United States Patent [19]

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[45] **March 13, 1973**

[54] TIMED SUPPLY ROLL BRAKING

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[73] Assignee: **FMC Corporation,** San Jose, Calif.

[22] Filed: **Feb. 18, 1971**

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[52] **U.S. Cl.**.....**242/75.44,** 242/156.2

[51] **Int. Cl.**.....**B65h 25/22,** B65h 25/04

[58] **Field of Search**.....242/75.44, 75.43, 75.4, 75.2, 242/75.53, 156.1, 156.2

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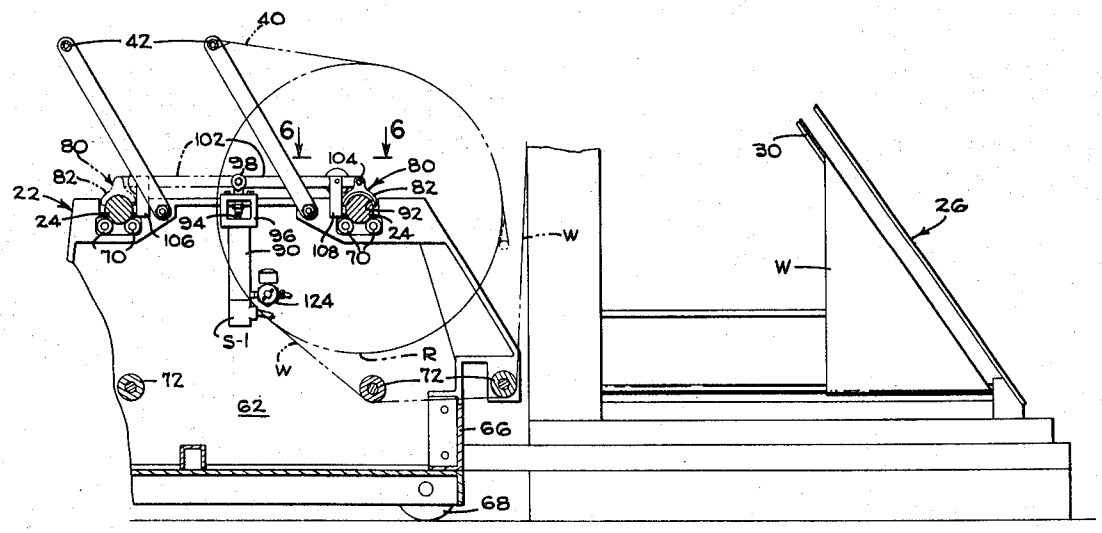
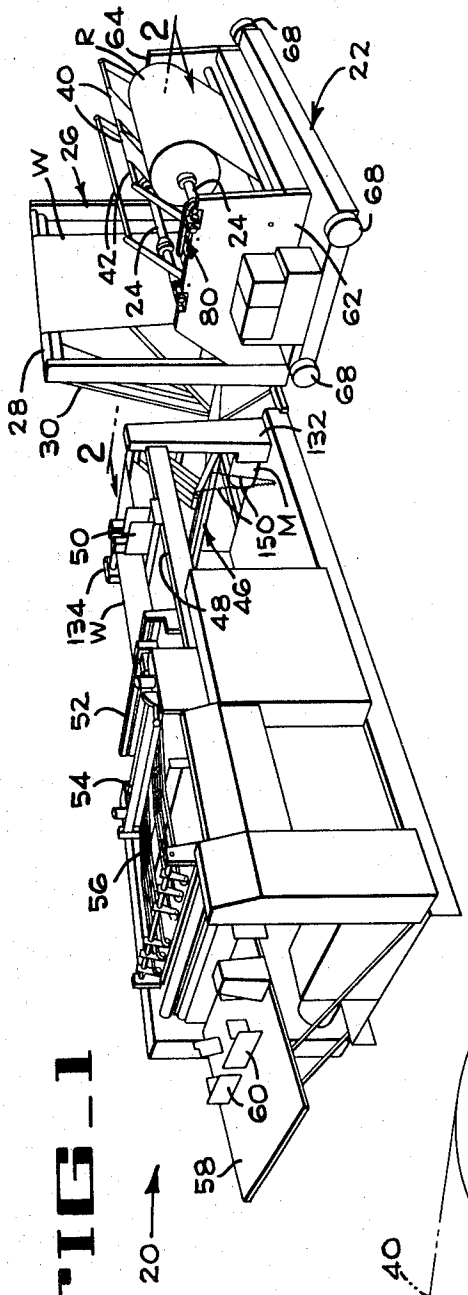
[57] **ABSTRACT**

Apparatus for controlling the web tension in an intermittent motion web handling machine, and including a timed-controlled brake for the web supply roll to prevent inertia override of the supply roll when the web demand ceases during a temporary interruption of the operating cycle or when the machine is shut down. Web tension between web draw rolls and the supply roll is controlled during machine operation by a supply roll drag brake system. A dancer roll assembly regulates the speed of the web draw rolls, and also serves to accumulate and pay out the web according to web demand at a downstream processing station where the web is intermittently driven. The timed braking action is provided to assure that the web accumulated during cycle interruption or shutdown is sufficiently tensioned to enable a normal resumption of the production cycle.

9 Claims, 9 Drawing Figures





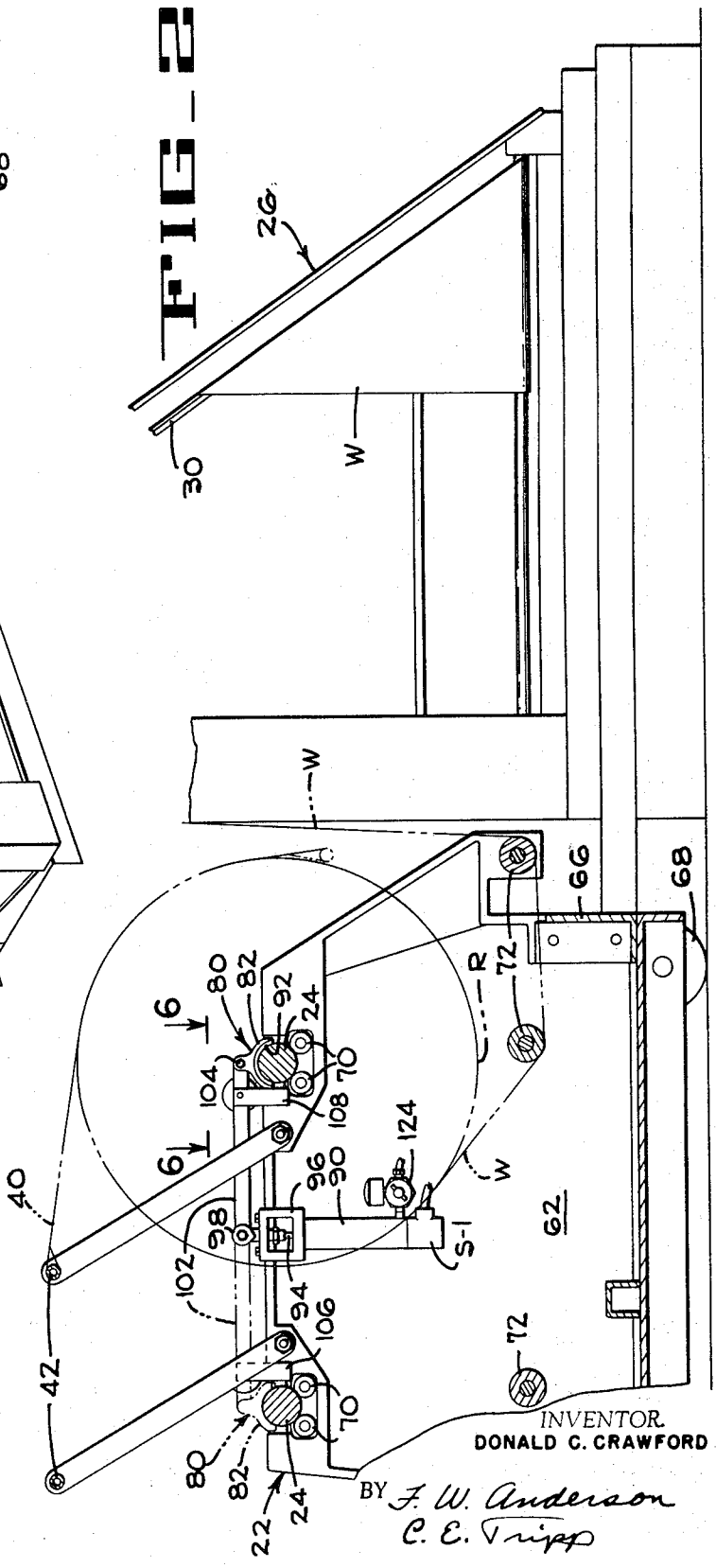


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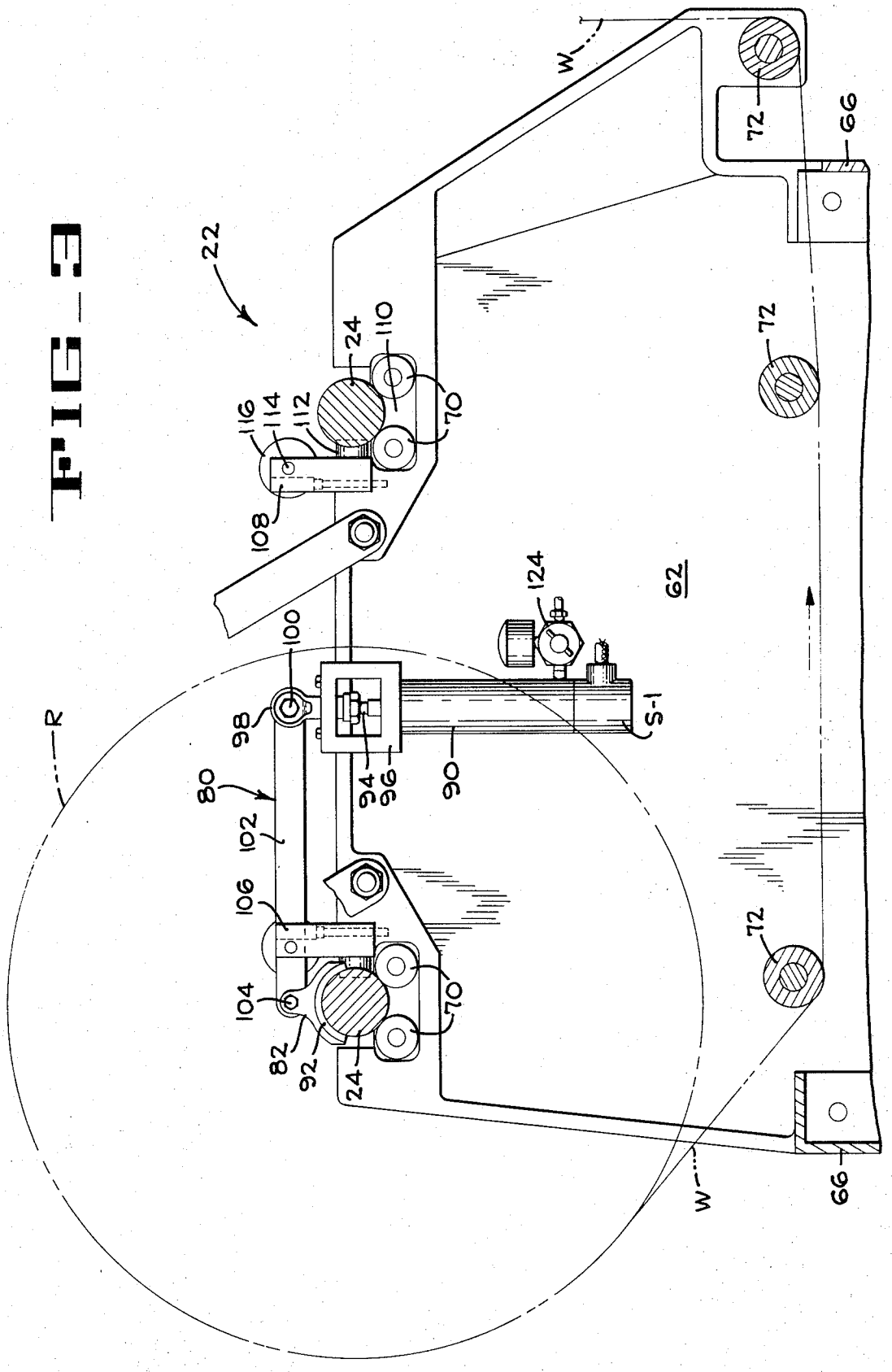
FIG. 3


W
72
66
22
24
110
70
116
114
112
108
124
62
100
98
S-1
90
94
96
80
102
106
104
82
92
R

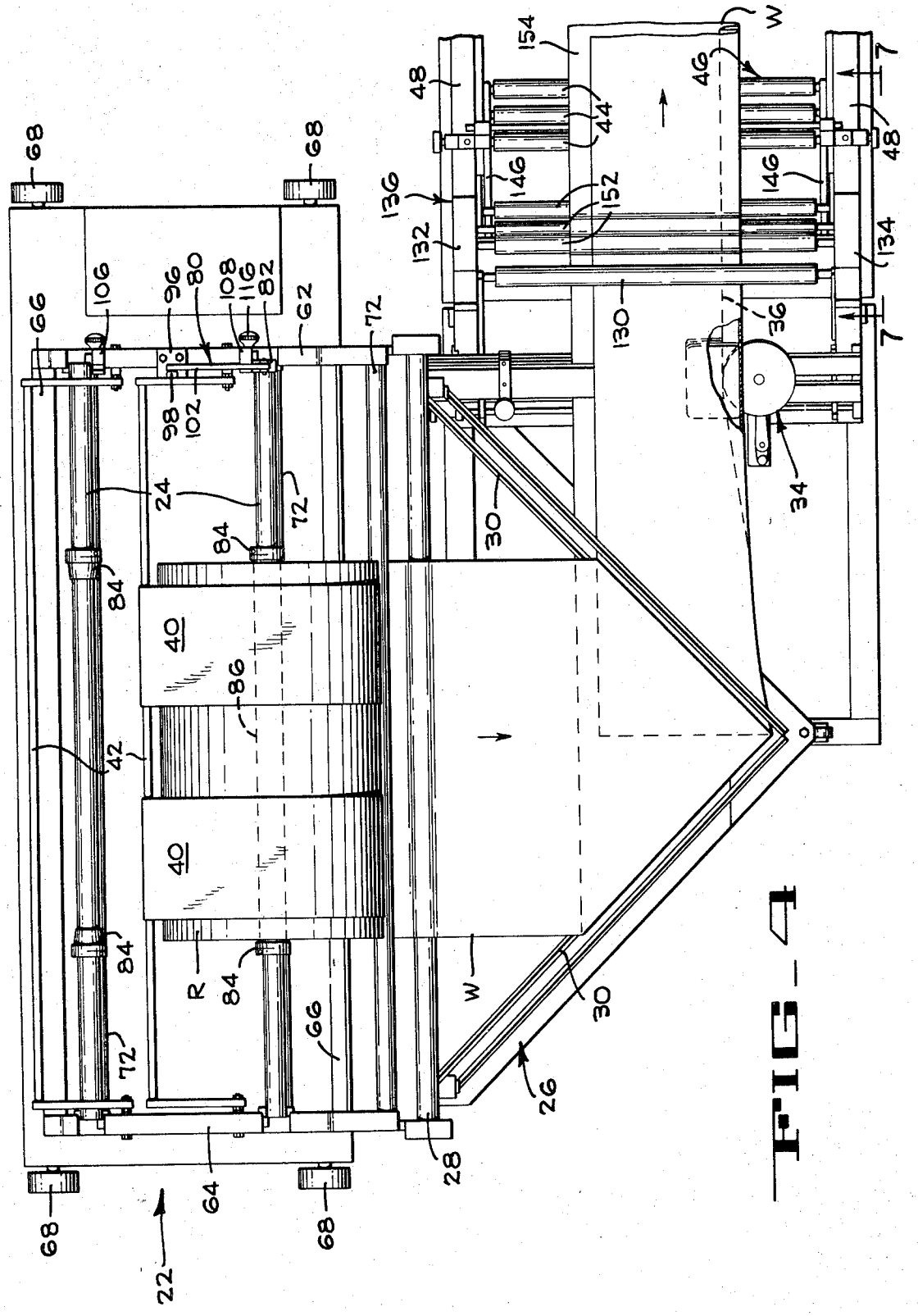

68
68
66
106
96
80
108
116
82
62
72
98
102
24
72
84
84
40
86
42
40
84
R
84
72
66
64
68
68
22
28
26
30
W
30
34
36
130
132
136
146
152
146
134
154
44
48
46
W
48
7
7

FIG. 4

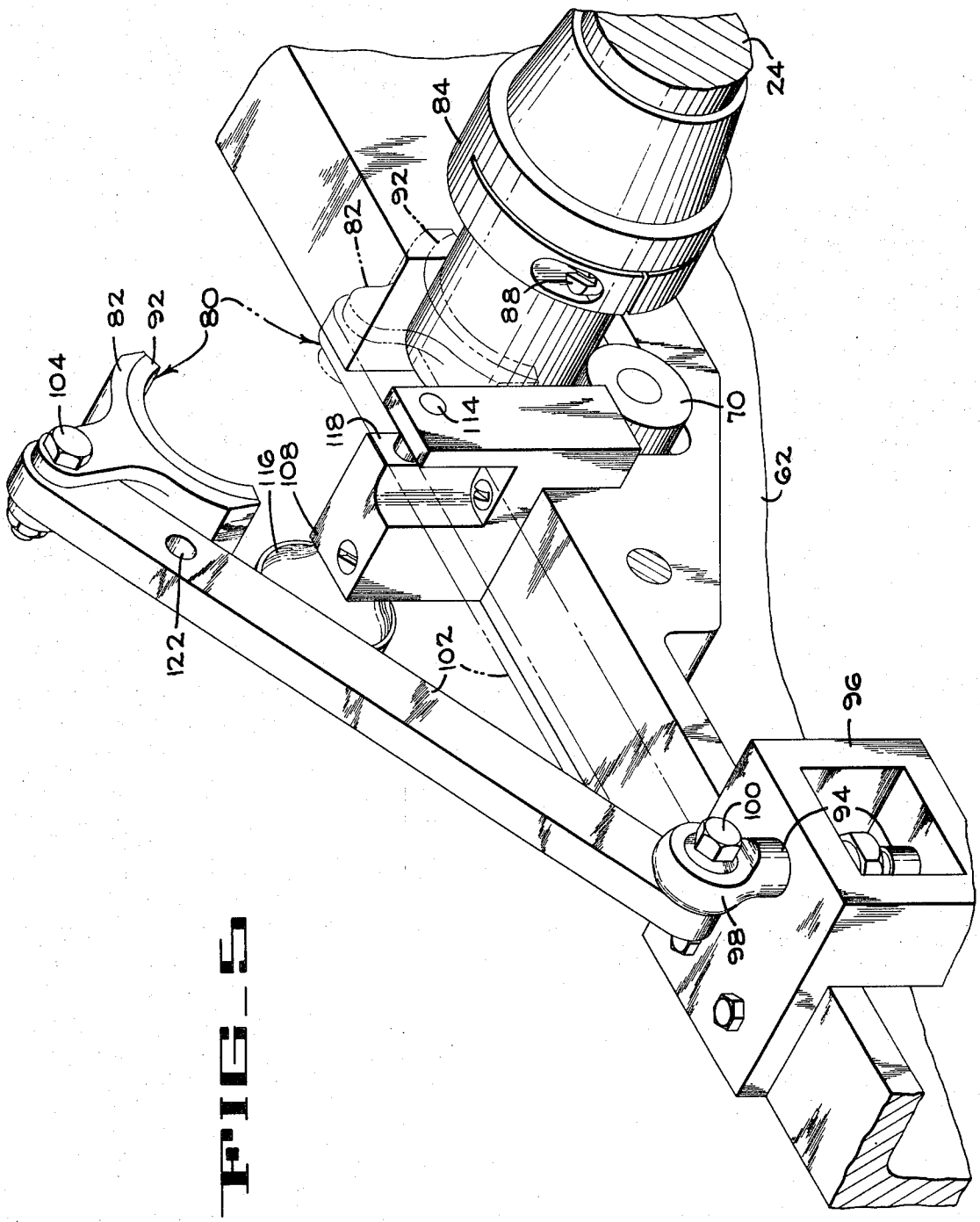

24
84
92
82
88
80
82
92
104
118
114
70
62
116
108
122
102
96
100
94
98

FIG_5

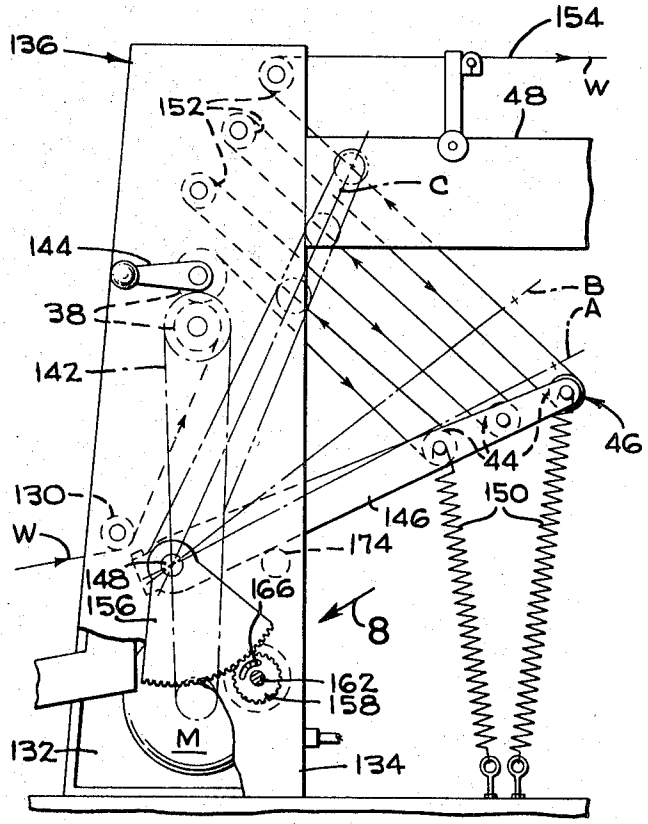


FIG_7

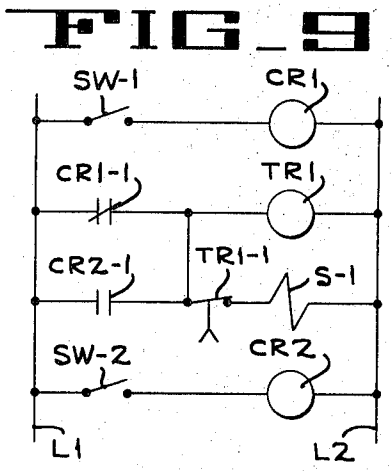


FIG_9

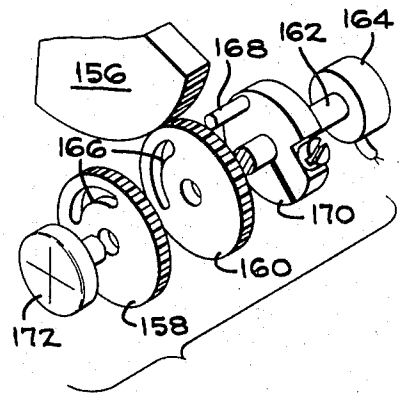


FIG_8

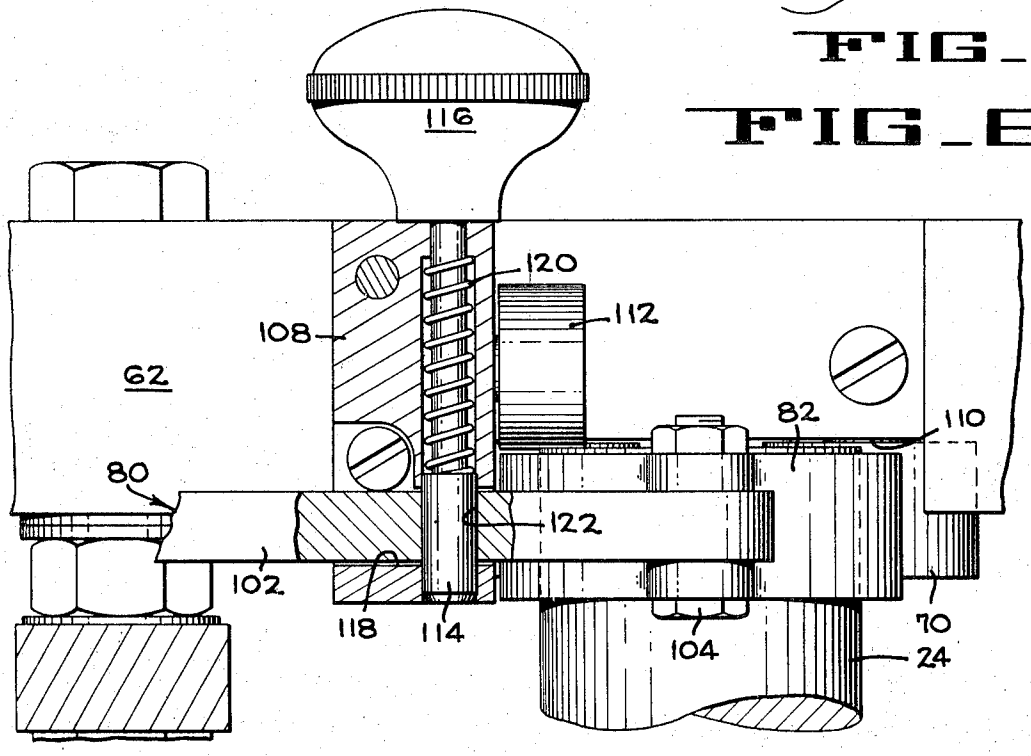


FIG_6

TIMED SUPPLY ROLL BRAKING

BACKGROUND OF THE INVENTION

The field of the present invention is in web feeding apparatus to maintain an operable tension in a web between draw rolls and a supply roll of web material. The web feeding apparatus is particularly useful in an intermittent bag making machine where the web demand fluctuates, and more specifically where the high inertia of a heavy, substantially freewheeling supply roll tends to cause an overfeeding of the web and a change in web tension when the bag making cycle is interrupted or stopped.

Web tension control is a problem encountered in many different types of web handling machines, including printing presses, wrapping machinery and bag making machines. One source of difficulty in controlling the web is when the web stock is supplied in a very large diameter, freewheeling parent or supply roll, and when the linear speed of the web is relatively high, as is common with most present machines of the type referred to. When the machine is stopped, or its operating cycle is temporarily interrupted, the inertia of the heavy parent roll makes it difficult to prevent overfeeding a supply of web, thus impairing the control of web tension and adversely affecting those operations which require substantially uniform web tension for satisfactory results.

It is the practice in some bag making machines to provide friction drag-brakes for controlling tension between the supply roll and the web draw rolls. Spring-biased dancer rolls are utilized between the web draw rolls and the intermittent web driving elements to accumulate and pay out the web with the objective of achieving and maintaining a controlled web tension. In addition, the web drive rolls which pull the web directly from the supply roll for feeding to the intermittent web driving elements are governed as to speed by automatic controls responsive to changes in the position of the dancer rolls. Improved control of web tension has become necessary in bag making machines because bags are now produced at rates which require high web velocities during normal production runs, and yet the time required for starting and stopping the machine must be relatively short to insure quality seals, and to achieve a high production rate. Also, the trend is toward larger parent rolls, which results in higher inertia loads that affect the starting and stopping operations. Bag size, hole punching, stacking, and other specifications are becoming more difficult to achieve as bag production becomes automated at higher production rates. Web tension is directly related to all of these factors because increased inertia forces are approaching or exceed the capabilities of the present roll braking and web tension controls to keep the web tension uniform and prevent overfeeding by the supply roll.

As disclosed herein, the present invention is utilized in conjunction with a bag making machine of the general type disclosed in the pending patent application of Robert J. Wech, Ser. No. 760,048. The Wech application has the same assignee as the present invention, and is incorporated herein by reference for a more complete disclosure of the non-essential details common with the presently disclosed bag making machine.

SUMMARY OF THE INVENTION

In accordance with the features of the present invention, a web fed from a large diameter supply roll is kept under substantially uniform tension by providing timed actuation of a supply roll brake during conditions tending to overfeed the web due to the inertia of the supply roll. More specifically, the supply roll or core shaft is capable of being positioned in one of two sets of bearing supports as in present unwind stands, and a brake for the supply roll shaft is capable of manual repositioning for engaging the shaft in either of these two positions. The timed supply roll braking system serves to cause the proper amount of web accumulation in the dancer roll assembly during cycle interruption or shutdown of the machine. This accumulated amount of web is utilized while the supply roll is accelerated to operating speed upon resumption of bag making operations. The dancer roll assembly accumulates and pays out web material according to the intermittent web demand at the sealing station of the bag making machine, and assures that the sealing and other operations performed on the web are unaffected by fluctuations in web tension. Thus, in order to successfully handle large web supply rolls at high linear velocities and maintain satisfactory web tension during startup, shutdown or temporary cycle interruption, the present invention provides the following operational features:

1. The supply roll is provided with a continuous braking system for controlling unwind tension during operation plus a timed braking system to prevent overfeeding of the web during a cycle interrupt action or during shutdown; (2) The web drive rolls have variable speed control to vary the web feed in accord with the web demand; and (3) A dancer roll assembly serves to control speed of the web drive rolls, and to store or release web according to the intermittent web demand at downstream stations of the bag making machine.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective of a bag machine and a cooperating film support stand and folding board for feeding a longitudinally folded film web to the machine.

FIG. 2 is a longitudinal section indicated by the lines 2—2 on FIG. 1, and includes the film support stand, and a portion of the adjacent folding board.

FIG. 3 is an enlarged section of the film support stand, similar to FIG. 2 but illustrating a different operational condition.

FIG. 4 is a plan of the film support stand, folding board and the inlet portion of the bag machine.

FIG. 5 is an enlarged fragmentary isometric view, of a supply roll brake during an intermediate manual repositioning.

FIG. 6 is an enlarged fragmentary plan, partially broken away, indicated by the lines 6—6 on FIG. 2, of a portion of the supply roll brake.

FIG. 7 is a schematic fragmentary elevation, indicated by lines 7—7 on FIG. 4, of a dancer roll assembly near the inlet end of the FIG. 1 bag machine.

FIG. 8 is an enlarged schematic isometric of a position sensing mechanism which is a part of the FIG. 7 dancer roll assembly, and which is indicated by the arrow 8 on FIG. 7.

FIG. 9 is a schematic electrical control circuit providing automatic timed actuation of the FIG. 5 brake.

DESCRIPTION OF THE PREFERRED EMBODIMENT

In brief outline, and with primary reference to FIG. 1, one embodiment of a bag machine **20** of the type previously referred to may include a film support stand **22** which rotatably supports two free core shafts **24**, one of which mounts a web supply roll R. Adjacent the support stand **22** is a folding or V-board **26**, the function of which is to longitudinally fold the web W so that approximately one half of the web overlies the other. The location of the fold line can be adjusted for different styles of bags because the bag machine can produce a wide range of different bag sizes with a variety of optional features according to the requirements of the user. Fed upward over an elevated roller **28**, the web W travels downward and is folded by converging angle members **30** of the folding board to exit in a path parallel to the length of the bag machine, with the longitudinally folded configuration mentioned. For gusseted bags, a gusseting mechanism **34** (FIG. 4) folds the forms the folded side portion of the web with a central indent as shown at **36** so that the finished bags have expandable bottom portions.

A pair of variable speed web drive rolls **38**, FIG. 7, exert the pulling force on the web which causes the freewheeling supply roll R to unwind as the web is pulled past the folding board and the gusseting mechanism. To provide a drag on the supply roll and thus tension the web being pulled from the roll, a drag brake comprising one or more canvas panels **40** with weighted bottom edges are suspended from an overhead support rod **42** and draped over one side of the supply roll R. The drag brake also inhibits overrun of the supply roll when the web demand slows or stops, but it is difficult to provide the necessary degree of control when very large rolls are used, even if more than one brake is used and extra weights are added to increase the frictional drag. Stated differently, the maximum practical running drag is not effective in a short time period to decelerate the larger supply rolls to zero unwind velocity.

Downstream of the web drive rolls **38**, the web is trained around multiple free rolls **44** (FIGS. 4 and 7) in a dancer roll assembly **46**, and extends over a horizontal accessory platform **48** which supports various accessory attachments as required for a particular installation, such as the illustrated hole punch at **50** (FIG. 1). In some operations, the web is electronically scanned by a web registration device **52** to detect printed registration or decorative marks on the web, and to register the bag stock relative to transverse sealing mechanism located at **54**. Adjacent the upstream side of the sealing unit, a pair of web driving elements, not shown, grip the web and provide the intermittent web motion for alternately advancing and arresting the web.

In the illustrated machine, individual bags are formed by sealing and cutoff operations and then are deposited upon a continuously operating conveyor **56** and are transported to a stacking table **58** at which adjustable stop plates **60** collect the bags into a stack. As thus far described the bag machine **20** operates in accordance with the principles disclosed in the previously identified Wech application. The subject matter of the present invention particularly relates to the film supply stand **22**, and the cooperative relation of an integral power actuated brake with controls that are associated with the dancer roll assembly **46** to prevent overtravel of the supply roll R when the operating cycle of the bag machine is interrupted or stopped, and to regulate the amount of web accumulated and payed out by the dancer rolls so that the web maintains a substantially uniform tension.

With reference to FIGS. 2–4, the film support stand **22** includes spaced side frame plates **62** and **64**, interconnected by tie beams **66** and movably supported on a carriage having wheels **68**. As best shown in FIG. 3 for the side frame plate **62**, each plate is conventionally provided with two pairs of support rollers **70**, laterally aligned sets of which support a core shaft **24** for free rotation. Dual core shaft positions allow the placement of a new supply roll R before one roll is depleted, or in some cases two smaller supply rolls are used at one time for laminar bags. The web W from the supply roll R is trained around free web guide rollers **72** that extend between the side plates **62** and **64**.

According to one feature of the present invention, a supply roll R in either of the two unwinding positions illustrated is capable of being controllably braked by a brake assembly **80** which operates in conjunction with the drag brake panels **40** and is selectively engageable with either core shaft **24**. Thus, as shown in FIGS. 2, 4 and 5, an arcuate brake shoe **82** of the brake assembly **80** is engaged with the core shaft **24** that is closest to the folding board **26**, whereas in FIG. 3 the brake shoe **82** is engaged with the other core shaft. Since braking force is applied to the supply roll through the core shaft on which it is mounted, when the roll and core shaft are assembled the roll is locked to the core shaft by a tapered-end roll locking hub **84** (FIG. 5) which is driven into each end of the core tube **86** (FIG. 4) of the roll R, and is then clamped onto the core shaft by tightening a bolt **88** extending through a split end of the hub.

In order to energize the brake assembly **80** (FIG. 3) in its selected operational position, an air cylinder **90** provides power to frictionally engage a brake pad **92** on the brake shoe **82** with the active core shaft **24**. For this purpose, the piston rod **94** of the air cylinder extends upward through a mounting bracket **96** for the air cylinder, and has a ball end connector **98** pivotally connected by a bolt **100** to one end of a brake line **102**. The axis of the bolt **100** is equidistant from the axis of both core shafts **24**. The other end of the brake link carries the brake shoe **82** on a pivot bolt **104**. Accordingly, by merely swinging the link **102** in a vertical plane toward the selected core shaft, and swinging the brake shoe **82** to face downward, the friction pad **92** will seat upon the upper sector of the core shaft.

In order to lock the brake link in its selected position and provide a fulcrum point affording the desired mechanical advantage when the brake is energized, an end portion of the brake link is arranged to pivotally lock within a slotted portion of a pivot block **106** or **108**. The pivot blocks have similar configurations, but each block is oriented for a particular core shaft position. As best shown in FIGS. 5 and 6, the forward pivot

Thus, in accordance with another feature of the present invention, the web drive rolls **38** are cooperatively related to the brake assembly **80** in that: (a) a long period of no web demand will cause deceleration of the web drive rolls to a rest condition while the brake is energized and the supply roll decelerates to a standstill; (b) on conclusion of the timed braking period, the web drive rolls will pull in what additional web is required to reset the tension arms to their rest or normal startup position; (c) a shorter period of no web demand decelerates, but does not stop, the web drive rolls and the supply roll.

According to another feature of the invention, the dancer roll assembly **46** operates in conjunction with the brake **80** and the web drive rolls **38** to store and release web according to the web demand in order to stabilize the web tension. Because of the inertia of the supply roll diminishes as it becomes smaller, it is important to adjust the air pressure regulator **124** to deliver air at the lowest pressure consistent with proper braking action for the largest rolls. Proper braking of the largest rolls will cause feeding of sufficient web into the dancer rolls to bring the tension arms **146** almost to their lowest position. Thus, regardless of supply roll size, the tension arms will always reach their lowest position after the timed braking period is concluded. Accumulated web in the dancer rolls is payed out when the bag machine cycle resumes, or when the bag machine is restarted. Paying out the web raises the tension arms to reference line B, and the web drive roll motor M is energized to restart the supply roll R. When the tension arms **146** start lifting from the FIG. **7** rest position, there is sufficient accumulated web in the dancer rolls to permit the larger supply rolls to accelerate to operating speed before the tension arms can raise to reference line C.

Thus, if the operating cycle of the bag machine is interrupted or stopped, the brake **80** is energized to decelerate the supply roll R and prevent loss of web tension due to overrun of the supply roll. The automatic timing of this braking period permits the web draw rolls to always reset the tension arms to their normal starting position and thus assure that the maximum amount of web is accumulated in the dancer roll assembly for payout in the next startup operation.

FIG. **9** is a schematic control diagram which illustrates one manner of providing automatic, timed braking of the supply roll R. A control relay **CR1** is in series between power lines L1 and L2 with a main start-stop switch SW-1 which controls the main drive, not shown, of the bag making machine. Normally closed contacts CR1-1 of the relay CR1 control the energization of an adjustable time delay relay TR1 and remain open when the bag machine is operating.

The time delay relay is a delay on pull in type. When the bag producing operation is stopped contacts CR1-1 close and energize the time delay relay to begin a time delay period before the contacts TR1-1 open. The solenoid valve S1 (FIG. 3) is in series with the timed contacts and is thus energized for a timed period when the machine is stopped to pressurize the air cylinder **90** and actuate the brake mechanism **80**.

In order to interrupt the bag producing cycle without shutting down the machine, a normally open interrupt switch SW-2 is arranged to energize a control relay CR2. When the interrupt switch is held closed, normally open contacts CR2-1 of relay CR2 close and energize the time delay relay TR1 and the air control solenoid valve S1 to initiate the previously described timed braking action for the supply roll R. After the present time delay, the timed contacts TR1-1 open to release the brake.

It will be understood that the control elements as outlined above merely disclose the operational principles, and that in a manner known to those skilled in the art, a complete operational control circuit includes a number of relays, limit switches, cam controls for the switches, and so forth, and that the details of such circuitry are not essential to the present disclosure.

From the preceding description, it is believed apparent that one advance in the present state of the art afforded by the present invention, is that webs requiring close tension control can be handled at faster than usual speeds but that a production run is not correspondingly shortened because large supply rolls do not adversely affect web tension. Thus, the invention affords a practical, inexpensive and efficient system to increase production rates and accommodate large supply rolls, and yet achieve consistent quality of the finished product. It is also believed evident that the present invention is broadly useful in different types of web handling machines where the web demand is variable and/or periodically interrupted because of the capability of web accumulation without losing tension control due to the automatic and controlled braking of the supply roll in cooperation with the dancer frame and web drive rolls.

Although the best mode contemplated for carrying out the present invention has been herein shown and described, it will be apparent that modification and variation may be made without departing from what is regarded to be the subject matter of the invention.

What is claimed is:

1. In a web handling machine including a core shaft and variable speed web drive rolls for drawing the web according to web demand at web processing stations of the machine from a supply roll locked on said core shaft, the improvement comprising braking means for resisting the torque caused by the inertia of the supply roll on said core shaft, power means for actuating said braking means, and means for energizing said power means for a timed interval to decelerate the supply roll during interruption of the web demand.

2. Apparatus according to claim **1** wherein said braking means reacts against said core shaft, and a drag brake draped over the supply roll for continuously tensioning the web so that web tension is maintained irrespective of the application of said power energized brake.

3. In a web handling machine including a parent roll core shaft and means for drawing the web from a web supply roll locked on said core shaft, the improvement comprising timed braking means for said core shaft to prevent inertia override of said supply roll when the web feeding is periodically interrupted or stopped, said braking means being arranged to react against an end portion of said core shaft, and means coordinated with the periodic feeding of the web material for actuating said braking means.

4. In a web handling machine, means for supporting a core shaft for a supply roll in either of two unwinding

block **108** is seated within a notched portion of the frame plate **62**, below which the frame plate is recessed to provide an inwardly offset wall **110** so that the end portion of the core shaft **24** lies in the plane of the brake shoe **82**. A thrust roller **112** is mounted on a wall of the notch portion of the frame to resist end thrust of the core shaft.

To provide a fulcrum point for the brake link **102**, the pivot block **108** has a spring-biased, axially movable pivot pin **114**. By pulling outward on a knob **116**, the end of the pivot pin is retracted to allow the brake link **102** to seat in a slot **118** of the pivot block. Releasing the knob allows a compression spring **120** to project the pivot pin through an aperture **122** in the brake link **102**. With the brake link thus locked, air under pressure, when directed through a solenoid operated valve S-1 (FIG. 3) into the base of the air cylinder **90**, energizes the brake to frictionally engage the pad **92** with the selected core shaft. The pressurized air is controlled by an adjustable pressure regulator **124** operating in conjunction with the solenoid operated valve S-1.

After the web W is longitudinally folded by the folding board angle members **30** (FIG. 4), it passes under a freely rotatable horizontal guide roller **130** (FIG. 7) which extends between upright frame members **132** and **134** of an infeed drive mechanism **136**. The web drive mechanism operates to continuously pull the web from the supply roll at a speed based on the web demands of the bag making machine, and cooperates with the dancer roll assembly **46** that stores and releases web to maintain web tension because the web supply is continuous and the web demand is intermittent.

Pulling force on the web is by means of the web drive rolls **38**, the lower of which is driven by a variable speed D.C. web drive motor M and a cog belt drive **142**. To facilitate initial threading of the web, the upper roll **38** is in known manner eccentrically mounted and movable by a handle **144** to open the nip between the rolls. The previously mentioned dancer rolls **44** are mounted between pivotable tension arms **146** that are secured to a shaft **148** and are biased downward by tension springs **150**. The web, trained around the rolls **44** and fixed, cooperating rolls **152**, extends over the accessory platform **48** and its flight at **154** is intermittently driven at a downstream location as hereinbefore mentioned. With this arrangement, the dancer frame tension arms **146** oscillate about the axis of shaft **148** during operation of the machine and the web flight **154** is maintained tensioned.

To control the tension in the web flight **154**, the angular position of the tension arms **146** determines the speed of the motor M which drives the web drive rolls **38**. For this purpose, the pivot shaft **148** which is oscillated by the tension arms **146** carries a gear segment **156** meshed with two gears **158** and **160** (FIG. 8). The gears are freely rotatable on a control shaft **162** which rotatively adjusts the wiper of a potentiometer **164** that controls the input voltage to the D.C. web drive motor M.

Gears **158** and **160** are each provided with an arcuate slot **166**. By rotatively adjusting one gear relative to the other and meshing both gears with the gear segment **156**, the effective arcuate length of the slotted passage cooperatively formed by the two gears can be adjusted. When assembled from the exploded condition illustrated in FIG. 8, a drive pin **168** on a collar **170** that is clamped to the potentiometer control shaft **162** extends through the slots **166**. It is evident, therefore, that raising of the tension arms **146** drives the gear segment **156** and the gears **158** and **160**, and that the drive pin **168** will rotate the potentiometer control shaft **162** only after a predetermined angular movement of the gears **158** and **160**, in either direction, because the gears **158** and **160** freely rotate on the control shaft **162**. In other words, the tension arms are capable of oscillating, at a predetermined adjustable angularity, without affecting the potentiometer and the speed of the motor it controls. To aid in the adjustment setup of the gears **158** and **160**, the outer end of the potentiometer control shaft **162** is provided with an indicator head **172**. When the gear slots **166** have the minimum effective length at which the indicator head has minimal oscillation during operation of the machine, the gears **158** and **160** are properly adjusted.

The tension arms **146** are shown in FIG. 7 in their lowermost position against a stop **174**. In this position the motor M is not energized and the bag machine is not running. When the bag machine is placed in operation, the tension arms rise as the web is payed out, and when the tension arms are aligned with the reference line A, as adjusted by setting the gears **158** and **160**, the drive pin **168** is at one limit of a dead zone wherein the tension arms can oscillate as previously mentioned without affecting the motor M. The other limit of the dead zone is at a reference line B. When the tension arms **146** rise above line B, the motor M becomes energized and its speed increases with the increased lifting of the tension arms up to a maximum speed when the tension arms are at a reference line C.

If the bag machine **20** is provided with a cycle interrupt control, the web continues to be fed by the drive rolls **38** in the usual manner, but the sealing head **54** (FIG. 1) is temporarily withdrawn from its operating position and the intermittently driven draw rolls which feed the web directly into the sealing head are momentarily stopped. Thus, the web demand is interrupted and the dancer roll tension arms **146** are moved downward by the springs **150** so that the excess incoming web fed by the drive rolls **38** is accumulated among the dancer rolls **44** and **152**. Web demand will ordinarily be resumed before the motor M for the drive rolls **38** is deenergized.

In accordance with one feature of the present invention, the supply roll R is positively braked to prevent overfeeding of the web during a cycle interrupt action, or during shutdown of the machine. Thus, in order to prevent more web being fed into the machine than can be accommodated by the dancer rolls, and to prevent the web upstream of the web drive rolls from becoming slack due to inertia override of a heavy supply roll, the power brake assembly **80** (FIG. 3) is energized when an interrupt cycle begins or when the bag machine is stopped. The brake is energized for a timed period which is adjusted to just slightly exceed the time required to decelerate the largest supply roll to zero unwind velocity. Of course the braking torque applied and web speed will affect this time requirement. Upon termination of the timed braking period, the web drive rollers are free to feed in enough web to permit the tension arms to assume their lowermost position against stop **174**.

positions, power actuated friction braking means centrally located relative to said supporting means, a repositionable brake link carrying a friction surface engageable with a core shaft, and means pivotally mounting said brake link equidistant from said core shaft supporting means for engaging said friction surface with the core shaft in either unwinding position.

5. Apparatus according to claim 4 wherein said brake link is invertible to reposition its free end from one core shaft position to the other, said friction surface including a brake shoe pivotally connected to said brake link, said brake shoe being pivotable toward either side of said brake link for said core shaft engagement.

6. In a web handling machine, means for supporting a core shaft for a web supply roll, means for locking a supply roll on said core shaft, web drive rolls for pulling the web from said supply roll, a variable speed motor for driving said web drive rolls, control circuit means for governing the speed of said motor according to web demand, power braking means engageable with said core shaft, and control means for energizing said brake to retard and stop rotation of said supply roll.

7. In a web handling machine, means for supporting a core shaft for a web supply roll, means for locking a supply roll on said core shaft, web drive rolls for pulling the web from said supply roll, means for tensioning the web downstream of said web drive rolls, means for sensing the tension in the web, variable speed means for driving said web drive rolls, control means responsive to the web tension for adjusting the speed of said power means, power braking means for selectively decelerating said core shaft, and timed control means for energizing said braking means for a preselected time to decelerate said supply roll.

8. In a web handling machine, means for supporting two spaced core shafts in substantially horizontal parallelism, means locking a supply roll on one of said core shafts, a vertically reciprocable powered plunger equidistant from each of said core shafts, a brake link pivoted to said plunger, a brake shoe pivoted to the free end of said brake link for engaging the core shaft which carries the supply roll, a pivot block intermediate each core shaft and said plunger, and pivot means in each pivot block for selective engagement with said brake link to provide a fulcrum point so that when said plunger is elevated, said brake shoe is depressed to frictionally engage the supply roll core shaft.

9. In a web handling machine including a parent roll core shaft and means for drawing the web from a web supply roll locked on said core shaft, the improvement comprising timed braking means for said core shaft to prevent inertia override of said supply roll when the web demand is interrupted or stopped, said braking means being arranged to react against an end portion of said core shaft, means for sensing the web tension intermediate said core shaft and said web drawing means, power means for energizing said braking means, and timing means for governing said power means, said braking means being energized for a time period to retard the supply roll when the web demand is interrupted and to stop the supply roll when the web demand is stopped.

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