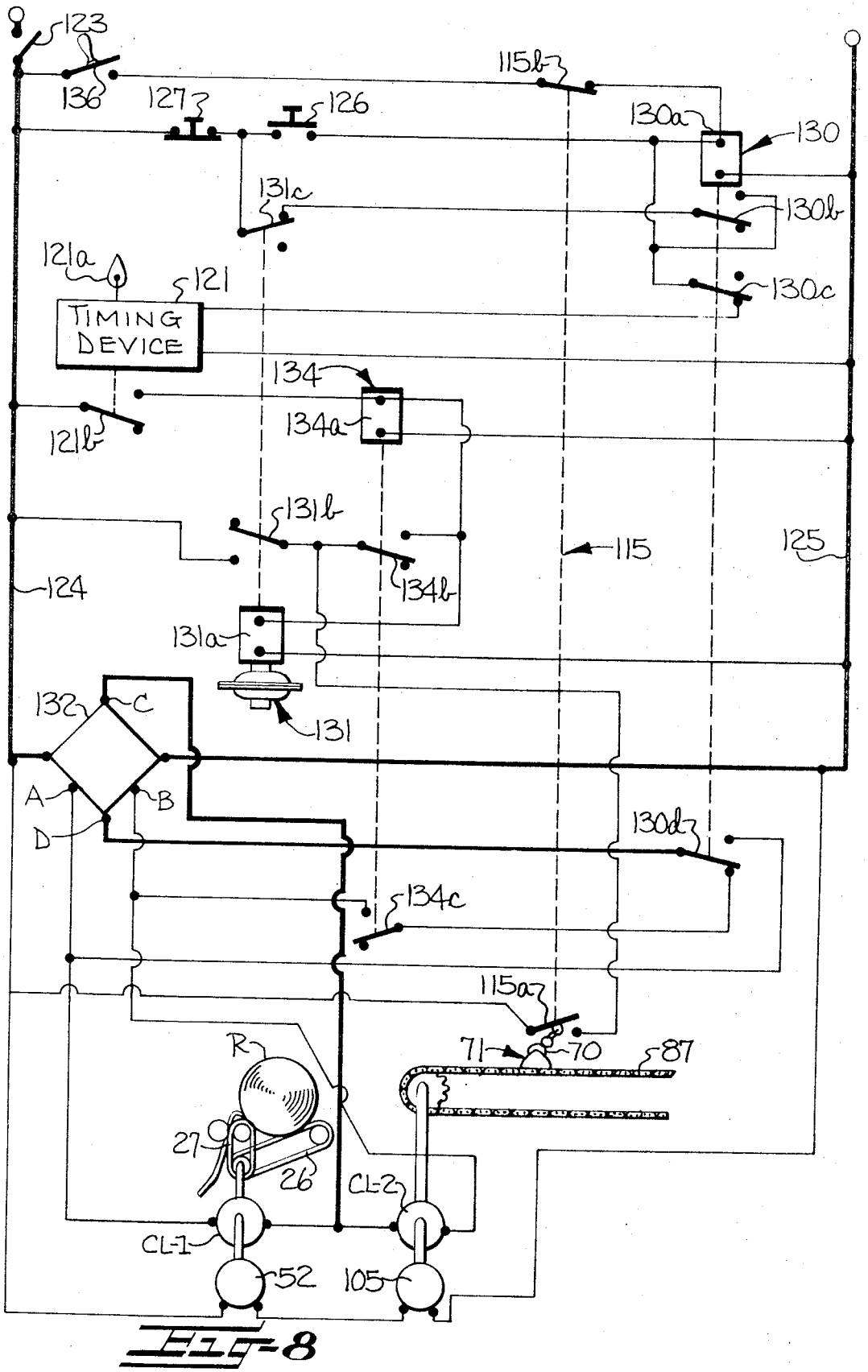

123
136
127
126
115b
130a
130
131c
130b
121a
121
TIMING DEVICE
130c
134
134a
121b
131b
115
125
124
134b
131a
131
132
C
A
B
D
130d
134c
115a
R
71
70
87
27
26
CL-2
CL-1
52
105

Fig-8

METHOD AND APPARATUS FOR DISPENSING CELLULAR WEB MATERIAL

In the packaging of furniture and the like for shipment, sheets of cellular padding made from paper or the like are usually used to protect the furniture within a crate or box from damage during handling and in transit. For many years, it has been customary for furniture factories to order various precut lengths of such padding from a padding manufacturer, and to store a supply of such precut lengths for use as they are needed. Such a procedure requires frequent review of the factories' inventory, substantial "paper work" in ordering the various sizes of sheets required, and requires considerable space to store such sheets. Also, consqderable expertise is required of the workmen of the padding manufacturer in order to precut the various lengths of padding requested of them.

It is therefore an object of this invention to provide an improved method and apparatus for automatically cutting predetermined lengths of cellular web material wherein an attendant need only place a roll of the material on the apparatus, adjust a control means in accordance with the length of web material to be obtained, and then start the apparatus to obtain as many lengths of the material as may be desired.

A more specific object of the invention is to provide a method and apparatus for dispensing pads of cellular web material, wherein a supply roll is rotated to unwind a predetermined length therefrom as the unwinding length is directed downwardly by gravity and in a suspended condition past a stationary, substantially horizontal cutting blade or knife. The roll is then stopped, whereupon an anvil roller is automatically traversed, under pressure, along the cutting edge of the knife, from one side edge to the other side edge of the web while pressing the web against the knife to sever the predetermined length therefrom.

Some of the objects and advantages of the invention having been stated, others will appear as the description proceeds, when taken in connection with the accompanying drawings, in which

FIG. 1 is a top plan view of the improved apparatus for carrying out the method of this invention, and wherein two independently operable dispensing units are embodied in a single machine;

FIG. 2 is a side elevational view looking upwardly at the lower side of FIG. 1;

FIG. 3 is an enlarged fragmentary inverted plan view of traversing means for anvil rollers which effect the cutting of respective webs into lengths, and being taken substantially along line 3—3 in FIG. 2;

FIG. 4 is an enlarged elevational view looking at the left-hand side of FIG. 2, and showing rolls of the cellular web material mounted on the respective dispensing units;

FIG. 5 is a fragmentary vertical sectional view taken substantially along line 5—5 in FIG. 1;

FIG. 6 is an enlarged fragmentary plan view of the anvil roller carriage, showing the anvil roller engaging the cutting edge of the cutting blade;

FIG. 7 is a fragmentary vertical sectional view taken substantially along line 7—7 in FIG. 6; and

FIG. 8 is a schematic diagram of the electrical circuit for controlling the operation of one of the dispensing units.

Referring more specifically to the drawings, the apparatus comprises two web measuring, cutting and dispensing units, broadly designated at **10, 10'**, mounted on a common frame broadly designated at **11**. Frame **11** includes pairs of end legs **12, 12'**; **13, 13'** interconnected by respective longitudinally extending frame members **14, 14'**, with transverse frame members **15, 16** interconnecting upper portions of legs **12, 12'** and **13, 13'**, respectively. Frame **11** also includes longitudinally extending side frame members **20, 20'** and an intermediate frame member **21** spaced between frame members **20, 20'**. Frame members **20, 20'** support respective replaceable, substantially horizontally disposed, stationary cutting blades or knives **22, 22'** whose cutting edges extend substantially horizontally and face inwardly toward intermediate frame member **21.**

The opposing longitudinal edges of intermediate frame member **21** serve as rigid trackways **23, 23'** for an anvil roller mounting means or carriage to be later described. Since the remaining parts of the two dispensing units **10, 10'** are similar, but are of opposite hand, only unit **10** will be described in detail and like parts associated with unit **10'** will bear the same reference characters with the prime notation added, where applicable, to avoid repetitive description. The apparatus is provided with feeding means for rotating a supply roll R of cellular padding web material to unwind and feed a predetermined length thereof from supply roll R while directing the unwinding length of web W downwardly in a suspended condition past cutting blade **22.**

As shown in FIGS. **1, 2, 4** and **4**, the web feeding means comprises outer and inner series of longitudinally spaced endless feed belts **26, 27.** The upper runs of the outer series of feed belts **26** extend downwardly and forwardly at an incline of about **10** to **20** degrees with the lower forward portions thereof converging with substantially vertically disposed rear runs of the inner endless belts **27.** Thus, the upper runs of the outer feed belts **26** and the rear outer runs of the inner feed belts **27** collectively cradle the lower portion of the roll R of web material thereupon. The rear or outer portions of outer feed belts **26** are mounted on a common idler roll **30,** and the upper portions of the inner endless belts **27** are mounted on a common idler roll **31.** Idler rolls **30, 31** extend longitudinally of the apparatus and are rotatably mounted on respective stationary shafts **32, 33** whose opposed ends are adjustably secured to upright end frame members or plates **34, 35** suitably secured to transverse frame members **15, 16.**

In order to adjustably secure shafts **32, 33** to end frame members **34, 35,** each end frame member **34, 35** is provided with adjustment slots **36, 37** loosely penetrated by screws **40, 41** (FIG. 4) for securing the corresponding ends of shafts **32, 33** against the inner surfaces of end frame members **34, 35.** Adjustment slot **36** extends substantially horizontally, and adjustment slot **37** extends substantially vertically so that the corresponding rolls **30, 31** may be adjusted toward and away from pulleys **43** on which the inner and lower portions of the respective belts **27, 27'** are mounted so as to insure that such belts are properly tensioned.

As best shown in FIGS. **2** and **5,** pulleys **43** are mounted on a common shaft **44** whose opposing end portions are journaled in end frame members **34, 35.** A chain-and-sprocket connection **46** (FIGS. **1** and **2**) serves to connect pulley shaft **44** to the output shaft of an electromagnetic web feed clutch CL-1 of a type which also serves as a brake whenever the clutch is in-

active; i.e., not energized. The input shaft **48** of clutch CL-**1** is journaled in end frame member **34** and has a sprocket wheel **51** on its outer end.

As shown in FIG. **4**, both sprocket wheels **51, 51'** of the two dispensing units **10, 10'** are driven continuously during operation of the apparatus, as by means of a gear-reduction electric motor **52** carried by frame **11** and connected by sprocket-and-cahin connections **53, 53'**, to the respective sprocket wheels **51, 51'**. It is apparent that, whenever clutches CL-**1**, CL-**1'** (FIG. **1**) are energized in a manner to be later described, the respective sets of feed belts **26, 27** and **26', 27'** are driven so as to rotate the respective rolls R, R' of cellular padding web material so that the web W will pass over the upper portions of the inner series of belts **27, 27'** and fall downwardly past the proximal cutting edges of cutting blades or knives **22, 22'** as in FIG. **5**.

Referring agains to the dispensing unit **10**, to aid in directing the web downwardly as it passes from supply roll R over the inner feed belts **27**, a series of relatively narrow press rolls **55** is provided, there being one of the press rolls **55** aligned with each of the inner feed belts **27** (FIGS. **1, 4** and **5**). These press rolls **55** simply rest against the web W and hold the same against and in frictional engagement with the inner feed belts **27** adjacent idler roll **31**.

To this end, all of the press rolls **55** in the corresponding series are journaled on a common shaft **56** mounted in a plurality of arms **57**. Arms **57** extend downwardly and inwardly and are pivotally mounted, as at **60**, in brackets **61** carried by the intermediate longitudinal frame member **21**. Each bracket **61** supports a pair of the swing arms **57, 57'** of the apparatus. To facilitate threading the web W through the apparatus, it is apparent that swing arms **57** may be raised and swung inwardly to move the press rolls **55** inwardly away from the inner feed belts **27** and, after the threading of the web material has been completed, the swing arms **57** may be swung outwardly toward the inner feed belts **27** so that the press rolls **55** will again rest against the web as it passes ovr and in engagement wqth the inner feed belts **27**.

To aid further in guiding the web material toward and past cutting blade **22**, a series of light, readily yieldable guide fingers **64** (FIGS. **5** and **7**) may be suspended from a common support rod **65** below the level of press roll **55** and inwardly of the cutting edge of blade **22**. Guide fingers **64** may be in the form of small springs wound from fine wire and spaced about four inches apart along rod **65**. Guide fingers **64** are positioned so as to guide the web W without moving the same outwardly to such extent teat the travel of the web will be interrupted by blade **22** and its supporting means. Rod **65** is mounted for angular adjustment about its own axis in upstanding brackets **66** carried by frame members **15, 16**.

Cutting blade **22** is removably mounted between and projects inwardly from a pair of elongate blade support bars **22***a* (FIGS. **6** and **7**) suitably secured to the inner edge of the corresponding frame member **20**. Each blade support bar **22***a* is provided with a plurality of longitudinal spaced locking screws **22***b* for engaging the upper and lower surfaces of cutting blade **22** to thereby clamp the cutting blade between support bars **22***a*.

To aid in stripping the web material W from the cutting blade **22** following each cutting operation, a band of resilient material **22***c*, such as sponge rubber, is adhesively or otherwise secured to each of the blade support bars **22***a*, and the front surfaces of the bands of resilient material **22***c* are normally substantially flush with the sharp edge of the cutting blade **22**. However, the bands of resilient material **22***c* are readily compressed by the web W as it is forced against the cutting blade, by means to be later described, so that the bands **22***c* will subsequently strip the web W off of the cutting blade **22**.

Upon a predetermined length of the web W being unwound from roll R and falling past cutting blade **22**, a control means to be later described stops rotation of supply roll R and then initiates movement of an anvil roller **70** to cause the same to traverse the length of cutting blade **22** while pressing the web W against the sharp edge of cutting blade **22** to thereby sever a predetermined length of the web from the body of the web. The anvil roller **70** is preferably made from a hardened metal so that it will not be damaged by rolling engagement thereof with the cutting edge of blade **22**. On the other hand, cutting blade **22** is preferably made from a relatively softer metal commonly known as a "die rule" material which is readily commercially available in predetermined widths and in sharpened condition so that, upon blade **22** becoming dulled by use, it may simply be discarded and replaced by another section of cutting blade material so as to obviate the need for providing any special equipment on the machine or nearby for the purpose of sharpening the edge of cutting blade **22**.

A mounting means or carriage, broadly designated at **71**, is provided for supporting and traversing anvil roller **70** along the sharp edge of cutting blade **22**. As shown in FIGS. **6** and **7**, anvil roller carriage **71** comprises a pair of vertically spaced outer and inner wall members or plates **72, 73** secured to, and maintained in predetermined spaced relationship by, a pair of posts **74**. Posts **74** are longitudinally spaced with respect to the path of travel of carriage **71** and have respective guide rollers **75** rotatably mounted thereon which are adapted to ride against the trackway **23** formed by intermediate frame member **21**.

Anvil roller **70** is loosely positioned between plates **72, 73** and is rotatably mounted on a stub shaft **77** whose opposed end portions are fixed in a pair of levers **80, 81** pivotally mounted, as at **82**, on the respective plates **72, 73**. Levers **80, 81** project from carriage **71** in a generally longitudinal direction with respect to the path of travel of carriage **71** and are interconnected by a bar **84** adapted to engage adjacent surfaces of plates **72, 73** to limit outward movement of roller **70** relative to carriage **71** when roller **70** is not in engagement with cutting blade **22**.

Opposite ends of a tension spring **85** are connected to plate **72** and lever **80**, thus normally urging anvil roller **70** and bar **84** toward the latter positions, and also urging roller **70** into engagement with the sharp edge of blade **22** during the traversing of anvil roller along such cutting edge. It is preferred that opposed ends of cutting blade **22** are beveled as shown in FIG. **6** to facilitate the anvil roller **70** riding onto and off of the cutting edge of cutting blade **22**.

Carriage **71** is mounted on an endless pliable element in the form of a sprocket chain **87**, to at least one of the links of which plate **73** is suitably connected, as by a pin or pins **90** (FIG. **7**). As best shown in FIGS. **2** and **3**,

sprocket chain **87** is mounted on a pair of longitudinally spaced sprocket wheels **92, 93.** Sprocket wheel **92** and its counterpart sprocket wheel **92'** are rotatably mounted on opposite end portions of a shaft **94** (FIG. 3) mounted in brackets **95** depending from intermediate frame member **21.** However, sprocket wheels **93, 93'** are fixed on separate shafts **96, 96'**, journaled in respective bearings, **97, 97'** depending from intermediate frame member **21.**

Drive means is provided for driving the two sprocket chains **87, 87'** independently of each other. To this end, the proximal end portions of shafts **96, 96'** have respective sprocket wheels *a, a'* fixed thereon which are engaged by respective endless sprocket chains *b, b'* which, in turn, engage respective sprocket wheels *c, c'* rotatably mounted on respective shafts **100, 100'.** Shafts **100, 100'** are journaled in suitable bearings **101, 101'** suitably secured to and depending from intermediate frame member **21.** Sprocket wheels *c, c'* are secured to the output portions of respective electromagnetic cutter clutches CL-2, CL-2' whose output portions are freely rotatable on the shafts **100, 100'**, but whose input portions are fixed on the respective shafts **100, 100'.** Shafts **100, 100'** are driven continuously during operation of the apparatus by means of respective sprocket-and-chain connections **103, 103'** connecting shafts **100, 100'** to the output of a common gear-reduction unit **104** driven by an electric motor **105** suitably secured to and depending from intermediate frame member **21.**

Magnetic clutches CL-2, CL-2', like clutches CL-1, CL-1', preferably are of a type known as a clutch-brake of conventional or other construction. Since electromagnetic clutches are well known, a detailed description and illustration thereof is deemed unnecessary.

While clutches CL-2, CL-2' are inactive, the respective anvil roller carriages **71, 71'** occupy predetermined positions in the lower runs of the respective sprocket chains **87, 87'**, such as those positions in which they are illustrated in FIG. 3; i.e., to one side of the path of travel of the webs W, W' as they are being delivered from the respective supply rolls R, R'. Upon energization of clutch CL-2, for example, by means to be later described, sprocket chain **87** moves in a clockwise direction in FIG. 2 so that carriage **71** passes partially around sprocket wheel **92** and then moves with the upper run of sprocket chain **87.** Guide rollers **75** (FIGS. **6** and 7) of carriage **71** then ride against trackway **23** as anvil roller **70** rotates in pressing engagement against the cutting edge of blade **22** and the intervening web W therebetween. supporting supports which FIGS.

In order to maintain guide rollers **75** in proper engagement with trackway **23,** an elongate, stationary, chain supportin bar **110** (FIG. 7) supporst the upper run of sprocket chain **87,** causing the same to move in a linear path. Track bar **110** is suitably secured to brackets **111** w hich depend from and are suitably secured to intermediate frame **21,** as shown in IGS. **3** and **7.** A suitable deflector plate **113** may be secured to track bar **110** so as to engage and deflect web W outwardly away from sprocket chain **87** as the web W falls past cutting blade **22** and, especially, as a predetermined length is cut from the web W and falls past the sprocket chain **87.** An overlying flange member **114** also may be secured to frame member **21** so as to overlie and prevent roller **75** from moving upwardly above trackway **23** in the event of "whipping" of chain **87.**

After carriage **71** has effected the cutting of a length from the body of the web, sprocket chain **87** continues to move in a clockwise direction in FIG. **2** until it returns to its original predetermined position, at which instant, anvil roller **70** engages and actuates a switch means **115** to deenergize clutch CL-2 so that the brake thereof will stop rotation of sprocket wheel *c* immediately, thus stopping further movement of carriage **71** and its anvil roller **70** preparatory to a repeat cycle in the operation of the corresponding dispensing unit **10.**

The thus dispensed cut length of the web may drop onto a suitable collector means, such as a conveyor, platform, chute or the like so as to be readily accessible to an operator for transporting the cut length of web to a storage area or to an area where an article of furniture or the like is to be packaged. As shown in FIG. **4,** the collector means is in the form of a downwardly and outwardly inclined chute **116** whose upper portion is positioned so that the web W will drop against chute **116** as it is deflected outwardly by deflector plate **113.** A similar deflector plate **113'** and chute **116'** are provided for dispensing unit **10'.**

The dispensing units **10, 10'** are provided with independent control means, essential components of wich may be mounted in respective control boxes **120 120'** (FIGS. **1** and **2**) suitably mounted on the end frame members **35, 35'.** Although motors **52, 105** serve as common motive means for the web feeding and the anvil roller traversing means, respectively, of both dispensing units **10, 10'**, the control means control the operation of the units **10, 10'** independently of each other. The control means for the units **10, 10'** may be identical. Therefore, only the control means for unit **10** is shown in detail in FIG. **8,** and includes an electrical circuit comprising a main electrically operable timing device **121.** Timing device **121** may be of well-known conventional type which is reset electrically and which may be adjusted to determine the duration of its intervals of operation by means of a manually adjustable control element or pointer **121***a.* The adjustable element **121***a* may be positioned outside of control box **120** as in FIG. **1,** so as to be readily accessible to an operator.

As will be presently described, timing device **121** controls the duration of operation of the web feeding means, including the web feeding belts **26, 27,** so as to unwind a predetermined length of the web from roll R, whereupon timing device **121** automatically interrupts operation of the web feeding means and initiates operation of the respective anvil roller carriage **71** to effect the cutting of a predetermined length from the body of web W. At the will of the operator, each dispensing unit **10, 10'** may be caused to cease operation at the end of each cycle in the operatqon thereof, or the cycles may be repeated automatically. The electrical circuit of FIG. **8** will first be described as it relates to manual operation in which the initiation of each cycle in the operation of the unit **10** is effected by the operator.

Assuming that the movable components of the electrical circuit occupy the positions shown in FIG. **8,** that a roll R of the cellular web material is resting upon feed belts **26, 27** as in FIGS. **4, 5** and **8,** and that anvil roller **70** is at rest in engagement with switch assembly **115,** a master switch **123** (FIG. **8**) is closed to energize electric motors **52, 105** through lead conductors **124, 125.** A manually controlled cycle in the operation of dis-

pensing unit **10** then is initiated as the operator momentarily closes a normally open manual push-button start switch **126** in series with a manually operable, normally closed, push-button stop switch **127** and with the coil **130***a* of a main electromagnetic relay **130**, thus energizing coil **130***a*.

Upon energization of coil **130***a*, switches **130***b*, **130***c*, **130***d* of main relay **130** move upwardly in FIG. **8**. At the same time that manual start switch **126** is closed to energize coil **130***a*, it also causes current to flow through switch **130***c* and, thus, through timing device **121** to reset the timing cycle thereof immediately before switch **130***c* is raised and opened by energization of coil **130***a*. Although the operator then releases manual start switch **126** and permits the same to open, switch **130***b* then extablishes a holding circuit for coil **130***a* through manual stop switch **127** and through a switch **131***c* of an electromagnetic time delay relay **131**. Upon upward movement of switch **130***d* of main relay **130**, switch **130***d* then causes current to flow from a rectifier **132**, which receives its power from lead conductors **124**, **125**, to web feed clutch CL-**1**, thus imparting movement to feed belts **26**, **27** and causing web W to be unwound from roll R and fall past cutting blade **22**.

Upon switch **130**c having been opened in the manner heretofore described, timing device **121** starts to run down and, at the end of an interval of predetermined duration, timing device **121** will have completed a cycle which will momentarily close a normally open timer switch **121***b* operatively associated with timing device **121**. At the instant that timer switch **121***b* is momentarily closed, the desired predetermined length of the web W will have moved past cutting blade **22**, and the momentary closing of timer switch **121**b stops movement of feed belts **26**, **27** while also initiating operation of anvil roller carriage **71**, as will now be described.

Momentary closing of timer switch **121***b* energizes coil **131***a* of time delay relay **131** while also energizing the coil **134***a* of a secondary electromagnetic relay **134**, whereupon coils **131***a*, **134***a* cause the respective normally open switches **131***b*, **134***b* to close and establish a holding circuit for relay coil **134***a*. As the latter holding circuit is established, switch **131***c* is opened to break the holding circuit for the coil **130***a* of main relay **130**, and switch **134***c* of secondary relay **134** is moved to closed position. Since switch **131***c* is opened momentarily and breaks the holding circuit for relay coil **130***a*, it follows that switch **130***d* also moves downwardly along with the other switches **130***b*, **130***c* of main relay **130**, thus diverting the flow of current from rectifier **132** through cutter clutch CL-**2**, thereby initiating movement of anvil roller carriage **71**.

The time delay relay is only energized momentarily by the momentary closing of timer switch **121***b*. However, there is a predetermined relatively short delay in the return of the switches **131***b*, **131***c* to the respective opened and closed positions shown in FIG. **8** following the momentary energization of coil **131***a* of time delay relay **131**. This delay is sufficient to allow anvil roller **70** to move out of engagement with switch assembly **115** so that the switches **115***a*, **115***b* thereof will move to respective closed and opened positions. During manual control of a cycle in the operation of unit **10**, switch **115** *b* has no useful function. However, upon the switch **115***a* being permitted to close by the movement of anvil roller **70** out of engagement with switch assembly **115**, it will be noted that switch **115**a then provides a holding circuit for coil **134***a* of relay **134** through its switch **134***b*, even through switch **131***b* of delay relay **131** then becomes opened. Thus, switch **134***c* remains closed until a complete cycle in the movement of anvil roller carriage **71** has been effected in the manner heretofore described for severing a length of the web from the body thereof and then returning roller **70** to its original predetermined position.

Upon carriage **71** returning to its original predetermined position, roller **70** then engages and actuates switch assembly **115** to open normally closed switch **115***a* and close normally open switch **115***b*. In so doing, the holding circuit for the coil **134***a* of secondary relay **134** is broken, permitting switches **134***b*, **134***c* to return to their normally opened positions and thus interrupting the flow of current to cutter clutch CL-**2** to complete a manually controlled cycle in the operation of the apparatus.

To cause the control means to automatically repeat a series of cycles in the operation of the apparatus, instead of the operator closing manual control start switch **126**, an automatic control switch **136**, which may be in the form of a toggle switch, may be closed manually and left in closed position for any desired length of time, whereupon the carriage-operated switch **115***b* of switch assembly **115** will, if then occupying closed position, function in the same manner as the manual start switch **126** to initiate a complete cycle in the operation of the web dispensing unit **10** when the toggle switch **136** is closed initially and when the switch **115**b is closed subsequently at the end of each cycle in the operation of anvil roller carraige **71**. In this regard, it should be noted that, during automatic operation, after the time delay relay coil **131***a* has been energized momentarily by the momentary closing of timer switch **121***b*, switch **131***c* of time delay relay **131** does not return to closed position until after anvil roller **70** has moved out of engagement with switch assembly **115**. Consequently, switch **115***b* will be opened by the time switch **131***c* returns to closed position so that a complete cycle in the operation of carriage **71** will be effected before initiation of the operation of the feeding means embodied in belts **26**, **27** is again effected for a repeat cycle of the entire web dispensing unit **10**.

The rectifier **132** simply serves as a source of low voltage direct current for the web feed clutch CL-**1** and cutter clutch CL-**2**, with the remaining components of the electrical circuit, including the motors **52**, **105**, being connected to the high voltage alternating current conductors **124**, **125**. Accordingly, a further description of the rectifier **132** and its operation is deemed unnecessary.

It is thus seen that the apparatus includes means for rotating the roll R of cellular web material to deliver the web W therefrom while directing the unwinding length of the web W downwardly by gravity in a suspended condition past the stationary substantially horizontal blade **22**, whereupon the timing device **121** stops rotation of roll R and operates thrugh relays **131**, **134** to traverse the anvil roller **70**, under pressure, along the surface of the web opposite from blade **22** and from one side edge to and beyond the other side edge of the web to cause the cutting gedge of blade **22** to progressively cut through the web material and sever a predetermined length therefrom. Thereupon anvil roller **70**

returns to its original position of rest and operates switch assembly **115** to either stop the operation of the corresponding unit **10** or to initiate another cycle in the operation thereof through the closing of switch **115***b* when toggle switch **136** is closed.

The operator may return switch **136** to open position at any desired time following the start of a cycle in the operation of dispensing unit **10**, and the dispensing unit then will cease operating upon completion of the corresponding cycle thereof. It is apparent that the operator may adjust the pointer **121***a* for each unit **10, 10'** to selectively vary the duretion of operation of the feed belts **26, 27** and **26', 27'** of the two dispensing units **10, 10'** independently of eah other to correspondingly vary the length of the successive web lengths dispensed by the units **10, 10'**.

In the drawings and specification, there as been set forth a preferred embodiment of the invention, and although sepcific terms are employed, they are used in a generic and descriptive sense only and not for purposes of limitation.

We claim:

1. Apparatus for dispensing pads of cellular web material of predetermined length from a supply roll of the web material; said apparatus comprising an elongate substantially horizontal stationary blade having a cutting edge facing horizontally thereon, means for feeding the web material downwardly from the supply roll above said blade and in freely suspended condition past said blade cutting edge, means stopping said feeding means upon a predetermined length of the web material falling past said cutting edge, an anvil roller adjacent said blade, means traversing said anvil roller along the surface of the web material opposite from and aligned with said cutting edge from one side edge to and beyond the other side edge of the web material, said traversing means comprising an endless pliable element having a run thereof movable with said pliable element, yieldable means supporting said anvil roller for rotation on one side of said carriage and urging said anvil roller toward said blade cutting edge, a trackway spaced from and extending substantially parallel with said cutting edge, guide roller means journaled on said carriage and engageable with said trackway during travel of said carriage along said run of said pliable element to insure that said anvil roller presses against said cutting edge during traversing movement of said anvil roller so as to cause said cutting edge to progressively cut through the web material and sever a predetermined length therefrom whereby the severed length will fall from the cutting edge, and means for receiving and delivering the severed length into a position for removal from the apparatus.

2. A method of dispensing predetermined length pads of a cellular web material which lacks flexural rigidity in the plane of the web comprising the steps of:

supporting a supply roll of web material while driving the supply roll in rotation to unwind a predetermined length of web material therefrom, and while directing the unwinding length of web material downwardly by gravity in a freely dependent condition from the supported roll and passing the web material adjacent and underlying stationary, substantially horizontal, blade having a cutting edge facing and extending the full width of the web material while avoiding imposition on the web of compressional forces directed in the plane of the web, then

interrupting driving of the supply roll when a predetermined length has been unwound and passed beyond the blade, then

moving an anvil roller horizontally along a surface of the web material opposite from the blade and from one side edge of the web material to and beyond the other side edge thereof while resiliently biasing the anvil roller horizontally against the web material and toward the blade for severing the web material and separating the predetermined length therfrom, and then

freely dropping the severed length from te blade into an underlying chute for delivering the severed length into a position for removal.

3. A method according to claim **2** which further comprises restarting driving of the supply roll in response to completion of movement of the anvil roller beyond the other side edge of the web material.

4. A method according to claim **3** wherein the step of moving the anvil roller includes moving the same in an endless path and interrupting the movement of the anvil roller during driving of the supply roll in rotation.

5. Apparatus for dispensing predetermined length pads of a cellular web material which lacks flexural rigidity in the plane of the web, the apparatus comprising:

means for supporting a supply roll of web material and for driving the roll in rotation to deliver web material therefrom,

elongate blade mounted below said roll supporting and driving means and having a cutting edge with a length at least as great as the transverse width of the web material, said blade means being mounted with said cutting edge extending and directed generally horizontally,

means for directing an unwinding length of web material advancing from the supply roll to depend freely from said roll supporting and driving means and to pass adjacent said blade means without imposition on the web material of compressional forces in the plane of the web,

means for interrupting driving of the supply roll when a predetermined length of web material has been unwound and passed beyond the blade,

anvil roller means for engaging web material and for cooperating with said cutting edge in severing web material,

means for moving said anvil roller means in horizontal traversal along the surface of the web material opposite from and in alignment with said cutting edge and from one side edge of the web material to and beyond the other side edge thereof,

means for resiliently biasing said anvil roller means against said web surface and said cutting edge during the traversing movement thereof, and

chute means underlying said stationary blade for receiving a freely falling severed length of web material and delivering the severed length into a position for removal from the apparatus.

6. Apparatus according to claim **5** wherein said means for interrupting driving of the supply roll comprises timer means operatively connected with said roller supporting and driving means for controlling the duration of driving the roll in rotation and means operatively interconnecting said timer means with said roller moving means for actuating said roller moving means upon interruption in driving of the supply roll.

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